

Convergence criterion 1.00000E-03
 Geometry 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.

Onixing table

entry	mixture	isotope	number density	new identifier
1	1	92235	5.95891E-04	92235
2	1	92234	5.26821E-06	92234
3	1	92236	2.07230E-05	92236
4	1	92238	2.20058E-02	92238
5	1	8016	4.55359E-02	8016
6	3	8016	2.09710E-02	6
7	1	36083	4.52870E-07	36083
8	1	36085	2.19160E-07	36085
9	1	38090	4.90462E-06	38090
10	1	39089	2.93210E-06	39089
11	1	42095	2.67890E-06	42095
12	1	40093	3.68394E-06	40093
13	1	40094	5.64806E-06	40094
14	1	40095	2.02113E-06	40095
15	1	41094	1.92647E-12	41094
16	1	43099	5.40899E-06	43099
17	1	45103	2.34075E-06	45103
18	1	45105	1.42341E-08	45105
19	1	44101	4.73216E-06	44101
20	1	44106	6.38009E-07	44106
21	1	46105	1.32971E-06	46105
22	1	46108	2.44774E-07	46108
23	1	47109	1.71902E-07	47109
24	1	51124	4.75820E-11	51124
25	1	54131	2.48623E-06	54131
26	1	54132	4.07046E-06	54132
27	1	54135	6.51168E-09	54135
28	1	54136	9.08456E-06	54136
29	1	55134	8.14148E-08	55134
30	1	55135	2.79804E-06	55135
31	1	55137	5.70746E-06	55137
32	1	56136	1.66629E-08	56136
33	1	57139	5.70699E-06	57139
34	1	59141	4.20888E-06	59141
35	1	59143	4.03826E-07	59143
36	1	58144	3.63429E-06	58144
37	1	60143	4.64738E-06	60143
38	1	60145	3.44885E-06	60145
39	1	61147	1.63014E-06	61147
40	1	61148	4.34751E-09	61148
41	1	60147	1.34141E-07	60147
42	1	62147	1.37482E-07	62147
43	1	62149	6.87688E-08	62149
44	1	62150	9.88888E-07	62150
45	1	62151	2.22942E-07	62151
46	1	62152	4.58539E-07	62152
47	1	64155	4.46617E-10	64155

9909240271 - Part 3

ORIGINAL ONLY

48	1	63153	2.02361E-07	63153
49	1	63154	1.57326E-08	63154
50	1	63155	3.12566E-08	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	5.85210E-06	55133
56	1	93237	6.15523E-07	93237
57	1	94238	2.41332E-08	94238
58	1	94239	4.36784E-05	94239
59	1	94240	3.25386E-06	94240
60	1	94241	7.50900E-07	94241
61	1	94242	2.06625E-08	94242
62	1	95241	6.04966E-09	95241
63	1	95243	4.19143E-10	95243
64	1	96244	9.13732E-12	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Geometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-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

One nuclide in your problem have bondarenko factor data**boroni will copy from logical 12 to logical 1

Copy	999	1/v cross sectio	from log 12 to log 18	bondarenko trigger 0
Copy	999	1/v cross sectio	from log 18 to log 1	bondarenko trigger 0
Copy	999	1/v cross sectio	from log 18 to log 1	bondarenko trigger 0
Copy	1001	hydrogen	from log 12 to log 1	bondarenko trigger 0
Copy	5010	b-10 1273 218tp	from log 12 to log 1	bondarenko trigger 0
Copy	5011	boron-11	from log 12 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 12 to log 18	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	36083	kr-83	from log 12 to log 1	bondarenko trigger 0
Copy	36085	kr-85	from log 12 to log 1	bondarenko trigger 0
Copy	38090	sr-90	from log 12 to log 1	bondarenko trigger 0
Copy	38089	y-89	from log 12 to log 1	bondarenko trigger 0
Copy	40093	zr-93	from log 12 to log 1	bondarenko trigger 0
Copy	40094	zr-94	from log 12 to log 1	bondarenko trigger 0
Copy	40095	zr-95	from log 12 to log 1	bondarenko trigger 0
Copy	40802	zircalloy	from log 12 to log 1	bondarenko trigger 0
Copy	41094	rb-94	from log 12 to log 1	bondarenko trigger 0
Copy	42095	mo-95	from log 12 to log 1	bondarenko trigger 0
Copy	43099	tc-99	from log 12 to log 1	bondarenko trigger 0
Copy	44101	ru-101	from log 12 to log 1	bondarenko trigger 0
Copy	44106	ru-106	from log 12 to log 1	bondarenko trigger 0
Copy	45108	rh-108	from log 12 to log 1	bondarenko trigger 0
Copy	45105	rh-105	from log 12 to log 1	bondarenko trigger 0
Copy	46105	pd-105	from log 12 to log 1	bondarenko trigger 0
Copy	46108	pd-108	from log 12 to log 1	bondarenko trigger 0
Copy	47109	silver-109	from log 12 to log 1	bondarenko trigger 0
Copy	51124	sb-124	from log 12 to log 1	bondarenko trigger 0
Copy	54131	xe-131	from log 12 to log 1	bondarenko trigger 0
Copy	54132	xe-132	from log 12 to log 1	bondarenko trigger 0
Copy	54135	xenon-135	from log 12 to log 1	bondarenko trigger 0
Copy	54136	xe-136	from log 12 to log 1	bondarenko trigger 0
Copy	55133	cesium-133	from log 12 to log 1	bondarenko trigger 0

INFORMATION ONLY

0copy	55134	cs-134	from log 12 to log 1	bondarenko trigger 0
0copy	55135	cs-135	from log 12 to log 1	bondarenko trigger 0
0copy	55137	cs-137	from log 12 to log 1	bondarenko trigger 0
0copy	56136	ba-136	from log 12 to log 1	bondarenko trigger 0
0copy	57139	la-139	from log 12 to log 1	bondarenko trigger 0
0copy	58144	ce-144	from log 12 to log 1	bondarenko trigger 0
0copy	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 sigs	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 sigs	from log 12 to log 1	bondarenko trigger 0
0copy	92238	uranium-238	from log 12 to log 1	bondarenko trigger 0
0copy	92237	neptunium-237	from log 12 to log 1	bondarenko trigger 0
0copy	94238	pu-238 1050 sigs	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 sigs	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 9/16/95
 l.m.petrie - oml

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			id	
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 met 1269/thrm1002 updated 10/13/89			id	1001
b-10 1273 218gpo 042375 p-3 293k			id	5010
boron-11 endf/b-iv met 1160 updated 10/13/89			id	5011
oxygen-16 endf/b-iv met 1276 updated 10/13/89			id	8016
oxygen-16 endf/b-iv met 1276 updated 10/13/89			id	6
kr-85 mt=102,103,103,105,105,107 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
zn-95 mt= 102			id	40058
zn-94 mt=102 updated 10/13/89			id	40054
zn-95 mt=102 updated 10/13/89			id	40095
zincalloy endf/b-iv met 128k 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 sigs-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-235 1163 sigs-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	92237
pu-238 1050 sigs-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	id	94242
am-241 1056 sigs-5+4 newlacs 218g p-3 293k			id	95241
am-243 1057 218 g p-3 f-1/e-m 090376 p3 293k			id	95243
curium-244	endf/b-iv mat 1162	updated 10/13/89	id	96244

tape copy used	0 1/0's, and took	.00 seconds			
m	iiiiiiiiiiii	tttttttttttt	aaaaaaaa	ww	ww ll
mm	iiiiiiiiiiii	tttttttttttt	aaaaaaaa	ww	ww ll
mm	ii	tt	aa	ww	ww ll
m m	ii	tt	aa aa	ww	ww ll
m m	ii	tt	aa aa	ww	ww ll
m m m	ii	tt	aaaaaaaaaaaa	ww	ww ll
m m m	ii	tt	aaaaaaaaaaaa	ww	ww ll
m m m	ii	tt	aa aa	ww	ww ll
m m m	ii	tt	aa aa	ww	ww ll
m m m	ii	tt	aa aa	ww	ww ll

INFORMATION ONLY


```

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 1488 words
- xsdm 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

```

```

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 975 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
- xschm tape 4321

```

Last updated 9/16/93
 L. J. Petrie - amk
 0 nuclides from xsdm tape
 1 1/v cross sections normalized to 1.0 at 0.0253 ev 999
 2 hydrogen endf/b-iv met 1269/thrm1002 updated 10/13/89 1001
 3 b-10 1273 218bp 042375 p-3 293k 5010
 4 boron-11 endf/b-iv met 1160 updated 10/13/89 5011
 5 oxygen-16 endf/b-iv met 1276 updated 10/13/89 8016
 6 oxygen-16 endf/b-iv met 1276 updated 10/13/89 6
 7 k-83 mt=102,103,105,106,107 updated 10/13/89 36083
 8 k-85 mt= 102 updated 10/13/89 36085
 9 sr-90 mt=102 updated 10/13/89 38090
 10 y-89 mt=102 updated 10/13/89 39089
 11 z-93 mt= 102 40038
 12 z-94 mt=102 updated 10/13/89 40094
 13 z-95 mt=102 updated 10/13/89 40095
 14 zincalloy endf/b-iv met 128k 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 met 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 met 129k updated 10/13/89 54135
 29 xe-136 mt= 102, 103, 104, 105, 107 54136
 30 cesium-133 endf/b-iv met 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
 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-234 103 sigo=5+4 newlacs p-3 258k f-1/e-m(1.5) 92234
 54 uranium-235 endf/b-iv met 1261 updated 10/13/89 92235
 55 u-236 1163 sigo=5+4 newlacs p-3 258k f-1/e-m(1.5) 92236
 56 uranium-238 endf/b-iv met 1262 updated 10/13/89 92238
 57 neptunium-237 endf/b-iv met 1263 updated 10/13/89 93237

58 pu-238 1050 sigs=5+4 newlacs p-3 293k 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 sigs=5+4 newlacs 218ngp p-3 293k 95241
 64 am-243 1057 218 gp wt f-1/e-m 090576 p5 293k 95243
 65 curium-244 endf/b-iv mat 1162 updated 10/13/89 95244

01/v cross sections normalized to 1.0 at 0.0253 ev 999 temperature= 975.00
 0 hydrogen endf/b-iv mat 1269/thm1002 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 042375 p-3 293k 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

Resonance data for this nuclide
 Omass number (a) = 82.202 temperature(kelvin) = 975.000
 Opotential scatter sigma = 7.004 lumped nuclear density = 4.5287047E-07
 Ospin factor (g) = 4988.190 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 3.7706078E+05
 Onoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 4.2068225E+05
 Onoderator-2 will be treated by the norheim 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 fias	res scat
11	-5.450051E-04	.000000E+00	-7.029958E-04
12	2.168358E-02	.000000E+00	9.912746E-03
13	-1.516420E-01	.000000E+00	-4.953383E-02
14	4.784648E-05	.000000E+00	-1.725391E-05

Excess resonance integrals
 0 resolved
 Oabsorption 1.45103E+02
 Ofission .00000E+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

Resonance data for this nuclide
 Omass number (a) = 88.142 temperature(kelvin) = 975.000
 Opotential scatter sigma = 3.644 lumped nuclear density = 2.9820956E-06
 Ospin factor (g) = 78.664 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 5.8238108E+04
 Onoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 6.4975566E+04
 Onoderator-2 will be treated by the norheim 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 fias	res scat
9	2.370156E-07	.000000E+00	1.062742E-04
10	-1.586452E-05	.000000E+00	-4.469920E-05

Excess resonance integrals
 0 resolved

INFORMATION ONLY

CALCULATION ONLY

Oabsorption 1.46497E-01
 fission .00000E+00
 - elapsed time .00 min.
 0 zr-93 mt=102 updated 10/13/89 40093 temperature= 975.00
 0 zr-94 mt=102 updated 10/13/89 40094 temperature= 975.00
 Oresonance data for this nuclide
 Oness number (a) = 93.100 temperature(kelvin) = 975.000
 Opotential scatter sigma = 3.779 lumped nuclear density = 5.6480576E-06
 Ospin factor (g) = 180.853 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Oness of moderator-1 = 15.995 sigma(per absorber atom)= 3.0233348E+04
 Onoderator-1 will be treated by the norheim integral method.
 Oness of moderator-2 = 257.933 sigma(per absorber atom)= 3.3730988E+04
 Onoderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 8 -1.168889E-07 .000000E+00 -1.393906E-04
 9 -1.014232E-05 .000000E+00 -9.031245E-04
 Oexcess resonance integrals
 0 resolved
 Oabsorption 3.44197E-02
 fission .00000E+00
 - elapsed time .00 min.
 0 zr-93 mt=102 updated 10/13/89 40095 temperature= 975.00
 0 zircalloy endf/b-iv mat 1284 updated 10/13/89 40002 temperature= 650.00
 Oresonance data for this nuclide
 Oness number (a) = 90.436 temperature(kelvin) = 650.000
 Opotential scatter sigma = 6.385 lumped nuclear density = 4.2515600E-02
 Ospin factor (g) = 1.079 lump dimension (a-bar) = 5.4610000E-01
 Oirmer radius = 4.7878999E-01 darcoff correction (c) = 5.0364637E-01
 Othe absorber will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 8 -1.780596E-03 .000000E+00 -1.289907E+00
 9 -5.895373E-02 .000000E+00 -2.695297E+00
 10 -6.959985E-02 .000000E+00 -1.601321E+00
 11 -1.889987E-01 .000000E+00 -7.980912E-01
 Oexcess resonance integrals
 0 resolved
 Oabsorption 2.88539E-01
 fission .00000E+00
 - elapsed time .02 min.
 0 rb-94 mt=102 updated 10/13/89 41094 temperature= 975.00
 Oresonance data for this nuclide
 Oness number (a) = 93.101 temperature(kelvin) = 975.000
 Opotential scatter sigma = 3.779 lumped nuclear density = 1.9264680E-12
 Ospin factor (g) = 43808.801 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Oness of moderator-1 = 15.995 sigma(per absorber atom)= 8.8538710E+10
 Onoderator-1 will be treated by the norheim integral method.
 Oness of moderator-2 = 257.933 sigma(per absorber atom)= 9.8898160E+10
 Onoderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 13 1.043058E-02 .000000E+00 9.252887E-04

14 9.836714E-03 .000000E+00 -4.064824E-04

Decomposition integrals
0 resolved
Decomposition 9.15001E+01
fission .00000E+00
- elapsed time .02 min.
0 no-95 mt=102 updated 10/13/89 42095 temperature= 975.00

Resonance data for this nuclide
Mass number (a) = 94.071 temperature(kelvin) = 975.000
Potential scatter sigma = 3.806 lumped nuclear density = 2.6769019E-06
Spin factor (g) = 607.724 lump dimension (a-bar) = 4.6812201E-01
Oinner radius = .000000E+00 cutoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 6.3790047E+04
Moderator-1 will be treated by the nordheim integral method.
Mass of moderator-2 = 237.953 sigma(per absorber atom)= 7.1169805E+04
Moderator-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 fission	res scat
10	-6.394451E-04	.000000E+00	-3.185197E-03
11	-8.918543E-04	.000000E+00	-1.735890E-03
12	-7.859323E-01	.000000E+00	-9.063395E-01
13	1.608666E-04	.000000E+00	-2.672945E-05

Decomposition integrals
0 resolved
Decomposition 1.02239E+02
fission .00000E+00
- elapsed time .03 min.
0 tc-99 mt=102 updated 10/13/89 43099 temperature= 975.00

Resonance data for this nuclide
Mass number (a) = 98.150 temperature(kelvin) = 975.000
Potential scatter sigma = 6.000 lumped nuclear density = 5.4039870E-06
Spin factor (g) = 4527.940 lump dimension (a-bar) = 4.6812201E-01
Oinner radius = .000000E+00 cutoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.1598834E+04
Moderator-1 will be treated by the nordheim integral method.
Mass of moderator-2 = 237.953 sigma(per absorber atom)= 3.5254445E+04
Moderator-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 fission	res scat
11	-6.777676E-03	.000000E+00	-3.210475E-03
12	-1.631648E-03	.000000E+00	-5.081438E-05
13	-1.107964E-01	.000000E+00	-5.874984E-03
14	-2.435848E+00	.000000E+00	-7.826959E-02
15	1.071628E-02	.000000E+00	-5.407191E-04
16	4.836187E-03	.000000E+00	-2.802631E-04
17	2.074322E-04	.000000E+00	-1.191812E-05

Decomposition integrals
0 resolved
Decomposition 3.32001E+02
fission .00000E+00
- elapsed time .03 min.
0 ru-101 mt=102 updated 10/13/89 44101 temperature= 975.00

Resonance data for this nuclide
Mass number (a) = 100.039 temperature(kelvin) = 975.000
Potential scatter sigma = 3.965 lumped nuclear density = 4.7321578E-06
Spin factor (g) = 8785.250 lump dimension (a-bar) = 4.6812201E-01

INFORMATION ONLY

Oinner radius = .000000E+00 dancoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Omass of moderator-1 = 15.995 signa(per absorber atom)= 3.608495E+04
 Onoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 257.953 signa(per absorber atom)= 4.025955E+04
 Onoderator-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	-3.553834E-02	.000000E+00	-3.639097E-03
12	-9.756727E-04	.000000E+00	-5.808237E-03
13	-1.229985E-01	.000000E+00	-3.321174E-03
14	2.378478E-04	.000000E+00	-4.188966E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 7.98180E+01
 fission .00000E+00
 - elapsed time .05 min.

0 ru-105	mt=102	updated 10/13/89	44106	temperature= 975.00
0 rh-103	mt=102	updated 10/13/89	45103	temperature= 975.00

Oresonance data for this nuclide

Omass number (a)	= 102.021	temperature(kelvin)	= 975.000
Opotential scatter signa	= 5.408	lumped nuclear density	= 2.340746E-06
Ospin factor (g)	= .500	lump dimension (a-bar)	= 4.6812201E-01
Oinner radius	= .000000E+00	dancoff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.
 Omass of moderator-1 = 15.995 signa(per absorber atom)= 7.2950961E+04
 Onoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 257.953 signa(per absorber atom)= 8.1390531E+04
 Onoderator-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	1.306869E-03	.000000E+00	2.105959E-03
10	-1.898117E-03	.000000E+00	-2.778614E-03
11	-4.338274E-03	.000000E+00	-3.986314E-03
12	-2.262462E-05	.000000E+00	-1.475302E-05
13	.000000E+00	.000000E+00	.000000E+00
14	.000000E+00	.000000E+00	.000000E+00
15	2.318858E-01	.000000E+00	3.405204E-03
16	3.871956E+01	.000000E+00	-3.705610E-02
17	-1.821079E+02	.000000E+00	-1.360483E-01
18	8.788504E+01	.000000E+00	2.618830E-01
19	1.158776E+01	.000000E+00	-1.741986E-03
20	1.095437E+00	.000000E+00	-2.541037E-03
21	2.166068E-01	.000000E+00	1.924626E-03
22	2.583945E-01	.000000E+00	2.928515E-03
23	-9.881276E-02	.000000E+00	1.759719E-03

Oexcess resonance integrals
 0 resolved
 Oabsorption 1.16157E+03
 fission .00000E+00
 - elapsed time .07 min.

0 rh-105	mt= 102	updated 10/13/89	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 signa	= 4.069	lumped nuclear density	= 1.3297126E-06
Ospin factor (g)	= 15210.000	lump dimension (a-bar)	= 4.6812201E-01
Oinner radius	= .000000E+00	dancoff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.
 Oness of moderator-1 = 15.995 signa(per absorber atom)= 1.2841849E+05
 Onoderator-1 will be treated by the nordheim integral method.
 Oness of moderator-2 = 237.953 signa(per absorber atom)= 1.4327500E+05
 Onoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 12 -4.677669E-02 .000000E+00 -5.585722E-04
 13 3.808558E-02 .000000E+00 2.126497E-04
 14 7.780862E-04 .000000E+00 -8.177772E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 6.13159E+01
 Ofission .000000E+00
 - elapsed time .07 min.

0 pc-108 mt=102 updated 10/13/89 46108 temperature= 975.00

Oresonance data for this nuclide
 Oness number (a) = 106.977 temperature(kelvin) = 975.000
 Opotential scatter signa = 4.146 lumped nuclear density = 2.447744E-07
 Ospin factor (g) = 21175.100 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269251E-01

Othe absorber will be treated by the nordheim integral method.
 Oness of moderator-1 = 15.995 signa(per absorber atom)= 6.976203E+05
 Onoderator-1 will be treated by the nordheim integral method.
 Oness of moderator-2 = 237.953 signa(per absorber atom)= 7.783270E+05
 Onoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup res abs res fiss res scat
 11 1.170669E-04 .000000E+00 3.532981E-04
 12 -2.125912E-01 .000000E+00 -1.571068E-01
 13 6.960011E-03 .000000E+00 1.817820E-03
 14 8.561519E-02 .000000E+00 -3.206084E-05
 15 -1.840163E-01 .000000E+00 8.089714E-05
 16 2.946572E-04 .000000E+00 -9.25520E-06

Oexcess resonance integrals
 0 resolved
 Oabsorption 2.13856E+02
 Ofission .000000E+00
 - elapsed time .07 min.

0 silver-109 erdf/b-iv mat 1139 updated 10/13/89 47109 temperature= 975.00

Oresonance data for this nuclide
 Oness number (a) = 107.969 temperature(kelvin) = 975.000
 Opotential scatter signa = 4.988 lumped nuclear density = 1.7190207E-07
 Ospin factor (g) = 1441.870 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269251E-01

Othe absorber will be treated by the nordheim integral method.
 Oness of moderator-1 = 15.995 signa(per absorber atom)= 9.935444E+05
 Onoderator-1 will be treated by the nordheim integral method.
 Oness of moderator-2 = 237.953 signa(per absorber atom)= 1.1082739E+06
 Onoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup res abs res fiss res scat
 10 1.572875E-05 .000000E+00 5.607148E-05
 11 -2.958349E-04 .000000E+00 -3.086447E-04
 12 -7.000611E-01 .000000E+00 -3.096624E-02
 13 7.672952E-01 .000000E+00 3.380760E-02
 14 -1.276054E+00 .000000E+00 -1.330846E-01

Oexcess resonance integrals
 0 resolved
 Oabsorption 1.40192E+03
 Ofission .00000E+00
 - elapsed time .08 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 = 2.486228E-06
 Ospin factor (g) = 266.825 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 6.8682219E+04
 Onoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 7.662798E+04
 Onoderator-2 will be treated by the norheim 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 fias res scat
 9 -5.435217E-07 .000000E+00 -5.546435E-06
 10 -4.275769E-05 .000000E+00 -2.949953E-05
 11 -5.968683E-04 .000000E+00 -4.738494E-04
 12 -1.223367E-02 .000000E+00 -1.146801E-03
 13 -2.212901E+01 .000000E+00 -5.198911E+01
 14 1.114542E-02 .000000E+00 1.558993E-02
 Oexcess resonance integrals
 0 resolved
 Oabsorption 8.14574E+02
 Ofission .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 = 4.070567E-06
 Ospin factor (g) = 675.899 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 4.195088E+04
 Onoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 4.680422E+04
 Onoderator-2 will be treated by the norheim 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 fias res scat
 9 -5.962792E-06 .000000E+00 -2.528266E-05
 10 -1.93940E-03 .000000E+00 -2.463120E-02
 11 3.344756E-08 .000000E+00 -9.288666E-07
 Oexcess resonance integrals
 0 resolved
 Oabsorption 9.81102E-01
 Ofission .00000E+00
 - elapsed time .08 min.
 0 xenon-135 erdf/b-iv met 1294 updated 10/13/89 54135 temperature= 975.00
 0 xe-136 mt= 102, 103, 104, 105, 107 updated 10/13/89 54136 temperature= 975.00
 0 cesium-133 erdf/b-iv met 1141 updated 10/13/89 55133 temperature= 975.00
 Oresonance data for this nuclide
 Omass number (a) = 131.764 temperature(kelvin) = 975.000
 Opotential scatter sigma = 7.100 lumped nuclear density = 5.852096E-06
 Ospin factor (g) = 374.437 lump dimension (a-bar) = 4.6812201E-01

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Oinner radius = .000000E+00 dencoeff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Onass of moderator-1 = 15.995 sigma(per absorber atom)= 2.9179234E+04
 Onoderator-1 will be treated by the nordheim integral method.
 Onass of moderator-2 = 238.051 sigma(per absorber atom)= 3.1298555E+04
 Onoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-1.887062E-05	.000000E+00	-7.495133E-05
10	-7.596672E-04	.000000E+00	-1.483612E-03
11	-3.006341E-02	.000000E+00	-5.280977E-02
12	-4.622045E-02	.000000E+00	-6.466606E-03
13	-7.637489E-02	.000000E+00	-4.163861E-03
14	-3.498669E+00	.000000E+00	-1.536146E-01
15	5.629050E-03	.000000E+00	-4.062004E-04
16	2.777957E-03	.000000E+00	-2.215569E-04
17	2.352212E-03	.000000E+00	-1.830899E-04
18	2.215046E-03	.000000E+00	-1.679641E-04
19	1.316962E-03	.000000E+00	-9.669043E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 3.62584E+02
 Ofission .00000E+00
 - elapsed time .12 min.

	mt=102	updated 10/13/89	56134	temperature= 975.00
0 cs-134	mt=102		56135	temperature= 975.00
0 cs-135	mt=102	updated 10/13/89	56137	temperature= 975.00
0 cs-137	mt=102	updated 10/13/89	56136	temperature= 975.00

Oresonance data for this nuclide

Omass number (a)	= 134.737	temperature(kelvin)	= 975.000
Opotential scatter sigma	= 4.835	lumped nuclear density	= 1.6662506E-08
Ospin factor (g)	= 1247.690	lump dimension (a-bar)	= 4.6812207E-01
Oinner radius	= .000000E+00	dencoeff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Onass of moderator-1 = 15.995 sigma(per absorber atom)= 1.0248140E+07

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 237.953 sigma(per absorber atom)= 1.433728E+07

Onoderator-2 will be treated by the nordheim integral method.

Othis resonance material will be treated as a 2-dimensional object.

Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	1.369980E-06	.000000E+00	5.943214E-07
11	2.314354E-05	.000000E+00	1.989492E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 1.38477E+00
 Ofission .00000E+00
 - elapsed time .12 min.

	mt=102	updated 10/13/89	57139	temperature= 975.00
0 la-139	mt=102			

Oresonance data for this nuclide

Omass number (a)	= 137.713	temperature(kelvin)	= 975.000
Opotential scatter sigma	= 4.906	lumped nuclear density	= 5.7069874E-06
Ospin factor (g)	= 145.855	lump dimension (a-bar)	= 4.6812207E-01
Oinner radius	= .000000E+00	dencoeff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Onass of moderator-1 = 15.995 sigma(per absorber atom)= 2.992162E+04

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 237.953 sigma(per absorber atom)= 3.3382688E+04

Onoderator-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	3.805399E-05	.000000E+00	5.740214E-03
10	-1.504161E-04	.000000E+00	-1.204486E-02
11	.000000E+00	.000000E+00	.000000E+00
12	-1.948691E-02	.000000E+00	-1.179694E-02

Oexcess resonance integrals

0 resolved
Oabsorption 8.12762E+00
fission .00000E+00

- elapsed time .12 min.

0 ce-144 mt=102

0 pr-141 mt=102, 103, 104, 105, 106, 107 updated 10/13/89

58144

temperature= 975.00

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	= 4.208575E-06
Ospin factor (g)	= 1026.500	lump dimension (a-bar)	= 4.681220E-01
Oirmer radius	= .000000E+00	denoiff correction (c)	= 3.426926E-01

Othe absorber will be treated by the norheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 4.062248E+04

Omoderator-1 will be treated by the norheim integral method.

Omass of moderator-2 = 257.953 sigma(per absorber atom)= 4.532202E+04

Omoderator-2 will be treated by the norheim 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	-1.643180E-03	.000000E+00	-5.576479E-02
11	-2.754610E-02	.000000E+00	-3.665692E-01
12	-5.687621E-04	.000000E+00	-5.415349E-05

Oexcess resonance integrals

0 resolved
Oabsorption 1.22546E+01
fission .00000E+00

- elapsed time .13 min.

0 pr-143 mt=102

updated 10/13/89

59143

temperature= 975.00

0 rd-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	= 4.647384E-06
Ospin factor (g)	= 1964.860	lump dimension (a-bar)	= 4.681220E-01
Oirmer radius	= .000000E+00	denoiff correction (c)	= 3.426926E-01

Othe absorber will be treated by the norheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 3.6743180E+04

Omoderator-1 will be treated by the norheim integral method.

Omass of moderator-2 = 257.953 sigma(per absorber atom)= 4.099393E+04

Omoderator-2 will be treated by the norheim 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	-4.982481E-05	.000000E+00	8.771327E-07
11	-1.101106E-01	.000000E+00	-1.283758E+00
12	-7.161235E-02	.000000E+00	-3.529003E-02

Oexcess resonance integrals

0 resolved
Oabsorption 5.14195E+01
fission .00000E+00

- elapsed time .13 min.

0 rd-145 mt=102

updated 10/13/89

60145

temperature= 975.00

Oresonance data for this nuclide

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Mass number (a) = 143.668 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.047 lumped nuclear density = 3.449857E-06
 Spin factor (g) = 1007.250 lump dimension (a-bar) = 4.681220E-01
 Diffuser radius = .000000E+00 cutoff correction (c) = 3.428926E-01

Other absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 4.947613E+04
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.983 sigma(per absorber atom)= 5.522902E+04
 Moderator-2 will be treated by the nordheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	-1.34478E-03	.000000E+00	-2.13637E-02
11	-2.12954E-02	.000000E+00	-6.39852E-02
12	-5.33308E-01	.000000E+00	-3.36391E+00
13	9.64294E-05	.000000E+00	2.03507E-04
14	-4.46285E-01	.000000E+00	-1.17828E-02
15	5.91194E-03	.000000E+00	-4.63074E-04
16	1.32668E-03	.000000E+00	-1.45142E-04
17	9.64244E-04	.000000E+00	-1.06393E-04
18	8.53956E-04	.000000E+00	-9.31371E-05
19	7.63385E-04	.000000E+00	-8.06934E-05
20	2.83878E-05	.000000E+00	-2.91888E-06

Deccss resonance integrals
 0 resolved
 Oabsorption 2.09006E+02
 fission .00000E+00
 - elapsed time .75 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

Resonance data for this nuclide
 Mass number (a) = 145.653 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.073 lumped nuclear density = 1.630137E-06
 Spin factor (g) = 21589.500 lump dimension (a-bar) = 4.681220E-01
 Diffuser radius = .000000E+00 cutoff correction (c) = 3.428926E-01

Other absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.047516E+05
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.983 sigma(per absorber atom)= 1.168702E+05
 Moderator-2 will be treated by the nordheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-7.79276E-02	.000000E+00	-2.54279E-02
13	-2.00816E-02	.000000E+00	-1.33038E-03
14	-3.81983E+01	.000000E+00	-1.64913E+01
15	4.13601E-02	.000000E+00	6.99118E-03
16	1.69802E-02	.000000E+00	1.74679E-03
17	1.36975E-02	.000000E+00	1.15044E-03
18	1.25379E-02	.000000E+00	9.64822E-04
19	6.99888E-04	.000000E+00	5.06971E-05

Deccss resonance integrals
 0 resolved
 Oabsorption 2.07270E+03
 fission .00000E+00
 - elapsed time .75 min.

0 pm-148 mt= 102 updated 10/13/89 61148 temperature= 975.00
 0 sm-147 erdf/b-v fission product updated 10/13/89 62147 temperature= 975.00

Resonance data for this nuclide
 Mass number (a) = 145.653 temperature(kelvin) = 975.000

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Qpotential scatter sigma = 5.093 lumped nuclear density = 1.3748208E-07
 Qspin factor (g) = .000 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.240500E+06
 Qmoderator-1 will be treated by the norheim integral method.
 Qmass of moderator-2 = 257.983 sigma(per absorber atom)= 1.3857411E+06
 Qmoderator-2 will be treated by the norheim 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	2.942457E-01	.000000E+00	1.142727E+00
12	1.226559E+00	.000000E+00	-1.271958E+00
13	-1.998422E+00	.000000E+00	-5.789997E-01
14	-9.921163E-02	.000000E+00	1.325926E-03
15	3.120852E-01	.000000E+00	-1.928839E-03
16	7.287928E-03	.000000E+00	-3.73814E-04
17	4.281534E-03	.000000E+00	-2.401662E-04
18	3.510477E-03	.000000E+00	-1.997241E-04
19	2.910625E-03	.000000E+00	-1.644468E-04
20	8.434717E-04	.000000E+00	-4.626269E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 7.24819E+02
 Ofission .00000E+00
 - elapsed time .15 min.

0 sm-149 mt=102,103,107 thermal scattering matrix number 3 at a temperature of 900.03 was selected.
 updated 10/13/89 62149 temperature= 975.00

Oresonance data for this nuclide
 Qmass number (a) = 147.638 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 3.260 lumped nuclear density = 6.8785768E-08
 Qspin factor (g) = 10407.900 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 2.483208E+06
 Qmoderator-1 will be treated by the norheim integral method.
 Qmass of moderator-2 = 257.983 sigma(per absorber atom)= 2.7704858E+06
 Qmoderator-2 will be treated by the norheim 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	8.546666E-03	.000000E+00	3.071190E-02
12	-5.175606E-02	.000000E+00	-1.756437E-01
13	2.469983E-02	.000000E+00	3.072132E-03
14	2.173088E-02	.000000E+00	-5.65774E-03

Oexcess resonance integrals
 0 resolved
 Oabsorption 8.04362E+02
 Ofission .00000E+00
 - elapsed time .17 min.

0 sm-150 mt=102 updated 10/13/89 62150 temperature= 975.00

Oresonance data for this nuclide
 Qmass number (a) = 148.629 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 5.162 lumped nuclear density = 9.8938278E-07
 Qspin factor (g) = 4376.420 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.729214E+05
 Qmoderator-1 will be treated by the norheim integral method.
 Qmass of moderator-2 = 257.983 sigma(per absorber atom)= 1.925902E+05

Moderator-2 will be treated by the norheim 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	-3.977634E-04	.000000E+00	-3.346134E-03
11	-7.212800E-03	.000000E+00	-8.334447E-02
12	-2.322022E-02	.000000E+00	-7.025721E-03
13	-1.750211E+00	.000000E+00	-1.382928E+00
14	1.066729E-04	.000000E+00	-6.428760E-05

Oexcess resonance integrals

0 resolved
Oabsorption 2.98016E+02
Ofission .00000E+00

- elapsed time .17 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	= 2.2254195E-07
Ospin factor (g)	= 75574.703	lump dimension (a-bar)	= 4.6812201E-01
Oirmer radius	= .0000000E+00	dencoff correction (c)	= 3.4289261E-01

Othe absorber will be treated by the norheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 7.658794E+05

Omoderator-1 will be treated by the norheim integral method.

Omass of moderator-2 = 257.953 sigma(per absorber atom)= 8.5454788E+05

Omoderator-2 will be treated by the norheim 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	-1.260789E-01	.000000E+00	-1.571515E-02
15	1.495457E+01	.000000E+00	7.582636E-02
16	-2.174609E+01	.000000E+00	-6.158413E-02
17	1.740700E+02	.000000E+00	8.314693E-01
18	-3.208414E+02	.000000E+00	-1.779017E+00
19	6.257412E+01	.000000E+00	3.899636E-01
20	1.141725E+00	.000000E+00	-1.430370E-04
21	-7.117601E-02	.000000E+00	1.244101E-02
22	6.95290E-02	.000000E+00	3.838911E-03
23	-1.091934E-02	.000000E+00	3.374082E-04

Oexcess resonance integrals

0 resolved
Oabsorption 2.05723E+03
Ofission .00000E+00

- elapsed time .17 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	= 4.5863854E-07
Ospin factor (g)	= 863.594	lump dimension (a-bar)	= 4.6812201E-01
Oirmer radius	= .0000000E+00	dencoff correction (c)	= 3.4289261E-01

Othe absorber will be treated by the norheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 3.7231869E+05

Omoderator-1 will be treated by the norheim integral method.

Omass of moderator-2 = 257.953 sigma(per absorber atom)= 4.1539150E+05

Omoderator-2 will be treated by the norheim 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	2.408099E-06	.000000E+00	1.159013E-04
10	-2.977777E-04	.000000E+00	-5.161798E-03
11	-4.910418E-03	.000000E+00	-1.886720E-02

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12 -3.47639E-02 .000000E+00 -1.11286E-01
 13 4.26789E-02 .000000E+00 1.03836E-01
 14 -3.296637E+01 .000000E+00 -6.405277E+01

Oexcess resonance integrals
 0 resolved
 Oabsorption 2.86785E+03
 Ofission .00000E+00
 - elapsed time .18 min.
 O eu-153 mt=102,103,104,105,106,107 updated 10/13/89 63153 temperature= 975.00

Onesource data for this nuclide
 Oness number (a) = 151.607 temperature(kelvin) = 975.000
 Opotential scatter sigma = 9.731 lumped nuclear density = 2.0236102E-07
 Ospin factor (g) = 12265.900 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 darcoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.
 Oness of moderator-1 = 15.995 sigma(per absorber atom)= 8.4383688E+05
 Onoderator-1 will be treated by the norheim integral method.
 Oness of moderator-2 = 237.953 sigma(per absorber atom)= 9.4166881E+05
 Onoderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-2.642001E-01	.000000E+00	-5.146335E-02
13	-4.666056E-02	.000000E+00	1.190590E-03
14	-5.099637E-01	.000000E+00	4.398705E-03
15	3.248557E+00	.000000E+00	-1.528816E-02
16	-3.290308E+00	.000000E+00	8.160203E-03
17	1.506621E-01	.000000E+00	-3.437866E-03
18	7.726887E-02	.000000E+00	-2.231257E-03
19	5.055489E-02	.000000E+00	-1.541136E-03
20	-1.253800E-01	.000000E+00	-1.275099E-03

Oexcess resonance integrals
 0 resolved
 Oabsorption 1.35617E+03
 Ofission .00000E+00
 - elapsed time .18 min.
 O eu-154 mt=102,103,104,105,106,107 updated 10/13/89 63154 temperature= 975.00

Onesource data for this nuclide
 Oness number (a) = 152.601 temperature(kelvin) = 975.000
 Opotential scatter sigma = 9.731 lumped nuclear density = 1.573251E-08
 Ospin factor (g) = 19135.801 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 darcoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.
 Oness of moderator-1 = 15.995 sigma(per absorber atom)= 1.0853910E+07
 Onoderator-1 will be treated by the norheim integral method.
 Oness of moderator-2 = 237.953 sigma(per absorber atom)= 1.2107579E+07
 Onoderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-3.850079E-01	.000000E+00	-6.016346E-02
13	-2.95272E-01	.000000E+00	-2.428589E-02
14	3.575466E-01	.000000E+00	1.516498E-02
15	2.236322E-01	.000000E+00	2.124466E-02
16	7.311881E+00	.000000E+00	9.277001E-02
17	-1.436421E+02	.000000E+00	-1.894816E+00
18	1.138535E+02	.000000E+00	1.899974E+00
19	-1.014556E+02	.000000E+00	1.187201E+00

Oexcess resonance integrals
 0 resolved

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Absorption 2.13726E+03
 fission .00000E+00
 - elapsed time .20 min.
 0 eu-155 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

Resonance data for this nuclide

Mass number (a) = 153.592 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.277 lumped nuclear density = 4.466172E-10
 Spin factor (g) = 12700.100 lump dimension (a-bar) = 4.681220E-01
 Diffuser radius = .000000E+00 cutoff correction (c) = 3.426926E-01

The absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.823401E+08

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 4.265723E+08

Moderator-2 will be treated by the nordheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Group	res abs	res fission	res scat
12	-1.439265E+00	.000000E+00	-1.835428E-01
13	1.541370E+00	.000000E+00	1.985343E-01
14	2.191864E-01	.000000E+00	9.809159E-03
15	-3.299638E-01	.000000E+00	2.121291E-05
16	1.477360E+00	.000000E+00	-4.148856E-03
17	1.568660E-01	.000000E+00	-1.479107E-03
18	9.605215E-02	.000000E+00	-1.078090E-03
19	6.295375E-02	.000000E+00	-8.026877E-04
20	1.670387E-02	.000000E+00	1.627052E-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	-2.127682E+03	.000000E+00	-1.621909E+00
26	-5.205600E+03	.000000E+00	1.961438E+00
27	-1.699943E+03	.000000E+00	7.392455E-01

Deccess resonance integrals

0 resolved

Absorption 3.97078E+04

fission .00000E+00

- elapsed time .20 min.

0u-234 1043 sigs=5+4 newlacs p-3 293k f-1/e-m(1.45) 92234 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 232.029 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.021 lumped nuclear density = 5.248207E-06
 Spin factor (g) = 6948.450 lump dimension (a-bar) = 4.681220E-01
 Diffuser radius = .000000E+00 cutoff correction (c) = 3.426926E-01

The absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.253678E+04

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 3.628977E+04

Moderator-2 will be treated by the nordheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Group	res abs	res fission	res scat
11	-2.512538E-02	.000000E+00	-7.324254E-02
12	-2.046605E-01	.000000E+00	-8.580936E-02
13	7.759475E-04	.000000E+00	-6.470333E-04
14	-1.997561E+01	.000000E+00	-3.270589E+00

Deccess resonance integrals

0 resolved

Absorption 5.80089E+02

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fission .00000E+00
 - elapsed time .22 min.
 0 uranium-235 erdf/b-iv mat 1261 updated 10/13/89 92235 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 233.025 temperature(kelvin) = 975.000
 Potential scatter sigma = 11.500 lumped nuclear density = 5.9589074E-04
 Spin factor (g) = 15171.100 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.8656207E+02
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 238.049 sigma(per absorber atom)= 3.0752908E+02
 Moderator-2 will be treated by the norheim 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 -2.447811E+00 -1.526337E+00 -5.714441E-02
 13 -8.348241E+00 -4.150502E+00 -1.796663E-01
 14 -6.699853E+00 -4.094368E+00 -4.552142E-02
 Oexcess resonance integrals
 0 resolved
 Oabsorption 2.07551E+02
 fission 1.25750E+02
 - elapsed time .23 min.
 0u-236 1163 sigo-5+4 newelacs p-3 293k f-1/e-m(1.45) 92236 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 234.017 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.995 lumped nuclear density = 2.0722568E-05
 Spin factor (g) = 6328.490 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 8.2601172E+03
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 237.934 sigma(per absorber atom)= 9.1917979E+03
 Moderator-2 will be treated by the norheim 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 -1.039277E-01 .000000E+00 -2.571798E-01
 12 -5.309988E-01 .000000E+00 -3.788066E-01
 13 -5.789046E-02 .000000E+00 -3.293442E-03
 14 -2.037627E+01 .000000E+00 -1.789048E+00
 Oexcess resonance integrals
 0 resolved
 Oabsorption 3.07348E+02
 fission .00000E+00
 - elapsed time .23 min.
 0 uranium-238 erdf/b-iv mat 1262 updated 10/13/89 92238 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 236.006 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.999 lumped nuclear density = 2.2005754E-02
 Spin factor (g) = 666.527 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 7.7597747E+00
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 235.041 sigma(per absorber atom)= 3.3411396E-01
 Moderator-2 will be treated by the norheim 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

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Ogroup	res abs	res fiss	res scat
9	-3.94799E-02	.000000E+00	-4.05436E-01
10	-1.02712E+00	-1.75973E-05	-6.48024E+00
11	-9.71137E+00	.000000E+00	-2.69050E+01
12	-4.30544E+01	.000000E+00	-4.99992E+01
13	-5.40204E+01	.000000E+00	-1.76934E+01
14	-1.04512E+02	.000000E+00	-6.06092E+00

Deccess resonance integrals

0 resolved
 Oabsorption 1.79715E+01
 fission 5.0887E-04

- elapsed time .27 min.

0 neptunium-237 endf/b-iv met 1263

updated 10/13/89

95257

temperature= 975.00

Onesource data for this nuclide

Onass number (a)	= 235.012	temperature(kelvin)	= 975.000
Opotential scatter sigma	= 10.500	lumped nuclear density	= 6.15522E-07
Ospin factor (g)	= 10100.800	lump dimension (a-bar)	= 4.6812201E-01
Oinner radius	= .000000E+00	carcoff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Onass of moderator-1 = 15.995 sigma(per absorber atom)= 2.7742219E+05

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 238.051 sigma(per absorber atom)= 2.9757166E+05

Onoderator-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	-6.31023E-02	-1.89171E-06	-7.37805E-03
12	4.21842E-02	-8.45404E-05	9.23254E-03
13	3.18825E-02	9.18823E-05	1.17637E-03
14	1.81224E-03	-4.42068E-07	-7.01234E-04

Deccess resonance integrals

0 resolved
 Oabsorption 2.93217E+02
 fission 1.38601E-01

- elapsed time .28 min.

Opu-238 1050 sigo-5+4 newlacs p-3 238k f-1/em(1.45)

94238

temperature= 975.00

Onesource data for this nuclide

Onass number (a)	= 236.167	temperature(kelvin)	= 975.000
Opotential scatter sigma	= 10.890	lumped nuclear density	= 2.4133211E-08
Ospin factor (g)	= 13130.600	lump dimension (a-bar)	= 4.6812201E-01
Oinner radius	= .000000E+00	carcoff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Onass of moderator-1 = 15.995 sigma(per absorber atom)= 7.0757130E+06

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 238.051 sigma(per absorber atom)= 7.5896300E+06

Onoderator-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	2.55816E-04	4.66839E-05	1.618825E-04
12	2.25101E-04	2.79073E-05	6.80712E-05
13	4.15910E-01	7.57681E-02	-9.09064E-03
14	-3.82219E-01	-6.96748E-02	8.53697E-03

Deccess resonance integrals

0 resolved
 Oabsorption 8.25544E+01
 fission 9.05569E+00

- elapsed time .28 min.

0 plutonium-239 endf/b-iv met 1264

updated 10/13/89

94239

temperature= 975.00

Onesource data for this nuclide

Qmass number (a) = 236.999 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 10.200 lumped nuclear density = 4.3678352E-05
 Qspin factor (g) = 6635.710 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 3.9094807E+03

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 238.051 sigma(per absorber atom)= 4.1934307E+03

Qmoderator-2 will be treated by the norheim 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	-9.177634E-02	-3.673252E-02	-2.831647E-02
12	-8.258708E-01	-3.110823E-01	-1.095888E-01
13	-2.744968E+00	-1.617178E+00	-4.145862E-02
14	-8.716330E-01	-4.62437E-01	-8.125940E-03

Oexcess resonance integrals

0 resolved

Oabsorption 3.1424E+02

fission 1.76344E+02

- elapsed time .30 min.

0 plutonium-240 erdf/b-iv mat 1265

updated 10/13/89

94240

temperature= 975.00

Oresonance data for this nuclide

Qmass number (a) = 237.992 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 10.599 lumped nuclear density = 3.2538619E-06
 Qspin factor (g) = 669.244 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 5.2479082E+04

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 238.051 sigma(per absorber atom)= 5.6290699E+04

Qmoderator-2 will be treated by the norheim 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	-1.645389E-05	-9.641771E-08	1.595981E-05
10	-7.262856E-04	-4.573093E-05	-3.344887E-03
11	-2.478088E-02	-1.430572E-04	-3.309150E-02
12	-3.513186E-01	-1.918701E-03	-3.392016E-01
13	-4.186758E-02	-2.567173E-04	-3.054948E-03
14	.000000E+00	.000000E+00	.000000E+00
15	1.756127E-02	3.351646E-06	3.491331E-03
16	3.297924E+00	6.294232E-04	4.201667E-01
17	5.489329E+02	1.047662E-01	4.966199E+01
18	-3.939466E+03	-7.518643E-01	-3.138248E+02
19	9.648171E+02	1.841396E-01	7.365366E+01
20	-9.268590E+01	-1.768951E-02	1.798660E+00

Oexcess resonance integrals

0 resolved

Oabsorption 7.25988E+03

fission 2.41760E+00

- elapsed time .33 min.

0 plutonium-241 erdf/b-iv mat 1266

updated 10/13/89

94241

temperature= 975.00

Oresonance data for this nuclide

Qmass number (a) = 238.978 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 10.939 lumped nuclear density = 7.5090043E-07
 Qspin factor (g) = 16402.100 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 2.2740656E+05

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Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.4392334E+05
 Moderator-2 will be treated by the norheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	1.261874E-02	1.123536E-02	6.726573E-04
13	-7.312723E-02	-6.251993E-02	-3.190468E-03
14	1.711866E-02	2.446088E-02	1.205490E-03
15	1.800097E-02	1.613804E-02	-4.695504E-04

Excess resonance integrals

0 resolved
 Absorption 5.09404E+02
 fission 4.27008E+02

- elapsed time .33 min.

0 plutonium-242 endf/b-iv mat 1161

updated 10/13/89

94242

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 240.145	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.694	lumped nuclear density	= 2.0662539E-08
Spin factor (g)	= 6606.710	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	dancoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 8.2642175E+06

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 8.8644570E+06

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
11	1.109956E-04	.000000E+00	1.365222E-04
12	1.446949E-04	.000000E+00	-3.052951E-04
13	1.216182E-04	.000000E+00	4.985473E-06
14	8.150499E-02	.000000E+00	1.527700E-02
15	1.234792E-01	.000000E+00	-2.843461E-02
16	4.034068E-02	.000000E+00	-3.459403E-03
17	1.550418E-02	.000000E+00	-1.848307E-03
18	1.112553E-02	.000000E+00	-1.430647E-03

Excess resonance integrals

0 resolved
 Absorption 1.11217E+03
 fission .00000E+00

- elapsed time .35 min.

0 am-241 1056 sigp-5+4 newkacs 218gpp p-3 293k

95241

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 238.950	temperature(kelvin)	= 975.000
Potential scatter sigma	= 9.511	lumped nuclear density	= 6.0496634E-09
Spin factor (g)	= 82068.203	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	dancoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.8226312E+07

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 3.0276420E+07

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
13	4.923901E-01	1.212940E-02	4.962131E-03
14	-4.288642E-01	-1.107121E-02	-4.428857E-03

Excess resonance integrals

0 resolved

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Absorption 1.98477E+02
 fission 1.07614E+00
 - elapsed time .35 min.
 Dem-243 1057 218 gp wt f-1/e-m 090376 p3 258k 95243 temperature= 975.00
 Resonance data for this nuclide
 Onass number (a) = 240.940 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 9.511 lumped nuclear density = 4.1914475E-10
 Qspin factor (g) = 82052.602 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Onass of moderator-1 = 15.995 sigma(per absorber atom)= 4.0740025E+08
 Onoderator-1 will be treated by the norheim integral method.
 Onass of moderator-2 = 238.051 sigma(per absorber atom)= 4.3699021E+08
 Onoderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 13 -6.604252E-03 .000000E+00 4.386608E-04
 14 2.231602E-02 .000000E+00 2.371130E-04
 Oexcess resonance integrals
 0 resolved
 Absorption 1.60152E+02
 fission .00000E+00
 - elapsed time .35 min.
 O curium-244 endf/b-iv mat 1162 updated 10/13/89 96244 temperature= 975.00
 Resonance data for this nuclide
 Onass number (a) = 242.133 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 10.320 lumped nuclear density = 9.1373150E-12
 Qspin factor (g) = 5251.150 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Onass of moderator-1 = 15.995 sigma(per absorber atom)= 1.8688168E+10
 Onoderator-1 will be treated by the norheim integral method.
 Onass of moderator-2 = 238.051 sigma(per absorber atom)= 2.0065511E+10
 Onoderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 11 2.582341E-04 7.064275E-06 3.053164E-04
 12 6.952982E-04 3.252501E-05 1.372205E-04
 13 2.720734E-03 1.336612E-04 7.128555E-04
 14 8.467852E-02 5.066236E-03 1.605748E-02
 Oexcess resonance integrals
 0 resolved
 Absorption 6.13904E+02
 fission 3.54222E+01
 - elapsed time .35 min.
 - elapsed time .35 min.
 1 this xsdm working tape was created 02/16/96 at 09:56:57
 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 1289/thrm1002 updated 10/13/89	id	1001
b-10 1273 218gp 042375 p-3 258k	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=102,103,105,106,107	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-90	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 sigs=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 sigs=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 92237
pu-238 1050 sigs=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	id 94242
am-241 1056 sigs=5+4 newlacs 218gcp p-3 293k			id 95241

[illegible]

The figure shows a 10x10 grid of 100 cells. Each cell contains a 10x10 sub-grid of 100 cells. The sub-grids are filled with various patterns of 0s, 1s, and 2s. The patterns are arranged in a way that suggests a sequence or progression across the main grid. For example, the top-left sub-grid is mostly 0s, while the bottom-right sub-grid is mostly 1s and 2s. The patterns are arranged in a way that suggests a sequence or progression across the main grid.

```

00000000 9999999999 5555555555 8888888888 00000000 8888888888
000000000 9999999999 5555555555 8888888888 000000000 8888888888
00 00 99 55 88 00 88
00 00 99 55 88 00 88
00 00 99 55 88 00 88
00 00 99 55 88 00 88
00 00 9999999999 5555555555 8888888888 00 00 8888888888
00 00 9999999999 5555555555 8888888888 00 00 8888888888
00 00 99 55 88 00 88
00 00 99 55 88 00 88
00 00 99 55 88 00 88
000000000 9999999999 5555555555 8888888888 000000000 8888888888
00000000 9999999999 5555555555 8888888888 00000000 8888888888

1 0
5555555555 0000000000 8888888888 11 888888888888
5555555555 00000000000 8888888888 11 888888888888

```



```

iam number of zones 4 isct order of scattering 3
im number of special intervals 24 ievt Q/1/2/3/4/5/6=cyk/alpha/c/z/r/h 1
ibl Q/1/2/3 = vacuum/refl/per/white 1 iin inner iteration maximum 20
ibr right boundary condition 3 ion outer iteration maximum 25
imx number of mixtures 3 iclc -1/0/n--flat res/sr/opt 0
ms mixing table length 65 ith Q/1 = forward/adjoint 0
ign number of energy groups 27 iflu not used(always wgted) 0
rng number of neutron groups 27 iprt -2/-1/0/nmixture xsec print -2
rgg number of gamma groups 0 idi Q/1/2/3=no/pnt nd/pch ny/both 53
ifg number of first thermal group 15 ipbt -1/0/1=none/fine/all bal. prt 0
0 special options

```

```

ifg Q/1 = none/weighting calculation 1 ipn Q/1/2 diff. coef. param 0
icn volumetric sources (Q/nno/yes) 0 idfm Q/1 = none/density factors 38* 1
ipn boundary sources (Q/nno/yes) 0 iaz Q/n = none/n activities by zone 0
ifn Q/1/2 = input 33*/34*/use last 53 iai Q/1=none/activities by interval 0
itm maximum time (minutes) 10 ifct Q/1=no/yes upscatter scaling 0
idk1 Q/1/2/3=no/xsect/sroe/flux-out 0 ipvt Q/1/2=no/k/alpha parametric srch 0
isx broad group fluxes 0 isen outer iteration acceleration 0
ibln activity data unit 0 rndnd band rebaln parameter 0
ibkl Q/1/2 buckling geometry 0
0 weighting data (ifg=1)

```

```

icon -1/0/1=cell/zone/region weight -1 ihtf total xsect per in brd gp tables 3
ignf number of broad groups 27 ndsf per g-g or file number 4
itp Q/10/20/30/40 Q/c/e/ac/a 0 nusf table length or max order 4
ipp -2/-1/0/n=gted xsect print -2 meon 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 cy/pla ht for buckling .00000E+00
ptc point convergence 1.00000E-04 dz plane depth for buckling .00000E+00
nrf 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 eqi ev change eps for search 1.00000E-03
bf buckling factor=1.420892 1.42089E+00 xrpm new param mod for search 7.50000E-01

```

this case will require 2535 locations for mixing

this case has been allocated 200000 locations

```

1 260 d, sas2h: babcock wilcox 15x15, 3.00w4%, 20gwd/mtu burn high temp
0 13q array has 65 entries.
0 14q array has 65 entries.
0 15q array has 65 entries.
0
0 data block 2 (mixing table, etc.)
0

```

nuclides on tape	cccc identification	mixture	component	atom density	extra xsect id's
1	999	1	92235	5.95897E-04	
2	1001	1	92234	5.24821E-06	
3	5010	1	92236	2.07230E-05	
4	5011	1	92238	2.20068E-02	
5	8016	1	8016	4.55359E-02	
6	6	3	6	2.09710E-02	
7	36083	1	36083	4.52870E-07	
8	36085	1	36085	2.19160E-07	
9	38090	1	38090	4.90462E-06	
10	39089	1	39089	2.98210E-06	
11	40098	1	42095	2.67690E-06	
12	40094	1	40098	3.66834E-06	
13	40095	1	40094	5.64806E-06	
14	40802	1	40095	2.02113E-06	
15	41094	1	41094	1.92647E-12	

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16	42095	1	43099	5.40899E-06
17	43099	1	45103	2.34075E-06
18	44101	1	45105	1.42841E-08
19	44106	1	44101	4.73216E-06
20	45103	1	44106	6.38008E-07
21	45105	1	46105	1.32971E-06
22	46105	1	46108	2.44774E-07
23	46108	1	47109	1.71902E-07
24	47109	1	51124	4.79820E-11
25	51124	1	54131	2.48623E-06
26	54131	1	54132	4.07046E-06
27	54132	1	54135	6.51168E-09
28	54135	1	54136	9.02856E-06
29	54136	1	55134	8.14148E-08
30	55133	1	55135	2.79804E-06
31	55134	1	55137	5.70749E-06
32	55135	1	56136	1.66625E-08
33	55137	1	57139	5.70699E-06
34	56136	1	59141	4.20868E-06
35	57139	1	59143	4.03826E-07
36	58144	1	58144	3.63429E-06
37	59141	1	60143	4.64788E-06
38	59143	1	60145	3.44986E-06
39	60143	1	61147	1.63014E-06
40	60145	1	61148	4.34751E-09
41	60147	1	60147	1.34141E-07
42	61147	1	62147	1.37482E-07
43	61148	1	62149	6.87658E-08
44	62147	1	62150	9.89883E-07
45	62149	1	62151	2.22942E-07
46	62150	1	62152	4.58639E-07
47	62151	1	64155	4.46617E-10
48	62152	1	63153	2.02961E-07
49	63153	1	63154	1.57326E-08
50	63154	1	63155	3.12566E-08
51	63155	2	40302	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	5.85210E-06
56	92238	1	92237	6.19523E-07
57	92237	1	94238	2.41332E-08
58	94238	1	94239	4.36784E-05
59	94239	1	94240	3.25386E-06
60	94240	1	94241	7.50900E-07
61	94241	1	94242	2.06625E-08
62	94242	1	95241	6.04966E-09
63	95241	1	95243	4.19145E-10
64	95243	1	96244	9.13732E-12
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.

1 240 d, sas2h: babcock w/look 15x15, 3.00wt%, 20gcl/mu burn high temp

INFORMATION ONLY

neutron group parameters									
0	gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
	1	2.0000E+07	-6.93147E-01	4.65881E+09	1	0	1	1.0000E+00	
	2	6.4340E+06	4.4098E-01	2.88737E+09	2	0	2	1.0000E+00	
	3	3.0000E+06	1.20897E+00	2.12201E+09	3	0	3	1.0000E+00	
	4	1.8500E+06	1.68740E+00	1.75673E+09	4	0	4	1.0000E+00	
	5	1.4000E+06	1.96611E+00	1.4653E+09	5	0	5	1.0000E+00	
	6	9.0000E+05	2.40795E+00	1.06620E+09	6	0	6	1.0000E+00	
	7	4.0000E+05	3.21888E+00	6.07557E+08	7	0	7	1.0000E+00	
	8	1.0000E+05	4.60517E+00	2.72415E+08	8	0	8	1.0000E+00	
	9	1.7000E+04	6.37713E+00	1.13528E+08	9	0	9	1.0000E+00	
	10	3.0000E+03	8.11173E+00	4.82126E+07	10	0	10	1.0000E+00	
	11	5.5000E+02	9.80818E+00	2.05946E+07	11	0	11	1.0000E+00	
	12	1.0000E+02	1.15129E+01	1.01036E+07	12	0	12	1.0000E+00	
	13	3.0000E+01	1.27169E+01	5.6959E+06	13	0	13	1.0000E+00	
	14	1.0000E+01	1.38155E+01	3.2057E+06	14	0	14	1.0000E+00	
	15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.0000E+00	
	16	1.7700E+00	1.55471E+01	1.70522E+06	16	0	16	1.0000E+00	
	17	1.29999E+00	1.58557E+01	1.52543E+06	17	0	17	1.0000E+00	
	18	1.12999E+00	1.59999E+01	1.42867E+06	18	0	18	1.0000E+00	
	19	1.0000E+00	1.61181E+01	1.31002E+06	19	0	19	1.0000E+00	
	20	8.0000E-01	1.63412E+01	9.05898E+05	20	0	20	1.0000E+00	
	21	4.0000E-01	1.70844E+01	8.17974E+05	21	0	21	1.0000E+00	
	22	3.2500E-01	1.72620E+01	6.90070E+05	22	0	22	1.0000E+00	
	23	2.2500E-01	1.76098E+01	4.86933E+05	23	0	23	1.0000E+00	
	24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.0000E+00	
	25	5.0000E-02	1.91138E+01	2.71895E+05	25	0	25	1.0000E+00	
	26	3.0000E-02	1.96247E+01	1.87283E+05	26	0	26	1.0000E+00	
	27	1.0000E-02	2.07233E+01	8.85201E+04	27	0	27	1.0000E+00	
	28	1.0000E-05	2.75310E+01						
1	260 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20g/cm ² burn high temp								
0	mixture by zone	order p(l) by zone	activity table	metl no.	reaction	weights	directions	quadrature constants	refl direc
	1	1	3			0	-2.79004E-01	3	0
	2	1	3			5.06143E-02	-1.97285E-01	3	-9.98548E-03
	3	2	3			5.06143E-02	1.97285E-01	2	9.98548E-03
	4	3	3			0	-6.04419E-01	8	0
	5					5.59953E-02	-5.58410E-01	8	-3.10450E-02
	6					5.59953E-02	-2.31301E-01	7	-1.28593E-02
	7					5.59953E-02	2.31301E-01	6	1.28593E-02
	8					5.59953E-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					4.53355E-02	-9.64143E-01	24	-4.37099E-02
	18					4.53355E-02	-8.17361E-01	23	-3.70555E-02
	19					4.53355E-02	-5.46143E-01	22	-2.47597E-02
	20					4.53355E-02	-1.91780E-01	21	-8.69444E-03
	21					4.53355E-02	1.91780E-01	20	8.69444E-03
	22					4.53355E-02	5.46143E-01	19	2.47597E-02
	23					4.53355E-02	8.17361E-01	18	3.70555E-02
	24					4.53355E-02	9.64143E-01	17	4.37099E-02
Ooconstants for p(3) scattering									
Ooangl	set 1	set 2	set 3	set 4	set 5				

```

1 -2.7900E-01 8.8523E-01 6.7443E-02 -6.1691E-01 -1.7170E-02
2 -1.9728E-01 8.8523E-01 .0000E+00 -4.3622E-01 1.2141E-02
3 1.9728E-01 8.8523E-01 .0000E+00 4.3622E-01 -1.2141E-02
4 -6.0441E-01 4.5201E-01 3.1637E-01 -8.0435E-01 -1.7656E-01
5 -5.5841E-01 4.5201E-01 2.2371E-01 -7.4320E-01 -6.6802E-02
6 -2.3130E-01 4.5201E-01 -2.2371E-01 3.0784E-01 1.6127E-01
7 2.3130E-01 4.5201E-01 -2.2371E-01 3.0784E-01 -1.6127E-01
8 5.5841E-01 4.5201E-01 2.2371E-01 7.4320E-01 6.6802E-02
9 -8.5077E-01 -8.5723E-02 6.2683E-01 -1.9845E-01 -4.8683E-01
10 -8.2178E-01 -8.5723E-02 5.4286E-01 -1.9169E-01 -3.4424E-01
11 -6.0158E-01 -8.5723E-02 .0000E+00 -1.4083E-01 3.4424E-01
12 -2.2019E-01 -8.5723E-02 -5.4286E-01 -5.1363E-02 3.4424E-01
13 2.2019E-01 -8.5723E-02 -5.4286E-01 5.1363E-02 -3.4424E-01
14 6.0158E-01 -8.5723E-02 .0000E+00 1.4083E-01 -3.4424E-01
15 8.2178E-01 -8.5723E-02 5.4286E-01 1.9169E-01 3.4424E-01
16 -9.8905E-01 -4.4952E-01 8.3686E-01 5.0070E-01 -7.5100E-01
17 -9.6414E-01 -4.4952E-01 7.7318E-01 4.9103E-01 -6.2643E-01
18 -8.1736E-01 -4.4952E-01 3.2086E-01 4.1632E-01 1.4651E-01
19 -5.4614E-01 -4.4952E-01 -3.2086E-01 2.7817E-01 7.3657E-01
20 -1.9178E-01 -4.4952E-01 -7.7318E-01 9.7682E-02 4.1723E-01
21 1.9178E-01 -4.4952E-01 -7.7318E-01 -9.7682E-02 -4.1723E-01
22 5.4614E-01 -4.4952E-01 -3.2086E-01 -2.7817E-01 -7.3657E-01
23 8.1736E-01 -4.4952E-01 3.2086E-01 -4.1632E-01 -1.4651E-01
24 9.6414E-01 -4.4952E-01 7.7318E-01 -4.9103E-01 6.2643E-01
25 8.1736E-01 -4.4952E-01 3.2086E-01 -4.1632E-01 -1.4651E-01
26 9.6414E-01 -4.4952E-01 7.7318E-01 -4.9103E-01 6.2643E-01
1 int radii mid pts zone no. areas volumes dens fact radius mod spec(int)
1 0 1.2955E-02 1 0 2.1090E-03 1.0000E+00 0
2 2.9910E-02 4.3340E-02 1 1.6279E-01 9.4631E-03 1.0000E+00 0
3 6.0771E-02 8.7510E-02 1 3.8183E-01 2.9404E-02 1.0000E+00 0
4 1.1424E-01 1.7415E-01 1 7.1784E-01 1.3110E-01 1.0000E+00 0
5 2.3405E-01 2.9967E-01 1 1.4706E+00 2.2129E-01 1.0000E+00
6 3.5387E-01 3.8061E-01 1 2.2245E+00 1.2789E-01 1.0000E+00
7 4.0735E-01 4.2478E-01 1 2.5994E+00 9.3042E-02 1.0000E+00
8 4.4221E-01 4.5516E-01 1 2.7785E+00 7.4100E-02 1.0000E+00
9 4.6812E-01 4.6881E-01 2 2.9413E+00 4.0794E-03 0
10 4.6907E-01 4.7148E-01 2 2.9500E+00 1.1698E-02 0
11 4.7345E-01 4.7543E-01 2 2.9748E+00 1.1796E-02 0
12 4.7740E-01 4.7809E-01 2 2.9992E+00 4.1602E-03 0
13 4.7879E-01 4.8319E-01 3 3.0083E+00 2.6626E-02 1.0000E+00
14 4.8752E-01 4.9997E-01 3 3.0632E+00 7.8276E-02 1.0000E+00
15 5.1244E-01 5.2490E-01 3 3.2197E+00 8.2177E-02 1.0000E+00
16 5.3736E-01 5.4173E-01 3 3.3763E+00 2.9742E-02 1.0000E+00
17 5.4610E-01 5.5351E-01 4 3.4312E+00 5.1563E-02 1.0000E+00
18 5.6098E-01 5.7090E-01 4 3.5240E+00 7.1554E-02 1.0000E+00
19 5.8087E-01 5.9617E-01 4 3.6477E+00 1.1462E-01 1.0000E+00
20 6.1147E-01 6.4575E-01 4 3.8420E+00 2.7816E-01 1.0000E+00
21 6.8003E-01 7.1431E-01 4 4.2727E+00 3.0770E-01 1.0000E+00
22 7.4859E-01 7.6388E-01 4 4.7054E+00 1.4687E-01 1.0000E+00
23 7.7919E-01 7.8916E-01 4 4.8582E+00 9.8911E-02 1.0000E+00
24 7.9914E-01 8.0654E-01 4 5.0215E+00 7.5135E-02 1.0000E+00
25 8.1968E-01 8.1431E-01 4 5.1431E+00
- elapsed time .00 min.
1 outer inner 1 - balance eigenvalue 1 - source 1 - scatter 1 - upscat search time
iter iters ratio ratio ratio parameter (min)
1 144 2.1043E-05 1.1249E+00 -1.3851E-01 1.0000E+00 -4.4360E-02 .0000E+00 .0000
2 221 -9.6361E-06 1.1385E+00 -1.2610E-03 -1.5175E-02 -4.6259E-03 .0000E+00 .0000
3 284 3.5323E-06 1.1397E+00 -1.4122E-04 -1.4508E-03 -8.8971E-04 .0000E+00 .0000
4 330 -6.4912E-06 1.1401E+00 -2.4040E-05 -2.8358E-04 -1.6678E-04 .0000E+00 .0167
5 361 -1.1071E-05 1.1402E+00 -5.1952E-05 -5.2912E-05 -2.7057E-05 .0000E+00 .0167
grp to grp inner mid max. flux msf max. scale coarse
iters int. difference int. factor mesh

```

INFORMATION ONLY

1	1	1	1	3.99968E-08	24	1.00000E+00	1
2	2	1	1	4.75658E-08	24	1.00000E+00	1
3	3	1	1	4.42471E-08	24	1.00000E+00	1
4	4	1	1	4.34071E-08	24	1.00000E+00	1
5	5	1	1	4.76548E-08	24	1.00000E+00	1
6	6	1	1	3.14257E-08	24	1.00000E+00	1
7	7	1	1	2.35128E-08	24	1.00000E+00	1
8	8	1	1	5.70768E-09	24	1.00000E+00	1
9	9	1	2	3.06282E-09	24	1.00000E+00	1
10	10	1	1	3.10512E-09	24	1.00000E+00	1
11	11	1	1	3.15985E-09	24	1.00000E+00	1
12	12	1	2	7.43234E-10	24	1.00000E+00	1
13	13	1	24	1.12172E-09	24	1.00000E+00	1
14	14	1	24	1.28540E-09	24	1.00000E+00	1
15	15	1	24	3.85540E-05	24	9.99982E-01	1
16	16	1	24	4.84754E-05	24	9.99987E-01	1
17	17	1	18	1.60114E-05	24	9.99960E-01	1
18	18	1	18	1.77014E-05	24	9.99958E-01	1
19	19	1	18	1.54054E-05	24	9.99955E-01	1
20	20	1	24	5.22631E-05	24	9.99969E-01	1
21	21	1	18	2.56650E-05	24	9.99958E-01	1
22	22	1	24	4.65365E-05	24	9.99997E-01	1
23	23	1	24	2.26127E-06	24	1.00000E+00	1
24	24	1	24	1.31691E-05	24	1.00000E+00	1
25	25	1	24	1.56653E-05	24	1.00000E+00	1
26	26	1	21	1.67109E-05	24	1.00000E+00	2
27	27	1	2	2.98553E-06	24	1.00000E+00	2

6 388 -5.48869E-07 1.14015E+00 -7.61250E-07 -8.69375E-06 -5.37447E-06 .00000E+00 .0167

final monitor

lambda 1.14015E+00

production/absorption 1.14014E+00

angular flux on 16

- elapsed time .02 min.

1 240 d, sas2h: babcock wilcox 15x15, 3.00wCk, 20gcd/mtu burn high temp

0 int. zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10506E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.46818E-03
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02
4	1	1.14249E-01	1.74153E-01	7.17848E-01	1.31104E-01
5	1	2.34061E-01	2.99657E-01	1.47066E+00	2.21299E-01
6	1	3.53873E-01	3.80612E-01	2.22346E+00	1.27890E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02
14	3	4.87528E-01	4.99987E-01	3.06329E+00	7.82768E-02
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01
22	4	7.48592E-01	7.63888E-01	4.70854E+00	1.66875E-01
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02
25		8.13968E-01	5.11431E+00		

240 d, sas2h: babcock wilcox 15x15, 3.00wCk, 20gcd/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	1.72636E-01	1.31508E+00	1.67386E+00	1.03961E+00	1.57466E+00	3.03077E+00	2.90519E+00	2.07949E+00
2	1.72697E-01	1.31566E+00	1.67469E+00	1.04011E+00	1.57537E+00	3.03208E+00	2.90582E+00	2.07955E+00
3	1.72641E-01	1.31508E+00	1.67391E+00	1.03963E+00	1.57457E+00	3.03046E+00	2.90479E+00	2.07936E+00
4	1.72250E-01	1.31078E+00	1.6683E+00	1.03628E+00	1.56829E+00	3.01997E+00	2.8983E+00	2.07830E+00
5	1.71238E-01	1.29987E+00	1.66454E+00	1.02785E+00	1.55588E+00	2.99578E+00	2.88280E+00	2.07571E+00
6	1.70073E-01	1.28758E+00	1.65892E+00	1.01842E+00	1.54105E+00	2.96518E+00	2.86577E+00	2.07283E+00
7	1.69148E-01	1.27774E+00	1.62689E+00	1.01125E+00	1.52997E+00	2.94410E+00	2.85331E+00	2.07065E+00
8	1.68231E-01	1.26826E+00	1.61537E+00	1.00450E+00	1.51954E+00	2.92855E+00	2.84204E+00	2.06863E+00
9	1.67726E-01	1.26318E+00	1.60919E+00	1.00091E+00	1.51409E+00	2.91483E+00	2.83622E+00	2.06755E+00
10	1.67625E-01	1.26216E+00	1.60794E+00	1.00021E+00	1.51309E+00	2.91303E+00	2.83523E+00	2.06736E+00
11	1.67472E-01	1.26066E+00	1.60617E+00	9.99224E-01	1.51167E+00	2.91049E+00	2.83383E+00	2.06707E+00
12	1.67371E-01	1.25968E+00	1.60501E+00	9.98581E-01	1.51079E+00	2.90885E+00	2.83293E+00	2.06688E+00
13	1.67184E-01	1.25785E+00	1.60280E+00	9.97340E-01	1.50894E+00	2.90541E+00	2.83100E+00	2.06651E+00
14	1.66673E-01	1.25265E+00	1.59630E+00	9.9505E-01	1.50312E+00	2.89411E+00	2.82456E+00	2.06547E+00
15	1.66107E-01	1.24636E+00	1.58979E+00	9.9188E-01	1.49470E+00	2.8773E+00	2.81494E+00	2.06434E+00
16	1.65621E-01	1.24287E+00	1.58292E+00	9.84718E-01	1.48897E+00	2.86586E+00	2.80821E+00	2.06383E+00
17	1.65686E-01	1.24087E+00	1.57982E+00	9.82389E-01	1.48499E+00	2.85790E+00	2.80354E+00	2.06349E+00
18	1.65510E-01	1.23829E+00	1.57584E+00	9.79418E-01	1.47993E+00	2.84791E+00	2.79766E+00	2.06366E+00
19	1.65289E-01	1.23521E+00	1.57123E+00	9.76054E-01	1.47424E+00	2.83674E+00	2.79108E+00	2.06333E+00
20	1.64994E-01	1.23124E+00	1.56536E+00	9.71839E-01	1.46746E+00	2.82287E+00	2.78292E+00	2.06301E+00
21	1.64791E-01	1.22846E+00	1.56124E+00	9.68855E-01	1.46212E+00	2.81303E+00	2.77722E+00	2.06291E+00
22	1.64792E-01	1.22834E+00	1.56094E+00	9.68573E-01	1.46160E+00	2.81202E+00	2.77678E+00	2.06314E+00
23	1.64867E-01	1.22919E+00	1.56207E+00	9.6902E-01	1.46278E+00	2.81432E+00	2.77826E+00	2.06342E+00
24	1.64953E-01	1.23019E+00	1.56342E+00	9.7001E-01	1.46424E+00	2.81718E+00	2.78007E+00	2.06369E+00
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58539E+00	1.44334E+00	1.30173E+00	7.94048E-01	6.72549E-01	5.94756E-01	3.72125E-01	2.07129E-01
2	1.58531E+00	1.44324E+00	1.30152E+00	7.93816E-01	6.72340E-01	5.94471E-01	3.72093E-01	2.07110E-01
3	1.58550E+00	1.44346E+00	1.30199E+00	7.94362E-01	6.72787E-01	5.95138E-01	3.72170E-01	2.07149E-01
4	1.58655E+00	1.44471E+00	1.30465E+00	7.97831E-01	6.75339E-01	5.98885E-01	3.72585E-01	2.07371E-01
5	1.58916E+00	1.44776E+00	1.31119E+00	8.05009E-01	6.81638E-01	6.08178E-01	3.73587E-01	2.07944E-01
6	1.59208E+00	1.45110E+00	1.31896E+00	8.13353E-01	6.88562E-01	6.18456E-01	3.74657E-01	2.08505E-01
7	1.59430E+00	1.45355E+00	1.32363E+00	8.19538E-01	6.95689E-01	6.26119E-01	3.75444E-01	2.08936E-01
8	1.59639E+00	1.45577E+00	1.32843E+00	8.25217E-01	6.98981E-01	6.33181E-01	3.76134E-01	2.0927E-01
9	1.59750E+00	1.45691E+00	1.33092E+00	8.28167E-01	7.00822E-01	6.36853E-01	3.76491E-01	2.09529E-01
10	1.59770E+00	1.45710E+00	1.33132E+00	8.28642E-01	7.01221E-01	6.37442E-01	3.76551E-01	2.09564E-01
11	1.59799E+00	1.45737E+00	1.33189E+00	8.29521E-01	7.01793E-01	6.38284E-01	3.76637E-01	2.09613E-01
12	1.59818E+00	1.45754E+00	1.33226E+00	8.29760E-01	7.02163E-01	6.38829E-01	3.76692E-01	2.09646E-01
13	1.59855E+00	1.45789E+00	1.33301E+00	8.30659E-01	7.02919E-01	6.39943E-01	3.76807E-01	2.09711E-01
14	1.59959E+00	1.45902E+00	1.33642E+00	8.33457E-01	7.05265E-01	6.43428E-01	3.77172E-01	2.09918E-01
15	1.60074E+00	1.46063E+00	1.33881E+00	8.37322E-01	7.08548E-01	6.48230E-01	3.77800E-01	2.10204E-01
16	1.60129E+00	1.46170E+00	1.34105E+00	8.39816E-01	7.10652E-01	6.51320E-01	3.78034E-01	2.10388E-01
17	1.60159E+00	1.46250E+00	1.34272E+00	8.41649E-01	7.12166E-01	6.53572E-01	3.78221E-01	2.10504E-01
18	1.60204E+00	1.46358E+00	1.34500E+00	8.44154E-01	7.14216E-01	6.56542E-01	3.78428E-01	2.10649E-01
19	1.60260E+00	1.46482E+00	1.34760E+00	8.47037E-01	7.16822E-01	6.60181E-01	3.78672E-01	2.10819E-01
20	1.60338E+00	1.46638E+00	1.35090E+00	8.50711E-01	7.19996E-01	6.64691E-01	3.78970E-01	2.11032E-01
21	1.60396E+00	1.46750E+00	1.35326E+00	8.53329E-01	7.21716E-01	6.67806E-01	3.79117E-01	2.11159E-01
22	1.60402E+00	1.46761E+00	1.35349E+00	8.53599E-01	7.21856E-01	6.68136E-01	3.79031E-01	2.11133E-01
23	1.60386E+00	1.46733E+00	1.35290E+00	8.52878E-01	7.21256E-01	6.67275E-01	3.78857E-01	2.11061E-01
24	1.60366E+00	1.46698E+00	1.35216E+00	8.52038E-01	7.20531E-01	6.66224E-01	3.78742E-01	2.10986E-01
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.87323E-02	6.41539E-02	4.52538E-01	4.52611E-01	1.26457E-01	2.32781E-01	7.73894E-01	5.51708E-01
2	8.87124E-02	6.41199E-02	4.5204E-01	4.52510E-01	1.26391E-01	2.32629E-01	7.73391E-01	5.51331E-01
3	8.87486E-02	6.42070E-02	4.52567E-01	4.52698E-01	1.26545E-01	2.33102E-01	7.74432E-01	5.52403E-01
4	8.89622E-02	6.46898E-02	4.57936E-01	4.53806E-01	1.27413E-01	2.35646E-01	7.80297E-01	5.58250E-01
5	8.94902E-02	6.58982E-02	4.58893E-01	4.56532E-01	1.29574E-01	2.41993E-01	7.94852E-01	5.72790E-01
6	9.00699E-02	6.78497E-02	4.59821E-01	4.59513E-01	1.31970E-01	2.49097E-01	8.10890E-01	5.88964E-01
7	9.04987E-02	6.82718E-02	4.60538E-01	4.61705E-01	1.33763E-01	2.54463E-01	8.22844E-01	6.01106E-01
8	9.08922E-02	6.92257E-02	4.61188E-01	4.63706E-01	1.35421E-01	2.59464E-01	8.33853E-01	6.12377E-01
9	9.10977E-02	6.97241E-02	4.61525E-01	4.64745E-01	1.36284E-01	2.62073E-01	8.39571E-01	6.18249E-01

10	9.11316E-02	6.98023E-02	1.41581E-01	4.64919E-01	1.36420E-01	2.62468E-01	8.40462E-01	6.19123E-01					
11	9.11809E-02	6.99141E-02	1.41661E-01	4.65167E-01	1.36615E-01	2.63031E-01	8.41725E-01	6.20881E-01					
12	9.12128E-02	6.99866E-02	1.41713E-01	4.65327E-01	1.36740E-01	2.63396E-01	8.42547E-01	6.21187E-01					
13	9.12780E-02	7.01342E-02	1.41819E-01	4.65655E-01	1.36977E-01	2.64140E-01	8.44221E-01	6.22835E-01					
14	9.14818E-02	7.09930E-02	1.42154E-01	4.66678E-01	1.37803E-01	2.66453E-01	8.49431E-01	6.27915E-01					
15	9.17621E-02	7.12184E-02	1.42619E-01	4.68081E-01	1.38913E-01	2.69603E-01	8.56512E-01	6.34708E-01					
16	9.19418E-02	7.16165E-02	1.42980E-01	4.68978E-01	1.39627E-01	2.71601E-01	8.60983E-01	6.38913E-01					
17	9.20709E-02	7.19160E-02	1.43136E-01	4.69624E-01	1.40180E-01	2.73165E-01	8.64686E-01	6.42762E-01					
18	9.22463E-02	7.23329E-02	1.43428E-01	4.70507E-01	1.40960E-01	2.75402E-01	8.70214E-01	6.48824E-01					
19	9.24494E-02	7.28130E-02	1.43763E-01	4.71536E-01	1.41853E-01	2.78003E-01	8.76811E-01	6.56131E-01					
20	9.27078E-02	7.34263E-02	1.44193E-01	4.72856E-01	1.43023E-01	2.81378E-01	8.85597E-01	6.65982E-01					
21	9.28857E-02	7.38692E-02	1.44478E-01	4.73782E-01	1.43865E-01	2.83837E-01	8.92458E-01	6.73662E-01					
22	9.28978E-02	7.39178E-02	1.44506E-01	4.73836E-01	1.43961E-01	2.84129E-01	8.93264E-01	6.75120E-01					
23	9.28160E-02	7.38136E-02	1.44421E-01	4.73566E-01	1.43765E-01	2.83565E-01	8.91956E-01	6.73901E-01					
24	9.27822E-02	7.36823E-02	1.44315E-01	4.73242E-01	1.43517E-01	2.82846E-01	8.90221E-01	6.72164E-01					
0 Int.	grp. 25	grp. 26	grp. 27										
1	2.26151E-01	1.35519E-01	1.73802E-02										
2	2.25952E-01	1.35425E-01	1.73830E-02										
3	2.26573E-01	1.35987E-01	1.7545E-02										
4	2.29606E-01	1.38781E-01	1.83261E-02										
5	2.37159E-01	1.45770E-01	2.02894E-02										
6	2.45604E-01	1.53679E-01	2.23902E-02										
7	2.51990E-01	1.59752E-01	2.44507E-02										
8	2.57964E-01	1.65517E-01	2.63057E-02										
9	2.61086E-01	1.68548E-01	2.72593E-02										
10	2.61537E-01	1.68955E-01	2.74122E-02										
11	2.62179E-01	1.69532E-01	2.75725E-02										
12	2.62593E-01	1.69904E-01	2.76766E-02										
13	2.63434E-01	1.70640E-01	2.78867E-02										
14	2.65988E-01	1.72835E-01	2.85082E-02										
15	2.69314E-01	1.75651E-01	2.92768E-02										
16	2.71306E-01	1.77558E-01	2.97056E-02										
17	2.73299E-01	1.79591E-01	3.03602E-02										
18	2.76593E-01	1.83136E-01	3.15804E-02										
19	2.80614E-01	1.87441E-01	3.29992E-02										
20	2.86092E-01	1.93304E-01	3.48657E-02										
21	2.90462E-01	1.98086E-01	3.64000E-02										
22	2.91411E-01	1.99810E-01	3.68659E-02										
23	2.90898E-01	1.98856E-01	3.68027E-02										
24	2.8959E-01	1.98107E-01	3.66313E-02										
- elapsed time .02 min.													
ifine group summary for zone 1 by group including sum for all groups in line 28													
0 grp.	fix	source	fix	source	in	scatter	self	scatter	out	scatter	absorption	leakage	balance
1	.00000E+00	2.19649E-02	.00000E+00	1.23497E-02	1.02562E-02	3.13908E-03	1.08050E-02	9.98830E-01					
2	.00000E+00	1.90919E-01	2.26178E-03	1.65430E-01	6.57391E-02	1.35378E-02	1.13914E-01	1.00004E+00					
3	.00000E+00	2.15337E-01	2.59391E-02	1.60488E-01	8.08686E-02	1.55714E-02	1.44884E-01	1.00001E+00					
4	.00000E+00	1.24201E-01	3.87324E-02	1.05020E-01	6.77712E-02	7.44454E-03	8.77751E-02	1.00001E+00					
5	.00000E+00	1.65227E-01	6.76570E-02	2.59170E-01	9.47659E-02	4.48831E-03	1.33662E-01	9.99991E-01					
6	.00000E+00	1.78624E-01	1.34395E-01	6.53746E-01	5.44214E-02	7.09942E-03	2.51788E-01	1.00008E+00					
7	.00000E+00	8.8674E-02	9.83529E-02	7.45388E-01	3.63396E-02	7.72135E-03	1.42965E-01	1.00001E+00					
8	.00000E+00	1.36799E-02	4.25692E-02	6.31051E-01	2.14803E-02	1.41481E-02	2.06187E-02	1.00004E+00					
9	.00000E+00	9.93164E-04	2.17022E-02	5.34747E-01	2.06381E-02	2.33408E-02	-2.12831E-02	9.99990E-01					
10	.00000E+00	7.37715E-05	2.06800E-02	4.58514E-01	1.06567E-02	3.62891E-02	-2.61986E-02	1.00001E+00					
11	.00000E+00	5.80390E-06	1.06578E-02	4.18975E-01	8.11287E-03	5.86471E-02	-5.60971E-02	1.00001E+00					
12	.00000E+00	4.07714E-07	8.11292E-03	2.37012E-01	9.34645E-03	6.37660E-02	-6.49960E-02	9.99957E-01					
13	.00000E+00	6.47614E-08	9.34646E-03	1.75650E-01	6.15925E-03	5.78126E-02	-5.46259E-02	1.00001E+00					
14	.00000E+00	1.28300E-08	6.15925E-03	1.51833E-01	7.49999E-03	7.92121E-02	-8.06490E-02	1.00000E+00					
15	.00000E+00	1.44999E-09	7.58475E-03	8.53715E-02	8.94771E-03	6.68964E-03	-8.06808E-03	1.00099E+00					
16	.00000E+00	4.25751E-10	9.12581E-03	4.33987E-02	9.73769E-03	4.10607E-03	-4.72877E-03	1.00078E+00					
17	.00000E+00	1.37112E-10	7.94491E-03	1.52643E-02	7.88004E-03	4.84674E-03	-4.73746E-03	1.00044E+00					

18	.00000E+00	9.81685E-11	7.42000E-03	1.13022E-02	6.44406E-03	1.16314E-02	-1.06587E-02	1.00018E+00
19	.00000E+00	1.38789E-10	8.50848E-03	2.62845E-02	9.69011E-03	6.64942E-03	-7.83733E-03	1.00038E+00
20	.00000E+00	2.25689E-10	1.12799E-02	1.06305E-01	1.02220E-02	2.50697E-02	-2.40287E-02	1.00048E+00
21	.00000E+00	3.30351E-11	9.90182E-03	2.46789E-02	9.47212E-03	1.95259E-02	-1.91301E-02	1.00024E+00
22	.00000E+00	3.85259E-11	1.35344E-02	5.20389E-02	1.16695E-02	5.69047E-02	-5.90674E-02	1.00014E+00
23	.00000E+00	3.66438E-11	1.71087E-02	1.88300E-01	2.06455E-02	1.25074E-01	-1.28646E-01	1.00025E+00
24	.00000E+00	9.97397E-12	2.48121E-02	1.27301E-01	2.45551E-02	1.29080E-01	-1.28849E-01	1.00017E+00
25	.00000E+00	2.91973E-12	2.09252E-02	4.77306E-02	1.56681E-02	7.13802E-02	-6.61239E-02	1.00012E+00
26	.00000E+00	2.04733E-12	1.01983E-02	3.28529E-02	6.96721E-03	6.43571E-02	-6.11315E-02	1.00008E+00
27	.00000E+00	4.87859E-13	2.17960E-03	4.83590E-03	1.17205E-03	1.78452E-02	-1.68385E-02	1.00005E+00
28	.00000E+00	1.00000E+00	6.37080E-01	5.47661E+00	6.37080E-01	9.35455E-01	6.66139E-02	1.00009E+00
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rch rate	fiss rate	flux*db**2	total flux
1	1.67756E-01	1.08050E-02	1.72570E-01	.00000E+00	2.20711E-03	2.57414E-03	.00000E+00	1.17512E-01
2	1.26345E+00	1.13914E-01	1.31441E+00	.00000E+00	1.75309E-05	1.17885E-02	.00000E+00	8.90995E-01
3	1.60952E+00	1.44894E-01	1.67305E+00	.00000E+00	.00000E+00	1.45478E-02	.00000E+00	1.13620E+00
4	1.00109E+00	8.77151E-02	1.09912E+00	.00000E+00	.00000E+00	6.29651E-03	.00000E+00	7.04728E-01
5	1.51436E+00	1.33652E-01	1.57395E+00	.00000E+00	.00000E+00	1.85640E-03	.00000E+00	1.06666E+00
6	2.91531E+00	2.51788E-01	3.02941E+00	.00000E+00	.00000E+00	1.67207E-03	.00000E+00	2.05280E+00
7	2.83649E+00	1.42955E-01	2.90442E+00	.00000E+00	.00000E+00	1.69873E-03	.00000E+00	1.97966E+00
8	2.06760E+00	2.06187E-02	2.07999E+00	.00000E+00	.00000E+00	1.77322E-03	.00000E+00	1.42814E+00
9	1.59745E+00	-2.12831E-02	1.58549E+00	.00000E+00	.00000E+00	2.42071E-03	.00000E+00	1.09494E+00
10	1.45686E+00	-2.61926E-02	1.44347E+00	.00000E+00	.00000E+00	5.15569E-03	.00000E+00	9.97881E-01
11	1.33031E+00	-5.60971E-02	1.30199E+00	.00000E+00	.00000E+00	1.07150E-02	.00000E+00	9.04792E-01
12	8.28042E-01	-6.49960E-02	7.94341E-01	.00000E+00	.00000E+00	1.37916E-02	.00000E+00	5.56688E-01
13	7.00716E-01	-5.46259E-02	6.72804E-01	.00000E+00	.00000E+00	1.36260E-02	.00000E+00	4.71522E-01
14	6.36697E-01	-8.06490E-02	5.95112E-01	.00000E+00	.00000E+00	9.17978E-03	.00000E+00	4.21772E-01
15	3.76475E-01	-8.06800E-03	3.72168E-01	.00000E+00	.00000E+00	2.32677E-03	.00000E+00	2.57508E-01
16	2.09521E-01	-4.72877E-03	2.07153E-01	.00000E+00	.00000E+00	1.56920E-03	.00000E+00	1.43309E-01
17	9.10908E-02	-4.73746E-03	8.87581E-02	.00000E+00	.00000E+00	2.20845E-03	.00000E+00	6.17808E-02
18	6.97057E-02	-1.06587E-02	6.42000E-02	.00000E+00	.00000E+00	2.54205E-03	.00000E+00	4.57787E-02
19	1.41515E-01	-7.83733E-03	1.37581E-01	.00000E+00	.00000E+00	3.54318E-03	.00000E+00	9.58691E-02
20	4.64710E-01	-2.40287E-02	4.52738E-01	.00000E+00	.00000E+00	1.69539E-02	.00000E+00	3.15174E-01
21	1.36259E-01	-1.91301E-02	1.26547E-01	.00000E+00	.00000E+00	1.28785E-02	.00000E+00	8.99847E-02
22	2.61969E-01	-5.90674E-02	2.32996E-01	.00000E+00	.00000E+00	3.65695E-02	.00000E+00	1.68780E-01
23	8.39527E-01	-1.28646E-01	7.74380E-01	.00000E+00	.00000E+00	8.32065E-02	.00000E+00	5.51995E-01
24	6.18007E-01	-1.28849E-01	5.52211E-01	.00000E+00	.00000E+00	8.61648E-02	.00000E+00	3.98216E-01
25	2.60954E-01	-6.61239E-02	2.26387E-01	.00000E+00	.00000E+00	4.96856E-02	.00000E+00	1.65841E-01
26	1.68437E-01	-6.11315E-02	1.35701E-01	.00000E+00	.00000E+00	4.56855E-02	.00000E+00	1.02806E-01
27	2.72659E-02	-1.68385E-02	1.74124E-02	.00000E+00	.00000E+00	1.27786E-02	.00000E+00	1.47239E-02
28	2.35914E+01	6.66139E-02	2.35678E+01	.00000E+00	.00000E+00	2.22644E-03	.00000E+00	1.62943E+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	self scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	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	-5.96046E-08	1.00000E+00
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	7.45058E-09	1.00000E+00
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.70552E-08	9.99997E-01
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.28517E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	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	2.28517E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.16415E-08	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86285E-09	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86285E-09	1.00000E+00

19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.7597E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.2351E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.5879E-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	1.49012E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.85265E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.63685E-08	9.99992E-01
0 grp.	rt body flux	rt leakage	lft body flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.6734E-01	1.08050E-02	1.6775E-01	1.08050E-02	.00000E+00	.00000E+00	.00000E+00	5.31719E-03
2	1.25943E+00	1.13914E-01	1.26343E+00	1.13914E-01	.00000E+00	.00000E+00	.00000E+00	4.00311E-02
3	1.60471E+00	1.44834E-01	1.60952E+00	1.44834E-01	.00000E+00	.00000E+00	.00000E+00	5.10006E-02
4	9.98419E-01	8.77151E-02	1.00109E+00	8.77151E-02	.00000E+00	.00000E+00	.00000E+00	3.17264E-02
5	1.51053E+00	1.33662E-01	1.51436E+00	1.33662E-01	.00000E+00	.00000E+00	.00000E+00	4.79960E-02
6	2.90844E+00	2.51788E-01	2.91531E+00	2.51788E-01	.00000E+00	.00000E+00	.00000E+00	9.24057E-02
7	2.85271E+00	1.42966E-01	2.85649E+00	1.42966E-01	.00000E+00	.00000E+00	.00000E+00	8.99547E-02
8	2.06684E+00	2.06187E-02	2.06760E+00	2.06187E-02	.00000E+00	.00000E+00	.00000E+00	6.56035E-02
9	1.59822E+00	2.12831E-02	1.59745E+00	2.12831E-02	.00000E+00	.00000E+00	.00000E+00	5.07079E-02
10	1.45758E+00	2.61925E-02	1.45688E+00	2.61925E-02	.00000E+00	.00000E+00	.00000E+00	4.62656E-02
11	1.33235E+00	5.60971E-02	1.33081E+00	5.60971E-02	.00000E+00	.00000E+00	.00000E+00	4.22587E-02
12	8.29870E-01	6.49960E-02	8.28042E-01	6.49960E-02	.00000E+00	.00000E+00	.00000E+00	2.63079E-02
13	7.0225E-01	5.46239E-02	7.00716E-01	5.46239E-02	.00000E+00	.00000E+00	.00000E+00	2.28625E-02
14	6.3996E-01	8.06490E-02	6.36697E-01	8.06490E-02	.00000E+00	.00000E+00	.00000E+00	2.02627E-02
15	3.76710E-01	8.06808E-03	3.76479E-01	8.06808E-03	.00000E+00	.00000E+00	.00000E+00	1.19513E-02
16	2.09654E-01	4.72878E-03	2.09521E-01	4.72877E-03	.00000E+00	.00000E+00	.00000E+00	6.65134E-03
17	9.1223E-02	4.7374E-03	9.10908E-02	4.7374E-03	.00000E+00	.00000E+00	.00000E+00	2.89286E-03
18	7.00070E-02	1.06587E-02	6.97057E-02	1.06587E-02	.00000E+00	.00000E+00	.00000E+00	2.21698E-03
19	1.41731E-01	7.83733E-03	1.41515E-01	7.83733E-03	.00000E+00	.00000E+00	.00000E+00	4.49438E-03
20	4.65377E-01	2.40287E-02	4.64710E-01	2.40287E-02	.00000E+00	.00000E+00	.00000E+00	1.47582E-02
21	1.36779E-01	1.91301E-02	1.36253E-01	1.91301E-02	.00000E+00	.00000E+00	.00000E+00	4.35240E-03
22	2.63487E-01	5.50674E-02	2.61969E-01	5.50674E-02	.00000E+00	.00000E+00	.00000E+00	8.33838E-03
23	8.42744E-01	1.28946E-01	8.39327E-01	1.28946E-01	.00000E+00	.00000E+00	.00000E+00	2.66922E-02
24	6.21380E-01	1.28849E-01	6.18007E-01	1.28849E-01	.00000E+00	.00000E+00	.00000E+00	1.96679E-02
25	2.62693E-01	6.61239E-02	2.60964E-01	6.61239E-02	.00000E+00	.00000E+00	.00000E+00	8.31006E-03
26	1.69994E-01	6.11315E-02	1.68437E-01	6.11315E-02	.00000E+00	.00000E+00	.00000E+00	5.37092E-03
27	2.77020E-02	1.68385E-02	2.7689E-02	1.68385E-02	.00000E+00	.00000E+00	.00000E+00	8.72647E-04
28	2.35871E+01	6.66144E-02	2.35914E+01	6.66138E-02	.00000E+00	.00000E+00	.00000E+00	7.48610E-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	3.68837E-03	2.76490E-03	1.41690E-05	-2.68044E-03	1.00001E+00
2	.00000E+00	.00000E+00	4.82884E-04	2.56625E-02	1.84141E-02	5.09828E-05	-1.79825E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.60917E-03	4.99148E-02	1.57825E-02	1.36521E-04	-1.33089E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.08743E-03	4.19992E-02	5.43799E-03	1.03103E-04	-4.53341E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.09722E-02	8.15405E-02	5.15682E-03	1.51908E-04	5.66314E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.83660E-02	2.34945E-01	3.21000E-03	3.19927E-04	1.48362E-02	9.99997E-01
7	.00000E+00	.00000E+00	1.22417E-02	2.35115E-01	1.18181E-03	3.44647E-04	1.07153E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.15447E-03	1.58474E-01	7.69077E-03	2.94718E-04	-5.77158E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.66388E-03	1.05108E-01	8.76150E-04	1.10829E-03	5.67971E-03	9.99988E-01
10	.00000E+00	.00000E+00	8.77321E-04	8.54438E-02	8.47751E-04	8.34410E-04	-8.04784E-04	9.99998E-01
11	.00000E+00	.00000E+00	8.47812E-04	7.68869E-02	8.68319E-04	1.33410E-03	-1.35452E-03	9.99999E-01
12	.00000E+00	.00000E+00	8.68325E-04	4.67062E-02	8.69533E-04	4.15839E-05	-4.22820E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.68954E-04	3.95406E-02	8.06602E-04	6.00341E-05	2.37301E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.06602E-04	3.62159E-02	6.82473E-04	9.64626E-05	2.76342E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.26861E-04	2.07254E-02	8.48221E-04	8.32306E-05	-2.03971E-04	9.99944E-01
16	.00000E+00	.00000E+00	9.51757E-04	1.10438E-02	9.56740E-04	5.20408E-05	-5.66542E-05	9.99936E-01
17	.00000E+00	.00000E+00	1.05252E-03	4.20045E-03	1.03395E-03	2.53799E-05	-6.76839E-06	9.99993E-01
18	.00000E+00	.00000E+00	1.09083E-03	3.06237E-03	9.88825E-04	2.09709E-05	8.10549E-05	9.99997E-01
19	.00000E+00	.00000E+00	1.01044E-03	7.08879E-03	1.04589E-03	4.59256E-05	-8.12821E-05	9.99992E-01

20	.00000E+00	.00000E+00	1.26042E-03	2.56127E-02	1.08889E-03	1.90432E-04	-1.80267E-05	9.99989E-01
21	.00000E+00	.00000E+00	1.40802E-03	6.38091E-03	1.52417E-03	7.02981E-05	-1.85367E-04	9.99998E-01
22	.00000E+00	.00000E+00	1.92587E-03	1.36088E-02	1.80541E-03	1.57402E-04	-3.55939E-05	9.99994E-01
23	.00000E+00	.00000E+00	2.57350E-03	4.53980E-02	3.33297E-03	6.87511E-04	-1.44492E-03	1.00000E+00
24	.00000E+00	.00000E+00	4.07022E-03	3.17198E-02	4.35306E-03	7.38901E-04	-1.02194E-03	1.00000E+00
25	.00000E+00	.00000E+00	3.91555E-03	1.21607E-02	3.13000E-03	4.13616E-04	3.71881E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.62904E-03	8.79963E-03	1.16289E-03	3.84246E-04	8.19713E-05	9.99999E-01
27	.00000E+00	.00000E+00	3.37200E-04	1.64445E-03	8.49857E-07	1.20642E-04	2.15705E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.58011E-02	1.41259E+00	8.58010E-02	7.88144E-03	-7.77970E-03	9.99986E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rht rate	fiss rate	flux*db*2	total flux
1	1.65766E-01	8.12654E-03	1.67346E-01	1.08050E-02	9.87871E-05	.00000E+00	.00000E+00	3.60539E-02
2	1.26208E+00	9.55318E-02	1.25943E+00	1.13914E-01	.00000E+00	.00000E+00	.00000E+00	2.70809E-01
3	1.58170E+00	1.31526E-01	1.60471E+00	1.44834E-01	.00000E+00	.00000E+00	.00000E+00	3.45043E-01
4	9.88810E-01	8.72619E-02	9.98419E-01	8.77151E-02	.00000E+00	.00000E+00	.00000E+00	2.14720E-01
5	1.48743E+00	1.39825E-01	1.51053E+00	1.33662E-01	.00000E+00	.00000E+00	.00000E+00	3.24804E-01
6	2.85271E+00	2.66624E-01	2.90844E+00	2.51788E-01	.00000E+00	.00000E+00	.00000E+00	6.25312E-01
7	2.80637E+00	1.53681E-01	2.83271E+00	1.42945E-01	.00000E+00	.00000E+00	.00000E+00	6.11044E-01
8	2.06374E+00	1.48471E-02	2.06684E+00	2.06187E-02	.00000E+00	.00000E+00	.00000E+00	4.47523E-01
9	1.60140E+00	-1.56094E-02	1.59822E+00	-2.12831E-02	.00000E+00	.00000E+00	.00000E+00	3.46788E-01
10	1.46198E+00	-2.69973E-02	1.45758E+00	-2.61925E-02	.00000E+00	.00000E+00	.00000E+00	3.16386E-01
11	1.34164E+00	-5.76517E-02	1.33235E+00	-5.60971E-02	.00000E+00	.00000E+00	.00000E+00	2.86800E-01
12	8.40460E-01	-6.50833E-02	8.39870E-01	-6.49960E-02	.00000E+00	.00000E+00	.00000E+00	1.81063E-01
13	7.11198E-01	-5.46236E-02	7.02250E-01	-5.46259E-02	.00000E+00	.00000E+00	.00000E+00	1.53217E-01
14	6.52118E-01	-8.06213E-02	6.39964E-01	-8.06490E-02	.00000E+00	.00000E+00	.00000E+00	1.39983E-01
15	3.78128E-01	-8.27207E-03	3.76710E-01	-8.06808E-03	.00000E+00	.00000E+00	.00000E+00	8.18008E-02
16	2.10436E-01	-4.78543E-03	2.09654E-01	-4.72878E-03	.00000E+00	.00000E+00	.00000E+00	4.95262E-02
17	9.19902E-02	-4.74423E-03	9.12236E-02	-4.73746E-03	.00000E+00	.00000E+00	.00000E+00	1.98578E-02
18	7.17207E-02	-1.05777E-02	7.00070E-02	-1.06587E-02	.00000E+00	.00000E+00	.00000E+00	1.53689E-02
19	1.43004E-01	-7.91861E-03	1.41731E-01	-7.83733E-03	.00000E+00	.00000E+00	.00000E+00	3.08608E-02
20	4.69219E-01	-2.40467E-02	4.65377E-01	-2.40287E-02	.00000E+00	.00000E+00	.00000E+00	1.01297E-01
21	1.39818E-01	-1.93165E-02	1.36779E-01	-1.91301E-02	.00000E+00	.00000E+00	.00000E+00	2.99892E-02
22	2.72111E-01	-5.51040E-02	2.69487E-01	-5.50574E-02	.00000E+00	.00000E+00	.00000E+00	5.80974E-02
23	8.62108E-01	-1.30090E-01	8.42744E-01	-1.28546E-01	.00000E+00	.00000E+00	.00000E+00	1.84879E-01
24	6.39951E-01	-1.29871E-01	6.21380E-01	-1.28849E-01	.00000E+00	.00000E+00	.00000E+00	1.36835E-01
25	2.71783E-01	-6.57520E-02	2.68939E-01	-6.61239E-02	.00000E+00	.00000E+00	.00000E+00	5.80097E-02
26	1.77959E-01	-6.10495E-02	1.69994E-01	-6.11315E-02	.00000E+00	.00000E+00	.00000E+00	3.77999E-02
27	2.98025E-02	-1.66228E-02	2.77020E-02	-1.68895E-02	.00000E+00	.00000E+00	.00000E+00	6.28071E-03
28	2.35604E+01	5.88338E-02	2.35871E+01	6.66144E-02	9.87871E-05	.00000E+00	.00000E+00	5.10913E+00
1	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.82799E-03	7.71383E-03	4.11113E-04	-8.12654E-03	9.99950E-01
2	.00000E+00	.00000E+00	4.42610E-03	7.55509E-02	9.98578E-02	1.06390E-03	-9.59318E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.70913E-02	6.86507E-02	1.78614E-01	5.39586E-06	-1.31526E-01	9.99977E-01
4	.00000E+00	.00000E+00	6.98545E-02	4.57275E-02	1.57115E-01	3.22207E-06	-8.72619E-02	9.99989E-01
5	.00000E+00	.00000E+00	1.29337E-01	1.48299E-01	2.68616E-01	3.78959E-06	-1.39525E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.74231E-01	4.59062E-01	5.40845E-01	1.14712E-05	-2.66624E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.52150E-01	7.94020E-01	7.06814E-01	2.53428E-05	-1.53680E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35133E-01	1.00024E+00	7.50000E-01	4.69800E-05	-1.48472E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.40301E-01	9.15111E-01	7.26484E-01	9.58075E-05	1.56053E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.21457E-01	8.63964E-01	6.94323E-01	2.11105E-04	2.69973E-02	9.99896E-01
11	.00000E+00	.00000E+00	6.99880E-01	8.03544E-01	6.41518E-01	4.56312E-04	5.76516E-02	9.99941E-01
12	.00000E+00	.00000E+00	5.58662E-01	4.18944E-01	4.92599E-01	5.96109E-04	6.50833E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.88879E-01	3.37930E-01	4.33372E-01	8.97617E-04	5.46236E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.69941E-01	3.24681E-01	3.87856E-01	1.46941E-03	8.06213E-02	9.99899E-01
15	.00000E+00	.00000E+00	2.52355E-01	1.29599E-01	2.42791E-01	1.29130E-03	8.27416E-03	9.99994E-01
16	.00000E+00	.00000E+00	1.67564E-01	5.49505E-02	1.61889E-01	8.89502E-04	4.78070E-03	9.99990E-01
17	.00000E+00	.00000E+00	8.66300E-02	1.56546E-02	8.14500E-02	4.37270E-04	4.74087E-03	1.00003E+00
18	.00000E+00	.00000E+00	7.70199E-02	1.20920E-02	6.60731E-02	3.69968E-04	1.05744E-02	1.00003E+00
19	.00000E+00	.00000E+00	1.28974E-01	3.61216E-02	1.19885E-01	7.91748E-04	7.91324E-03	1.00003E+00
20	.00000E+00	.00000E+00	3.15825E-01	2.55175E-01	2.88510E-01	3.26458E-03	2.40503E-02	9.99999E-01

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

21	.0000E+00	.0000E+00	1.5048E-01	4.9943E-02	1.2992E-01	1.2375E-03	1.9808E-02	1.0000E+00
22	.0000E+00	.0000E+00	2.8814E-01	1.4794E-01	2.3022E-01	2.8120E-03	5.5107E-02	9.9999E-01
23	.0000E+00	.0000E+00	6.9524E-01	8.3916E-01	5.5105E-01	1.2098E-02	1.3009E-01	1.0001E+00
24	.0000E+00	.0000E+00	7.0954E-01	7.3372E-01	5.6336E-01	1.3301E-02	1.2885E-01	1.0001E+00
25	.0000E+00	.0000E+00	4.5650E-01	2.9785E-01	3.8319E-01	7.5547E-03	6.5750E-02	1.0000E+00
26	.0000E+00	.0000E+00	3.5998E-01	3.1575E-01	2.9163E-01	7.2944E-03	6.1057E-02	9.9998E-01
27	.0000E+00	.0000E+00	1.1946E-01	6.5865E-02	1.0039E-01	2.5062E-03	1.6629E-02	9.9998E-01
28	.0000E+00	.0000E+00	9.2961E+00	9.2122E+00	9.2961E+00	5.9146E-02	-5.8840E-02	9.9996E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rdn rate	fiss rate	flux*db**2	total flux
1	1.6497E-01	2.1080E-09	1.6576E-01	8.1265E-03	4.2697E-10	.0000E+00	.0000E+00	1.8884E-01
2	1.2307E+00	-4.8772E-03	1.2420E+00	9.5931E-02	.0000E+00	.0000E+00	.0000E+00	1.4090E+00
3	1.5641E+00	-3.9433E-09	1.5817E+00	1.3152E-01	.0000E+00	.0000E+00	.0000E+00	1.7914E+00
4	9.7057E-01	2.1652E-03	9.8381E-01	8.7261E-02	.0000E+00	.0000E+00	.0000E+00	1.1121E+00
5	1.4650E+00	-2.2368E-03	1.4874E+00	1.3982E-01	.0000E+00	.0000E+00	.0000E+00	1.6788E+00
6	2.8186E+00	2.3789E-07	2.8527E+00	2.6662E-01	.0000E+00	.0000E+00	.0000E+00	3.2301E+00
7	2.7810E+00	1.7537E-07	2.8063E+00	1.5368E-01	.0000E+00	.0000E+00	.0000E+00	3.1848E+00
8	2.0638E+00	-1.2009E-07	2.0637E+00	1.4847E-02	.0000E+00	.0000E+00	.0000E+00	2.3613E+00
9	1.6036E+00	-4.9214E-03	1.6014E+00	-1.5603E-02	.0000E+00	.0000E+00	.0000E+00	1.8351E+00
10	1.4668E+00	-6.0152E-03	1.4619E+00	-2.6973E-02	.0000E+00	.0000E+00	.0000E+00	1.6784E+00
11	1.3517E+00	-4.2616E-03	1.3414E+00	-5.7451E-02	.0000E+00	.0000E+00	.0000E+00	1.5463E+00
12	8.5198E-01	-1.9210E-03	8.4046E-01	-6.5088E-02	.0000E+00	.0000E+00	.0000E+00	9.7385E-01
13	7.2015E-01	-1.5620E-09	7.1119E-01	-5.4623E-02	.0000E+00	.0000E+00	.0000E+00	8.2371E-01
14	6.6567E-01	1.0885E-03	6.5211E-01	-8.0621E-02	.0000E+00	.0000E+00	.0000E+00	7.6099E-01
15	3.7867E-01	2.0912E-06	3.7812E-01	-8.2720E-03	.0000E+00	.0000E+00	.0000E+00	4.3363E-01
16	2.1094E-01	1.6475E-06	2.1043E-01	-4.7854E-03	.0000E+00	.0000E+00	.0000E+00	2.4150E-01
17	9.2752E-02	-3.3560E-06	9.1990E-02	-4.7442E-03	.0000E+00	.0000E+00	.0000E+00	1.0615E-01
18	7.3615E-02	-3.2149E-06	7.1720E-02	-1.0577E-02	.0000E+00	.0000E+00	.0000E+00	8.4078E-02
19	1.4426E-01	-5.3719E-06	1.4300E-01	-7.9186E-03	.0000E+00	.0000E+00	.0000E+00	1.6504E-01
20	4.7308E-01	3.6112E-06	4.6921E-01	-2.4046E-02	.0000E+00	.0000E+00	.0000E+00	5.4124E-01
21	1.4339E-01	-8.4531E-06	1.3981E-01	-1.9316E-02	.0000E+00	.0000E+00	.0000E+00	1.6376E-01
22	2.8246E-01	3.5735E-06	2.7211E-01	-5.5104E-02	.0000E+00	.0000E+00	.0000E+00	3.2229E-01
23	8.8928E-01	-5.7110E-07	8.8210E-01	-1.3009E-01	.0000E+00	.0000E+00	.0000E+00	1.0145E+00
24	6.7121E-01	-2.5373E-06	6.3951E-01	-1.2987E-01	.0000E+00	.0000E+00	.0000E+00	7.6364E-01
25	2.8947E-01	-1.5539E-06	2.7178E-01	-6.5752E-02	.0000E+00	.0000E+00	.0000E+00	3.2836E-01
26	1.9789E-01	7.8522E-06	1.7799E-01	-6.1049E-02	.0000E+00	.0000E+00	.0000E+00	2.2240E-01
27	3.6526E-02	2.2743E-07	2.9802E-02	-1.6622E-02	.0000E+00	.0000E+00	.0000E+00	4.0312E-02
28	2.3601E+01	-5.9695E-06	2.3560E+01	5.8838E-02	4.2697E-10	.0000E+00	.0000E+00	2.7002E+01
1fine group summary for system								
0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.0000E+00	2.1964E-02	.0000E+00	2.1864E-02	2.0735E-02	3.5643E-03	2.1080E-09	9.9882E-01
2	.0000E+00	1.9091E-01	7.1706E-03	2.6664E-01	1.8345E-01	1.4652E-02	-4.8772E-03	1.0000E+00
3	.0000E+00	2.1533E-01	7.5639E-02	2.7903E-01	2.7526E-01	1.5713E-02	-3.9433E-09	9.9998E-01
4	.0000E+00	1.2420E-01	1.1367E-01	1.9274E-01	2.3052E-01	7.5508E-03	2.1652E-03	1.0000E+00
5	.0000E+00	1.6522E-01	2.0797E-01	4.8900E-01	3.6858E-01	4.6299E-03	-2.2368E-03	9.9998E-01
6	.0000E+00	1.7892E-01	4.2699E-01	1.3437E+00	5.9847E-01	7.4308E-03	2.3789E-07	1.0001E+00
7	.0000E+00	8.8574E-02	6.6274E-01	1.7754E+00	7.4333E-01	8.0913E-03	1.7537E-07	9.9998E-01
8	.0000E+00	1.3679E-02	7.7985E-01	1.7897E+00	7.7911E-01	1.4488E-02	-1.2009E-07	9.9992E-01
9	.0000E+00	9.9816E-04	7.6967E-01	1.5549E+00	7.4619E-01	2.4544E-02	-4.9214E-03	9.9989E-01
10	.0000E+00	7.3771E-05	7.4294E-01	1.4092E+00	7.0582E-01	3.7314E-02	-6.0152E-03	9.9990E-01
11	.0000E+00	5.8090E-06	7.1089E-01	1.2994E+00	6.5047E-01	6.0437E-02	-4.2616E-03	9.9994E-01
12	.0000E+00	4.0774E-07	5.6754E-01	7.0266E-01	5.0515E-01	6.4403E-02	-1.9210E-03	9.9997E-01
13	.0000E+00	6.4744E-03	4.9904E-01	5.5312E-01	4.4033E-01	5.8770E-02	-1.5620E-09	9.9997E-01
14	.0000E+00	1.2890E-08	4.7690E-01	5.1273E-01	3.9603E-01	8.0878E-02	1.0885E-03	9.9998E-01
15	.0000E+00	1.4469E-09	2.6067E-01	2.3569E-01	2.5237E-01	8.0644E-03	2.0912E-06	1.0000E+00
16	.0000E+00	4.2575E-10	1.7762E-01	1.0959E-01	1.7283E-01	5.0476E-03	1.6629E-02	1.0000E+00
17	.0000E+00	1.3712E-10	9.5628E-02	3.5119E-02	9.0314E-02	5.3078E-03	-3.3560E-06	1.0000E+00
18	.0000E+00	9.8168E-11	8.5530E-02	2.6466E-02	7.3509E-02	1.2022E-02	-3.2149E-06	1.0000E+00
19	.0000E+00	1.3878E-11	1.3811E-01	6.9444E-02	1.3062E-01	7.4871E-03	-5.3719E-06	1.0000E+00
20	.0000E+00	2.2568E-10	3.2836E-01	3.8909E-01	2.9982E-01	2.8526E-02	3.6112E-06	1.0000E+00
21	.0000E+00	3.3083E-11	1.6179E-01	8.0793E-02	1.4092E-01	2.0860E-02	-8.4531E-06	1.0000E+00

22	.00000E+00	3.83259E-11	3.08604E-01	2.13487E-01	2.43719E-01	5.98741E-02	3.57357E-06	1.00000E+00
23	.00000E+00	3.66438E-11	7.12952E-01	1.07286E+00	5.75084E-01	1.37889E-01	-5.71100E-07	1.00000E+00
24	.00000E+00	9.97397E-12	7.39426E-01	8.92765E-01	5.95278E-01	1.43121E-01	-2.53733E-06	1.00000E+00
25	.00000E+00	2.91973E-12	4.81342E-01	3.57746E-01	4.01982E-01	7.98486E-02	-1.55391E-06	1.00000E+00
26	.00000E+00	2.04733E-12	3.71811E-01	3.57384E-01	2.99769E-01	7.20358E-02	7.85225E-06	9.99998E-01
27	.00000E+00	4.87889E-13	1.21985E-01	7.23509E-02	1.01512E-01	2.04720E-02	2.27438E-07	1.00001E+00
28	.00000E+00	1.00000E+00	1.00190E+01	1.61017E+01	1.00190E+01	1.00249E+00	-5.99568E-06	9.99995E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	nbn rate	fiss rate	fluxdb**2	total flux
1	1.64997E-01	2.10805E-09	1.72576E-01	.00000E+00	2.30590E-03	2.57414E-03	.00000E+00	3.47733E-01
2	1.23071E+00	-4.87721E-08	1.31441E+00	.00000E+00	1.75309E-05	1.17886E-02	.00000E+00	2.61059E+00
3	1.56413E+00	-3.94333E-09	1.67305E+00	.00000E+00	.00000E+00	1.45478E-02	.00000E+00	3.32164E+00
4	9.70670E-01	2.16520E-08	1.09712E+00	.00000E+00	.00000E+00	6.28661E-03	.00000E+00	2.06328E+00
5	1.46501E+00	-2.23687E-08	1.57395E+00	.00000E+00	.00000E+00	1.85640E-03	.00000E+00	3.11830E+00
6	2.81868E+00	2.37693E-07	3.02941E+00	.00000E+00	.00000E+00	1.67207E-03	.00000E+00	6.00050E+00
7	2.78100E+00	1.75371E-07	2.90442E+00	.00000E+00	.00000E+00	1.69873E-03	.00000E+00	5.86556E+00
8	2.06382E+00	-1.20098E-07	2.07897E+00	.00000E+00	.00000E+00	1.77322E-03	.00000E+00	4.30265E+00
9	1.60356E+00	-4.92143E-08	1.58549E+00	.00000E+00	.00000E+00	2.42091E-03	.00000E+00	3.32763E+00
10	1.46680E+00	-6.01529E-08	1.44347E+00	.00000E+00	.00000E+00	5.19569E-03	.00000E+00	3.03873E+00
11	1.35177E+00	-4.26168E-08	1.30199E+00	.00000E+00	.00000E+00	1.07150E-02	.00000E+00	2.78319E+00
12	8.51598E-01	-1.92106E-08	7.96341E-01	.00000E+00	.00000E+00	1.37916E-02	.00000E+00	1.73991E+00
13	7.20153E-01	-1.56201E-09	6.72804E-01	.00000E+00	.00000E+00	1.36260E-02	.00000E+00	1.47051E+00
14	6.65674E-01	1.03850E-08	5.95112E-01	.00000E+00	.00000E+00	9.17978E-03	.00000E+00	1.34296E+00
15	3.78673E-01	2.09122E-06	3.72169E-01	.00000E+00	.00000E+00	2.32477E-03	.00000E+00	7.84918E-01
16	2.10948E-01	1.64750E-06	2.07153E-01	.00000E+00	.00000E+00	1.56900E-03	.00000E+00	4.36995E-01
17	9.27525E-02	-3.35600E-06	8.87581E-02	.00000E+00	.00000E+00	2.20864E-03	.00000E+00	1.90646E-01
18	7.36155E-02	-3.21493E-06	6.42002E-02	.00000E+00	.00000E+00	2.54205E-03	.00000E+00	1.47403E-01
19	1.44266E-01	-5.37192E-06	1.37581E-01	.00000E+00	.00000E+00	3.54318E-03	.00000E+00	2.96270E-01
20	4.73085E-01	3.61124E-06	4.52738E-01	.00000E+00	.00000E+00	1.69539E-02	.00000E+00	9.72474E-01
21	1.43397E-01	-8.45319E-06	1.26547E-01	.00000E+00	.00000E+00	1.28783E-02	.00000E+00	2.88022E-01
22	2.82468E-01	3.57357E-06	2.32998E-01	.00000E+00	.00000E+00	3.65695E-02	.00000E+00	5.57494E-01
23	8.89289E-01	-5.71100E-07	7.74383E-01	.00000E+00	.00000E+00	8.32006E-02	.00000E+00	1.77813E+00
24	6.71217E-01	-2.53733E-06	5.52211E-01	.00000E+00	.00000E+00	8.61648E-02	.00000E+00	1.31925E+00
25	2.89473E-01	-1.55391E-06	2.26387E-01	.00000E+00	.00000E+00	4.96836E-02	.00000E+00	5.60524E-01
26	1.97659E-01	7.85225E-06	1.35701E-01	.00000E+00	.00000E+00	4.56895E-02	.00000E+00	3.68377E-01
27	3.65267E-02	2.27438E-07	1.74124E-02	.00000E+00	.00000E+00	1.27786E-02	.00000E+00	6.21699E-02
28	2.36019E-01	-5.96958E-06	2.35678E-01	.00000E+00	2.32943E-03	4.53208E-01	.00000E+00	4.90943E+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	2.32029E-03	2.46432E-02	3.14960E-02	1.91146E-02	2.92591E-02	5.58960E-02	3.18415E-02	4.61034E-03
2	3.63221E-03	3.82934E-02	4.86876E-02	2.94863E-02	4.49519E-02	8.46411E-02	4.80592E-02	6.93116E-03
3	2.95138E-03	3.26702E-02	4.29859E-02	2.71862E-02	4.29898E-02	8.04845E-02	4.60466E-02	5.53407E-03
4	1.01878E-03	1.20220E-02	1.64775E-02	1.09272E-02	1.74414E-02	3.33811E-02	1.95152E-02	1.98607E-03
5	1.69031E-03	1.87470E-02	2.46961E-02	1.56111E-02	2.63670E-02	4.65140E-02	2.66799E-02	3.29889E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.76323E-03	5.86906E-03	1.25367E-02	1.44708E-02	1.21700E-02	1.78675E-02	1.82534E-03	1.05963E-03
2	7.15452E-03	8.80490E-03	1.88576E-02	2.18491E-02	1.85631E-02	2.71110E-02	2.71215E-03	1.58962E-03
3	5.75377E-03	8.26024E-03	1.76352E-02	2.02020E-02	1.69731E-02	2.50551E-02	2.53800E-03	1.47790E-03
4	1.91944E-03	3.36057E-03	7.16180E-03	8.11418E-03	6.85338E-03	1.00771E-02	1.10575E-03	6.22081E-04
5	3.33907E-03	4.78943E-03	1.02094E-02	1.14847E-02	9.84101E-03	1.44731E-02	1.51738E-03	8.70663E-04
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.05475E-03	2.33689E-03	1.76176E-03	5.37297E-03	4.22154E-03	1.20619E-02	2.84650E-02	2.83012E-02
2	1.59250E-03	3.58292E-03	2.63450E-03	8.07731E-03	6.43043E-03	1.85115E-02	4.32499E-02	4.33146E-02
3	1.47296E-03	3.29918E-03	2.44771E-03	7.46892E-03	5.97175E-03	1.71157E-02	4.01914E-02	4.01905E-02
4	5.95243E-04	1.30954E-03	9.99810E-04	3.03522E-03	2.40481E-03	6.88900E-03	1.65054E-02	1.64319E-02
5	8.54371E-04	1.89717E-03	1.42751E-03	4.34696E-03	3.43847E-03	9.83099E-03	2.33356E-02	2.32414E-02
Ozone	grp. 25	grp. 26	grp. 27	grp. 28				
1	1.44409E-02	1.31470E-02	3.44384E-03	3.84351E-01				
2	2.22285E-02	2.05609E-02	5.66049E-03	5.86934E-01				

3. 2.04903E-02 1.89825E-02 5.19966E-03 5.40975E-01
4. 8.29796E-03 7.56785E-03 1.90505E-03 2.17707E-01
5. 1.18116E-02 1.07995E-02 2.81431E-03 3.12114E-01

1 240 cl, ses2h: babcock w/look 15x15, 3.00wcl, 20gcl/mhu burn high temp
Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.70692E-01	1.29416E+00	1.64749E+00	1.02366E+00	1.54988E+00	2.98152E+00	2.87557E+00	2.07444E+00
2	1.67548E-01	1.26141E+00	1.60707E+00	9.99721E-01	1.51299E+00	2.91177E+00	2.89454E+00	2.06721E+00
3	1.66402E-01	1.24756E+00	1.59208E+00	9.90752E-01	1.46870E+00	2.88529E+00	2.81946E+00	2.06494E+00
4	1.64993E-01	1.23114E+00	1.56517E+00	9.71662E-01	1.46688E+00	2.82225E+00	2.78268E+00	2.06318E+00
5	1.67064E-01	1.25437E+00	1.59584E+00	9.91275E-01	1.46815E+00	2.88286E+00	2.81802E+00	2.06715E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59046E+00	1.44919E+00	1.31426E+00	8.08612E-01	6.84621E-01	6.12646E-01	3.74037E-01	2.08164E-01
2	1.59784E+00	1.45723E+00	1.33160E+00	8.28980E-01	7.01506E-01	6.37861E-01	3.76894E-01	2.09588E-01
3	1.60013E+00	1.45988E+00	1.33719E+00	8.35452E-01	7.06969E-01	6.45905E-01	3.77442E-01	2.10065E-01
4	1.60343E+00	1.46646E+00	1.35108E+00	8.50859E-01	7.19688E-01	6.64800E-01	3.78898E-01	2.11010E-01
5	1.59871E+00	1.45992E+00	1.33714E+00	8.34953E-01	7.06488E-01	6.45206E-01	3.77103E-01	2.09949E-01
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.97398E-02	6.64900E-02	1.39259E-01	4.57807E-01	1.30520E-01	2.45133E-01	8.01802E-01	5.79882E-01
2	9.11561E-02	6.98580E-02	1.41621E-01	4.68042E-01	1.36517E-01	2.62748E-01	8.41093E-01	6.19751E-01
3	9.16263E-02	7.09144E-02	1.42394E-01	4.67401E-01	1.38376E-01	2.68071E-01	8.53064E-01	6.31578E-01
4	9.27138E-02	7.34609E-02	1.44203E-01	4.72893E-01	1.43093E-01	2.81597E-01	8.85436E-01	6.67204E-01
5	9.15952E-02	7.08572E-02	1.42392E-01	4.67212E-01	1.38376E-01	2.67841E-01	8.54277E-01	6.33868E-01
Ozone	grp. 25	grp. 26	grp. 27					
1	2.40893E-01	1.49832E-01	2.13871E-02					
2	2.61856E-01	1.69842E-01	2.74920E-02					
3	2.67666E-01	1.74396E-01	2.88879E-02					
4	2.86895E-01	1.94317E-01	3.52220E-02					
5	2.69256E-01	1.76982E-01	2.98687E-02					

Of LUX 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	1.02172E+00	1.03172E+00	1.05257E+00	1.08267E+00	1.08419E+00	1.08422E+00	1.08042E+00	1.00853E+00
2	1.00290E+00	1.00561E+00	1.00704E+00	1.00852E+00	1.00851E+00	1.01008E+00	1.00886E+00	1.00008E+00
3	9.98038E-01	9.96167E-01	9.97648E-01	9.99473E-01	1.00057E+00	1.00084E+00	1.00051E+00	9.98933E-01
4	9.87605E-01	9.81488E-01	9.80781E-01	9.80215E-01	9.79099E-01	9.78978E-01	9.82458E-01	9.98079E-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	9.94857E-01	9.92650E-01	9.92885E-01	9.92852E-01	9.92049E-01	9.94537E-01	9.91868E-01	9.91502E-01
2	9.99455E-01	9.98161E-01	9.95854E-01	9.92846E-01	9.92948E-01	9.98818E-01	9.98850E-01	9.98285E-01
3	1.00089E+00	9.99961E-01	1.00003E+00	1.00060E+00	1.00068E+00	1.00107E+00	1.00090E+00	1.00056E+00
4	1.00255E+00	1.00448E+00	1.01040E+00	1.01906E+00	1.01886E+00	1.03044E+00	1.00478E+00	1.00505E+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	9.79768E-01	9.38716E-01	9.78334E-01	9.79871E-01	9.43951E-01	9.15220E-01	9.36574E-01	9.14831E-01
2	9.95229E-01	9.86177E-01	9.94957E-01	9.95356E-01	9.88564E-01	9.80988E-01	9.84566E-01	9.77728E-01
3	1.00056E+00	1.00109E+00	1.00089E+00	1.00040E+00	9.99995E-01	1.00086E+00	9.98680E-01	9.98071E-01
4	1.01224E+00	1.03704E+00	1.01310E+00	1.01216E+00	1.03409E+00	1.05136E+00	1.03764E+00	1.05259E+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	8.94530E-01	8.43769E-01	7.16057E-01					
2	9.72573E-01	9.56257E-01	9.20431E-01					
3	9.98948E-01	9.85328E-01	9.67165E-01					
4	1.06535E+00	1.09795E+00	1.17923E+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	2.5202E-03	2.46432E-02	3.14960E-02	1.91146E-02	2.92597E-02	5.58960E-02	3.18415E-02	4.6103E-03

2	3.63221E-03	3.82934E-02	4.86878E-02	2.94835E-02	4.49319E-02	8.46411E-02	4.80592E-02	6.93116E-03
3	2.95133E-03	3.26702E-02	4.29859E-02	2.71862E-02	4.29858E-02	8.04845E-02	4.60468E-02	5.53407E-03
4	1.01878E-03	1.20223E-02	1.64775E-02	1.09272E-02	1.74414E-02	3.33811E-02	1.95152E-02	1.98607E-03
5	1.69031E-03	1.87470E-02	2.46961E-02	1.56111E-02	2.43670E-02	4.65140E-02	2.66799E-02	3.29888E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.76323E-03	5.86906E-03	1.25367E-02	1.44708E-02	1.21700E-02	1.78575E-02	1.82534E-03	1.05963E-03
2	7.15452E-03	8.80490E-03	1.88578E-02	2.18491E-02	1.88631E-02	2.71110E-02	2.71215E-03	1.58962E-03
3	5.75377E-03	8.26024E-03	1.76352E-02	2.02020E-02	1.69731E-02	2.50551E-02	2.53800E-03	1.47790E-03
4	1.91944E-03	3.36057E-03	7.16180E-03	8.11418E-03	6.85335E-03	1.00771E-02	1.10575E-03	6.22081E-04
5	3.33905E-03	4.78343E-03	1.02084E-02	1.16847E-02	9.84101E-03	1.44731E-02	1.51739E-03	8.70663E-04
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.06475E-03	2.33689E-03	1.76176E-03	5.37297E-03	4.22544E-03	1.20519E-02	2.84450E-02	2.83012E-02
2	1.59250E-03	3.58293E-03	2.63450E-03	8.07731E-03	6.43045E-03	1.85115E-02	4.32459E-02	4.33144E-02
3	1.47296E-03	3.25918E-03	2.44771E-03	7.46892E-03	5.97175E-03	1.71157E-02	4.01916E-02	4.01905E-02
4	5.96263E-04	1.30394E-03	9.99810E-04	3.03522E-03	2.40481E-03	6.88900E-03	1.65064E-02	1.66319E-02
5	8.54371E-04	1.89117E-03	1.42751E-03	4.34696E-03	3.43847E-03	9.83099E-03	2.33356E-02	2.32414E-02
Ozone	grp. 25	grp. 26	grp. 27					
1	1.44409E-02	1.31470E-02	3.44384E-03					
2	2.22285E-02	2.05503E-02	5.66049E-03					
3	2.04003E-02	1.89825E-02	5.19966E-03					
4	8.29796E-03	7.56785E-03	1.90505E-03					
5	1.18116E-02	1.07999E-02	2.81431E-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	4.89878E-01						
5	2.08144E+00	1.00000E+00						

```
- elapsed time .03 min.
Requested permhalt8, skipcellwt, skiphipdata
pass= 2, exec halts after pass 8
```

1

1111111111	0000000000	m	m	00000000	m	m	1111111111	22
1111111111	0000000000	m	m	00000000	m	m	1111111111	22
bb	bb	00	00	m	m	m	ii	22
bb	bb	00	00	m	m	m	ii	22
bb	bb	00	00	m	m	m	ii	22
1111111111	00	00	00	m	m	m	ii	22
bb	bb	00	00	m	m	m	ii	22
bb	bb	00	00	m	m	m	ii	22
bb	bb	00	00	m	m	m	ii	22
1111111111	0000000000	m	m	00000000	m	m	1111111111	22
1111111111	0000000000	m	m	00000000	m	m	1111111111	22

0

The diagram consists of several horizontal rows of patterns. From top to bottom:

- Row 1: A series of vertical bars followed by two groups of three 'W's.
- Row 2: A series of vertical bars followed by two groups of three 'w's.
- Row 3: A series of vertical bars followed by two groups of three 'W's.
- Row 4: A series of vertical bars followed by two groups of three 'w's.
- Row 5: A series of vertical bars followed by two groups of three 'W's.
- Row 6: A series of vertical bars followed by two groups of three 'w's.
- Row 7: A series of vertical bars followed by two groups of three 'W's.
- Row 8: A series of vertical bars followed by two groups of three 'w's.
- Row 9: A series of vertical bars followed by two groups of three 'W's.
- Row 10: A series of vertical bars followed by two groups of three 'w's.
- Row 11: A series of vertical bars followed by two groups of three 'W's.
- Row 12: A series of vertical bars followed by two groups of three 'w's.
- Row 13: A series of vertical bars followed by two groups of three 'W's.
- Row 14: A series of vertical bars followed by two groups of three 'w's.
- Row 15: A series of vertical bars followed by two groups of three 'W's.
- Row 16: A series of vertical bars followed by two groups of three 'w's.
- Row 17: A series of vertical bars followed by two groups of three 'W's.
- Row 18: A series of vertical bars followed by two groups of three 'w's.
- Row 19: A series of vertical bars followed by two groups of three 'W's.
- Row 20: A series of vertical bars followed by two groups of three 'w's.
- Row 21: A series of vertical bars followed by two groups of three 'W's.
- Row 22: A series of vertical bars followed by two groups of three 'w's.
- Row 23: A series of vertical bars followed by two groups of three 'W's.
- Row 24: A series of vertical bars followed by two groups of three 'w's.
- Row 25: A series of vertical bars followed by two groups of three 'W's.
- Row 26: A series of vertical bars followed by two groups of three 'w's.
- Row 27: A series of vertical bars followed by two groups of three 'W's.
- Row 28: A series of vertical bars followed by two groups of three 'w's.
- Row 29: A series of vertical bars followed by two groups of three 'W's.
- Row 30: A series of vertical bars followed by two groups of three 'w's.

[illegible]

00000000	9999999999		5555555555	8888888888		11	11	
0000000000	9999999999		5555555555	8888888888		111	111	
00	00	99	99	55	88	88	1111	1111
	00	99	99	55	88	88	11	11
00	00	99	99	55	88	88	11	11
00	00	9999999999	9999999999	5555555555	8888888888	11	11	
00	00	9999999999	9999999999	5555555555	8888888888	11	11	
00	00		99	55	88	88	11	11
00	00		99	55	88	88	11	11
00	00		99	55	88	88	11	11
0000000000	9999999999		5555555555	8888888888		11111111	11111111	
00000000	9999999999		5555555555	8888888888		11111111	11111111	

[illegible][illegible]

16	1	42095	8.85398E-07	200016
17	1	40098	1.21166E-06	200017
18	1	40094	1.86811E-06	200018
19	1	40095	6.68494E-07	200019
20	1	41094	6.37185E-13	200020
21	1	43099	1.78738E-06	200021
22	1	45103	7.74208E-07	200022
23	1	45105	4.70797E-09	200023
24	1	44101	1.56517E-06	200024
25	1	44106	2.11021E-07	200025
26	1	46105	4.35806E-07	200026
27	1	46108	8.09598E-08	200027
28	1	47109	5.68571E-08	200028
29	1	51124	1.58536E-11	200029
30	1	54131	8.22327E-07	200030
31	1	54132	1.34631E-06	200031
32	1	54135	2.15375E-09	200032
33	1	54136	2.98490E-06	200033
34	1	55134	2.69282E-08	200034
35	1	55135	9.25499E-07	200035
36	1	55137	1.88777E-06	200036
37	1	56136	5.51117E-09	200037
38	1	57139	1.88760E-06	200038
39	1	59141	1.39034E-06	200039
40	1	59143	1.33567E-07	200040
41	1	58144	1.20205E-06	200041
42	1	60143	1.53714E-06	200042
43	1	60145	1.14105E-06	200043
44	1	61147	5.39173E-07	200044
45	1	61148	1.43795E-09	200045
46	1	60147	4.43675E-08	200046
47	1	62147	4.54726E-08	200047
48	1	62149	2.27445E-08	200048
49	1	62150	3.27241E-07	200049
50	1	62151	7.37387E-08	200050
51	1	62152	1.51688E-07	200051
52	1	64155	1.47720E-10	200052
53	1	63153	6.69515E-08	200053
54	1	63154	5.20859E-09	200054
55	1	63155	1.03382E-08	200055
56	1	40802	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	1.93560E-06	200060
61	1	93237	2.03586E-07	200061
62	1	94238	7.98213E-09	200062
63	1	94239	1.44467E-05	200063
64	1	94240	1.07622E-06	200064
65	1	94241	2.48362E-07	200065
66	1	94242	6.83419E-09	200066
67	1	95241	2.00094E-09	200067
68	1	95243	1.38533E-10	200068
69	1	96244	3.02219E-12	200069
70	1	999	3.30753E-21	200070

Geometry 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	1.29032E+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

One nuclide in your problem have bondarenko factor data. bondarenko will copy from logical 12 to logical 1

Copy	999	1/v cross sectio	from lag 12 to lag 1	bondarenko trigger 0
Copy	1001	hydrogen	from lag 12 to lag 18	bondarenko trigger 0
Copy	1001	hydrogen	from lag 18 to lag 1	bondarenko trigger 0
Copy	1001	hydrogen	from lag 18 to lag 1	bondarenko trigger 0
Copy	5010	b-10 1273 218ngp	from lag 12 to lag 18	bondarenko trigger 0
Copy	5010	b-10 1273 218ngp	from lag 18 to lag 1	bondarenko trigger 0
Copy	5010	b-10 1273 218ngp	from lag 18 to lag 1	bondarenko trigger 0
Copy	5011	boron-11	from lag 12 to lag 18	bondarenko trigger 0
Copy	5011	boron-11	from lag 18 to lag 1	bondarenko trigger 0
Copy	5011	boron-11	from lag 18 to lag 1	bondarenko trigger 0
Copy	8016	oxygen-16	from lag 12 to lag 18	bondarenko trigger 0
Copy	8016	oxygen-16	from lag 18 to lag 1	bondarenko trigger 0
Copy	8016	oxygen-16	from lag 18 to lag 1	bondarenko trigger 0
Copy	8016	oxygen-16	from lag 18 to lag 1	bondarenko trigger 0
Copy	36083	kr-83	from lag 12 to lag 1	bondarenko trigger 0
Copy	36085	kr-85	from lag 12 to lag 1	bondarenko trigger 0
Copy	38090	sr-90	from lag 12 to lag 1	bondarenko trigger 0
Copy	39089	y-89	from lag 12 to lag 1	bondarenko trigger 0
Copy	40093	zr-93	from lag 12 to lag 1	bondarenko trigger 0
Copy	40094	zr-94	from lag 12 to lag 1	bondarenko trigger 0
Copy	40095	zr-95	from lag 12 to lag 1	bondarenko trigger 0
Copy	40302	zircalloy	from lag 12 to lag 18	bondarenko trigger 0
Copy	40302	zircalloy	from lag 18 to lag 1	bondarenko trigger 0
Copy	40302	zircalloy	from lag 18 to lag 1	bondarenko trigger 0
Copy	41094	nb-94	from lag 12 to lag 1	bondarenko trigger 0
Copy	42095	mo-95	from lag 12 to lag 1	bondarenko trigger 0
Copy	43099	tc-99	from lag 12 to lag 1	bondarenko trigger 0
Copy	44101	ru-101	from lag 12 to lag 1	bondarenko trigger 0
Copy	44106	ru-106	from lag 12 to lag 1	bondarenko trigger 0
Copy	45103	rh-103	from lag 12 to lag 1	bondarenko trigger 0
Copy	45105	rh-105	from lag 12 to lag 1	bondarenko trigger 0
Copy	46105	pd-105	from lag 12 to lag 1	bondarenko trigger 0
Copy	46108	pd-108	from lag 12 to lag 1	bondarenko trigger 0
Copy	47109	silver-109	from lag 12 to lag 1	bondarenko trigger 0
Copy	51124	sb-124	from lag 12 to lag 1	bondarenko trigger 0
Copy	54131	xe-131	from lag 12 to lag 1	bondarenko trigger 0
Copy	54132	xe-132	from lag 12 to lag 1	bondarenko trigger 0
Copy	54135	xenon-135	from lag 12 to lag 1	bondarenko trigger 0
Copy	54136	xe-136	from lag 12 to lag 1	bondarenko trigger 0
Copy	55133	cesium-133	from lag 12 to lag 1	bondarenko trigger 0
Copy	55134	cs-134	from lag 12 to lag 1	bondarenko trigger 0
Copy	55135	cs-135	from lag 12 to lag 1	bondarenko trigger 0
Copy	55137	cs-137	from lag 12 to lag 1	bondarenko trigger 0
Copy	56136	ba-136	from lag 12 to lag 1	bondarenko trigger 0
Copy	57139	la-139	from lag 12 to lag 1	bondarenko trigger 0
Copy	58144	ce-144	from lag 12 to lag 1	bondarenko trigger 0
Copy	59141	pr-141	from lag 12 to lag 1	bondarenko trigger 0
Copy	59143	pr-143	from lag 12 to lag 1	bondarenko trigger 0
Copy	60143	nd-143	from lag 12 to lag 1	bondarenko trigger 0
Copy	60145	nd-145	from lag 12 to lag 1	bondarenko trigger 0
Copy	60147	nd-147	from lag 12 to lag 1	bondarenko trigger 0
Copy	61147	pm-147	from lag 12 to lag 1	bondarenko trigger 0
Copy	61148	pm-148	from lag 12 to lag 1	bondarenko trigger 0
Copy	62147	sm-147	from lag 12 to lag 1	bondarenko trigger 0
Copy	62149	sm-149	from lag 12 to lag 1	bondarenko trigger 0
Copy	62150	sm-150	from lag 12 to lag 1	bondarenko trigger 0
Copy	62151	sm-151	from lag 12 to lag 1	bondarenko trigger 0

Ocapy 62152 sm-152 from log 12 to log 1 bondarenko trigger 0
 Ocapy 63153 eu-153 from log 12 to log 1 bondarenko trigger 0
 Ocapy 63154 eu-154 from log 12 to log 1 bondarenko trigger 0
 Ocapy 63155 eu-155 from log 12 to log 1 bondarenko trigger 0
 Ocapy 64155 gd-155 from log 12 to log 1 bondarenko trigger 0
 Ocapy 92234 u-234 1043 sigs from log 12 to log 1 bondarenko trigger 0
 Ocapy 92235 uranium-235 from log 12 to log 1 bondarenko trigger 0
 Ocapy 92236 u-236 1163 sigs from log 12 to log 1 bondarenko trigger 0
 Ocapy 92238 uranium-238 from log 12 to log 1 bondarenko trigger 0
 Ocapy 92237 neptunium-237 from log 12 to log 1 bondarenko trigger 0
 Ocapy 94238 pu-238 1050 sigs from log 12 to log 1 bondarenko trigger 0
 Ocapy 94239 plutonium-239 from log 12 to log 1 bondarenko trigger 0
 Ocapy 94240 plutonium-240 from log 12 to log 1 bondarenko trigger 0
 Ocapy 94241 plutonium-241 from log 12 to log 1 bondarenko trigger 0
 Ocapy 94242 plutonium-242 from log 12 to log 1 bondarenko trigger 0
 Ocapy 95241 am-241 1056 sigs from log 12 to log 1 bondarenko trigger 0
 Ocapy 95243 am-243 1057 218 from log 12 to log 1 bondarenko trigger 0
 Ocapy 95244 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 1289/thrmf002 updated 10/13/89	id	202
hydrogen endf/b-iv mat 1289/thrmf002 updated 10/13/89	id	200057
b-10 1273 218ng 042375 p-3 293k	id	203
b-10 1273 218ng 042375 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-85 mt=102, 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 1234 updated 10/13/89	id	200032

0

```

#####          ##### W      W   ||||| ||||| ||||| #####
#####          W      W      W#####
d#####dd aa    aa W      W      W#####
d#####dd aa    aa W      W      W#####
d#####dd aa    aa W      W      W#####
d#####dd ##### W      W      W#####
d#####dd ##### W      W      W#####
d#####dd aa    aa W      W      W#####

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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 218gpp 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, 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	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% newlacs p-3 258k f-1/em(1.5)			92234
59	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
60	u-236 1163 sigo=5% newlacs p-3 258k f-1/em(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	92237

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63 pu-238 1050 sigs-5+4 newlacs 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 sigs-5+4 newlacs 218ngp p-3 293k                95241
69 am-243 1057 218 gp wt f-1/e-m 090576 ps 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 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
Resonance data for this nuclide
Mass number (a) = 90.436 temperature(kelvin) = 650.000
Potential scatter sigma = 6.385 lumped nuclear density = 4.2515602E-02
Spin factor (g) = 1.079 lump dimension (a-bar) = 6.7309999E-01
Dimer radius = 6.3246000E-01 darcoff correction (c) = 1.6805907E-01
Other absorber will be treated by the norheim integral method.
Other 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
8 -1.156752E-03 .000000E+00 -7.806033E-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
Oexcess resonance integrals
0 resolved
Oabsorption 2.92402E-01
fission .000000E+00
- elapsed time .00 min.
- elapsed time .02 min.
1 this xsdm working tape was created 02/16/96 at 09:58:12
the title of the parent case is as follows
xsdm weighted tape-parent case entitled- 240 d, sea2h: babcock wilcox 15x15,
3.00wt%, 20gd/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/thrm1002 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-85 mt=102,103,105,106,107 updated 10/13/89 id 36085
kr-85 mt= 102 id 36086
sr-90 mt=102 updated 10/13/89 id 38090
y-89 mt=102 updated 10/13/89 id 39089
zr-95 mt= 102 id 40095

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nng number of neutron groups 27 iprt -2/-1/0/mixture xsec print -2
 nrg 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. paran 0
 icn volumetric sources (0/none/yes) 0 icdm 0/1 = none/density factors 38* 0
 ipn boundary sources (0/none/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
 itm maximum time (minutes) 10 ifct 0/1-none/yes upscatter scaling 0
 idt1 0/1/2/3-no/xsect/srcce/flux-out 0 ipvt 0/1/2-no/yk/alpha parametric snch 0
 isx broad group fluxes 0 isen outer iteration acceleration 0
 ibln activity data unit 0 rind band rebaln parameter 0
 jkkl 0/1/2 buckling geometry 0

weighting data (ifg=1)

icon -1/0/1=cell/zone/region weight -1 ihtf total xsect pan in brd gp tables 3
 ignf 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
 ijp -2/-1/0/weighted xsect print -2 mcom extra 1-d x-sect positions 0
 iap -1/n anisn xsect print -1

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 eqt ev charge eps for search 1.00000E-03
 bf buckling factor=1.420892 1.42089E+00 xrpm new param mod for search 7.50000E-01

this case will require 2611 locations for mixing
 this case has been allocated 200000 locations
 240 d, second part of seach pass to make library

1
 0 13q array has 70 entries.
 0 14q array has 70 entries.
 0 15q array has 70 entries.

data block 2 (mixing table, etc.)

nuclides on tape	cccc identification	mixture	mixing table component	atom density
1	202	3	201	2.09710E-02
2	203	3	202	4.19420E-02
3	204	3	203	3.81515E-05
4	201	3	204	1.54884E-05
5	205	2	205	4.25156E-02
6	999	1	92235	1.97038E-04
7	1001	1	92234	1.73586E-05
8	5010	1	92236	6.85418E-05
9	5011	1	92238	7.27844E-03
10	8016	1	8016	1.50611E-02
11	6	1	6	1.15315E-02
12	36083	1	36083	1.49789E-07
13	36085	1	36085	7.24877E-08
14	38090	1	38090	1.62222E-05
15	39089	1	39089	9.69792E-07
16	40093	1	42095	8.85393E-07
17	40094	1	40093	1.21166E-05
18	40095	1	40094	1.86811E-05
19	40802	1	40095	6.68494E-07
20	41094	1	41094	6.37185E-13
21	42095	1	43099	1.78738E-05
22	43099	1	45103	7.74208E-07

extra
xsect id's

23	44101	1	45105	4.70797E-09
24	44105	1	44101	1.56517E-06
25	45103	1	44106	2.11021E-07
26	45105	1	46105	4.39806E-07
27	46105	1	46108	8.09598E-08
28	46108	1	47109	5.68571E-08
29	47109	1	51124	1.58536E-11
30	51124	1	54131	8.22827E-07
31	54131	1	54132	1.34631E-06
32	54132	1	54135	2.15375E-09
33	54135	1	54136	2.98490E-06
34	54136	1	55134	2.69282E-08
35	55133	1	55135	9.25459E-07
36	55134	1	55137	1.88777E-06
37	55135	1	56136	5.51117E-09
38	55137	1	57139	1.88780E-06
39	56136	1	59141	1.39034E-06
40	57139	1	59143	1.33567E-07
41	58144	1	58144	1.20205E-06
42	59141	1	60143	1.53714E-06
43	59143	1	60145	1.14105E-06
44	60143	1	61147	5.39173E-07
45	60145	1	61148	1.43795E-09
46	60147	1	60147	4.43675E-08
47	61147	1	62147	4.54725E-08
48	61148	1	62149	2.27445E-08
49	62147	1	62150	3.27241E-07
50	62149	1	62151	7.37387E-08
51	62150	1	62152	1.51696E-07
52	62151	1	64155	1.47720E-10
53	62152	1	63153	6.68515E-08
54	63153	1	63154	5.20359E-09
55	63154	1	63155	1.08382E-08
56	63155	1	40802	4.42681E-08
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	1.99560E-06
61	92238	1	98237	2.05686E-07
62	98237	1	94238	7.98213E-09
63	94238	1	94239	1.44467E-05
64	94239	1	94240	1.07622E-06
65	94240	1	94241	2.48562E-07
66	94241	1	94242	6.83419E-09
67	94242	1	95241	2.00094E-09
68	95241	1	95243	1.38633E-10
69	95243	1	96244	3.02219E-12
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.

1 240 d, second part of se2h pass to make library

neutron group parameters

0	gp	energy	lethargy	weighted	broad gp	calc	group	right	left
		boundaries	boundaries	velocities	numbers	type	band	albedo	albedo

1	2.0000E+07	-6.9514E-01	4.6081E+09	1	0	1	1.0000E+00
2	6.4340E+06	4.4098E-01	2.8873E+09	1	0	2	1.0000E+00
3	3.0000E+06	1.2039E+00	2.1220E+09	1	0	3	1.0000E+00
4	1.8500E+06	1.6874E+00	1.7567E+09	1	0	4	1.0000E+00
5	1.4000E+06	1.9661E+00	1.4653E+09	1	0	5	1.0000E+00
6	9.0000E+05	2.4079E+00	1.0662E+09	2	0	6	1.0000E+00
7	4.0000E+05	3.2188E+00	6.0755E+08	2	0	7	1.0000E+00
8	1.0000E+05	4.6051E+00	2.7241E+08	2	0	8	1.0000E+00
9	1.7000E+04	6.3771E+00	1.1352E+08	2	0	9	1.0000E+00
10	3.0000E+03	8.1117E+00	4.8212E+07	2	0	10	1.0000E+00
11	5.5000E+02	9.8081E+00	2.0594E+07	2	0	11	1.0000E+00
12	1.0000E+02	1.1513E+01	1.0103E+07	2	0	12	1.0000E+00
13	3.0000E+01	1.2716E+01	5.6959E+06	2	0	13	1.0000E+00
14	1.0000E+01	1.3815E+01	3.2057E+06	2	0	14	1.0000E+00
15	3.0499E+00	1.5003E+01	2.1080E+06	2	0	15	1.0000E+00
16	1.7700E+00	1.5547E+01	1.7052E+06	2	0	16	1.0000E+00
17	1.2999E+00	1.5855E+01	1.5254E+06	2	0	17	1.0000E+00
18	1.1299E+00	1.5999E+01	1.4285E+06	2	0	18	1.0000E+00
19	1.0000E+00	1.6118E+01	1.3100E+06	2	0	19	1.0000E+00
20	8.0000E-01	1.6341E+01	9.0588E+05	2	0	20	1.0000E+00
21	4.0000E-01	1.7034E+01	8.1797E+05	3	0	21	1.0000E+00
22	3.2500E-01	1.7242E+01	6.9007E+05	3	0	22	1.0000E+00
23	2.2500E-01	1.7809E+01	4.8653E+05	3	0	23	1.0000E+00
24	9.9999E-02	1.8420E+01	3.5776E+05	3	0	24	1.0000E+00
25	5.0000E-02	1.9113E+01	2.7189E+05	3	0	25	1.0000E+00
26	3.0000E-02	1.9634E+01	1.8728E+05	3	0	26	1.0000E+00
27	1.0000E-02	2.0723E+01	8.8820E+04	3	0	27	1.0000E+00
28	1.0000E-05	2.7631E+01					

1 240 cl second part of sas2h pass to make library

	mixture by zone	order p(l) by zone	activity table matl no. reaction	weights	directions	quadrature constants refl direc	wt x cos
1	3	3		0	-2.7900E-01	3	0
2	2	3		5.0614E-02	-1.9728E-01	3	-9.9854E-03
3	3	3		5.0614E-02	1.9728E-01	2	9.9854E-03
4	1	3		0	-6.0441E-01	8	0
5				5.5953E-02	-5.5841E-01	8	-3.10450E-02
6				5.5953E-02	-2.31301E-01	7	-1.28992E-02
7				5.5953E-02	2.31301E-01	6	1.28992E-02
8				5.5953E-02	5.5841E-01	5	3.10450E-02
9				0	-8.5077E-01	15	0
10				5.2284E-02	-8.2178E-01	15	-4.29665E-02
11				5.2284E-02	-6.01588E-01	14	-3.14537E-02
12				5.2284E-02	-2.20196E-01	13	-1.15128E-02
13				5.2284E-02	2.20196E-01	12	1.15128E-02
14				5.2284E-02	6.01588E-01	11	3.14537E-02
15				5.2284E-02	8.2178E-01	10	4.29665E-02
16				0	-9.8903E-01	24	0
17				4.5335E-02	-9.64143E-01	24	-4.37099E-02
18				4.5335E-02	-8.17361E-01	23	-3.70555E-02
19				4.5335E-02	-5.46143E-01	22	-2.47597E-02
20				4.5335E-02	-1.91780E-01	21	-8.69444E-03
21				4.5335E-02	1.91780E-01	20	8.69444E-03
22				4.5335E-02	5.46143E-01	19	2.47597E-02
23				4.5335E-02	8.17361E-01	18	3.70555E-02
24				4.5335E-02	9.64143E-01	17	4.37099E-02

0 constants for p(3) scattering

Origl	set 1	set 2	set 3	set 4	set 5
1	-2.7900E-01	8.8523E-01	6.7414E-02	-6.16019E-01	-1.71701E-02
2	-1.9728E-01	8.8523E-01	.0000E+00	-4.3622E-01	1.21411E-02
3	1.9728E-01	8.8523E-01	.0000E+00	4.3622E-01	-1.21411E-02

outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	215	-1.8445E-06	1.12831E+00	-1.4252E-01	1.00000E+00	-4.10664E-02	.00000E+00	.0000
2	319	2.60041E-05	1.14215E+00	-1.2577E-05	1.84449E-02	-4.28546E-05	.00000E+00	.0167
3	401	2.31725E-07	1.14369E+00	-1.27918E-04	1.79126E-03	-8.35467E-04	.00000E+00	.0167
4	462	2.14825E-06	1.14384E+00	-2.02940E-05	3.35786E-04	-1.62330E-04	.00000E+00	.0167
5	504	-4.31136E-07	1.14393E+00	-3.61934E-05	-7.01865E-05	-3.16620E-05	.00000E+00	.0167

		iters	int.	difference	int.	factor	mesh
1	1	1	17	2.49552E-06	28	1.00000E+00	1
2	2	1	17	3.08674E-06	28	1.00000E+00	1
3	3	1	17	2.81856E-06	28	1.00000E+00	1
4	4	1	17	2.75748E-06	28	1.00000E+00	1
5	5	1	17	2.89728E-06	28	1.00000E+00	1
6	6	1	17	1.98400E-06	28	1.00000E+00	1
7	7	1	24	1.11949E-06	28	1.00000E+00	2
8	8	1	3	2.11836E-07	20	1.00000E+00	2
9	9	1	27	6.98521E-06	28	9.99998E-01	3
10	10	1	26	1.04653E-06	28	1.00000E+00	3
11	11	1	26	2.28395E-06	28	1.00000E+00	3
12	12	1	26	1.14753E-06	28	9.99999E-01	3
13	13	1	26	1.47936E-06	28	1.00000E+00	3
14	14	1	25	4.36464E-07	28	1.00000E+00	3
15	15	1	2	3.39450E-05	28	9.99982E-01	2
16	16	1	2	4.18474E-05	28	9.99985E-01	2
17	17	1	27	9.47314E-05	28	1.00002E+00	3
18	18	1	2	5.36516E-05	28	9.99921E-01	3
19	19	1	26	7.43672E-05	26	9.99978E-01	3
20	20	1	2	4.05059E-05	28	9.99919E-01	3
21	21	1	3	6.15783E-05	28	9.99942E-01	3
22	22	1	24	2.89869E-05	28	9.99966E-01	3
23	23	1	27	3.44294E-05	28	1.00002E+00	4
24	24	1	1	3.42579E-05	9	1.00002E+00	4
25	25	1	1	3.91320E-05	8	1.00002E+00	5
26	26	1	1	3.23397E-05	6	1.00002E+00	6
27	27	1	1	3.00938E-05	5	1.00002E+00	8

6 531 -1.69257E-06 1.14392E+00 -5.47494E-07 -1.38940E-05 -6.78856E-06 .00000E+00 .0167

final monitor

lambda 1.14392E+00

production/absorption 1.15895E+00

angular flux on 16

- elapsed time .02 min.

1 240 d, second part of search pass to make library

0	int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	1	3.95287E-02	5.92951E-02	2.48966E-01	1.47264E-02	.00000E+00
3	1	1	7.90575E-02	1.18589E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	1	2.37172E-01	2.76701E-01	1.49080E+00	1.37447E-01	.00000E+00
6	1	1	3.16230E-01	3.55759E-01	1.98698E+00	1.76717E-01	.00000E+00
7	1	1	3.95289E-01	4.34816E-01	2.48966E+00	2.15988E-01	.00000E+00
8	1	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	1	5.53408E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	1	5.92951E-01	6.12695E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	2	6.32460E-01	6.42620E-01	3.97388E+00	8.20460E-02	.00000E+00
12	2	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46409E-02	.00000E+00
13	3	3	6.73100E-01	6.96880E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.59973E-02
17	4	4	9.11591E-01	9.60386E-01	5.72789E+00	5.88891E-01	2.83198E-02
18	4	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	6.39823E-02
19	4	4	1.20636E+00	1.30195E+00	7.56724E+00	1.59667E+00	7.37806E-02
20	4	4	1.39955E+00	1.49714E+00	8.75640E+00	1.83648E+00	8.36686E-02
21	4	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	9.36102E-02
22	4	4	1.78971E+00	1.88750E+00	1.12468E+01	2.31476E+00	1.03609E-01
23	4	4	1.98509E+00	2.08288E+00	1.24727E+01	2.55412E+00	1.13674E-01
24	4	4	2.18027E+00	2.27789E+00	1.36991E+01	2.79346E+00	1.23819E-01
25	4	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.34061E-01
26	4	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.44431E-01

27 4 2.76582E+00 2.81441E+00 1.73781E+01 1.72587E+00 7.61524E-02
 28 4 2.86341E+00 2.91220E+00 1.79913E+01 1.78571E+00 7.88275E-02
 29 2.96100E+00 1.86045E+01

1 240 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	1.22800E-02	8.89880E-02	1.11539E-01	6.86507E-02	1.02474E-01	1.92610E-01	1.92975E-01	1.46890E-01
2	1.22830E-02	8.89176E-02	1.11474E-01	6.86325E-02	1.02421E-01	1.92523E-01	1.92930E-01	1.46884E-01
3	1.22836E-02	8.89208E-02	1.11498E-01	6.86504E-02	1.02456E-01	1.92598E-01	1.92989E-01	1.46895E-01
4	1.22900E-02	8.90038E-02	1.11608E-01	6.87286E-02	1.02586E-01	1.92836E-01	1.93143E-01	1.46924E-01
5	1.23016E-02	8.91483E-02	1.11802E-01	6.88575E-02	1.02802E-01	1.93236E-01	1.93394E-01	1.46948E-01
6	1.23175E-02	8.93397E-02	1.12070E-01	6.90446E-02	1.03100E-01	1.93786E-01	1.93734E-01	1.47024E-01
7	1.23375E-02	8.95844E-02	1.12414E-01	6.92824E-02	1.03489E-01	1.94505E-01	1.94177E-01	1.47094E-01
8	1.23617E-02	8.98904E-02	1.12851E-01	6.95895E-02	1.03995E-01	1.95443E-01	1.94756E-01	1.47177E-01
9	1.23821E-02	9.01594E-02	1.13344E-01	6.98711E-02	1.04633E-01	1.96313E-01	1.95293E-01	1.47246E-01
10	1.23959E-02	9.03703E-02	1.13671E-01	7.01190E-02	1.04885E-01	1.97101E-01	1.95781E-01	1.47294E-01
11	1.24076E-02	9.05451E-02	1.13844E-01	7.03270E-02	1.05238E-01	1.97778E-01	1.96200E-01	1.47339E-01
12	1.24202E-02	9.06752E-02	1.14017E-01	7.04353E-02	1.05408E-01	1.98116E-01	1.96404E-01	1.47382E-01
13	1.24467E-02	9.09120E-02	1.14289E-01	7.05729E-02	1.05999E-01	1.98457E-01	1.96597E-01	1.47451E-01
14	1.24857E-02	9.12894E-02	1.14737E-01	7.08281E-02	1.05975E-01	1.99119E-01	1.96978E-01	1.47542E-01
15	1.25316E-02	9.17748E-02	1.15368E-01	7.12144E-02	1.06573E-01	2.00195E-01	1.97609E-01	1.47643E-01
16	1.26025E-02	9.23525E-02	1.16369E-01	7.18590E-02	1.07590E-01	2.02042E-01	1.98700E-01	1.47812E-01
17	1.26733E-02	9.33277E-02	1.17390E-01	7.25074E-02	1.08623E-01	2.03942E-01	1.99853E-01	1.48008E-01
18	1.27295E-02	9.39381E-02	1.18212E-01	7.30446E-02	1.09493E-01	2.05886E-01	2.00878E-01	1.48213E-01
19	1.27788E-02	9.45195E-02	1.18961E-01	7.35315E-02	1.10290E-01	2.07122E-01	2.01846E-01	1.48425E-01
20	1.28078E-02	9.48584E-02	1.19421E-01	7.38528E-02	1.10789E-01	2.08112E-01	2.02492E-01	1.48580E-01
21	1.28261E-02	9.50772E-02	1.19722E-01	7.40817E-02	1.11122E-01	2.08790E-01	2.02941E-01	1.48697E-01
22	1.28379E-02	9.52208E-02	1.19923E-01	7.41649E-02	1.11347E-01	2.09299E-01	2.03258E-01	1.48784E-01
23	1.28454E-02	9.53137E-02	1.20058E-01	7.42528E-02	1.11497E-01	2.09579E-01	2.03477E-01	1.48847E-01
24	1.28498E-02	9.53694E-02	1.20138E-01	7.43067E-02	1.11590E-01	2.09784E-01	2.03620E-01	1.48888E-01
25	1.28517E-02	9.53953E-02	1.20174E-01	7.43327E-02	1.11636E-01	2.09889E-01	2.03695E-01	1.48910E-01
26	1.28514E-02	9.53927E-02	1.20172E-01	7.43318E-02	1.11636E-01	2.09897E-01	2.03703E-01	1.48910E-01
27	1.28497E-02	9.53729E-02	1.20146E-01	7.43143E-02	1.11608E-01	2.09841E-01	2.03664E-01	1.48897E-01
28	1.28473E-02	9.53434E-02	1.20106E-01	7.42875E-02	1.11563E-01	2.09750E-01	2.03600E-01	1.48877E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15817E-01	1.06965E-01	1.00658E-01	6.52725E-02	5.58591E-02	5.35811E-02	2.92298E-02	1.62611E-02
2	1.15817E-01	1.06966E-01	1.00662E-01	6.52774E-02	5.58639E-02	5.35878E-02	2.92318E-02	1.62620E-02
3	1.15815E-01	1.06957E-01	1.00641E-01	6.52536E-02	5.58419E-02	5.35568E-02	2.92256E-02	1.62589E-02
4	1.15810E-01	1.06956E-01	1.00597E-01	6.51962E-02	5.57891E-02	5.34806E-02	2.92104E-02	1.62514E-02
5	1.15803E-01	1.06901E-01	1.00515E-01	6.51087E-02	5.57089E-02	5.33854E-02	2.91877E-02	1.62401E-02
6	1.15793E-01	1.06855E-01	1.00411E-01	6.49898E-02	5.56058E-02	5.32092E-02	2.91578E-02	1.62252E-02
7	1.15780E-01	1.06794E-01	1.00274E-01	6.48339E-02	5.54990E-02	5.30050E-02	2.91207E-02	1.62061E-02
8	1.15765E-01	1.06713E-01	1.00073E-01	6.46285E-02	5.52739E-02	5.27367E-02	2.90728E-02	1.61819E-02
9	1.15755E-01	1.06636E-01	9.99221E-02	6.44349E-02	5.51021E-02	5.24868E-02	2.90399E-02	1.61599E-02
10	1.15754E-01	1.06646E-01	9.97645E-02	6.42625E-02	5.49467E-02	5.22598E-02	2.89928E-02	1.61408E-02
11	1.15759E-01	1.06608E-01	9.96398E-02	6.41257E-02	5.48252E-02	5.20806E-02	2.89599E-02	1.61236E-02
12	1.15754E-01	1.06488E-01	9.95951E-02	6.40721E-02	5.47724E-02	5.20086E-02	2.89418E-02	1.61153E-02
13	1.15709E-01	1.06440E-01	9.95294E-02	6.39701E-02	5.46998E-02	5.19019E-02	2.89268E-02	1.61074E-02
14	1.15637E-01	1.06375E-01	9.98842E-02	6.38126E-02	5.45467E-02	5.16737E-02	2.89022E-02	1.60927E-02
15	1.15560E-01	1.06287E-01	9.91469E-02	6.35332E-02	5.43074E-02	5.13153E-02	2.88649E-02	1.60699E-02
16	1.15452E-01	1.06109E-01	9.87528E-02	6.30733E-02	5.39124E-02	5.07225E-02	2.87968E-02	1.60802E-02
17	1.15395E-01	1.05933E-01	9.83594E-02	6.26135E-02	5.35123E-02	5.01268E-02	2.87147E-02	1.59859E-02
18	1.15288E-01	1.05784E-01	9.80228E-02	6.22208E-02	5.31615E-02	4.96156E-02	2.86263E-02	1.59410E-02
19	1.15231E-01	1.05647E-01	9.77089E-02	6.18547E-02	5.28290E-02	4.91376E-02	2.85329E-02	1.58944E-02
20	1.15205E-01	1.05500E-01	9.75058E-02	6.16183E-02	5.26094E-02	4.88273E-02	2.84618E-02	1.58608E-02
21	1.15192E-01	1.05501E-01	9.73646E-02	6.14540E-02	5.24543E-02	4.86106E-02	2.84079E-02	1.58344E-02
22	1.15185E-01	1.05459E-01	9.72641E-02	6.13349E-02	5.23425E-02	4.84657E-02	2.83668E-02	1.58148E-02
23	1.15182E-01	1.05429E-01	9.71927E-02	6.12537E-02	5.22625E-02	4.83438E-02	2.83368E-02	1.58008E-02
24	1.15179E-01	1.05409E-01	9.71440E-02	6.11977E-02	5.22079E-02	4.82704E-02	2.83157E-02	1.57908E-02
25	1.15177E-01	1.05397E-01	9.71150E-02	6.11633E-02	5.21757E-02	4.82200E-02	2.83041E-02	1.57850E-02

26	1.15174E-01	1.05392E-01	9.71056E-02	6.11526E-02	5.21668E-02	4.82127E-02	2.83084E-02	1.57842E-02
27	1.15172E-01	1.05392E-01	9.71114E-02	6.11592E-02	5.21744E-02	4.82228E-02	2.83075E-02	1.57857E-02
28	1.15170E-01	1.05401E-01	9.71271E-02	6.11779E-02	5.21926E-02	4.82485E-02	2.83170E-02	1.57912E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.25461E-03	6.03026E-03	1.13700E-02	3.74452E-02	1.21054E-02	2.57135E-02	8.61427E-02	7.02890E-02
2	7.2513E-03	6.03101E-03	1.13708E-02	3.74474E-02	1.21052E-02	2.57150E-02	8.61374E-02	7.02732E-02
3	7.25300E-03	6.02723E-03	1.13671E-02	3.74353E-02	1.20974E-02	2.56858E-02	8.60179E-02	7.01356E-02
4	7.24787E-03	6.01811E-03	1.13582E-02	3.74088E-02	1.20764E-02	2.56196E-02	8.57552E-02	6.98995E-02
5	7.24011E-03	6.00418E-03	1.13447E-02	3.73640E-02	1.20461E-02	2.55201E-02	8.53659E-02	6.94011E-02
6	7.22966E-03	5.98516E-03	1.13266E-02	3.73069E-02	1.20043E-02	2.53861E-02	8.48469E-02	6.88167E-02
7	7.21609E-03	5.96009E-03	1.13031E-02	3.72322E-02	1.19498E-02	2.52121E-02	8.41850E-02	6.80727E-02
8	7.19838E-03	5.93683E-03	1.12726E-02	3.71359E-02	1.18782E-02	2.49858E-02	8.33494E-02	6.71368E-02
9	7.18197E-03	5.89561E-03	1.12445E-02	3.70471E-02	1.18115E-02	2.47770E-02	8.25982E-02	6.62999E-02
10	7.16708E-03	5.86697E-03	1.12191E-02	3.69673E-02	1.17504E-02	2.45889E-02	8.19453E-02	6.55780E-02
11	7.15508E-03	5.84473E-03	1.11986E-02	3.69037E-02	1.17055E-02	2.44473E-02	8.14707E-02	6.50756E-02
12	7.14699E-03	5.83646E-03	1.11897E-02	3.68776E-02	1.16873E-02	2.43997E-02	8.13251E-02	6.49485E-02
13	7.14337E-03	5.82289E-03	1.11788E-02	3.68422E-02	1.16611E-02	2.43141E-02	8.10429E-02	6.46302E-02
14	7.12953E-03	5.79213E-03	1.11557E-02	3.67680E-02	1.16012E-02	2.41210E-02	8.04153E-02	6.39014E-02
15	7.10762E-03	5.74366E-03	1.11195E-02	3.66525E-02	1.15056E-02	2.38221E-02	7.94979E-02	6.28549E-02
16	7.07138E-03	5.66402E-03	1.10594E-02	3.64633E-02	1.13507E-02	2.33405E-02	7.80785E-02	6.12981E-02
17	7.03438E-03	5.58604E-03	1.09973E-02	3.62690E-02	1.11933E-02	2.28638E-02	7.66686E-02	5.97503E-02
18	7.00119E-03	5.52225E-03	1.09402E-02	3.60905E-02	1.10880E-02	2.24547E-02	7.53061E-02	5.82828E-02
19	6.96909E-03	5.46333E-03	1.08844E-02	3.59154E-02	1.09460E-02	2.20694E-02	7.39748E-02	5.68130E-02
20	6.94729E-03	5.42810E-03	1.08460E-02	3.57945E-02	1.08661E-02	2.18156E-02	7.29563E-02	5.57717E-02
21	6.93153E-03	5.40338E-03	1.08181E-02	3.57061E-02	1.08098E-02	2.16350E-02	7.22225E-02	5.49962E-02
22	6.91997E-03	5.38602E-03	1.07976E-02	3.56407E-02	1.07688E-02	2.15089E-02	7.16699E-02	5.44126E-02
23	6.91163E-03	5.37391E-03	1.07828E-02	3.55929E-02	1.07323E-02	2.14077E-02	7.12485E-02	5.39789E-02
24	6.90593E-03	5.36554E-03	1.07729E-02	3.55600E-02	1.07189E-02	2.13402E-02	7.09469E-02	5.36609E-02
25	6.90264E-03	5.36089E-03	1.07657E-02	3.55405E-02	1.07050E-02	2.12974E-02	7.07479E-02	5.34489E-02
26	6.90190E-03	5.35889E-03	1.07651E-02	3.55341E-02	1.07012E-02	2.12789E-02	7.06909E-02	5.33360E-02
27	6.90269E-03	5.35990E-03	1.07669E-02	3.55391E-02	1.07028E-02	2.12802E-02	7.06413E-02	5.33107E-02
28	6.90538E-03	5.36261E-03	1.07707E-02	3.55509E-02	1.07082E-02	2.12954E-02	7.06986E-02	5.33466E-02
0 int.	grp. 25	grp. 26	grp. 27					
1	3.17211E-02	2.28527E-02	4.33841E-03					
2	3.17091E-02	2.28392E-02	4.33517E-03					
3	3.16342E-02	2.27732E-02	4.32162E-03					
4	3.14747E-02	2.26333E-02	4.29289E-03					
5	3.12394E-02	2.24247E-02	4.24956E-03					
6	3.09229E-02	2.21437E-02	4.18968E-03					
7	3.05213E-02	2.17829E-02	4.11143E-03					
8	3.00181E-02	2.13273E-02	4.01022E-03					
9	2.95708E-02	2.09204E-02	3.91846E-03					
10	2.91909E-02	2.05718E-02	3.83928E-03					
11	2.88960E-02	2.03471E-02	3.79132E-03					
12	2.86818E-02	2.03134E-02	3.78818E-03					
13	2.87007E-02	2.01454E-02	3.74307E-03					
14	2.82851E-02	1.97449E-02	3.63380E-03					
15	2.77053E-02	1.91757E-02	3.47025E-03					
16	2.68613E-02	1.83687E-02	3.23001E-03					
17	2.60360E-02	1.75901E-02	3.02405E-03					
18	2.52608E-02	1.69073E-02	2.87147E-03					
19	2.44902E-02	1.62510E-02	2.73533E-03					
20	2.39514E-02	1.58131E-02	2.65392E-03					
21	2.3550E-02	1.55031E-02	2.59924E-03					
22	2.32604E-02	1.52802E-02	2.56278E-03					
23	2.30423E-02	1.51194E-02	2.53666E-03					
24	2.28854E-02	1.50059E-02	2.51862E-03					
25	2.27797E-02	1.49259E-02	2.50670E-03					
26	2.27208E-02	1.48862E-02	2.49989E-03					
27	2.27052E-02	1.48707E-02	2.49727E-03					

28 2.27147E-02 1.48739E-02 2.49715E-03
 - elapsed time .02 min.
 1 fine group summary for zone 1 by group including sun for all groups in line 28

0 grp.	fix	source	fiss	source	in	scatter	self	scatter	out	scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.78609E-04	6.33478E-04	5.27473E-05	-6.86193E-04	9.99953E-01					
2	.00000E+00	.00000E+00	3.63477E-04	6.03966E-03	7.95803E-03	1.72591E-04	-7.74685E-03	9.99954E-01					
3	.00000E+00	.00000E+00	3.76711E-03	5.41785E-03	1.40962E-02	9.19848E-05	-1.04207E-02	9.99978E-01					
4	.00000E+00	.00000E+00	5.52772E-03	3.58341E-03	1.23122E-02	4.18181E-05	-6.82619E-03	9.99985E-01					
5	.00000E+00	.00000E+00	1.01847E-02	1.19008E-02	2.08350E-02	4.95955E-05	-1.06997E-02	9.99992E-01					
6	.00000E+00	.00000E+00	2.14030E-02	3.44731E-02	4.09715E-02	8.42317E-05	-1.96527E-02	1.00000E+00					
7	.00000E+00	.00000E+00	4.21605E-02	6.09446E-02	5.41143E-02	6.11957E-05	-1.20143E-02	9.99988E-01					
8	.00000E+00	.00000E+00	5.63212E-02	7.83029E-02	5.87126E-02	3.63824E-05	-2.42262E-03	9.99912E-01					
9	.00000E+00	.00000E+00	5.77525E-02	7.25507E-02	5.76534E-02	2.92511E-05	2.76213E-04	9.99889E-01					
10	.00000E+00	.00000E+00	5.70358E-02	6.90680E-02	5.95054E-02	3.60089E-05	1.49943E-03	9.99895E-01					
11	.00000E+00	.00000E+00	5.57952E-02	6.54509E-02	5.22535E-02	5.50866E-05	3.49016E-03	9.99938E-01					
12	.00000E+00	.00000E+00	4.53160E-02	3.50229E-02	4.12088E-02	6.03298E-05	4.04784E-03	9.99979E-01					
13	.00000E+00	.00000E+00	4.04793E-02	2.85696E-02	3.66386E-02	8.46323E-05	3.75730E-03	9.99968E-01					
14	.00000E+00	.00000E+00	3.94366E-02	2.83864E-02	3.39098E-02	1.36993E-04	5.39045E-03	9.99988E-01					
15	.00000E+00	.00000E+00	2.17603E-02	1.0827E-02	2.04813E-02	1.13635E-04	1.16563E-03	9.99999E-01					
16	.00000E+00	.00000E+00	1.43052E-02	4.63257E-03	1.36474E-02	7.72528E-05	5.78567E-04	9.99999E-01					
17	.00000E+00	.00000E+00	7.37300E-03	1.33708E-03	6.95650E-03	3.82740E-05	3.78279E-04	9.99994E-01					
18	.00000E+00	.00000E+00	6.59387E-03	1.07568E-03	5.87771E-03	3.36583E-05	6.48474E-04	1.00000E+00					
19	.00000E+00	.00000E+00	1.10295E-02	3.10681E-03	1.05112E-02	6.95852E-05	6.43075E-04	9.99999E-01					
20	.00000E+00	.00000E+00	2.72076E-02	2.20461E-02	2.49261E-02	2.87528E-04	1.99575E-03	1.00001E+00					
21	.00000E+00	.00000E+00	1.33346E-02	4.57295E-03	1.18865E-02	1.14683E-04	1.32340E-03	1.00000E+00					
22	.00000E+00	.00000E+00	2.68219E-02	1.45137E-02	2.2584E-02	2.78789E-04	3.95628E-03	1.00002E+00					
23	.00000E+00	.00000E+00	7.10181E-02	8.73366E-02	5.73516E-02	1.26782E-03	1.29595E-02	1.00004E+00					
24	.00000E+00	.00000E+00	7.65800E-02	8.19825E-02	6.32830E-02	1.49151E-03	1.18026E-02	1.00004E+00					
25	.00000E+00	.00000E+00	5.10189E-02	3.46880E-02	4.46262E-02	8.81621E-04	5.51002E-03	1.00002E+00					
26	.00000E+00	.00000E+00	4.07276E-02	3.87085E-02	3.57524E-02	8.95194E-04	4.07927E-03	1.00002E+00					
27	.00000E+00	.00000E+00	1.37977E-02	8.39691E-03	1.27918E-02	3.19619E-04	6.88214E-04	1.00000E+00					
28	.00000E+00	.00000E+00	8.17072E-01	8.13118E-01	8.17072E-01	6.86171E-03	-6.84474E-03	9.99979E-01					

0 grp. rt bdy flux rt leakage lft bdy flux lft leakage rdn rate fiss rate flux/cb**2 total flux

1	1.24026E-02	-6.86193E-04	1.22921E-02	.00000E+00	3.50331E-11	.00000E+00	1.89858E-05	1.55081E-02				
2	9.04818E-02	-7.74685E-03	8.90107E-02	.00000E+00	.00000E+00	.00000E+00	8.75418E-05	1.12645E-01				
3	1.13746E-01	-1.04207E-02	1.11952E-01	.00000E+00	.00000E+00	.00000E+00	9.15930E-05	1.41375E-01				
4	7.02585E-02	-6.82619E-03	6.87048E-02	.00000E+00	.00000E+00	.00000E+00	4.15656E-05	8.71495E-02				
5	1.05123E-01	-1.06997E-02	1.02523E-01	.00000E+00	.00000E+00	.00000E+00	4.98671E-05	1.30197E-01				
6	1.97551E-01	-1.96527E-02	1.92894E-01	.00000E+00	.00000E+00	.00000E+00	8.33628E-05	2.44701E-01				
7	1.96053E-01	-1.20143E-02	1.98018E-01	.00000E+00	.00000E+00	.00000E+00	5.92527E-05	2.44183E-01				
8	1.47318E-01	-2.42262E-03	1.46897E-01	.00000E+00	.00000E+00	.00000E+00	3.27046E-05	1.84858E-01				
9	1.15757E-01	2.76213E-04	1.15816E-01	.00000E+00	.00000E+00	.00000E+00	2.16555E-05	1.45495E-01				
10	1.06523E-01	1.49943E-03	1.06961E-01	.00000E+00	.00000E+00	.00000E+00	1.91325E-05	1.34178E-01				
11	9.96734E-02	3.49016E-03	1.00850E-01	.00000E+00	.00000E+00	.00000E+00	1.78688E-05	1.29533E-01				
12	6.41628E-02	4.04784E-03	6.52636E-02	.00000E+00	.00000E+00	.00000E+00	1.04903E-05	8.14122E-02				
13	5.48577E-02	3.75730E-03	5.58806E-02	.00000E+00	.00000E+00	.00000E+00	8.74495E-06	6.96391E-02				
14	5.21298E-02	5.39045E-03	5.35691E-02	.00000E+00	.00000E+00	.00000E+00	8.52431E-06	6.65255E-02				
15	2.89721E-02	1.16563E-03	2.92270E-02	.00000E+00	.00000E+00	.00000E+00	4.50400E-06	3.68828E-02				
16	1.61233E-02	5.78567E-04	1.62959E-02	.00000E+00	.00000E+00	.00000E+00	2.26695E-06	2.0594E-02				
17	7.15854E-03	3.78279E-04	7.25373E-03	.00000E+00	.00000E+00	.00000E+00	9.27623E-07	9.06306E-03				
18	5.85054E-03	6.48474E-04	6.02892E-03	.00000E+00	.00000E+00	.00000E+00	7.46824E-07	7.47947E-03				
19	1.12046E-02	6.43075E-04	1.13685E-02	.00000E+00	.00000E+00	.00000E+00	1.48534E-06	1.41956E-02				
20	3.68225E-02	1.99575E-03	3.7423E-02	.00000E+00	.00000E+00	.00000E+00	5.4803E-06	4.67613E-02				
21	1.17153E-02	1.32340E-03	1.21031E-02	.00000E+00	.00000E+00	.00000E+00	1.37497E-06	1.49956E-02				
22	2.44815E-02	3.95628E-03	2.57065E-02	.00000E+00	.00000E+00	.00000E+00	2.89052E-06	3.16192E-02				
23	8.15744E-02	1.29595E-02	8.61215E-02	.00000E+00	.00000E+00	.00000E+00	8.70913E-06	1.05991E-01				
24	6.51695E-02	1.18026E-02	7.02734E-02	.00000E+00	.00000E+00	.00000E+00	5.29011E-06	8.53253E-02				
25	2.89769E-02	5.51002E-03	3.17159E-02	.00000E+00	.00000E+00	.00000E+00	1.81083E-06	3.82406E-02				
26	2.03753E-02	4.07927E-03	2.26505E-02	.00000E+00	.00000E+00	.00000E+00	9.53476E-07	2.72648E-02				
27	3.79469E-03	6.88214E-04	4.33862E-03	.00000E+00	.00000E+00	.00000E+00	1.12286E-07	5.1952E-03				

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28 1.76838E+00 -6.84477E-05 1.77533E+00 .00000E+00 3.50331E-11 .00000E+00 5.87149E-04 2.22644E+00
1 fine group summary for zone 2 by group including sum for all groups in line 28
0 grp. fix source fiss source in scatter self scatter out scatter absorption leakage balance
1 .00000E+00 .00000E+00 .00000E+00 .00000E+00 1.58459E-04 2.37992E-05 -1.55367E-04 1.00001E+00
2 .00000E+00 .00000E+00 2.77070E-05 1.43126E-03 1.02700E-03 1.37854E-05 -1.01310E-03 1.00000E+00
3 .00000E+00 .00000E+00 1.46512E-04 2.74720E-03 8.68660E-04 2.01035E-05 -7.42206E-04 9.99999E-01
4 .00000E+00 .00000E+00 2.82531E-04 2.29473E-03 2.97118E-04 1.30402E-05 -2.76058E-05 9.99997E-01
5 .00000E+00 .00000E+00 6.08308E-04 4.40740E-03 2.78735E-04 1.68290E-05 3.12708E-04 1.00000E+00
6 .00000E+00 .00000E+00 1.01189E-03 1.23972E-02 1.69380E-04 2.70507E-05 8.15401E-04 1.00000E+00
7 .00000E+00 .00000E+00 6.67149E-04 1.25909E-02 6.32853E-05 2.68066E-05 5.77050E-04 1.00000E+00
8 .00000E+00 .00000E+00 1.16872E-04 9.20259E-03 4.43118E-04 2.20992E-05 -3.48375E-04 1.00001E+00
9 .00000E+00 .00000E+00 4.44642E-04 6.36371E-03 5.29668E-05 7.66408E-05 3.15340E-04 9.99993E-01
10 .00000E+00 .00000E+00 5.30313E-05 4.98040E-03 4.94142E-05 5.93497E-05 -5.56275E-05 9.99997E-01
11 .00000E+00 .00000E+00 4.94175E-05 4.44516E-03 5.02016E-05 8.98253E-05 -9.06093E-05 1.00000E+00
12 .00000E+00 .00000E+00 5.02019E-05 2.75609E-03 5.12762E-05 5.66238E-05 -6.76324E-06 1.00000E+00
13 .00000E+00 .00000E+00 5.12762E-05 2.35720E-03 4.80852E-05 6.31604E-05 -3.12645E-05 1.00000E+00
14 .00000E+00 .00000E+00 4.80853E-05 2.24437E-03 4.22955E-05 8.57116E-05 -2.78552E-05 1.00000E+00
15 .00000E+00 .00000E+00 4.49199E-05 1.22266E-03 5.00394E-05 6.33185E-05 -1.14143E-05 9.99989E-01
16 .00000E+00 .00000E+00 5.62555E-05 6.51788E-04 5.64653E-05 3.85304E-05 -4.04869E-06 9.99962E-01
17 .00000E+00 .00000E+00 6.27271E-05 2.52189E-04 6.20771E-05 1.87468E-05 -1.21095E-06 9.99959E-01
18 .00000E+00 .00000E+00 6.55613E-05 1.93985E-04 6.25370E-05 1.61502E-05 1.31881E-06 9.99987E-01
19 .00000E+00 .00000E+00 6.35760E-05 4.28613E-04 6.32800E-05 3.32595E-05 -2.96644E-06 9.99970E-01
20 .00000E+00 .00000E+00 7.79284E-05 1.55479E-03 6.61000E-05 1.33671E-05 -1.47871E-06 9.99971E-01
21 .00000E+00 .00000E+00 8.99546E-05 4.14789E-04 9.90781E-05 5.14164E-05 -1.42420E-05 9.99984E-01
22 .00000E+00 .00000E+00 1.31719E-04 9.46894E-04 1.28509E-04 1.22223E-05 -6.99936E-06 9.99997E-01
23 .00000E+00 .00000E+00 1.91850E-04 3.33163E-03 2.44597E-04 5.44158E-05 -1.07195E-04 1.00000E+00
24 .00000E+00 .00000E+00 3.13404E-04 2.51201E-03 3.44735E-04 6.16610E-05 -9.30531E-05 1.00001E+00
25 .00000E+00 .00000E+00 3.18680E-04 1.01014E-03 2.99997E-04 3.57476E-05 2.29138E-05 1.00001E+00
26 .00000E+00 .00000E+00 1.35291E-04 7.88964E-04 1.04264E-04 3.54183E-05 -4.40422E-06 1.00000E+00
27 .00000E+00 .00000E+00 3.02252E-05 1.66427E-04 8.57494E-03 1.23474E-05 1.77554E-05 1.00001E+00
28 .00000E+00 .00000E+00 5.14000E-03 8.18941E-02 5.14000E-03 6.35691E-04 -6.30030E-04 9.99995E-01
0 grp. rt body flux rt leakage lft body flux lft leakage nbn rate fiss rate flux/cd/m^2 total flux
1 1.24278E-02 -8.41560E-04 1.24028E-02 -6.86193E-04 5.66822E-06 .00000E+00 1.56693E-06 2.08924E-03
2 9.07419E-02 -8.75994E-03 9.04810E-02 -7.74685E-03 .00000E+00 .00000E+00 1.09420E-05 1.51037E-02
3 1.14095E-01 -1.11629E-02 1.13749E-01 -1.04207E-02 .00000E+00 .00000E+00 1.25895E-05 1.89909E-02
4 7.04754E-02 -6.85380E-03 7.02589E-02 -6.82619E-03 .00000E+00 .00000E+00 7.40650E-06 1.17317E-02
5 1.05464E-01 -1.03870E-02 1.05125E-01 -1.06997E-02 .00000E+00 .00000E+00 8.61804E-06 1.75662E-02
6 1.98227E-01 -1.88373E-02 1.97351E-01 -1.96527E-02 .00000E+00 .00000E+00 1.01693E-05 3.29955E-02
7 1.96466E-01 -1.14372E-02 1.96052E-01 -1.20143E-02 .00000E+00 .00000E+00 8.35086E-06 3.27212E-02
8 1.47406E-01 -2.77099E-03 1.47310E-01 -2.42262E-03 .00000E+00 .00000E+00 5.27158E-06 2.45631E-02
9 1.15746E-01 5.91533E-04 1.15757E-01 2.76213E-04 .00000E+00 .00000E+00 4.57967E-06 1.92950E-02
10 1.05482E-01 1.44382E-03 1.06523E-01 1.49945E-03 .00000E+00 .00000E+00 4.90889E-06 1.77518E-02
11 9.95800E-02 3.39959E-03 9.96734E-02 3.49016E-03 .00000E+00 .00000E+00 4.75415E-06 1.66047E-02
12 6.40554E-02 4.04110E-03 6.41620E-02 4.04784E-03 .00000E+00 .00000E+00 3.20859E-06 1.06843E-02
13 5.47560E-02 3.75418E-03 5.48577E-02 3.75730E-03 .00000E+00 .00000E+00 2.73715E-06 9.13398E-03
14 5.19858E-02 5.38766E-03 5.21290E-02 5.39045E-03 .00000E+00 .00000E+00 2.99518E-06 8.67509E-03
15 2.89360E-02 1.15421E-03 2.89721E-02 1.16563E-03 .00000E+00 .00000E+00 1.42181E-06 4.82570E-03
16 1.61127E-02 5.78519E-04 1.61293E-02 5.78567E-04 .00000E+00 .00000E+00 7.91675E-07 2.68689E-03
17 7.14837E-03 3.77068E-04 7.15854E-03 3.78279E-04 .00000E+00 .00000E+00 3.51113E-07 1.19222E-03
18 5.85399E-03 6.49793E-04 5.86054E-03 6.48474E-04 .00000E+00 .00000E+00 2.86619E-07 9.73538E-04
19 1.11873E-02 6.40108E-04 1.12046E-02 6.43075E-04 .00000E+00 .00000E+00 5.49104E-07 1.88982E-03
20 3.68707E-02 1.98227E-03 3.69225E-02 1.99375E-03 .00000E+00 .00000E+00 1.80704E-06 6.14915E-03
21 1.16890E-02 1.30915E-03 1.17155E-02 1.32340E-03 .00000E+00 .00000E+00 5.71983E-07 1.94944E-03
22 2.43963E-02 3.94928E-03 2.44815E-02 3.95628E-03 .00000E+00 .00000E+00 1.19281E-06 4.07101E-03
23 8.12852E-02 1.22894E-02 8.15744E-02 1.23956E-02 .00000E+00 .00000E+00 3.96133E-06 1.35677E-02
24 6.49157E-02 1.17095E-02 6.51699E-02 1.18026E-02 .00000E+00 .00000E+00 3.14467E-06 1.08365E-02
25 2.88684E-02 5.53294E-03 2.89769E-02 5.51002E-03 .00000E+00 .00000E+00 1.39004E-06 4.81865E-03
26 2.08078E-02 4.07486E-03 2.08753E-02 4.07927E-03 .00000E+00 .00000E+00 9.67257E-07 3.38874E-03
27 3.78942E-03 7.06007E-04 3.79469E-03 6.88214E-04 .00000E+00 .00000E+00 1.74783E-07 6.31696E-04
28 1.76923E+00 -7.47473E-05 1.76838E+00 -6.84477E-05 5.66822E-06 .00000E+00 1.04301E-04 2.94833E-01

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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	.0000E+00	.0000E+00	.0000E+00	2.5373E-04	3.3589E-04	2.7964E-05	-3.6378E-04	9.9998E-01
2	.0000E+00	.0000E+00	1.9869E-04	3.2238E-03	4.2572E-03	9.2126E-05	-4.1364E-03	9.9997E-01
3	.0000E+00	.0000E+00	2.0104E-03	2.8963E-03	7.5368E-03	4.9175E-05	-5.5743E-03	9.9997E-01
4	.0000E+00	.0000E+00	2.9541E-03	1.9186E-03	6.5921E-03	2.2390E-05	-3.6604E-03	9.9999E-01
5	.0000E+00	.0000E+00	5.4481E-03	6.1673E-03	1.1173E-02	2.6577E-05	-5.7517E-03	9.9998E-01
6	.0000E+00	.0000E+00	1.1465E-02	1.8481E-02	2.1985E-02	4.5158E-05	-1.0544E-02	1.0000E+00
7	.0000E+00	.0000E+00	2.2597E-02	3.2379E-02	2.8750E-02	3.2512E-05	-6.1853E-03	9.9999E-01
8	.0000E+00	.0000E+00	2.9775E-02	4.1141E-02	3.0848E-02	1.9115E-05	-8.8266E-04	9.9999E-01
9	.0000E+00	.0000E+00	3.0406E-02	3.7955E-02	3.0057E-02	1.5302E-05	3.3788E-04	9.9999E-01
10	.0000E+00	.0000E+00	2.9871E-02	3.6048E-02	2.8967E-02	1.8792E-05	8.8876E-04	9.9999E-01
11	.0000E+00	.0000E+00	2.9137E-02	3.3982E-02	2.7130E-02	2.8575E-05	1.9804E-03	9.9994E-01
12	.0000E+00	.0000E+00	2.3574E-02	1.8058E-02	2.1247E-02	3.1103E-05	2.2759E-03	9.9998E-01
13	.0000E+00	.0000E+00	2.0924E-02	1.4720E-02	1.8878E-02	4.3607E-05	2.0057E-03	9.9997E-01
14	.0000E+00	.0000E+00	2.0343E-02	1.4477E-02	1.7318E-02	6.9967E-05	2.9551E-03	9.9999E-01
15	.0000E+00	.0000E+00	1.1150E-02	5.6845E-03	1.0649E-02	5.8981E-05	4.4230E-04	1.0000E+00
16	.0000E+00	.0000E+00	7.3783E-03	2.4097E-03	7.0995E-03	4.0186E-05	2.3960E-04	1.0000E+00
17	.0000E+00	.0000E+00	3.8118E-03	6.9801E-04	3.6005E-03	1.9809E-05	1.9147E-04	9.9999E-01
18	.0000E+00	.0000E+00	3.3918E-03	5.4781E-04	2.9922E-03	1.7132E-05	3.8238E-04	1.0000E+00
19	.0000E+00	.0000E+00	5.6861E-03	1.6053E-03	5.3313E-03	3.5977E-05	3.1889E-04	9.9999E-01
20	.0000E+00	.0000E+00	1.4028E-02	1.1403E-02	1.2895E-02	1.4874E-04	9.8457E-04	1.0001E+00
21	.0000E+00	.0000E+00	6.8474E-03	2.3258E-03	6.0505E-03	5.8527E-05	7.3866E-04	1.0000E+00
22	.0000E+00	.0000E+00	1.3646E-02	7.2744E-03	1.1320E-02	1.3972E-04	2.1858E-03	1.0001E+00
23	.0000E+00	.0000E+00	3.5340E-02	4.3713E-02	2.8705E-02	6.3460E-04	5.9988E-03	1.0002E+00
24	.0000E+00	.0000E+00	3.7760E-02	4.0325E-02	3.1127E-02	7.3364E-04	5.8975E-03	1.0002E+00
25	.0000E+00	.0000E+00	2.4949E-02	1.6844E-02	2.1670E-02	4.2812E-04	2.8504E-03	1.0001E+00
26	.0000E+00	.0000E+00	1.9821E-02	1.8381E-02	1.6977E-02	4.2508E-04	2.4191E-03	1.0001E+00
27	.0000E+00	.0000E+00	6.6766E-03	3.8825E-03	5.9146E-03	1.4778E-04	6.1419E-04	1.0000E+00
28	.0000E+00	.0000E+00	4.1937E-01	4.1681E-01	4.1937E-01	3.4106E-03	-3.4008E-03	9.9997E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtb rate	fiss rate	flux*db**2	total flux
1	1.2557E-02	-1.2053E-03	1.2627E-02	-8.4156E-04	1.8572E-11	.0000E+00	1.0065E-05	8.2216E-03
2	9.2053E-02	-1.2896E-02	9.0741E-02	-8.7594E-03	.0000E+00	.0000E+00	4.6728E-05	6.0128E-02
3	1.1571E-01	-1.6757E-02	1.1407E-01	-1.1162E-02	.0000E+00	.0000E+00	4.8947E-05	7.5579E-02
4	7.1443E-02	-1.0514E-02	7.0475E-02	-6.8538E-03	.0000E+00	.0000E+00	2.2259E-05	4.6661E-02
5	1.0593E-01	-1.6138E-02	1.0544E-01	-1.0367E-02	.0000E+00	.0000E+00	2.6420E-05	6.9821E-02
6	2.0089E-01	-2.9382E-02	1.9827E-01	-1.8837E-02	.0000E+00	.0000E+00	4.4692E-05	1.3118E-01
7	1.9798E-01	-1.7622E-02	1.9646E-01	-1.1437E-02	.0000E+00	.0000E+00	3.1480E-05	1.2973E-01
8	1.4789E-01	-3.6606E-03	1.4740E-01	-2.7709E-03	.0000E+00	.0000E+00	1.7183E-05	9.7126E-02
9	1.1551E-01	9.2943E-04	1.1574E-01	5.9155E-04	.0000E+00	.0000E+00	1.1329E-05	7.6116E-02
10	1.0522E-01	2.3325E-03	1.0548E-01	1.4438E-03	.0000E+00	.0000E+00	9.9848E-06	7.0024E-02
11	9.9003E-02	5.3800E-03	9.9580E-02	3.3995E-03	.0000E+00	.0000E+00	9.2775E-06	6.5395E-02
12	6.3366E-02	6.3170E-03	6.4055E-02	4.0411E-03	.0000E+00	.0000E+00	5.4088E-06	4.1978E-02
13	5.4164E-02	5.7579E-03	5.4756E-02	3.7541E-03	.0000E+00	.0000E+00	4.9058E-06	3.5881E-02
14	5.1101E-02	8.3428E-03	5.1985E-02	5.3876E-03	.0000E+00	.0000E+00	4.3535E-06	3.3978E-02
15	2.8843E-02	1.5965E-03	2.8930E-02	1.1542E-03	.0000E+00	.0000E+00	2.3419E-06	1.9021E-02
16	1.6056E-02	8.1347E-04	1.6112E-02	5.7451E-04	.0000E+00	.0000E+00	1.1792E-06	1.0910E-02
17	7.0945E-03	5.6854E-04	7.1483E-03	3.7708E-04	.0000E+00	.0000E+00	4.8011E-07	4.6908E-03
18	5.7145E-03	1.0321E-03	5.8339E-03	6.4972E-04	.0000E+00	.0000E+00	3.8020E-07	3.8077E-03
19	1.1081E-02	9.5894E-04	1.1187E-02	6.4010E-04	.0000E+00	.0000E+00	7.6792E-07	7.3397E-03
20	3.6854E-02	2.9765E-03	3.6870E-02	1.9927E-03	.0000E+00	.0000E+00	2.8354E-06	2.4191E-02
21	1.1448E-02	2.0478E-03	1.1680E-02	1.3091E-03	.0000E+00	.0000E+00	6.9980E-07	7.6257E-03
22	2.3643E-02	6.1351E-03	2.4385E-02	3.9428E-03	.0000E+00	.0000E+00	1.4487E-06	1.5848E-02
23	7.8950E-02	1.8288E-02	8.1285E-02	1.2289E-02	.0000E+00	.0000E+00	4.3590E-06	5.2849E-02
24	6.2248E-02	1.7607E-02	6.4915E-02	1.1709E-02	.0000E+00	.0000E+00	2.5725E-06	4.1969E-02
25	2.7389E-02	8.3834E-03	2.8868E-02	5.5329E-03	.0000E+00	.0000E+00	8.7933E-07	1.8566E-02
26	1.8943E-02	6.4940E-03	2.0807E-02	4.0748E-03	.0000E+00	.0000E+00	4.5276E-07	1.2946E-02
27	3.3704E-03	1.3202E-03	3.7882E-03	7.0600E-04	.0000E+00	.0000E+00	5.1918E-08	2.3783E-03
28	1.7688E+00	-1.0875E-02	1.7692E+00	-7.4747E-03	1.8572E-11	.0000E+00	3.1108E-04	1.1626E+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	2.21135E-02	.00000E+00	2.05319E-02	1.94698E-02	3.63035E-03	1.20533E-03	9.98977E-01
2	.00000E+00	1.91371E-01	6.73317E-03	2.47194E-01	1.70070E-01	1.51509E-02	1.28953E-02	1.00002E+00
3	.00000E+00	2.15417E-01	7.01575E-02	2.56078E-01	2.52603E-01	1.62574E-02	1.67372E-02	9.99989E-01
4	.00000E+00	1.26145E-01	1.04566E-01	1.76088E-01	2.10417E-01	7.77983E-03	1.05141E-02	1.00000E+00
5	.00000E+00	1.65089E-01	1.90752E-01	4.43728E-01	3.34458E-01	5.22670E-03	1.61386E-02	9.99991E-01
6	.00000E+00	1.78657E-01	3.89452E-01	1.19091E+00	5.30402E-01	8.31671E-03	2.93820E-02	1.00001E+00
7	.00000E+00	8.85054E-02	5.92545E-01	1.56461E+00	6.55078E-01	8.35657E-03	1.76231E-02	9.99989E-01
8	.00000E+00	1.36510E-02	6.89167E-01	1.57532E+00	6.85762E-01	1.34511E-02	3.66075E-03	9.99922E-01
9	.00000E+00	9.91007E-04	6.77875E-01	1.37068E+00	6.57763E-01	2.21066E-02	-9.33803E-04	9.99898E-01
10	.00000E+00	7.36105E-05	6.54847E-01	1.24451E+00	6.25907E-01	3.34119E-02	-2.33196E-03	9.99895E-01
11	.00000E+00	5.79129E-06	6.28047E-01	1.15711E+00	5.79284E-01	5.42054E-02	-5.37854E-03	9.99940E-01
12	.00000E+00	4.06834E-07	5.04685E-01	6.32315E-01	4.52782E-01	5.81835E-02	-6.31742E-03	9.99975E-01
13	.00000E+00	6.46000E-08	4.47429E-01	5.02026E-01	3.99653E-01	5.35376E-02	-5.75748E-03	9.99970E-01
14	.00000E+00	1.28020E-08	4.30765E-01	4.72118E-01	3.64666E-01	7.46500E-02	-8.34267E-03	9.99980E-01
15	.00000E+00	1.44677E-09	2.38546E-01	2.17038E-01	2.32592E-01	7.53757E-03	-1.60098E-03	1.00007E+00
16	.00000E+00	4.24821E-10	1.68040E-01	1.00866E-01	1.99132E-01	4.71284E-03	-8.16557E-04	1.00007E+00
17	.00000E+00	1.36813E-10	8.79279E-02	3.24917E-02	8.35567E-02	4.98557E-03	-5.67262E-04	1.00008E+00
18	.00000E+00	9.79542E-11	7.87397E-02	2.46702E-02	6.85430E-02	1.12269E-02	-1.03498E-03	1.00006E+00
19	.00000E+00	1.38486E-11	1.27395E-01	6.45625E-02	1.21350E-01	6.95804E-03	-9.58357E-04	1.00008E+00
20	.00000E+00	2.25192E-10	3.08895E-01	3.63470E-01	2.80077E-01	2.67779E-02	-2.98742E-03	1.00009E+00
21	.00000E+00	3.29610E-11	1.52381E-01	7.71019E-02	1.34486E-01	1.93390E-02	-2.05092E-03	1.00004E+00
22	.00000E+00	3.82429E-11	2.95188E-01	2.10436E-01	2.40255E-01	5.90774E-02	-6.13913E-03	1.00005E+00
23	.00000E+00	3.65638E-11	7.15845E-01	1.10448E+00	5.91982E-01	1.42114E-01	-1.82787E-02	1.00004E+00
24	.00000E+00	9.95219E-12	7.61354E-01	9.41618E-01	6.27864E-01	1.51068E-01	-1.76074E-02	1.00004E+00
25	.00000E+00	2.91335E-12	5.03116E-01	3.80135E-01	4.27137E-01	8.43519E-02	-8.38349E-03	1.00002E+00
26	.00000E+00	2.04286E-12	3.89479E-01	3.80591E-01	3.19234E-01	7.67321E-02	-6.49428E-03	1.00002E+00
27	.00000E+00	4.86834E-13	1.28224E-01	7.68333E-02	1.07801E-01	2.17422E-02	-1.32026E-03	1.00001E+00
28	.00000E+00	1.00000E+00	9.33030E+00	1.48275E+01	9.33029E+00	9.91453E-01	1.08556E-02	9.99988E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtn rate	fiss rate	flux*dy*2	total flux
1	1.28458E-02	-9.97737E-09	1.25573E-02	-1.20534E-03	2.16520E-03	2.41708E-03	2.89477E-04	3.26516E-01
2	9.53250E-02	-9.01340E-08	9.20530E-02	-1.28964E-02	1.62522E-05	1.09287E-02	1.56700E-03	2.42045E+00
3	1.20081E-01	-1.07647E-07	1.15719E-01	-1.67373E-02	.00000E+00	1.33500E-02	1.81787E-03	3.04817E+00
4	7.42708E-02	-9.78129E-08	7.14430E-02	-1.05142E-02	.00000E+00	5.75240E-03	8.81579E-04	1.88495E+00
5	1.11534E-01	-1.84290E-07	1.09930E-01	-1.61397E-02	.00000E+00	1.68452E-03	1.03082E-03	2.82599E+00
6	2.09693E-01	-2.34811E-07	2.00895E-01	-2.93822E-02	.00000E+00	1.48188E-03	1.73113E-03	5.31797E+00
7	2.03560E-01	5.61110E-07	1.97987E-01	-1.76225E-02	.00000E+00	1.49704E-03	1.22593E-03	5.16970E+00
8	1.48864E-01	8.97992E-08	1.47697E-01	-3.66066E-03	.00000E+00	1.56076E-03	6.97367E-04	3.78712E+00
9	1.15171E-01	-4.37011E-08	1.15517E-01	9.29433E-04	.00000E+00	2.13399E-03	4.70572E-04	2.93326E+00
10	1.05405E-01	6.28909E-07	1.05222E-01	2.33299E-03	.00000E+00	4.55729E-03	4.28092E-04	2.68604E+00
11	9.71375E-02	1.37020E-06	9.90033E-02	5.38001E-03	.00000E+00	9.54164E-03	3.85377E-04	2.47840E+00
12	6.11904E-02	-3.91943E-07	6.33661E-02	6.31703E-03	.00000E+00	1.24109E-02	2.27570E-04	1.56392E+00
13	5.22053E-02	4.64490E-07	5.41649E-02	5.75794E-03	.00000E+00	1.23673E-02	1.96229E-04	1.33448E+00
14	4.82657E-02	1.48099E-07	5.11011E-02	8.34282E-03	.00000E+00	8.45267E-03	1.78236E-04	1.23658E+00
15	2.83237E-02	-4.66883E-06	2.89443E-02	1.59652E-03	.00000E+00	2.14073E-03	1.11784E-04	7.22782E-01
16	1.57945E-02	-3.07762E-06	1.60568E-02	8.13479E-04	.00000E+00	1.44688E-03	5.86730E-05	4.02594E-01
17	6.90660E-03	1.28506E-06	7.09457E-03	5.68547E-04	.00000E+00	2.04339E-03	2.34470E-05	1.76882E-01
18	5.36478E-03	-2.77759E-06	5.71451E-03	1.08218E-03	.00000E+00	2.37041E-03	1.62792E-05	1.37488E-01
19	1.07732E-02	5.88876E-07	1.10981E-02	9.58947E-04	.00000E+00	3.29172E-03	3.72988E-05	2.75244E-01
20	3.56610E-02	-1.05754E-05	3.6854E-02	2.97685E-03	.00000E+00	1.58374E-02	1.31723E-04	9.08433E-01
21	1.07128E-02	-3.10237E-06	1.14485E-02	2.04782E-03	.00000E+00	1.22900E-02	3.12357E-05	2.74863E-01
22	2.13058E-02	-4.08080E-06	2.36443E-02	6.13510E-03	.00000E+00	3.60467E-02	5.91360E-05	5.49526E-01
23	7.07299E-02	9.52730E-06	7.88650E-02	1.82883E-02	.00000E+00	8.56527E-02	1.91421E-04	1.83053E+00
24	5.33756E-02	-3.12392E-07	6.22481E-02	1.76071E-02	.00000E+00	9.08818E-02	1.12351E-04	1.39159E+00
25	2.27252E-02	-6.15187E-08	2.73699E-02	8.38343E-03	.00000E+00	5.27986E-02	3.80808E-05	5.93898E-01
26	1.48782E-02	-2.52953E-07	1.89436E-02	6.49403E-03	.00000E+00	4.86568E-02	1.85392E-05	3.92298E-01
27	2.49733E-03	-5.14804E-08	3.37046E-03	1.32021E-03	.00000E+00	1.35708E-02	1.90399E-06	6.60215E-02
28	1.75450E-01	-1.95233E-05	1.76588E+00	-1.08750E-02	2.18146E-03	4.55157E-01	1.19544E-02	4.47406E+01
1 fine group summary for system	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance

1	.00000E+00	2.21135E-02	.00000E+00	2.14758E-02	2.05978E-02	3.71345E-03	-9.97737E-09	9.98866E-01
2	.00000E+00	1.91371E-01	7.31705E-03	2.57889E-01	1.85272E-01	1.54294E-02	-9.01340E-08	1.00001E+00
3	.00000E+00	2.15417E-01	7.60816E-02	2.67140E-01	2.75104E-01	1.63987E-02	-1.07647E-07	9.99987E-01
4	.00000E+00	1.26145E-01	1.13331E-01	1.83884E-01	2.28619E-01	7.85703E-03	-9.78123E-08	9.99999E-01
5	.00000E+00	1.65066E-01	2.06973E-01	4.65803E-01	3.66746E-01	5.31966E-03	-1.84290E-07	9.99990E-01
6	.00000E+00	1.78657E-01	4.23332E-01	1.25626E+00	5.95508E-01	8.47315E-03	-2.34811E-07	1.00001E+00
7	.00000E+00	8.85054E-02	6.57970E-01	1.67052E+00	7.38006E-01	8.47703E-03	5.61110E-07	9.99989E-01
8	.00000E+00	1.36510E-02	7.75581E-01	1.70897E+00	7.75766E-01	1.35287E-02	8.97995E-08	9.99920E-01
9	.00000E+00	9.91007E-04	7.66475E-01	1.48754E+00	7.45326E-01	2.22278E-02	-4.37011E-06	9.99897E-01
10	.00000E+00	7.36106E-05	7.41808E-01	1.35461E+00	7.08430E-01	3.35299E-02	6.2609E-07	9.99893E-01
11	.00000E+00	5.79123E-05	7.13025E-01	1.26099E+00	6.58898E-01	5.43788E-02	1.37020E-06	9.99939E-01
12	.00000E+00	4.06824E-07	5.73555E-01	6.88152E-01	5.15290E-01	5.88806E-02	-3.91943E-07	9.99975E-01
13	.00000E+00	6.46000E-08	5.08884E-01	5.47674E-01	4.55272E-01	5.36722E-02	4.64400E-07	9.99989E-01
14	.00000E+00	1.28030E-08	4.90796E-01	5.17246E-01	4.15986E-01	7.48856E-02	1.48095E-07	9.99988E-01
15	.00000E+00	1.44677E-09	2.71502E-01	2.34877E-01	2.63773E-01	7.71631E-03	-4.46383E-06	1.00006E+00
16	.00000E+00	4.24821E-10	1.84778E-01	1.08560E-01	1.79885E-01	4.83414E-03	-3.07762E-06	1.00005E+00
17	.00000E+00	1.36813E-10	9.91754E-02	3.47723E-02	9.41758E-02	4.99553E-03	1.28506E-06	1.00008E+00
18	.00000E+00	9.79542E-11	8.87569E-02	2.64873E-02	7.74754E-02	1.12788E-02	-2.77759E-06	1.00005E+00
19	.00000E+00	1.38485E-10	1.44163E-01	6.97047E-02	1.37056E-01	7.10192E-03	5.88878E-07	1.00003E+00
20	.00000E+00	2.25152E-10	3.45209E-01	3.98476E-01	3.17944E-01	2.72276E-02	-1.05754E-05	1.00008E+00
21	.00000E+00	3.29610E-11	1.72653E-01	8.44155E-02	1.52532E-01	2.01171E-02	-3.10257E-06	1.00004E+00
22	.00000E+00	3.82423E-11	3.33788E-01	2.33171E-01	2.74286E-01	5.93081E-02	-4.08089E-06	1.00004E+00
23	.00000E+00	3.65638E-11	8.22952E-01	1.23885E+00	6.78284E-01	1.44071E-01	9.52730E-06	1.00004E+00
24	.00000E+00	9.95219E-12	8.76008E-01	1.06644E+00	7.22619E-01	1.53355E-01	-3.12352E-07	1.00004E+00
25	.00000E+00	2.91335E-12	5.79402E-01	4.32678E-01	4.96879E-01	8.56973E-02	-6.15187E-08	1.00002E+00
26	.00000E+00	2.04286E-12	4.50164E-01	4.38470E-01	3.72068E-01	7.80878E-02	-2.52593E-07	1.00002E+00
27	.00000E+00	4.86824E-13	1.48731E-01	8.92790E-02	1.26808E-01	2.22220E-02	-5.16804E-08	1.00001E+00
28	.00000E+00	1.00000E+00	1.05719E+01	1.61362E+01	1.05719E+01	1.00236E+00	-1.95301E-05	9.99987E-01
0 grp.	rt body flux	rt leakage	lft body flux	lft leakage	n2n rate	fiis rate	flux*db**2	total flux
1	1.28458E-02	-9.97737E-09	1.22921E-02	.00000E+00	2.17087E-03	2.41708E-03	3.14099E-04	3.52315E-01
2	9.55250E-02	-9.01340E-08	8.90107E-02	.00000E+00	1.62522E-05	1.09287E-02	1.71221E-03	2.60833E+00
3	1.20081E-01	-1.07647E-07	1.11952E-01	.00000E+00	.00000E+00	1.33500E-02	1.97097E-03	3.28411E+00
4	7.42708E-02	-9.78123E-08	6.87048E-02	.00000E+00	.00000E+00	5.75240E-03	9.52807E-04	2.03049E+00
5	1.11534E-01	-1.84290E-07	1.02523E-01	.00000E+00	.00000E+00	1.68452E-03	1.11513E-03	3.04717E+00
6	2.05893E-01	-2.34811E-07	1.92694E-01	.00000E+00	.00000E+00	1.48188E-03	1.89835E-03	5.72685E+00
7	2.03560E-01	5.61110E-07	1.95018E-01	.00000E+00	.00000E+00	1.49704E-03	1.32501E-03	5.57576E+00
8	1.48864E-01	8.97995E-08	1.46877E-01	.00000E+00	.00000E+00	1.56076E-03	7.52527E-04	4.02867E+00
9	1.15171E-01	-4.37011E-06	1.15816E-01	.00000E+00	.00000E+00	2.13399E-03	5.08257E-04	3.17416E+00
10	1.05405E-01	6.2609E-07	1.0561E-01	.00000E+00	.00000E+00	4.35729E-03	4.62112E-04	2.90800E+00
11	9.71379E-02	1.37020E-06	1.00850E-01	.00000E+00	.00000E+00	9.54164E-03	4.18278E-04	2.68536E+00
12	6.11904E-02	-3.91943E-07	6.52636E-02	.00000E+00	.00000E+00	1.26109E-02	2.46678E-04	1.69799E+00
13	5.22063E-02	4.64400E-07	5.58502E-02	.00000E+00	.00000E+00	1.23673E-02	2.12217E-04	1.44933E+00
14	4.82657E-02	1.48095E-07	5.35691E-02	.00000E+00	.00000E+00	8.45267E-03	1.95707E-04	1.34577E+00
15	2.83237E-02	-4.46383E-06	2.92270E-02	.00000E+00	.00000E+00	2.14073E-03	1.20052E-04	7.83212E-01
16	1.57945E-02	-3.07762E-06	1.62599E-02	.00000E+00	.00000E+00	1.44688E-03	6.29109E-05	4.36571E-01
17	6.90660E-03	1.28506E-06	7.25373E-03	.00000E+00	.00000E+00	2.04339E-03	2.52059E-05	1.91328E-01
18	5.36478E-03	-2.77759E-06	6.02852E-03	.00000E+00	.00000E+00	2.37041E-03	1.76950E-05	1.49749E-01
19	1.07732E-02	5.88878E-07	1.13688E-02	.00000E+00	.00000E+00	3.29172E-03	4.07010E-05	2.98456E-01
20	3.55610E-02	-1.05754E-05	3.74423E-02	.00000E+00	.00000E+00	1.58574E-02	1.41846E-04	9.85535E-01
21	1.07128E-02	-3.10257E-06	1.21031E-02	.00000E+00	.00000E+00	1.22900E-02	3.39399E-05	2.99435E-01
22	2.13068E-02	-4.03089E-06	2.57066E-02	.00000E+00	.00000E+00	3.60467E-02	6.46681E-05	6.07084E-01
23	7.07299E-02	9.52730E-06	8.61215E-02	.00000E+00	.00000E+00	8.56527E-02	2.09450E-04	2.00254E+00
24	5.35756E-02	-3.12352E-07	7.02734E-02	.00000E+00	.00000E+00	9.08818E-02	1.25238E-04	1.52972E+00
25	2.27252E-02	-6.15187E-08	3.17159E-02	.00000E+00	.00000E+00	5.27924E-02	4.21610E-05	6.57227E-01
26	1.48782E-02	-2.52593E-07	2.26509E-02	.00000E+00	.00000E+00	4.86568E-02	2.10117E-05	4.35898E-01
27	2.49733E-03	-5.16804E-08	4.33862E-03	.00000E+00	.00000E+00	1.35703E-02	2.24294E-06	7.41689E-02
28	1.75400E+00	-1.95233E-05	1.77553E+00	.00000E+00	2.18713E-03	4.55157E-01	1.25569E-02	4.84254E+01

- elapsed time .02 min.

0 direct 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	1.0999E-03	4.9715E-03	5.2804E-03	2.5024E-03	3.1815E-03	5.5294E-03	3.7204E-03	1.7427E-03
2	6.7010E-04	4.9101E-03	5.7566E-03	3.4347E-03	4.2988E-03	6.1639E-03	4.3398E-03	2.1474E-03
3	1.1276E-03	5.3892E-03	5.8430E-03	2.9101E-03	3.8656E-03	6.7921E-03	4.3862E-03	1.8231E-03
4	7.7488E-04	4.2366E-03	4.9075E-03	2.3852E-03	2.8278E-03	4.8083E-03	3.3275E-03	1.7964E-03
5	7.9750E-04	4.2981E-03	4.9511E-03	2.4076E-03	2.8776E-03	4.8922E-03	3.3768E-03	1.7967E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.1122E-03	1.0148E-03	1.0964E-03	8.7298E-04	7.8370E-04	1.0087E-03	3.1374E-04	1.5619E-04
2	1.7899E-03	1.9527E-03	2.0438E-03	1.5999E-03	1.4115E-03	1.6620E-03	6.2526E-04	3.4083E-04
3	1.1215E-03	1.0569E-03	1.3016E-03	1.2197E-03	1.1026E-03	1.5185E-03	3.7341E-04	1.8790E-04
4	1.1947E-03	1.0944E-03	1.0304E-03	6.7781E-04	6.0178E-04	6.3878E-04	3.1126E-04	1.6148E-04
5	1.1922E-03	1.0943E-03	1.0461E-03	7.0526E-04	6.2695E-04	6.8287E-04	3.1476E-04	1.6299E-04
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.0881E-05	1.1377E-04	1.3490E-04	4.4670E-04	2.3166E-04	6.7561E-04	2.1647E-03	2.0151E-03
2	1.6566E-04	1.9415E-04	2.6619E-04	8.5980E-04	3.9161E-04	1.0714E-03	3.3822E-03	3.1210E-03
3	1.1099E-04	1.8189E-04	1.8501E-04	5.9723E-04	3.6252E-04	1.0791E-03	3.2850E-03	3.1305E-03
4	6.9620E-05	6.4857E-05	1.1293E-04	3.8619E-04	1.3138E-04	3.3085E-04	1.1194E-03	9.1278E-04
5	7.1705E-05	7.0668E-05	1.1661E-04	3.9688E-04	1.4306E-04	3.6848E-04	1.2255E-03	1.0294E-03

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	9.2814E-04	6.6174E-04	1.0094E-04	4.1921E-02
2	1.4525E-03	1.0641E-03	1.8529E-04	5.5303E-02
3	1.4822E-03	1.1198E-03	2.0770E-04	5.1785E-02
4	3.8469E-04	2.3428E-04	2.9022E-05	3.4535E-02
5	4.4217E-04	2.7998E-04	3.7563E-05	3.5409E-02

libroad group parameters

grp	upper energy	mid energy	velocity	fls spec
1	2.0000E+07	2.6391E+05	1.9647E+09	7.1812E-01
2	9.0000E+05	1.5069E+05	9.6512E+05	2.8188E-01
3	4.0000E-01	1.2716E-01	3.6830E+05	1.2316E-10
4	1.0000E-05			

1 240 d, second part of sea2h pass to make library

Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.8743E-01	1.1390E+00	2.4529E-01
2	3.9864E-01	1.1405E+00	2.3554E-01
3	3.9560E-01	1.1409E+00	2.3119E-01
4	4.1275E-01	1.1440E+00	2.0031E-01
5	4.1106E-01	1.1437E+00	2.0331E-01

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

Ozone	grp. 1	grp. 2	grp. 3
1	9.4251E-01	9.9990E-01	1.2061E+00
2	9.5523E-01	9.9725E-01	1.1585E+00
3	9.6238E-01	9.9758E-01	1.1371E+00
4	1.0041E+00	1.0002E+00	9.8524E-01
5	1.0000E+00	1.0000E+00	1.0000E+00

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3
1	1.7015E-02	1.8127E-02	6.7778E-03
2	1.9070E-02	2.5561E-02	1.0671E-02
3	1.9135E-02	2.1960E-02	1.0667E-02
4	1.5125E-02	1.6270E-02	3.1384E-03
5	1.5332E-02	1.6547E-02	3.5300E-03

Ozone volume vol. fraction

	volume	vol. fraction
1	1.2568E+00	4.5623E-02
2	1.6668E-01	6.0516E-03
3	6.5826E-01	2.3698E-02

```

4      2.5462E+01      9.2442E-01
5      2.7544E+01      1.0000E+00
- elapsed time .03 min.
1  oooooooooo  oooooooooo  w  w  pppppppp  ll  oooooooooo
   oooooooooo  oooooooooo  w  w  pppppppp  ll  oooooooooo
   cc      cc  oo      oo  w  w  pp      pp  ll  ee
   cc      cc  oo      oo  w  w  pp      pp  ll  ee
   cc      cc  oo      oo  w  w  pp      pp  ll  ee
   cc      cc  oo      oo  w  w  pppppppp  ll  oooooooooo
   cc      cc  oo      oo  w  w  pppppppp  ll  oooooooooo
   cc      cc  oo      oo  w  w  pp      pp  ll  ee
   cc      cc  oo      oo  w  w  pp      pp  ll  ee
   cc      cc  oo      oo  w  w  pp      pp  ll  ee
   oooooooooo  oooooooooo  w  w  pp      pp  ll  oooooooooo
   oooooooooo  oooooooooo  w  w  pp      pp  ll  oooooooooo

```

```

0  dddddddddd  aaaaaaaaaa  w  w  iiii  sssssssss
   dddddddddd  aaaaaaaaaa  w  w  iiii  sssssssss
   dd      dd  aa      aa  w  w  ii  ss      ss
   dd      dd  aa      aa  w  w  ii  ss      ss
   dd      dd  aa      aa  w  w  ii  ss      ss
   dd      dd  aaaaaaaaaa  w  w  ii  sssssssss
   dd      dd  aaaaaaaaaa  w  w  ii  sssssssss
   dd      dd  aa      aa  w  w  ii  ss      ss
   dd      dd  aa      aa  w  w  ii  ss      ss
   dd      dd  aa      aa  w  w  ii  ss      ss
   dddddddddd  aa      aa  w  w  iiii  sssssssss
   dddddddddd  aa      aa  w  w  iiii  sssssssss

```

```

0  oooooooo  zzzzzzzz  //  11  cccccccc  //  99999999  cccccccc
   oooooooo  zzzzzzzz  //  111  cccccccc  //  99999999  cccccccc
   oo      oo  22      22  //  1111  66      66  //  99      99  66
   oo      oo  22      22  //  11  66      66  //  99      99  66
   oo      oo  22      22  //  11  66      66  //  99      99  66
   oo      oo  22      22  //  11  cccccccc  //  99999999  cccccccc
   oo      oo  22      22  //  11  66      66  //  99999999  cccccccc
   oo      oo  22      22  //  11  66      66  //  99      99  66
   oo      oo  22      22  //  11  66      66  //  99      99  66
   oooooooo  zzzzzzzz  //  11111111  cccccccc  //  99999999  cccccccc
   oooooooo  zzzzzzzz  //  11111111  cccccccc  //  99999999  cccccccc

```

```

0  oooooooo  99999999  55555555  88888888  11  77777777
   oooooooo  99999999  55555555  88888888  111  77777777
   oo      oo  99      99  :::  55      88  :::  111  77
   oo      oo  99      99  :::  55      88  :::  11  77
   oo      oo  99      99  :::  55      88  :::  11  77
   oo      oo  99999999  55555555  88888888  11  77
   oo      oo  99999999  55555555  88888888  11  77
   oo      oo  99      99  :::  55      88  :::  11  77
   oo      oo  99      99  :::  55      88  :::  11  77
   oo      oo  99      99  :::  55      88  :::  11  77
   oooooooo  99999999  55555555  88888888  11111111  77
   oooooooo  99999999  55555555  88888888  11111111  77

```

```

1  oooooooooo  oooooooooo  aaaaaaaaaa  ll  oooooooooo
0  oooooooooo  oooooooooo  aaaaaaaaaa  ll  oooooooooo

```


0 res = .3846
 0 fast = 2.9317
 0 user requested (see jachb) that only the nuclide transitions presently included in
 0 origin library be updated.
 1 cross sections, available from anpx (normalized to thermal flux), barns

10010 to 10020 2.75385E-01
 10010 tot-cap 2.75385E-01
 50100 to 40100 2.09013E-02
 50100 to 10010 2.09013E-02
 50100 to 40090 3.11789E-03
 50100 to 10020 3.11789E-03
 50100 to 30070 3.16715E+03
 50100 to 20040 3.16730E+03
 50100 to 10080 7.80945E-02
 50100 tot-cap 3.16725E+03
 50110 to 50100 8.88977E-06
 50110 to 50120 4.18853E-03
 50110 to 40110 1.13442E-06
 50110 to 10010 1.13442E-06
 50110 to 40090 1.01235E-05
 50110 to 10080 1.01235E-05
 50110 to 30080 1.32158E-04
 50110 to 20040 1.32158E-04
 50110 tot-cap 4.34084E-03
 80160 to 80170 1.47104E-04
 80160 to 70160 7.77840E-05
 80160 to 10010 7.77840E-05
 80160 to 70150 1.46700E-05
 80160 to 10020 1.46700E-05
 80160 to 60130 2.21441E-02
 80160 to 20040 2.21441E-02
 80160 to 80161 3.41133E-03
 80160 tot-cap 2.23837E-02
 360890 to 360820 1.76621E-02
 360890 to 360810 1.86468E-09
 360890 to 360840 1.48072E+02
 360890 to 360890 7.33568E-04
 360890 to 10010 7.33568E-04
 360890 to 360820 5.83331E-06
 360890 to 10020 5.83331E-06
 360890 to 360810 2.03885E-06
 360890 to 10080 2.03885E-06
 360890 to 340810 3.29972E-08
 360890 to 20090 3.29972E-08
 360890 to 340800 3.87812E-05
 360890 to 20040 3.87812E-05
 360890 tot-cap 1.48091E+02
 360850 to 360860 1.33289E+00
 360850 tot-cap 1.33289E+00
 380900 to 380910 6.11188E-01
 380900 tot-cap 6.11188E-01
 390890 to 390900 9.50805E-01
 390890 tot-cap 9.50805E-01
 400980 to 400940 1.18722E+01
 400980 tot-cap 1.18722E+01
 400940 to 400950 1.66352E-01
 400940 tot-cap 1.66352E-01
 400950 to 400960 1.97588E+00
 400950 tot-cap 1.97588E+00

410940 to 410950 3.46661E+01
 410940 tot-cap 3.46661E+01
 420950 to 420960 3.52522E+01
 420950 tot-cap 3.52522E+01
 430990 to 430980 5.35894E-03
 430990 to 431000 8.15638E+01
 430990 tot-cap 8.15691E+01
 441010 to 441020 2.50117E+01
 441010 tot-cap 2.50117E+01
 441050 to 441070 7.66631E-01
 441050 tot-cap 7.66631E-01
 451080 to 451020 1.94081E-03
 451080 to 451040 3.40500E+02
 451080 tot-cap 3.40502E+02
 451050 to 451060 7.90428E+03
 451050 tot-cap 7.90428E+03
 461050 to 461050 3.05554E+01
 461050 tot-cap 3.05554E+01
 461080 to 461090 6.08972E+01
 461080 tot-cap 6.08972E+01
 471090 to 471080 4.5132E-03
 471090 to 471100 3.36304E+02
 471090 to 461090 2.57938E-04
 471090 to 10010 2.57938E-04
 471090 to 451050 2.12051E-04
 471090 to 20040 2.12051E-04
 471090 to 471091 5.55834E-01
 471090 tot-cap 3.36309E+02
 511240 to 511250 1.09642E+01
 511240 tot-cap 1.09642E+01
 541310 to 541300 5.47844E-02
 541310 to 541290 1.14430E-05
 541310 to 541320 2.40805E+02
 541310 to 531310 3.33792E-05
 541310 to 10010 3.33792E-05
 541310 to 531300 4.58919E-07
 541310 to 10020 4.58919E-07
 541310 to 531290 4.70576E-07
 541310 to 10080 4.70576E-07
 541310 to 521280 1.55555E-05
 541310 to 20040 1.55555E-05
 541310 tot-cap 2.40805E+02
 541320 to 541310 8.84048E-03
 541320 to 541300 1.87500E-05
 541320 to 541330 8.41305E-01
 541320 to 531320 6.77785E-06
 541320 to 10010 6.77785E-06
 541320 to 531310 2.84430E-07
 541320 to 10020 2.84430E-07
 541320 to 531300 3.83659E-08
 541320 to 10080 3.83659E-08
 541320 to 521290 8.30858E-07
 541320 to 20040 8.30858E-07
 541320 tot-cap 8.50172E-01
 541350 to 541360 1.44670E+06
 541350 tot-cap 1.44670E+06
 541360 to 541350 1.51222E-02
 541360 to 541340 4.61869E-05
 541360 to 541370 1.18642E-01
 541360 to 531360 2.79290E-07

541360 to 10010 2.79290E-07
541360 to 531350 1.03961E-07
541360 to 10020 1.03961E-07
541360 to 531340 2.34866E-08
541360 to 10080 2.34866E-08
541360 to 521330 2.34241E-07
541360 to 20040 2.34241E-07
541360 tot-cap 1.33811E-01
551330 to 551320 7.08146E-08
551330 to 551340 9.32952E+01
551330 to 541330 7.78062E-04
551330 to 10010 7.78062E-04
551330 to 531300 1.21005E-05
551330 to 20040 1.21005E-05
551330 tot-cap 9.33011E+01
551340 to 551350 1.22130E+02
551340 tot-cap 1.22130E+02
551350 to 551360 1.95162E+01
551350 tot-cap 1.95162E+01
551370 to 551380 2.08031E-01
551370 tot-cap 2.08031E-01
561360 to 561370 8.14606E-01
561360 tot-cap 8.14606E-01
571390 to 571400 7.56554E+00
571390 tot-cap 7.56554E+00
581440 to 581450 1.14875E+00
581440 tot-cap 1.14875E+00
591410 to 591400 5.07440E-08
591410 to 591390 1.45800E-06
591410 to 571370 2.19084E-06
591410 to 20040 4.52882E-05
591410 to 581400 1.54605E-05
591410 to 10010 4.43067E-05
591410 to 591420 1.11551E+01
591410 to 581410 4.17447E-05
591410 to 10020 1.29286E-05
591410 to 581390 1.35585E-06
591410 to 10080 1.35585E-06
591410 to 571390 1.30942E-08
591410 to 20080 1.30942E-08
591410 to 571380 4.30973E-05
591410 tot-cap 1.11608E+01
591430 to 591440 9.16495E+01
591430 tot-cap 9.16495E+01
601430 to 601420 7.77085E-02
601430 to 601410 7.98424E-06
601430 to 581390 1.75011E-05
601430 to 20040 4.88975E-04
601430 to 591420 3.31708E-06
601430 to 10010 3.42954E-05
601430 to 601440 1.94651E+02
601430 to 591430 3.30457E-05
601430 to 10020 2.06757E-06
601430 to 591410 2.97908E-06
601430 to 10080 2.97908E-06
601430 to 581410 1.43133E-08
601430 to 20080 1.43133E-08
601430 to 581400 4.71414E-04
601430 tot-cap 1.95029E+02
601450 to 601440 9.97664E-02

601450 to 601430 1.01175E-04
601450 to 581410 7.23125E-05
601450 to 20040 1.81711E-04
601450 to 591440 1.90050E-06
601450 to 10010 1.23862E-05
601450 to 601460 7.22582E+01
601450 to 591450 1.16281E-05
601450 to 10020 1.14244E-06
601450 to 591430 1.80107E-06
601450 to 10080 1.80107E-06
601450 to 581430 3.66699E-09
601450 to 20080 3.66699E-09
601450 to 581420 1.74479E-04
601450 tot-cap 7.23582E+01
601470 to 601480 1.69168E+02
601470 tot-cap 1.69168E+02
611470 to 611460 2.72616E-02
611470 to 611450 8.50603E-05
611470 to 591430 7.58435E-06
611470 to 20040 7.05508E-05
611470 to 601460 1.04371E-05
611470 to 10010 2.38494E-05
611470 to 611480 5.36551E+02
611470 to 601470 2.12578E-05
611470 to 10020 7.84523E-06
611470 to 601450 2.96207E-06
611470 to 10080 2.96207E-06
611470 to 591450 4.45355E-09
611470 to 20080 4.45355E-09
611470 to 591440 6.25656E-05
611470 tot-cap 5.36578E+02
611480 to 611490 1.15266E+04
611480 tot-cap 1.15266E+04
621470 to 621460 7.11243E-02
621470 to 621450 6.40862E-03
621470 to 601430 5.62185E-05
621470 to 20040 1.05873E-03
621470 to 611460 1.25053E-04
621470 to 10010 1.85403E-04
621470 to 621480 2.08803E+02
621470 to 611470 1.63646E-04
621470 to 10020 1.07306E-04
621470 to 611450 1.15222E-04
621470 to 10080 1.15222E-04
621470 to 601450 5.30159E-06
621470 to 20080 5.30159E-06
621470 to 601440 1.03752E-03
621470 to 621471 1.45472E+00
621470 tot-cap 2.08857E+02
621490 to 621480 4.02107E-02
621490 to 621470 3.19159E-05
621490 to 621500 4.47155E+04
621490 to 611490 4.15418E-04
621490 to 10010 4.15418E-04
621490 to 601460 4.15418E-04
621490 to 20040 4.15418E-04
621490 tot-cap 4.47155E+04
621500 to 621510 1.26848E+02
621500 tot-cap 1.26848E+02
621510 to 621500 1.34695E-01

621510 to 621480 1.20109E-04
 621510 to 601470 1.35716E-05
 621510 to 20040 1.06235E-04
 621510 to 611500 1.64465E-05
 621510 to 10010 1.28576E-05
 621510 to 621520 4.81862E+03
 621510 to 611510 1.18528E-05
 621510 to 10020 6.39831E-07
 621510 to 611490 1.16285E-05
 621510 to 10080 1.16285E-05
 621510 to 601490 1.19796E-09
 621510 to 20080 1.19796E-09
 621510 to 601480 9.26637E-05
 621510 tot-cap 4.81876E+03
 621520 to 621510 1.60940E-02
 621520 to 621500 1.08680E-04
 621520 to 601480 2.42985E-05
 621520 to 20040 1.00951E-05
 621520 to 611510 6.96662E-07
 621520 to 10010 2.05589E-05
 621520 to 621530 6.81767E+02
 621520 to 611520 1.82621E-05
 621520 to 10020 4.67044E-07
 621520 to 611500 1.21467E-07
 621520 to 10080 1.21467E-07
 621520 to 601500 3.68114E-10
 621520 to 20080 3.68114E-10
 621520 to 601490 7.66524E-05
 621520 tot-cap 6.81788E+02
 631530 to 631520 1.56213E-02
 631530 to 631510 2.33275E-05
 631530 to 611490 3.85358E-05
 631530 to 20040 5.50264E-04
 631530 to 621520 6.54185E-05
 631530 to 10010 5.55667E-05
 631530 to 631540 5.68632E+02
 631530 to 621530 5.33315E-05
 631530 to 10020 4.30665E-05
 631530 to 621510 9.64501E-07
 631530 to 10080 9.64501E-07
 631530 to 611510 2.20469E-08
 631530 to 20080 2.20469E-08
 631530 to 611500 5.11728E-04
 631530 tot-cap 5.68648E+02
 631540 to 631530 2.49726E-02
 631540 to 631520 8.97066E-05
 631540 to 611500 8.72236E-11
 631540 to 20040 6.56784E-04
 631540 to 621530 1.96376E-05
 631540 to 10010 1.05938E-05
 631540 to 631550 1.02480E+03
 631540 to 621540 1.05938E-05
 631540 to 10020 1.96267E-05
 631540 to 621520 3.32532E-05
 631540 to 10080 3.32532E-05
 631540 to 611520 1.40944E-08
 631540 to 20080 1.40944E-08
 631540 to 611510 6.56784E-04
 631540 tot-cap 1.02483E+03
 631550 to 631540 2.05034E-02

631550 to 631530 5.74142E-06
 631550 to 611510 1.54639E-06
 631550 to 20040 7.61090E-06
 631550 to 621540 3.13069E-06
 631550 to 10010 6.58607E-06
 631550 to 631560 2.50523E+03
 631550 to 621550 5.06278E-06
 631550 to 10020 1.60740E-06
 631550 to 621530 5.32104E-07
 631550 to 10030 5.32104E-07
 631550 to 611530 1.20604E-10
 631550 to 20030 1.20604E-10
 631550 to 611520 6.06452E-06
 631550 tot-cap 2.50523E+03
 641550 to 641560 1.68972E+04
 641550 tot-cap 1.68972E+04
 922340 to 922330 5.37161E-03
 922340 fission 3.86763E+00
 922340 nu-sig 1.01609E+01
 922340 to 922320 7.7853E-05
 922340 to 922350 1.69442E+02
 922340 to 922341 2.60942E+00
 922340 tot-cap 1.73315E+02
 922350 to 922340 2.46199E-02
 922350 fission 3.51653E+02
 922350 nu-sig 8.51468E+02
 922350 to 922330 2.34617E-06
 922350 to 922360 8.13681E+01
 922350 to 922351 7.42194E-02
 922350 tot-cap 4.33045E+02
 922360 to 922350 2.73641E-02
 922360 fission 1.65349E+00
 922360 nu-sig 4.53531E+00
 922360 to 922340 3.64673E-04
 922360 to 922370 6.97858E+01
 922360 to 922361 2.85478E+00
 922360 tot-cap 7.14670E+01
 922380 to 922370 5.46600E-02
 922380 fission 8.27057E-01
 922380 nu-sig 2.32670E+00
 922380 to 922360 3.53195E-04
 922380 to 922390 7.61294E+00
 922380 tot-cap 8.49501E+00
 932370 to 932360 1.24589E-02
 932370 fission 4.48514E+00
 932370 nu-sig 1.35007E+01
 932370 to 932350 4.76640E-05
 932370 to 932380 2.78085E+02
 932370 to 932371 6.69105E-01
 932370 tot-cap 2.82588E+02
 942380 to 942370 2.00260E-03
 942380 fission 2.02106E+01
 942380 nu-sig 5.72261E+01
 942380 to 942360 1.12075E-05
 942380 to 942390 2.57609E+02
 942380 to 942381 2.60790E+00
 942380 tot-cap 2.77822E+02
 942390 to 942380 1.06246E-02
 942390 fission 8.54735E+02
 942390 nu-sig 2.45731E+03

942390 to 942370 1.80436E-05
 942390 to 942360 1.78889E-08
 942390 to 942400 4.83359E+02
 942390 tot-cap 1.33811E+03
 942400 to 942390 4.98738E-03
 942400 fission 5.21918E+00
 942400 nu-sigf 1.63052E+01
 942400 to 942390 4.86689E-05
 942400 to 942410 1.91204E+03
 942400 tot-cap 1.91727E+03
 942410 to 942400 6.34184E-02
 942410 fission 8.90576E+02
 942410 nu-sigf 2.61233E+03
 942410 to 942390 1.04138E-04
 942410 to 942420 2.94405E+02
 942410 tot-cap 1.18484E+03
 942420 to 942410 2.03312E-02
 942420 fission 3.88427E+00
 942420 nu-sigf 1.21612E+01
 942420 to 942400 2.47167E-04
 942420 to 942430 2.96889E+02
 942420 tot-cap 3.00798E+02
 952410 fission 1.16252E+01
 952410 nu-sigf 3.74443E+01
 952410 to 952420 1.00417E+03
 952410 tot-cap 1.01579E+03
 952430 fission 2.99676E+00
 952430 nu-sigf 1.00699E+01
 952430 to 952440 3.82722E+02
 952430 tot-cap 3.85718E+02
 962440 to 962430 4.88608E-03
 962440 fission 1.35709E+01
 962440 nu-sigf 4.54429E+01
 962440 to 962450 4.87258E-05
 962440 to 962460 1.26267E+02
 962440 to 962441 3.32706E+00
 962440 tot-cap 1.39843E+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
 Use 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
 Use 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
 Use 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)

INFORMATION ONLY

INFORMATION ONLY

```

***** time of execution: 09:58:18 *****
*****
*****
*****
*****
*****
*****
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
0 dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0 short-lived split test fraction, qm = 9.1183E-04
0 half-norm of matrix used, awn = 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 2
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 origins binary working library-id = 1143
*      made from modified card-image origins 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 "press2" 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 u2 matrix
*
*      see information above this box (if present) for later updates
*
*****

```

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```

*
*****
0      .other identification and sizes of library.
0      data set name: fcl5f001
0      2/16/1996  date library was produced
0      1697      total number of nuclides in library
0      689      number of light-element nuclides
0      129      number of actinide nuclides
0      879      number of fission product nuclides
0      7935     number of nonzero off-diagonal matrix elements
*****
1

```

ses2h: babcock wilcox 15x15, 3.00wck, 20gwd/mtu burn high temp
 power= 8.466E-05mw, burnup=2.031E-02md, flux= 1.64E+13n/cm^2-sec

actinides page 1

```

0      nuclide concentrations, gram atoms
0      basis = converted to atoms/(barn-cm)
0      charge 200.0 d 240.0 d 280.0 d 320.0 d 360.0 d 400.0 d
u230 3.02E-22 4.37E-22 5.84E-22 7.51E-22 9.43E-22 1.17E-21 1.42E-21
u231 8.18E-21 1.15E-20 1.46E-20 1.82E-20 2.23E-20 2.69E-20 3.22E-20
u232 1.07E-13 1.44E-13 1.87E-13 2.36E-13 2.94E-13 3.61E-13 4.37E-13
u233 9.03E-12 1.12E-11 1.33E-11 1.52E-11 1.71E-11 1.89E-11 2.06E-11
u234 5.35E-06 5.30E-06 5.25E-06 5.19E-06 5.14E-06 5.10E-06 5.05E-06
u235 6.26E-04 6.11E-04 5.96E-04 5.82E-04 5.67E-04 5.54E-04 5.40E-04
u236 1.53E-05 1.81E-05 2.08E-05 2.34E-05 2.59E-05 2.84E-05 3.08E-05
u237 2.96E-08 3.35E-08 3.61E-08 3.85E-08 4.09E-08 4.32E-08 4.55E-08
u238 2.20E-02 2.20E-02 2.20E-02 2.20E-02 2.20E-02 2.20E-02 2.20E-02
u239 4.13E-09 5.62E-09 5.59E-09 5.58E-09 5.57E-09 5.56E-09 5.55E-09
u240 .00E+00 2.57E-39 1.87E-38 9.93E-38 4.17E-37 4.17E-37 1.47E-36 4.50E-36
u241 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
rp235 1.51E-15 2.54E-15 3.82E-15 5.38E-15 7.21E-15 7.21E-15 9.31E-15 1.17E-14
rp236m 6.04E-15 8.73E-15 1.11E-14 1.36E-14 1.62E-14 1.60E-14 1.89E-14 2.18E-14
rp236 1.12E-13 1.91E-13 2.93E-13 4.21E-13 5.73E-13 5.73E-13 7.57E-13 9.68E-13
rp237 3.67E-07 4.91E-07 6.25E-07 7.67E-07 9.16E-07 9.17E-07 1.07E-06 1.24E-06
rp238 4.33E-10 5.93E-10 7.52E-10 9.21E-10 1.10E-09 1.09E-09 1.28E-09 1.48E-09
rp239 7.84E-07 8.11E-07 8.08E-07 8.05E-07 8.04E-07 8.03E-07 8.02E-07 8.02E-07
rp240m .00E+00 2.19E-41 1.59E-40 8.48E-40 3.56E-39 3.56E-39 1.25E-38 3.84E-38
rp240 1.15E-11 1.36E-11 1.35E-11 1.35E-11 1.34E-11 1.09E-11 1.34E-11 1.34E-11
rp241 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
pu236 1.46E-13 2.47E-13 3.77E-13 5.37E-13 7.27E-13 7.27E-13 9.49E-13 1.20E-12
pu237 3.28E-14 4.61E-14 5.89E-14 7.12E-14 8.31E-14 8.31E-14 9.46E-14 1.06E-13
pu238 9.70E-09 1.62E-08 2.46E-08 3.51E-08 4.76E-08 4.76E-08 6.24E-08 7.90E-08
pu239 3.13E-05 3.81E-05 4.45E-05 5.03E-05 5.57E-05 5.57E-05 6.08E-05 6.54E-05
pu240 1.65E-06 2.40E-06 3.25E-06 4.17E-06 5.13E-06 5.13E-06 6.13E-06 7.16E-06
pu241 2.56E-07 4.51E-07 7.16E-07 1.05E-06 1.47E-06 1.47E-06 1.95E-06 2.51E-06
pu242 4.63E-09 1.04E-08 1.98E-08 3.41E-08 5.43E-08 5.43E-08 8.17E-08 1.17E-07
pu243 5.47E-13 1.31E-12 2.46E-12 4.27E-12 6.80E-12 6.51E-12 1.02E-11 1.46E-11
pu244 1.12E-29 1.28E-28 9.32E-28 4.95E-27 2.08E-26 2.08E-26 7.32E-26 2.24E-25
pu245 .00E+00 9.35E-35 6.81E-34 3.60E-33 1.51E-32 1.48E-32 5.32E-32 1.63E-31
pu246 .00E+00 2.11E-37 1.75E-36 9.95E-36 4.40E-35 4.40E-35 1.61E-34 5.11E-34
am239 1.95E-20 4.62E-20 8.77E-20 1.50E-19 2.37E-19 2.33E-19 3.53E-19 5.03E-19
am240 8.34E-18 1.95E-17 3.78E-17 6.45E-17 1.02E-16 1.02E-16 1.52E-16 2.17E-16
am241 1.37E-09 3.09E-09 5.89E-09 1.01E-08 1.60E-08 1.60E-08 2.39E-08 3.40E-08
am242m 9.02E-12 2.46E-11 5.45E-11 1.05E-10 1.84E-10 1.84E-10 2.99E-10 4.59E-10
am242 1.59E-12 3.56E-12 6.77E-12 1.14E-11 1.83E-11 1.81E-11 2.73E-11 3.88E-11
am243 6.20E-11 1.82E-10 4.26E-10 8.61E-10 1.57E-09 1.57E-09 2.67E-09 4.26E-09
am244m .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
am244 1.97E-14 6.03E-14 1.40E-13 2.83E-13 5.17E-13 5.06E-13 8.75E-13 1.40E-12
am245 .00E+00 8.68E-33 6.24E-32 3.26E-31 1.35E-30 1.35E-30 4.69E-30 1.42E-29
am246 .00E+00 5.25E-40 4.38E-39 2.49E-38 1.10E-37 1.10E-37 4.03E-37 1.28E-36
totals 2.27E-02 2.27E-02 2.27E-02 2.27E-02 2.26E-02 2.26E-02 2.26E-02 2.26E-02

```

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0 flux 1.68E+13 1.64E+13 1.64E+13 1.64E+13 .00E+00 1.64E+13 1.63E+13
 0 .results on logical unit no. 71, position 1, for time step 7, subcase 1. (run position 1, case position 1)
 title: ses2h: babcock wilcox 15x15, 3.00w% 20guc/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: ses2h: babcock wilcox 15x15, 3.00w% 20guc/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: ses2h: babcock wilcox 15x15, 3.00w% 20guc/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								
Onset	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.								
190	97376									
116	60826									
132	33663	rudata (library) storage size								
144	33734									
1103	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.								
1140	66991									
used	101044	in size 200000								
Objcpt	12									
	0	0	0	0	0	0	0	0	0	0
	0	0								
Otherm	4									
	5.092282E-01 3.846097E-01 2.981669E+00 1.000000E-31									
Onon	5									
	7935	20	6	18	1697					
Onnn	19									
	7	7	0	0	1	1	0	0	0	0
	21	100	1697	4	3	74	4	1	0	
Onconst	5									
	8.640000E+04 1.600004E+02 .000000E+00 .000000E+00 1.000000E-08									
Onzero	4									
	0	689	129	879						
Qpow	3									
	.000000E+00 .000000E+00 .000000E+00									
0 lirr	9									
	6	0	51	26	2	3000	1000	1697	94	

10

[illegible]

```

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
Master library 12
working library 0
scratch file 18
new library 1
Qproblem description
Qigr--geometry (0/1/2/3--inf med/slab/cyl/sphere 2
Qizn--number of zones or material regions 4
Qns--mixing table length 66
Qibz--shielded cross section edit option (0/1--no/yes) 0
Qibr--bordarenko factor edit option (0/1--no/yes) 0
Qissopt--cutoff factor option 0
Qconvergence criterion 1.00000E-08
Qgeometry 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.

```

entry	mixture	isotope	number density	new identifier
1	1	92235	5.40480E-04	92235
2	1	92234	5.04673E-06	92234
3	1	92236	3.08086E-05	92236
4	1	92238	2.19627E-02	92238
5	1	8016	4.55359E-02	8016
6	3	8016	2.09770E-02	6
7	1	36083	7.25000E-07	36083
8	1	36085	3.50117E-07	36085
9	1	38090	7.86170E-05	38090
10	1	39089	5.47406E-06	39089
11	1	42095	6.12150E-06	42095
12	1	40093	5.98109E-06	40093
13	1	40094	9.26342E-06	40094
14	1	40095	2.10190E-05	40095
15	1	41094	3.60192E-12	41094
16	1	43099	8.96719E-06	43099
17	1	45103	4.40580E-06	45103
18	1	45105	1.67519E-08	45105
19	1	44101	7.89901E-06	44101
20	1	44106	1.14000E-06	44106
21	1	46105	2.49716E-06	46105
22	1	46108	5.44054E-07	46108
23	1	47109	3.91284E-07	47109

24	1	51124	1.00596E-10	51124
25	1	54131	4.16287E-06	54131
26	1	54132	7.00585E-06	54132
27	1	54135	6.60408E-09	54135
28	1	54136	1.50336E-05	54136
29	1	55134	2.22576E-07	55134
30	1	55135	4.71145E-06	55135
31	1	55137	9.46756E-06	55137
32	1	56136	4.32042E-08	56136
33	1	57139	9.43297E-06	57139
34	1	59141	7.61682E-06	59141
35	1	59143	3.95553E-07	59143
36	1	58144	5.00712E-06	58144
37	1	60143	7.75908E-06	60143
38	1	60145	5.63501E-06	60145
39	1	61147	2.48433E-06	61147
40	1	61148	6.82848E-09	61148
41	1	60147	1.32716E-07	60147
42	1	62147	3.65895E-07	62147
43	1	62149	7.51956E-08	62149
44	1	62150	1.75200E-06	62150
45	1	62151	2.87244E-07	62151
46	1	62152	8.48904E-07	62152
47	1	64155	7.98151E-10	64155
48	1	63153	3.95032E-07	63153
49	1	63154	4.62875E-08	63154
50	1	63155	5.11217E-08	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	9.78868E-06	55133
56	1	95237	1.23726E-06	95237
57	1	94238	7.95918E-08	94238
58	1	94239	6.54028E-05	94239
59	1	94240	7.15776E-06	94240
60	1	94261	2.50799E-06	94261
61	1	94262	1.17254E-07	94262
62	1	95241	3.39704E-08	95241
63	1	95263	4.26479E-09	95263
64	1	96244	1.64658E-10	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Geometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-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

No nuclides in your problem have bondenerko factor data--bondenerko will copy from logical 12 to logical 1

Copy	999	1/v cross sectio	from log 12 to log 18	bondenerko trigger 0
Copy	999	1/v cross sectio	from log 18 to log 1	bondenerko trigger 0
Copy	999	1/v cross sectio	from log 18 to log 1	bondenerko trigger 0
Copy	1001	hydrogen	from log 12 to log 1	bondenerko trigger 0
Copy	5010	b-10 1273 218tp	from log 12 to log 1	bondenerko trigger 0
Copy	5011	boron-11	from log 12 to log 1	bondenerko trigger 0
Copy	8016	oxygen-16	from log 12 to log 18	bondenerko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondenerko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondenerko trigger 0

Copy	36083	kr-83	from log 12 to log 1	bondarenko trigger 0
Copy	36085	kr-85	from log 12 to log 1	bondarenko trigger 0
Copy	38090	sr-90	from log 12 to log 1	bondarenko trigger 0
Copy	39089	y-89	from log 12 to log 1	bondarenko trigger 0
Copy	40093	zr-93	from log 12 to log 1	bondarenko trigger 0
Copy	40094	zr-94	from log 12 to log 1	bondarenko trigger 0
Copy	40095	zr-95	from log 12 to log 1	bondarenko trigger 0
Copy	40302	zircalloy	from log 12 to log 1	bondarenko trigger 0
Copy	41094	rb-94	from log 12 to log 1	bondarenko trigger 0
Copy	42095	mo-95	from log 12 to log 1	bondarenko trigger 0
Copy	43099	tc-99	from log 12 to log 1	bondarenko trigger 0
Copy	44101	ru-101	from log 12 to log 1	bondarenko trigger 0
Copy	44106	ru-106	from log 12 to log 1	bondarenko trigger 0
Copy	45103	rh-103	from log 12 to log 1	bondarenko trigger 0
Copy	45105	rh-105	from log 12 to log 1	bondarenko trigger 0
Copy	46105	pd-105	from log 12 to log 1	bondarenko trigger 0
Copy	46108	pd-108	from log 12 to log 1	bondarenko trigger 0
Copy	47109	silver-109	from log 12 to log 1	bondarenko trigger 0
Copy	51124	sb-124	from log 12 to log 1	bondarenko trigger 0
Copy	54131	xe-131	from log 12 to log 1	bondarenko trigger 0
Copy	54132	xe-132	from log 12 to log 1	bondarenko trigger 0
Copy	54135	xenon-135	from log 12 to log 1	bondarenko trigger 0
Copy	54136	xe-136	from log 12 to log 1	bondarenko trigger 0
Copy	55133	cesium-133	from log 12 to log 1	bondarenko trigger 0
Copy	55134	cs-134	from log 12 to log 1	bondarenko trigger 0
Copy	55135	cs-135	from log 12 to log 1	bondarenko trigger 0
Copy	55137	cs-137	from log 12 to log 1	bondarenko trigger 0
Copy	56136	ba-136	from log 12 to log 1	bondarenko trigger 0
Copy	57139	la-139	from log 12 to log 1	bondarenko trigger 0
Copy	58144	ce-144	from log 12 to log 1	bondarenko trigger 0
Copy	59141	pr-141	from log 12 to log 1	bondarenko trigger 0
Copy	59143	pr-143	from log 12 to log 1	bondarenko trigger 0
Copy	60143	nd-143	from log 12 to log 1	bondarenko trigger 0
Copy	60145	nd-145	from log 12 to log 1	bondarenko trigger 0
Copy	60147	nd-147	from log 12 to log 1	bondarenko trigger 0
Copy	61147	pm-147	from log 12 to log 1	bondarenko trigger 0
Copy	61148	pm-148	from log 12 to log 1	bondarenko trigger 0
Copy	62147	sm-147	from log 12 to log 1	bondarenko trigger 0
Copy	62149	sm-149	from log 12 to log 1	bondarenko trigger 0
Copy	62150	sm-150	from log 12 to log 1	bondarenko trigger 0
Copy	62151	sm-151	from log 12 to log 1	bondarenko trigger 0
Copy	62152	sm-152	from log 12 to log 1	bondarenko trigger 0
Copy	63153	eu-153	from log 12 to log 1	bondarenko trigger 0
Copy	63154	eu-154	from log 12 to log 1	bondarenko trigger 0
Copy	63155	eu-155	from log 12 to log 1	bondarenko trigger 0
Copy	64155	gd-155	from log 12 to log 1	bondarenko trigger 0
Copy	92234	u-234 1063 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	92235	uranium-235	from log 12 to log 1	bondarenko trigger 0
Copy	92236	u-236 1163 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	92238	uranium-238	from log 12 to log 1	bondarenko trigger 0
Copy	92237	neptunium-237	from log 12 to log 1	bondarenko trigger 0
Copy	94238	pu-238 1050 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	94239	plutonium-239	from log 12 to log 1	bondarenko trigger 0
Copy	94240	plutonium-240	from log 12 to log 1	bondarenko trigger 0
Copy	94241	plutonium-241	from log 12 to log 1	bondarenko trigger 0
Copy	94242	plutonium-242	from log 12 to log 1	bondarenko trigger 0
Copy	95241	am-241 1056 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	95243	am-243 1057 218	from log 12 to log 1	bondarenko trigger 0
Copy	95244	curium-244	from log 12 to log 1	bondarenko trigger 0

based on endf-b version 4 data with endf-b version 5 fission products
 compiled for nrc 1/27/89
 last updated 9/16/95
 l.m.petrie - omf

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/thrm1002 updated 10/13/89		id	1001
b-10 1273 218grp 042575 p-3 259k		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=102,103,105,106,107 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

```

01 tape copy used 0 1/0's, and took .00 seconds
m m fffffffi tttttttttt aaaaaaaaaa ww ww ll
mm m fffffffi tttttttttt aaaaaaaaaa ww ww ll
mmm m ii tt aa aa ww ww ll
mm m ii tt aa aa ww ww ll
m m ii tt aa aa ww ww ll
m m ii tt aa aa ww ww ll
m m ii tt aaaaaaaaaa ww w ww ll
m m ii tt aaaaaaaaaa ww www ww ll
m m ii tt aa aa ww ww ww ww ll
m m ii tt aa aa ww ww ww ww ll
m m ii tt aa aa www www www ll
m m fffffffi tt aa aa www www ll
m m fffffffi tt aa aa www www ll

```

00000000	9999999999	5555555555	8888888888	22222222	33333333
0000000000	9999999999	5555555555	8888888888	22222222	33333333
00 00	99 99	::	88 88	::	22 22 33 33

0 0q array has 9 entries.
 0 1q array has 12 entries.
 0 select 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 amp formatted cross section data

0 the 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 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 117 blocks of length 1484 words

- xsdm 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 rrc 1/27/89

last updated 9/16/93

L.n.petrie - omf

0 nuclides from xsdm tape

1	1/v cross sections normalized to 1.0 at 0.0253 ev	999
2	hydrogen endf/b-iv mat 1269/therm1002	1001
3	b-10 1273 218gp 042375 p-3 288k	5010
4	boron-11 endf/b-iv mat 1160	5011
5	oxygen-16 endf/b-iv mat 1276	8016
6	oxygen-16 endf/b-iv mat 1276	6
7	kr-83 mt=102,103,105,106,107	36083
8	kr-85 mt=102	36085
9	sr-90 mt=102	38090
10	y-89 mt=102	39089
11	zr-93 mt=102	40093
12	zr-94 mt=102	40094
13	zr-95 mt=102	40095
14	zircalloy endf/b-iv mat 1284	40902
15	nb-94 mt=102	41094
16	mo-95 mt=102	42095
17	tc-99 mt=102	43099
18	ru-101 mt=102	44101
19	ru-106 mt=102	44106
20	rh-103 mt=102	45103
21	rh-105 mt=102	45105
22	pd-105 mt=102	46105
23	pd-108 mt=102	46108
24	silver-109 endf/b-iv mat 1139	47109
25	sb-124 mt=102	51124
26	xe-131 mt=102,103,104,105,106	54131
27	xe-132 mt=102,103,104,105,106	54132
28	xenon-135 endf/b-iv mat 1294	54135
29	xe-136 mt=102,103,104,105,107	54136
30	cesium-137 endf/b-iv mat 1141	55133
31	cs-134 mt=102	55134
32	cs-135 mt=102	55135
33	cs-137 mt=102	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
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 sigs-5+4 newlacs p-3 293k f-1/e-m(1.+5)			92234
54	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
55	u-236 1163 sigs-5+4 newlacs p-3 293k 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	92237
58	pu-238 1050 sigs-5+4 newlacs p-3 293k 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 sigs-5+4 newlacs 218gpp p-3 293k			95241
64	am-243 1057 218 sp wt f-1/e-m 090376 p3 293k			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				
0 hydrogen	endf/b-iv mat 1269/thm1002	updated 10/13/89	999	temperature= 975.00
	thermal scattering matrix number 2 at a temperature of		1001	temperature= 607.60
				550.00 was selected.
0b-10 1273 218gpp 042375 p-3 293k			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=102,103,105,106,107	updated 10/13/89	36083	temperature= 975.00
Oresonance data for this nuclide				
Omass number (a)	= 82.202	temperature(kelvin)	= 975.000	
Opotential scatter sigma	= 7.00%	lumped nuclear density	= 7.2509016E-07	
Ospin factor (g)	= 4988.190	lump dimension (a-bar)	= 4.6812201E-01	
Oinner radius	= .0000000E+00	dercoff correction (c)	= 3.4269261E-01	
Othe absorber will be treated by the norheim integral method.				
Omass of moderator-1	= 15.995	sigma(per absorber atom)=	2.350131E+05	
Omoderator-1 will be treated by the norheim integral method.				
Omass of moderator-2	= 237.933	sigma(per absorber atom)=	2.6274603E+05	
Omoderator-2 will be treated by the norheim 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 fss	res scat	
11	-9.819651E-04	.000000E+00	-1.251528E-03	
12	2.167537E-02	.000000E+00	9.906985E-03	
13	-2.399784E-01	.000000E+00	-7.504968E-02	
14	4.781998E-05	.000000E+00	-1.721927E-05	
Oexcess resonance integrals				

0 resolved
 Absorption 1.45000E+02
 fission .00000E+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

Resonance data for this nuclide

Mass number (a) = 88.142 temperature(kelvin) = 975.000
 Potential scatter sigma = 3.644 lumped nuclear density = 5.474065E-06
 Spin factor (g) = 78.654 lump dimension (a-bar) = 4.681220E-01
 Oinner radius = .000000E+00 denoiff correction (c) = 3.426926E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.119432E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.933 sigma(per absorber atom)= 3.480313E+04

Moderator-2 will be treated by the norheim 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 fis	res scat
9	-7.38007E-07	.000000E+00	9.667895E-06
10	-3.189627E-05	.000000E+00	-8.98816E-05

Oexcess resonance integrals

0 resolved
 Absorption 1.46470E-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

Resonance data for this nuclide

Mass number (a) = 93.100 temperature(kelvin) = 975.000
 Potential scatter sigma = 3.779 lumped nuclear density = 9.263423E-06
 Spin factor (g) = 180.853 lump dimension (a-bar) = 4.681220E-01
 Oinner radius = .000000E+00 denoiff correction (c) = 3.426926E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.843375E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.933 sigma(per absorber atom)= 2.056632E+04

Moderator-2 will be treated by the norheim 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 fis	res scat
8	-3.996329E-07	.000000E+00	-3.981763E-04
9	-1.740397E-05	.000000E+00	-1.543847E-03

Oexcess resonance integrals

0 resolved
 Absorption 3.44057E-02
 fission .00000E+00
 - elapsed time .00 min.
 0 zr-95 mt=102 40095 temperature= 975.00
 0 zircalloy endf/b-iv mat 1284 updated 10/13/89 40302 temperature= 650.00

Resonance data for this nuclide

Mass number (a) = 90.436 temperature(kelvin) = 650.000
 Potential scatter sigma = 6.385 lumped nuclear density = 4.251560E-02
 Spin factor (g) = 1.079 lump dimension (a-bar) = 5.461000E-01
 Oinner radius = 4.787899E-01 denoiff correction (c) = 5.036663E-01

Othe absorber will be treated by the norheim 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 fis	res scat
--------	---------	---------	----------

```

8      -1.78859E-03      .000000E+00      -4.286607E+00
9      -5.89337E-02      .000000E+00      -2.695297E+00
10     -6.95995E-02      .000000E+00      -1.601321E+00
11     -1.85957E-01      .000000E+00      -7.920712E-01

Deccess resonance integrals
0      resolved
Absorption      2.28539E-01
fission         .00000E+00
- elapsed time   .02 min.
0 rb-94      mt=102      updated 10/13/89      41094      temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 95.101      temperature(kelvin) = 975.000
Potential scatter sigma = 3.779      lumped nuclear density = 3.6019208E-12
Spin factor (g) = 43808.801      lump dimension (a-bar) = 4.6812201E-01
Ormer radius = .000000E+00      darcoff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Mass of moderator-1 = 15.995      sigma(per absorber atom)= 4.7407952E+10
Moderator-1 will be treated by the norheim integral method.
Mass of moderator-2 = 257.953      sigma(per absorber atom)= 5.2892492E+10
Moderator-2 will be treated by the norheim 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      1.042787E-02      .000000E+00      9.252072E-04
14      9.836727E-03      .000000E+00      -4.064848E-04

Deccess resonance integrals
0      resolved
Absorption      9.15001E+01
fission         .00000E+00
- elapsed time   .02 min.
0 mo-95      mt=102      updated 10/13/89      42095      temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 94.091      temperature(kelvin) = 975.000
Potential scatter sigma = 3.806      lumped nuclear density = 6.1215057E-06
Spin factor (g) = 607.724      lump dimension (a-bar) = 4.6812201E-01
Ormer radius = .000000E+00      darcoff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Mass of moderator-1 = 15.995      sigma(per absorber atom)= 2.785055E+04
Moderator-1 will be treated by the norheim integral method.
Mass of moderator-2 = 257.953      sigma(per absorber atom)= 3.1122184E+04
Moderator-2 will be treated by the norheim 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      -1.35931E-03      .000000E+00      -7.621617E-03
11      -2.29511E-03      .000000E+00      -4.000108E-03
12      -1.77853E+00      .000000E+00      -2.047869E+00
13      1.60025E-04      .000000E+00      -2.533864E-05

Deccess resonance integrals
0      resolved
Absorption      1.01012E+02
fission         .00000E+00
- elapsed time   .02 min.
0 tc-99      mt=102      updated 10/13/89      43099      temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 98.150      temperature(kelvin) = 975.000
Potential scatter sigma = 6.000      lumped nuclear density = 8.9671980E-06
Spin factor (g) = 4527.940      lump dimension (a-bar) = 4.6812201E-01
Ormer radius = .000000E+00      darcoff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.

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Onass of moderator-1 = 15.995 sigma(per absorber atom)= 1.9042715E+04

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 237.983 sigma(per absorber atom)= 2.1245732E+04

Onoderator-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	-1.143085E-02	.000000E+00	-5.399383E-03
12	-2.896091E-03	.000000E+00	-9.676807E-05
13	-1.866459E-01	.000000E+00	-9.856686E-03
14	-4.066176E+00	.000000E+00	-1.301287E-01
15	1.071236E-02	.000000E+00	-5.402104E-04
16	4.836075E-03	.000000E+00	-2.802230E-04
17	2.074324E-04	.000000E+00	-1.191662E-05

Oexcess resonance integrals

0 resolved

Oabsorption 3.29728E+02

fission .00000E+00

- elapsed time .03 min.

0 ru-101

mt=102

updated 10/13/89

44101

temperature= 975.00

Oresonance data for this nuclide

Onass number (a) = 100.039

temperature(kelvin) = 975.000

Opotential scatter sigma = 3.965

lumped nuclear density = 7.8990079E-06

Ospin factor (g) = 8785.290

lump dimension (a-bar) = 4.6812201E-01

Oirmer radius = .000000E+00

dercoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Onass of moderator-1 = 15.995

sigma(per absorber atom)= 2.1617857E+04

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 237.983

sigma(per absorber atom)= 2.4118799E+04

Onoderator-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	-3.577315E-02	.000000E+00	-3.650390E-03
12	-3.629454E-02	.000000E+00	-1.328239E-02
13	-2.097446E-01	.000000E+00	-5.654530E-03
14	2.376605E-04	.000000E+00	-4.179696E-05

Oexcess resonance integrals

0 resolved

Oabsorption 7.96720E+01

fission .00000E+00

- elapsed time .03 min.

0 ru-102

mt=102

updated 10/13/89

44106

temperature= 975.00

Oresonance data for this nuclide

Onass number (a) = 102.021

temperature(kelvin) = 975.000

Opotential scatter sigma = 5.408

lumped nuclear density = 4.4058539E-06

Ospin factor (g) = .500

lump dimension (a-bar) = 4.6812201E-01

Oirmer radius = .000000E+00

dercoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Onass of moderator-1 = 15.995

sigma(per absorber atom)= 3.8757457E+04

Onoderator-1 will be treated by the nordheim integral method.

Onass of moderator-2 = 237.983

sigma(per absorber atom)= 4.3241238E+04

Onoderator-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	1.289190E-03	.000000E+00	2.051222E-03
10	-2.437226E-03	.000000E+00	-3.482066E-03
11	-8.577483E-03	.000000E+00	-7.675859E-03

12	-1.027892E-04	.000000E+00	-1.704071E-05
13	.000000E+00	.000000E+00	.000000E+00
14	.000000E+00	.000000E+00	.000000E+00
15	2.306213E-01	.000000E+00	3.364654E-03
16	3.688781E+01	.000000E+00	-4.548918E-02
17	-1.831593E+02	.000000E+00	-1.432801E-01
18	8.764003E+01	.000000E+00	2.615952E-01
19	1.156327E+01	.000000E+00	-1.651123E-03
20	1.092636E+00	.000000E+00	-2.517397E-03
21	2.166005E-01	.000000E+00	1.924732E-03
22	2.583945E-01	.000000E+00	2.928506E-03
23	-9.880788E-02	.000000E+00	1.799112E-03

Deccess resonance integrals

0 resolved
 Absorption 1.15654E+03
 fission .00000E+00
 - elapsed time .05 min.

0 rh-105 mt= 102

0 pd-105 mt=102

updated 10/13/89

45105 temperature= 975.00

46105 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 104.004	temperature(kelvin)	= 975.000
Potential scatter sigma	= 4.059	lumped nuclear density	= 2.4971647E-06
Spin factor (g)	= 15210.000	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	denoiff correction (c)	= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 6.8546125E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 7.6476109E+04

Moderator-2 will be treated by the norheim integral method.

Other 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	-4.953255E-02	.000000E+00	-7.882353E-04
13	2.276423E-02	.000000E+00	-5.572332E-05
14	7.777355E-04	.000000E+00	-8.168058E-05

Deccess resonance integrals

0 resolved
 Absorption 6.12943E+01
 fission .00000E+00
 - elapsed time .07 min.

0 pd-108 mt=102

updated 10/13/89

46108 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 106.977	temperature(kelvin)	= 975.000
Potential scatter sigma	= 4.146	lumped nuclear density	= 5.4405444E-07
Spin factor (g)	= 21175.100	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	denoiff correction (c)	= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.1386509E+05

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 3.5017556E+05

Moderator-2 will be treated by the norheim integral method.

Other 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	1.17057E-04	.000000E+00	3.532514E-04
12	-4.681945E-01	.000000E+00	-3.598531E-01
13	6.951076E-03	.000000E+00	1.824895E-03
14	8.561452E-02	.000000E+00	-3.206503E-05
15	-1.840304E-01	.000000E+00	8.088803E-05
16	2.946994E-04	.000000E+00	-9.235707E-06

Oexcess resonance integrals

0 resolved

Oabsorption 2.13514E+02

Ofission .00000E+00

- elapsed time .07 min.

O silver-109 enff/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

= 3.912843E-07

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)= 4.364809E+05

Omoderator-1 will be treated by the nordheim integral method.

Omass of moderator-2 = 237.953

sigma(per absorber atom)= 4.8589538E+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 fias	res scat
10	-1.470666E-05	.000000E+00	1.632901E-05
11	-1.383515E-03	.000000E+00	-1.091168E-03
12	-7.052492E-01	.000000E+00	-3.163157E-02
13	7.672281E-01	.000000E+00	3.380755E-02
14	-3.453321E+00	.000000E+00	-3.333731E-01

Oexcess resonance integrals

0 resolved

Oabsorption 1.39897E+03

Ofission .00000E+00

- elapsed time .07 min.

O sb-124

mt=102

updated 10/13/89

51124

temperature= 975.00

O 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

= 4.1628664E-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)= 4.1019738E+04

Omoderator-1 will be treated by the nordheim integral method.

Omass of moderator-2 = 237.953

sigma(per absorber atom)= 4.5785238E+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 fias	res scat
9	-1.157132E-06	.000000E+00	-1.109606E-05
10	-8.302818E-05	.000000E+00	-6.607881E-05
11	-1.069897E-03	.000000E+00	-8.185382E-04
12	-2.108276E-02	.000000E+00	-1.964439E-03
13	-3.601871E+01	.000000E+00	-8.453455E+01
14	1.100192E-02	.000000E+00	1.539462E-02

Oexcess resonance integrals

0 resolved

Oabsorption 7.98394E+02

Ofission .00000E+00

- elapsed time .08 min.

O 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

= 7.0058454E-06

Ospin factor (g) = 675.899

lump dimension (a-bar)

= 4.6812201E-01

Oimmer radius = .000000E+00 dencoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Omass of moderator-1 = 15.995 signa(per absorber atom)= 2.4373887E+04
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 257.953 signa(per absorber atom)= 2.7198658E+04
 Omoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-1.056912E-05	.000000E+00	-4.704644E-05
10	-3.331607E-03	.000000E+00	-4.261990E-02
11	3.344413E-08	.000000E+00	-9.285299E-07

Oexcess resonance integrals

0 resolved

Oabsorption 9.78718E-01

fission .00000E+00

- elapsed time .08 min.

0 xenon-135 erdf/b-iv mat 1294 updated 10/13/89 54135 temperature= 975.00

0 xe-136 mt= 102, 103, 104, 105, 107 updated 10/13/89 54136 temperature= 975.00

0 cesium-133 erdf/b-iv mat 1441 updated 10/13/89 55133 temperature= 975.00

Oresonance data for this nuclide

Omss number (a) = 131.764 temperature(kelvin) = 975.000

Opotential scatter sigma = 7.100 lumped nuclear density = 9.7889797E-06

Ospin factor (g) = 374.437 lump dimension (a-bar) = 4.6812201E-01

Oimmer radius = .000000E+00 dencoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Omss of moderator-1 = 15.995 signa(per absorber atom)= 1.7444074E+04

Omderator-1 will be treated by the nordheim integral method.

Omss of moderator-2 = 258.051 signa(per absorber atom)= 1.8711057E+04

Omderator-2 will be treated by the nordheim integral method.

Othis resonance material will be treated as a 2-dimensional object.

Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-2.907373E-05	.000000E+00	-1.570998E-04
10	-1.314802E-03	.000000E+00	-2.538390E-03
11	-5.049485E-02	.000000E+00	-8.853554E-02
12	-7.794365E-02	.000000E+00	-1.087077E-02
13	-1.258005E-01	.000000E+00	-7.041851E-03
14	-5.816844E+00	.000000E+00	-2.551529E-01
15	5.627014E-03	.000000E+00	-4.058210E-04
16	2.777945E-03	.000000E+00	-2.215582E-04
17	2.352170E-03	.000000E+00	-1.830856E-04
18	2.214985E-03	.000000E+00	-1.679469E-04
19	1.317094E-03	.000000E+00	-9.670768E-05

Oexcess resonance integrals

0 resolved

Oabsorption 3.59757E+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 updated 10/13/89 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

Oresonance data for this nuclide

Omss number (a) = 134.757 temperature(kelvin) = 975.000

Opotential scatter sigma = 4.885 lumped nuclear density = 4.3204217E-08

Ospin factor (g) = 1267.690 lump dimension (a-bar) = 4.6812201E-01

Oimmer radius = .000000E+00 dencoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nordheim integral method.

Omss of moderator-1 = 15.995 signa(per absorber atom)= 3.9528850E+06

Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 257.953 sigma(per absorber atom)= 4.4096290E+06
 Moderator-2 will be treated by the norheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	1.325435E-06	.000000E+00	5.726989E-07
11	1.778946E-05	.000000E+00	1.536199E-05

 Deccss resonance integrals
 0 resolved
 Oabsorption 1.38478E+00
 fission .00000E+00
 - elapsed time .10 min.
 0 la-139 mt=102 updated 10/13/89 57139 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 137.713 temperature(kelvin) = 975.000
 Potential scatter sigma = 4.906 lumped nuclear density = 9.432974E-06
 Spin factor (g) = 145.855 lump dimension (a-bar) = 4.6512201E-01
 Oinner radius = .000000E+00 cutoff correction (c) = 3.4269261E-01
 The absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.8102422E+04
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 257.953 sigma(per absorber atom)= 2.0196658E+04
 Moderator-2 will be treated by the norheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	2.513561E-05	.000000E+00	4.217375E-03
10	-2.130884E-04	.000000E+00	-1.470223E-02
11	.000000E+00	.000000E+00	.000000E+00
12	-3.25367E-02	.000000E+00	-1.956698E-02

 Deccss resonance integrals
 0 resolved
 Oabsorption 8.11172E+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
 Resonance data for this nuclide
 Mass number (a) = 139.697 temperature(kelvin) = 975.000
 Potential scatter sigma = 4.953 lumped nuclear density = 7.6168221E-06
 Spin factor (g) = 1026.500 lump dimension (a-bar) = 4.6512201E-01
 Oinner radius = .000000E+00 cutoff correction (c) = 3.4269261E-01
 The absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.2418758E+04
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 257.953 sigma(per absorber atom)= 2.5012344E+04
 Moderator-2 will be treated by the norheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	-2.990048E-03	.000000E+00	-1.015056E-01
11	-4.969222E-02	.000000E+00	-6.609490E-01
12	-1.065222E-03	.000000E+00	-1.048369E-04

 Deccss resonance integrals
 0 resolved
 Oabsorption 1.22139E+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

Resonance data for this nuclide

Mass number (a)	= 141.682	temperature(kelvin)	= 975.000
Potential scatter sigma	= 5.000	lumped nuclear density	= 7.7590876E-06
Spin factor (g)	= 1964.860	lump dimension (a-bar)	= 4.6812201E-01
Orrer radius	= .000000E+00	denooff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.2007703E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.933 sigma(per absorber atom)= 2.4553734E+04

Moderator-2 will be treated by the norheim 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	-7.95754E-05	.000000E+00	-2.37432E-05
11	-1.83086E-01	.000000E+00	-2.13163E+00
12	-1.198135E-01	.000000E+00	-5.89777E-02

Oexcess resonance integrals

0 resolved

Oabsorption 5.12357E+01

fission .00000E+00

- elapsed time .12 min.

0 nd-145 mt=102 updated 10/13/89 60145 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 143.668	temperature(kelvin)	= 975.000
Potential scatter sigma	= 5.047	lumped nuclear density	= 5.6350132E-06
Spin factor (g)	= 1007.250	lump dimension (a-bar)	= 4.6812201E-01
Orrer radius	= .000000E+00	denooff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.0303336E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.933 sigma(per absorber atom)= 3.3809074E+04

Moderator-2 will be treated by the norheim 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	-2.25396E-05	.000000E+00	-3.55737E-02
11	-3.47449E-02	.000000E+00	-1.048051E-01
12	-8.615515E-01	.000000E+00	-5.427825E+00
13	9.626082E-05	.000000E+00	2.03746E-04
14	-7.513707E-01	.000000E+00	-1.978675E-02
15	5.908317E-03	.000000E+00	-4.625057E-04
16	1.326683E-03	.000000E+00	-1.451354E-04
17	9.642397E-04	.000000E+00	-1.063940E-04
18	8.539907E-04	.000000E+00	-9.313782E-05
19	7.634096E-04	.000000E+00	-8.089522E-05
20	2.839427E-05	.000000E+00	-2.92100E-06

Oexcess resonance integrals

0 resolved

Oabsorption 2.08187E+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

Resonance data for this nuclide

Mass number (a)	= 145.653	temperature(kelvin)	= 975.000
Potential scatter sigma	= 5.073	lumped nuclear density	= 2.4843284E-06
Spin factor (g)	= 21589.500	lump dimension (a-bar)	= 4.6812201E-01
Orrer radius	= .000000E+00	denooff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 6.8734750E+04
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.983 sigma(per absorber atom)= 7.6686547E+04
 Moderator-2 will be treated by the nordheim integral method.
 This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-1.223039E-01	.000000E+00	-3.94869E-02
13	-3.141409E-02	.000000E+00	-1.90724E-03
14	-5.745860E+01	.000000E+00	-2.474550E+01
15	4.132830E-02	.000000E+00	6.98587E-03
16	1.697975E-02	.000000E+00	1.74674E-03
17	1.369755E-02	.000000E+00	1.150447E-03
18	1.253781E-02	.000000E+00	9.649050E-04
19	6.998458E-04	.000000E+00	5.07252E-05

Excess resonance integrals

0 resolved

Absorption 2.04771E+03

fission .00000E+00

- elapsed time .13 min.

0 pm-148 mt= 102

0 sm-147 endf/b-v fission product

updated 10/13/89

61148

temperature= 975.00

62147

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 145.653	temperature(kelvin)	= 975.000
Potential scatter sigma	= 5.093	lumped nuclear density	= 3.6589458E-07
Spin factor (g)	= .000	lump dimension (a-bar)	= 4.6812201E-01
Orbiter radius	= .000000E+00	deroff correction (c)	= 3.4269261E-01

The absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 4.6689094E+05

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 257.983 sigma(per absorber atom)= 5.2068159E+05

Moderator-2 will be treated by the nordheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
11	2.896982E-01	.000000E+00	1.128878E+00
12	1.167188E+00	.000000E+00	-1.330898E+00
13	-2.347516E+00	.000000E+00	-8.911353E-01
14	-1.601623E-01	.000000E+00	1.549642E-04
15	3.119469E-01	.000000E+00	-1.98454E-03
16	7.287889E-03	.000000E+00	-3.738721E-04
17	4.281512E-03	.000000E+00	-2.401627E-04
18	3.510471E-03	.000000E+00	-1.997238E-04
19	2.910642E-03	.000000E+00	-1.649539E-04
20	8.435342E-04	.000000E+00	-4.627657E-05

Excess resonance integrals

0 resolved

Absorption 7.24261E+02

fission .00000E+00

- elapsed time .15 min.

0 sm-149 mt=102,103,107 thermal scattering matrix number 3 at a temperature of 900.03 was selected.
 updated 10/13/89 62149 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 147.638	temperature(kelvin)	= 975.000
Potential scatter sigma	= 3.260	lumped nuclear density	= 7.5195587E-08
Spin factor (g)	= 10407.900	lump dimension (a-bar)	= 4.6812201E-01
Orbiter radius	= .000000E+00	deroff correction (c)	= 3.4269261E-01

The absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.2708740E+06

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 237.933 sigma(per absorber atom)= 2.535873E+06

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
11	8.546699E-03	.000000E+00	3.07180E-02
12	-5.302144E-02	.000000E+00	-1.779283E-01
13	2.406209E-02	.000000E+00	2.974950E-03
14	1.500839E-02	.000000E+00	-6.463817E-03

Excess resonance integrals

0 resolved

Absorption 8.04352E+02

fission .00000E+00

- elapsed time .15 min.

0 sm-150

mt=102

updated 10/13/89

62150

temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 148.629

temperature(kelvin)

= 975.000

Potential scatter sigma = 5.162

lumped nuclear density

= 1.751998E-06

Spin factor (g) = 4376.420

lump dimension (a-bar)

= 4.681220E-01

Ormer radius = .000000E+00

deroff correction (c)

= 3.426926E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995

sigma(per absorber atom)= 9.745680E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.933

sigma(per absorber atom)= 1.087413E+05

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	-6.373778E-04	.000000E+00	-5.756720E-03
11	-1.304944E-02	.000000E+00	-1.460106E-01
12	-4.227013E-02	.000000E+00	-1.278060E-02
13	-3.095666E+00	.000000E+00	-2.440727E+00
14	1.066137E-04	.000000E+00	-6.413570E-05

Excess resonance integrals

0 resolved

Absorption 2.91457E+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

Resonance data for this nuclide

Mass number (a) = 149.623

temperature(kelvin)

= 975.000

Potential scatter sigma = 5.185

lumped nuclear density

= 2.872636E-07

Spin factor (g) = 7574.703

lump dimension (a-bar)

= 4.681220E-01

Ormer radius = .000000E+00

deroff correction (c)

= 3.426926E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995

sigma(per absorber atom)= 5.944767E+05

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.933

sigma(per absorber atom)= 6.632506E+05

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
14	-1.639246E-01	.000000E+00	-1.796793E-02
15	1.491918E+01	.000000E+00	7.598513E-02
16	-2.177298E+01	.000000E+00	-6.173761E-02
17	1.739949E+02	.000000E+00	8.298581E-01
18	-3.204102E+02	.000000E+00	-1.780888E+00
19	6.256168E+01	.000000E+00	3.898497E-01
20	1.141531E+00	.000000E+00	-1.417322E-04
21	-7.117883E-02	.000000E+00	1.244102E-02

22 6.952534E-02 .000000E+00 3.839926E-03
 23 -1.091920E-02 .000000E+00 3.374054E-04

0 excess resonance integrals
 0 resolved
 0 absorption 2.05686E+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

0 resonance data for this nuclide
 0 mass number (a) = 150.615 temperature(kelvin) = 975.000
 0 potential scatter sigma = 5.208 lumped nuclear density = 8.4890445E-07
 0 spin factor (g) = 863.594 lump dimension (a-bar) = 4.6812201E-01
 0 rimer radius = .000000E+00 cutoff correction (c) = 3.4269261E-01

0 the absorber will be treated by the norheim integral method.
 0 mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.015302E+05
 0 moderator-1 will be treated by the norheim integral method.
 0 mass of moderator-2 = 237.953 sigma(per absorber atom)= 2.2442405E+05
 0 moderator-2 will be treated by the norheim integral method.
 0 this resonance material will be treated as a 2-dimensional object.
 0 volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fis	res scat
9	2.403000E-06	.000000E+00	1.158916E-04
10	-6.300000E-04	.000000E+00	-1.018422E-02
11	-9.556884E-03	.000000E+00	-3.651736E-02
12	-6.559117E-02	.000000E+00	-2.088114E-01
13	4.246605E-02	.000000E+00	1.033022E-01
14	-6.047521E+01	.000000E+00	-1.170778E+02

0 excess resonance integrals
 0 resolved
 0 absorption 2.85263E+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

0 resonance data for this nuclide
 0 mass number (a) = 151.607 temperature(kelvin) = 975.000
 0 potential scatter sigma = 9.731 lumped nuclear density = 3.9505220E-07
 0 spin factor (g) = 12265.900 lump dimension (a-bar) = 4.6812201E-01
 0 rimer radius = .000000E+00 cutoff correction (c) = 3.4269261E-01

0 the absorber will be treated by the norheim integral method.
 0 mass of moderator-1 = 15.995 sigma(per absorber atom)= 4.3226778E+05
 0 moderator-1 will be treated by the norheim integral method.
 0 mass of moderator-2 = 237.953 sigma(per absorber atom)= 4.8227606E+05
 0 moderator-2 will be treated by the norheim integral method.
 0 this resonance material will be treated as a 2-dimensional object.
 0 volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fis	res scat
12	-2.700846E-01	.000000E+00	-5.264485E-02
13	-7.127646E-02	.000000E+00	-2.788018E-04
14	-5.875798E-01	.000000E+00	-3.188236E-03
15	2.867073E+00	.000000E+00	-2.053510E-02
16	-3.292299E+00	.000000E+00	8.19347E-03
17	1.505616E-01	.000000E+00	-3.437751E-03
18	7.726888E-02	.000000E+00	-2.231265E-03
19	5.055488E-02	.000000E+00	-1.541107E-03
20	-1.253801E-01	.000000E+00	-1.275081E-03

0 excess resonance integrals
 0 resolved
 0 absorption 1.35573E+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

Resonance data for this nuclide

Qmass number (a) = 152.601 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 9.731 lumped nuclear density = 4.6287475E-08
 Qspin factor (g) = 19135.801 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 signal(per absorber atom)= 3.6891120E+06

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 237.953 signal(per absorber atom)= 4.1159988E+06

Qmoderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fis	res scat
12	-3.861222E-01	.000000E+00	-6.032471E-02
13	-2.990322E-01	.000000E+00	-2.442458E-02
14	3.518871E-01	.000000E+00	1.505895E-02
15	2.104515E-01	.000000E+00	2.119006E-02
16	7.291847E+00	.000000E+00	9.288108E-02
17	-1.437307E+02	.000000E+00	-1.855207E+00
18	1.138007E+02	.000000E+00	1.859608E+00
19	-1.014582E+02	.000000E+00	1.187222E+00

Qexcess resonance integrals

0 resolved

Qabsorption 2.13713E+03

Qfission .00000E+00

- elapsed time .18 min.

0 eu-155 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

Resonance data for this nuclide

Qmass number (a) = 153.992 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 5.277 lumped nuclear density = 7.9815138E-10
 Qspin factor (g) = 12700.100 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 signal(per absorber atom)= 2.1394400E+08

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 237.953 signal(per absorber atom)= 2.3869478E+08

Qmoderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fis	res scat
12	-1.439277E+00	.000000E+00	-1.839441E-01
13	1.541312E+00	.000000E+00	1.985278E-01
14	2.191371E-01	.000000E+00	9.808348E-03
15	-3.311029E-01	.000000E+00	-7.466390E-06
16	1.477360E+00	.000000E+00	-4.148879E-03
17	1.568661E-01	.000000E+00	-1.479119E-03
18	9.605166E-02	.000000E+00	-1.078108E-03
19	6.295341E-02	.000000E+00	-8.028528E-04
20	1.670418E-02	.000000E+00	1.626851E-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	-2.127720E+03	.000000E+00	-1.621942E+00
26	-5.205629E+03	.000000E+00	1.961451E+00
27	-1.699959E+03	.000000E+00	7.392510E-01

Qexcess resonance integrals

0 resolved

Absorption 3.97067E+04
 fission .00000E+00
 - elapsed time .18 min.
 Or-234 1043 sigs=5+4 newlacs p-3 293k f-1/e-n(1.+5) 92234 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 232.029 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.021 lumped nuclear density = 5.0467297E-06
 Spin factor (g) = 6948.460 lump dimension (a-bar) = 4.6812201E-01
 Oirner radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.3835711E+04
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.955 sigma(per absorber atom)= 3.7735547E+04
 Moderator-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-shieldings=1.00000
 Ogroup res abs res fiss res scat
 11 -2.415318E-02 .000000E+00 -7.041884E-02
 12 -1.968077E-01 .000000E+00 -8.249157E-02
 13 7.759724E-04 .000000E+00 -6.471136E-04
 14 -1.924428E+01 .000000E+00 -3.151059E+00
 Oexcess resonance integrals
 0 resolved
 Absorption 5.80961E+02
 fission .00000E+00
 - elapsed time .20 min.
 O uranium-235 endf/b-iv mat 1261 updated 10/13/89 92235 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 233.025 temperature(kelvin) = 975.000
 Potential scatter sigma = 11.500 lumped nuclear density = 5.4047973E-06
 Spin factor (g) = 15171.100 lump dimension (a-bar) = 4.6812201E-01
 Oirner radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.1594098E+02
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 238.049 sigma(per absorber atom)= 3.3905756E+02
 Moderator-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-shieldings=1.00000
 Ogroup res abs res fiss res scat
 12 -2.257724E+00 -1.395543E+00 -5.229959E-02
 13 -7.708092E+00 -3.834183E+00 -1.662088E-01
 14 -6.189115E+00 -3.789033E+00 -4.212888E-02
 Oexcess resonance integrals
 0 resolved
 Absorption 2.09175E+02
 fission 1.24854E+02
 - elapsed time .22 min.
 Or-236 1163 sigs=5+4 newlacs p-3 293k f-1/e-n(1.+5) 92236 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 234.017 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.995 lumped nuclear density = 3.0808562E-05
 Spin factor (g) = 6328.460 lump dimension (a-bar) = 4.6812201E-01
 Oirner radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 5.5426050E+03
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.954 sigma(per absorber atom)= 6.1827402E+03
 Moderator-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	-1.523668E-01	.000000E+00	-3.801088E-01
12	-8.034678E-01	.000000E+00	-5.583588E-01
13	-6.051546E-02	.000000E+00	-3.357721E-03
14	-2.886298E+01	.000000E+00	-2.525290E+00

Oexcess resonance integrals

0 resolved

Oabsorption 2.96332E+02

O fission .00000E+00

- elapsed time .22 min.

0 uranium-238 endf/b-iv mat 1262

updated 10/13/89

92238

temperature= 975.00

Oresonance data for this nuclide

Omass number (a) = 238.006

temperature(kelvin)

= 975.000

Opotential scatter sigma = 10.599

lumped nuclear density

= 2.196266E-02

Ospin factor (g) = 656.527

lump dimension (a-bar)

= 4.681220E-01

Oinner radius = .000000E+00

denoiff correction (c)

= 3.426926E-01

Othe absorber will be treated by the nordheim integral method.

Omass of moderator-1 = 15.995

sigma(per absorber atom)= 7.774999E+00

Omoderator-1 will be treated by the nordheim integral method.

Omass of moderator-2 = 235.041

sigma(per absorber atom)= 3.347694E-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	-3.944036E-02	.000000E+00	-4.050720E-01
10	-1.026518E+00	-1.753316E-05	-6.484920E+00
11	-9.709722E+00	.000000E+00	-2.690162E+01
12	-4.305133E+01	.000000E+00	-4.999088E+01
13	-5.401731E+01	.000000E+00	-1.769248E+01
14	-1.045068E+02	.000000E+00	-6.060081E+00

Oexcess resonance integrals

0 resolved

Oabsorption 1.79892E+01

O fission 5.09922E-04

- elapsed time .23 min.

0 neptunium-237 endf/b-iv mat 1263

updated 10/13/89

92237

temperature= 975.00

Oresonance data for this nuclide

Omass number (a) = 237.012

temperature(kelvin)

= 975.000

Opotential scatter sigma = 10.500

lumped nuclear density

= 1.257256E-06

Ospin factor (g) = 10100.800

lump dimension (a-bar)

= 4.681220E-01

Oinner radius = .000000E+00

denoiff correction (c)

= 3.426926E-01

Othe absorber will be treated by the nordheim integral method.

Omass of moderator-1 = 15.995

sigma(per absorber atom)= 1.380148E+05

Omoderator-1 will be treated by the nordheim integral method.

Omass of moderator-2 = 238.051

sigma(per absorber atom)= 1.480389E+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	-6.325133E-02	-1.946361E-05	-7.388205E-03
12	3.730817E-02	-9.091694E-05	8.666517E-03
13	1.510195E-02	9.073738E-05	4.388553E-04
14	-1.946113E-02	-2.886008E-05	-9.108837E-04

Oexcess resonance integrals

0 resolved

Oabsorption 2.95165E+02

O fission 1.35589E-01

- elapsed time .27 min.

Opu-238 1050 sigs=54 newlacs p=3 255k f=1/e-m(1.5)

94238

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 236.167	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.890	lumped nuclear density	= 7.9591842E-08
Spin factor (g)	= 1330.600	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	clancoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.1454420E+06

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.3012678E+06

Moderator-2 will be treated by the nordheim integral method.

Other 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 fias	res scat
11	-1.284739E-04	-1.341992E-05	-1.980659E-04
12	-4.303728E-05	-2.908865E-06	-5.48953E-05
13	4.134514E-01	7.566257E-02	-9.305859E-03
14	-3.822731E-01	-6.988454E-02	8.538994E-03

Oexcess resonance integrals

0	resolved
Oabsorption	8.25906E+01
Ofission	9.06542E+00

- elapsed time .27 min.

O plutonium-239 endf/b-iv met 1264

updated 10/13/89

94239

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 236.999	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.200	lumped nuclear density	= 6.5402754E-05
Spin factor (g)	= 6435.710	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	clancoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.6108943E+03

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.8005264E+03

Moderator-2 will be treated by the nordheim integral method.

Other 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 fias	res scat
11	-1.372717E-01	-5.512489E-02	-4.218880E-02
12	-1.231102E+00	-4.618338E-01	-1.629044E-01
13	-4.054652E+00	-2.387267E+00	-6.166578E-02
14	-1.292019E+00	-6.866961E-01	-1.170952E-02

Oexcess resonance integrals

0	resolved
Oabsorption	3.11634E+02
Ofission	1.74952E+02

- elapsed time .28 min.

O plutonium-240 endf/b-iv met 1265

updated 10/13/89

94240

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 237.992	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.599	lumped nuclear density	= 7.1577624E-06
Spin factor (g)	= 669.244	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .0000000E+00	clancoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.356674E+04

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.558930E+04

Moderator-2 will be treated by the nordheim integral method.

Other 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 fias	res scat
9	-2.527904E-05	-4.472240E-07	-4.475883E-05

```

10 -1.67184E-03 -1.04035E-04 -7.68915E-03
11 -5.48309E-02 -3.16833E-04 -7.30404E-02
12 -7.70288E-01 -4.20638E-03 -7.41614E-01
13 -9.33022E-02 -5.72098E-04 -6.80273E-03
14 .000000E+00 .000000E+00 .000000E+00
15 1.75085E-02 3.34158E-06 3.47272E-03
16 3.19332E+00 6.09409E-04 4.04756E-01
17 5.20740E+02 9.98858E-02 4.68647E+01
18 -5.26154E+03 -1.00037E+00 -4.15754E+02
19 8.68862E+02 1.65248E-01 6.66549E+01
20 -9.29789E+01 -1.77644E-02 1.79832E+00

Deccss resonance integrals
0 resolved
Oabsorption 6.34075E+03
Ofission 2.23112E+00
- elapsed time .30 min.
0 plutonium-241 endf/b-iv mat 1266 updated 10/13/89 94241 temperature= 975.00
Onesonance data for this nuclide
Omass number (a) = 238.978 temperature(kelvin) = 975.000
Opotential scatter sigma = 10.939 lumped nuclear density = 2.509887E-06
Ospin factor (g) = 16402.100 lump dimension (a-bar) = 4.681220E-01
Oinner radius = .000000E+00 dencoff correction (c) = 3.426926E-01
Othe absorber will be treated by the norheim integral method.
Omass of moderator-1 = 15.995 sigma(per absorber atom)= 6.804835E+04
Onoderator-1 will be treated by the norheim integral method.
Omass of moderator-2 = 238.051 sigma(per absorber atom)= 7.299078E+04
Onoderator-2 will be treated by the norheim 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 fis res scat
12 9.91028E-03 8.74393E-03 6.55335E-04
13 -1.87040E-01 -1.48842E-01 -6.36195E-03
14 -1.07535E-01 -6.49721E-02 7.05812E-04
15 1.79777E-02 1.61160E-02 -4.68630E-04

Deccss resonance integrals
0 resolved
Oabsorption 5.09079E+02
Ofission 4.26759E+02
- elapsed time .32 min.
0 plutonium-242 endf/b-iv mat 1161 updated 10/13/89 94242 temperature= 975.00
Onesonance data for this nuclide
Omass number (a) = 240.145 temperature(kelvin) = 975.000
Opotential scatter sigma = 10.694 lumped nuclear density = 1.172537E-07
Ospin factor (g) = 6606.710 lump dimension (a-bar) = 4.681220E-01
Oinner radius = .000000E+00 dencoff correction (c) = 3.426926E-01
Othe absorber will be treated by the norheim integral method.
Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.456326E+06
Onoderator-1 will be treated by the norheim integral method.
Omass of moderator-2 = 238.051 sigma(per absorber atom)= 1.562100E+06
Onoderator-2 will be treated by the norheim 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 fis res scat
11 -1.59539E-04 .000000E+00 -5.90082E-04
12 -5.45553E-03 .000000E+00 -1.11198E-02
13 1.02348E-04 .000000E+00 4.74435E-06
14 8.14885E-02 .000000E+00 1.52713E-02
15 -1.86667E+00 .000000E+00 -1.87145E-01
16 4.03370E-02 .000000E+00 -3.45875E-03
17 1.59041E-02 .000000E+00 -1.84824E-03

```

18 1.11250E-02 .00000E+00 -1.43067E-03
 Oexcess resonance integrals
 0 resolved
 Oabsorption 1.11086E+03
 fission .00000E+00
 - elapsed time .32 min.
 Oam-241 1056 sigp-5+4 newklacs 218gp p-3 293k 95241 temperature= 975.00
 Oresonance data for this nuclide
 Omass number (a) = 238.950 temperature(kelvin) = 975.000
 Opotential scatter sigma = 9.511 lumped nuclear density = 3.3970430E-08
 Ospin factor (g) = 82058.203 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 dencoff 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)= 5.0267155E+06
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 238.051 sigma(per absorber atom)= 5.3978115E+06
 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 4.919184E-01 1.212657E-02 4.954242E-03
 14 -4.313571E-01 -1.109051E-02 -4.482724E-03
 Oexcess resonance integrals
 0 resolved
 Oabsorption 1.98473E+02
 fission 1.07612E+00
 - elapsed time .32 min.
 Oam-243 1057 218 gp wt f-1/e-m 090376 p3 293k 95243 temperature= 975.00
 Oresonance data for this nuclide
 Omass number (a) = 240.940 temperature(kelvin) = 975.000
 Opotential scatter sigma = 9.511 lumped nuclear density = 4.2647872E-09
 Ospin factor (g) = 82052.602 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 dencoff 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)= 4.0039436E+07
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 238.051 sigma(per absorber atom)= 4.2947548E+07
 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 -6.647073E-03 .000000E+00 4.374998E-04
 14 2.210911E-02 .000000E+00 2.339746E-04
 Oexcess resonance integrals
 0 resolved
 Oabsorption 1.60152E+02
 fission .00000E+00
 - elapsed time .32 min.
 O curium-244 endf/b-iv met 1162 updated 10/13/89 96244 temperature= 975.00
 Oresonance data for this nuclide
 Omass number (a) = 242.133 temperature(kelvin) = 975.000
 Opotential scatter sigma = 10.320 lumped nuclear density = 1.6465758E-10
 Ospin factor (g) = 5251.150 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 dencoff 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)= 1.0570893E+09
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 238.051 sigma(per absorber atom)= 1.1123822E+09
 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	2.577953E-04	7.054416E-06	3.049273E-04
12	6.927479E-04	3.252466E-05	1.367911E-04
13	2.717880E-03	1.335395E-04	7.127342E-04
14	8.386877E-02	5.017790E-03	1.583305E-02

0excess resonance integrals

0 resolved

0absorption 6.13903E+02

fission 3.54221E+01

- elapsed time .32 min.

- elapsed time .33 min.

1 this xsdm working tape was created 02/16/96 at 09:58:23

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	66
number of neutron groups	27	number of gema 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/thrm1002 updated 10/13/89	id	1001
b-10 1273 218gp 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-85 mt=102, 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 1254 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

id	60145
id	60147
id	61147
id	61148
id	62147
id	62149
id	62150
id	62151
id	62152
id	63153
id	63154
id	63155
id	64155
id	92234
id	92235
id	92236
id	92238
id	92237
id	94238
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id	94240
id	94241
id	94242
id	95241
id	95243
id	95244

0 M M ~~SSSSSSSSSS~~ T T M M PP MM MM

0

```

// 9999999999 6666666666
// 9999999999 6666666666
// 99          99 66
// 99          99 66
// 99          99 66

```

Q

10

888888888888	0000000000	88888888		000000000000
888888888888	000000000000	888888888888		000000000000
88	00	00		00
88	00	88		00
88	00	88		00
888888888888	00	888888888888		00000000
888888888888	00	888888888888		00000000
	88	88		00
	88	88		00
88	88	00		00
888888888888	000000000000	88		000000000000
888888888888	000000000000	88		000000000000

[illegible]

```
***** jobname: davis *****  
***** date of execution: 02/16/96 *****  
***** time of execution: 09:59:27 *****  
*****  
*****  
*****  
*****  
*****  
*****  
*****
```

```

1      400 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gcl/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.

```

1 400 d, sea2h: belcock wilcox 15x75, 3.00wt%, 20gcl/mu burn high temp

General problem description data block
0 general problem data

ige	1/2/3 = plane/cylinder/sphere	2	isn	quadrature order	8
ian	number of zones	4	isct	order of scattering	3
ian	number of special intervals	24	levt	0/1/2/3/4/5/6/cyl/alpha/c/z/r/h	1
ibl	0/1/2/3 = vacuum/ref/1per/white	1	im	inner iteration maximum	20
ibr	right boundary condition	3	ion	outer iteration maximum	25
mox	number of mixtures	3	iclc	-1/0/r/-flat res/sy/opt	0
ms	mixing table length	65	ifh	0/1 = forward/adjoint	0
ign	number of energy groups	27	iflu	not used(always wgted)	0
nrg	number of neutron groups	27	iprt	-2/-1/0/rmixture xsec print	-2
nrg	number of gamma groups	0	idt	0/1/2/3=roprt nd/pch rlybal	53
ifg	number of first thermal group	15	idb	-1/0/1=none/fire/all both. prt	0

0 special options

ifg	Q/1 = none/weighting calculation	1	ipn	Q/1/2 diff. coef. param	0
iqn	volumetric sources (Q/1/mo/yes)	0	idm	Q/1 = none/density factors 39*	1
ipn	boundary sources (Q/1/mo/yes)	0	iaz	Q/1 = none/h activities by zone	0
ifn	Q/1/2 = input 33*/34*/use last	53	iaa	Q/1=none/activities by interval	0
itmx	maximum time (minutes)	10	ifct	Q/1=mo/yes upcatter scaling	0
idk	Q/1/2/3=pro/sect/srce/flux--out	0	ipvt	Q/1/2=mo/alpha parametric srch	0
isx	broad group fluxes	0	isaa	cuber iteration acceleration	0
ibln	activity data unit	0	rtda	band rebaln parameter	0
itkl	Q/1/2 buckling geometry	0			

weighting data (ifg=1)

icon -1/0/1=cell/zone/region weight	-1	lntf total xsect pan in brd gp tables	3
ignf number of broad groups	27	nois 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=weighted xsect print	-2	mson 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/pls hit for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	.00000E+00
anf	normalization factor	1.00000E+00	vec	void streamlining correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2-k/alpha	1.00000E+00
emv	eigenvalue modifier	.00000E+00	eqt	ev charge eps for search	1.00000E-05
bf	buckling factor=1.420892	1.42089E+00	xrpn	new param eps for search	7.50000E-01

this case will require 2536 locations for mixing
this case has been allocated 200000 locations

400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20g/dmtu burn high temp

13q array has 65 entries.
14q array has 65 entries.
15q array has 65 entries.

data block 2 (mixing table, etc.)

nuclides on tape	cccc identification	mixture	component	atom density	extra xsect id's
1 999		1	92235	5.40480E-04	
2 1001		1	92234	5.04673E-06	
3 5010		1	92236	3.08086E-05	
4 5011		1	92238	2.19627E-02	
5 8016		1	8016	4.55359E-02	
6 6		3	6	2.09710E-02	
7 36083		1	36083	7.25090E-07	
8 36085		1	36085	3.50117E-07	
9 38090		1	38090	7.86170E-06	
10 39089		1	39089	5.47406E-06	
11 40093		1	42095	6.12150E-06	
12 40094		1	40093	5.98109E-06	
13 40095		1	40094	9.26342E-06	
14 40802		1	40095	2.10190E-06	
15 41094		1	41094	3.60182E-12	
16 42095		1	43099	8.96719E-06	
17 43099		1	45103	4.40585E-06	
18 44101		1	45105	1.67519E-08	
19 44105		1	44101	7.89901E-06	
20 45103		1	44106	1.14009E-06	
21 45105		1	46105	2.49716E-06	
22 46105		1	46108	5.44054E-07	
23 46108		1	47109	3.91284E-07	
24 47109		1	51124	1.00593E-10	
25 51124		1	54131	4.16287E-06	
26 54131		1	54132	7.00686E-06	
27 54132		1	54135	6.60408E-09	
28 54135		1	54136	1.50836E-06	
29 54136		1	55134	2.22570E-07	
30 55133		1	55135	4.71146E-06	
31 55134		1	55137	9.46756E-06	
32 55135		1	56136	4.32042E-08	
33 55137		1	57139	9.43297E-06	
34 56136		1	59141	7.61682E-06	
35 57139		1	59143	3.98653E-07	
36 58144		1	58144	5.00712E-06	
37 59141		1	60143	7.75909E-06	
38 59143		1	60145	5.63501E-06	
39 60143		1	61147	2.48433E-06	
40 60145		1	61148	6.82840E-09	
41 60147		1	60147	1.32716E-07	
42 61147		1	62147	3.68855E-07	
43 61148		1	62149	7.51956E-08	
44 62147		1	62150	1.75200E-06	
45 62149		1	62151	2.87244E-07	
46 62150		1	62152	8.48904E-07	
47 62151		1	64155	7.98151E-10	
48 62152		1	63153	3.95032E-07	
49 63153		1	63154	4.62875E-08	
50 63154		1	63155	5.11217E-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	9.78898E-06
56	92238	1	95237	1.23726E-06
57	95237	1	94238	7.99918E-08
58	94238	1	94239	6.54088E-05
59	94239	1	94240	7.15776E-06
60	94240	1	94241	2.50299E-06
61	94241	1	94242	1.17254E-07
62	94242	1	95241	3.39704E-08
63	95241	1	95243	4.26479E-09
64	95243	1	95244	1.64688E-10
65	95244	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 26 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.

1 400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp

neutron group parameters

0	gp	energy	lethargy	weighted	broad gp	calc	group	right	left
		boundaries	boundaries	velocities	numbers	type	band	albedo	albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00		
2	6.43400E+06	4.40980E-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	1.46536E+09	5	0	5	1.00000E+00		
6	9.00000E+05	2.40799E+00	1.05620E+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	1.13529E+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	3.2057E+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	1.42857E+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	9.05808E+05	20	0	20	1.00000E+00		
21	4.00000E-01	1.70344E+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	4.86233E+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	1.95247E+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							

1 400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp

0	mixture	order p()	activity table	quadrature constants	weights	directions	refl direc	wt x cos
	by zone	by zone	matl no.	reaction				
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-08

3	2	3	5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3	0	-6.04419E-01	8	0
5			5.59953E-02	-5.58410E-01	8	-3.10450E-02
6			5.59953E-02	-2.31301E-01	7	-1.28592E-02
7			5.59953E-02	2.31301E-01	6	1.28592E-02
8			5.59953E-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			4.53355E-02	-9.64143E-01	24	-4.37099E-02
18			4.53355E-02	-8.17361E-01	23	-3.70555E-02
19			4.53355E-02	-5.46143E-01	22	-2.47597E-02
20			4.53355E-02	-1.91780E-01	21	-8.69444E-03
21			4.53355E-02	1.91780E-01	20	8.69444E-03
22			4.53355E-02	5.46143E-01	19	2.47597E-02
23			4.53355E-02	8.17361E-01	18	3.70555E-02
24			4.53355E-02	9.64143E-01	17	4.37099E-02

Constants for p(3) scattering

Origl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52014E-01	3.16375E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52014E-01	2.25714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52014E-01	-2.25713E-01	-3.07844E-01	1.61278E-01
7	2.31301E-01	4.52014E-01	-2.25713E-01	3.07844E-01	-1.61278E-01
8	5.58410E-01	4.52014E-01	2.25713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26863E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42852E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40830E-01	3.44245E-01
12	-2.20196E-01	-8.57235E-02	-5.42852E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42852E-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	5.42852E-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	4.91033E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20852E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20852E-01	2.78176E-01	7.36573E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17254E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17254E-01
22	5.46143E-01	-4.49528E-01	-3.20852E-01	-2.78176E-01	-7.36573E-01
23	8.17361E-01	-4.49528E-01	3.20852E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91033E-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	0	
2	2.59102E-02	4.33408E-02	1	1	1.62798E-01	9.49518E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34051E-01	2.93967E-01	1	1	1.47065E+00	2.21299E-01	1.00000E+00		
6	3.53853E-01	3.80612E-01	1	1	2.22545E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	1	2.59946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2	2.94130E+00	4.07946E-03	0		
10	4.69507E-01	4.71481E-01	2	2	2.95000E+00	1.16988E-02	0		
11	4.73466E-01	4.75431E-01	2	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	3.06323E+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	5.16631E-02	1.00000E+00
18	5.60826E-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	8.1968E-01			5.11431E+00		

- elapsed time .00 min.

outer	inner	1 - balance	eigenvalue	1 - source	1 - scatter	1 - upscat	search	time
iter	iters		ratio	ratio	ratio	ratio	parameter	(min)
1	138	1.09566E-05	1.09759E+00	-1.07731E-01	1.00000E+00	-3.55729E-02	.00000E+00	.0000
2	213	-1.28319E-05	1.10828E+00	-1.48861E-03	-1.15081E-02	-4.26417E-03	.00000E+00	.0000
3	273	1.62259E-05	1.10914E+00	-1.97899E-04	-1.28292E-03	-8.84204E-04	.00000E+00	.0000
4	319	-1.04679E-05	1.10971E+00	-3.81491E-05	-2.70424E-04	-1.78392E-04	.00000E+00	.0167
5	350	-9.05080E-06	1.10975E+00	-8.04876E-06	-5.43973E-05	-3.29763E-05	.00000E+00	.0167

grp to	grp inner	inf	max. flux	msf	max. scale	coarse
	iters	int.	difference	int.	factor	mesh
1	1	1	3.80860E-08	24	1.00000E+00	1
2	2	1	4.46907E-08	24	1.00000E+00	1
3	3	1	4.10794E-08	24	1.00000E+00	1
4	4	1	3.97392E-08	24	1.00000E+00	1
5	5	1	4.12062E-08	24	1.00000E+00	1
6	6	1	2.63373E-08	24	1.00000E+00	1
7	7	1	1.85880E-08	24	1.00000E+00	1
8	8	1	4.40921E-09	24	1.00000E+00	1
9	9	1	2.34214E-09	24	1.00000E+00	1
10	10	1	2.37749E-09	24	1.00000E+00	1
11	11	1	2.43404E-09	24	1.00000E+00	1
12	12	1	4.39089E-09	24	1.00000E+00	1
13	13	1	5.87595E-09	24	1.00000E+00	1
14	14	1	5.61334E-09	24	1.00000E+00	1
15	15	1	4.08973E-05	24	9.99977E-01	1
16	16	1	5.07017E-05	24	9.99989E-01	1
17	17	1	1.82136E-05	24	9.99956E-01	1
18	18	1	2.09272E-05	24	9.99959E-01	1
19	19	1	1.73670E-05	24	9.99951E-01	1
20	20	1	5.16144E-05	24	9.99968E-01	1
21	21	1	2.68156E-05	24	9.99938E-01	1
22	22	1	4.66837E-05	24	9.99989E-01	1
23	23	1	2.32620E-06	24	1.00000E+00	1
24	24	1	1.39544E-05	24	1.00001E+00	1
25	25	1	1.72749E-05	24	1.00000E+00	1
26	26	1	1.01266E-05	24	9.99997E-01	2
27	27	1	4.46654E-06	24	1.00000E+00	2

6 377 -1.79461E-06 1.10967E+00 -1.60890E-06 -1.02061E-05 -6.57033E-06 .00000E+00 .0167

final monitor

lambda 1.10985E+00

production/absorption 1.10985E+00

angular flux on 16

- elapsed time .02 min.

1 400 d, mesh: balcock wilcox 15x15, 3.00wck, 20gcl/mu burn high temp

0	int.	zone number	radius	int. midpoint	area	volume	prod density
1	1		.00000E+00	1.29551E-02	.00000E+00	2.10908E-03	3.25098E-03
2	1		2.59102E-02	4.33408E-02	1.62798E-01	9.49518E-03	1.46266E-02
3	1		6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.53863E-02

4	1	1.1424E-01	1.7415E-01	7.1784E-01	1.3110E-01	2.0425E-01		
5	1	2.3406E-01	2.8967E-01	1.4705E+00	2.2129E-01	3.5272E-01		
6	1	3.5387E-01	3.8061E-01	2.2245E+00	1.2780E-01	2.0902E-01		
7	1	4.0735E-01	4.2478E-01	2.5594E+00	9.3042E-02	1.5490E-01		
8	1	4.4221E-01	4.5516E-01	2.7780E+00	7.4100E-02	1.2580E-01		
9	2	4.6812E-01	4.6881E-01	2.9413E+00	4.0794E-03	.0000E+00		
10	2	4.6950E-01	4.7148E-01	2.9500E+00	1.1688E-02	.0000E+00		
11	2	4.7345E-01	4.7543E-01	2.9748E+00	1.1798E-02	.0000E+00		
12	2	4.7740E-01	4.7809E-01	2.9996E+00	4.1402E-03	.0000E+00		
13	3	4.7879E-01	4.8319E-01	3.0083E+00	2.6524E-02	.0000E+00		
14	3	4.8752E-01	4.9998E-01	3.0652E+00	7.8276E-02	.0000E+00		
15	3	5.1245E-01	5.2490E-01	3.2197E+00	8.2177E-02	.0000E+00		
16	3	5.3736E-01	5.4173E-01	3.3783E+00	2.9742E-02	.0000E+00		
17	4	5.4610E-01	5.5351E-01	3.4312E+00	5.1567E-02	.0000E+00		
18	4	5.6096E-01	5.7090E-01	3.5240E+00	7.1554E-02	.0000E+00		
19	4	5.8087E-01	5.9617E-01	3.6497E+00	1.1462E-01	.0000E+00		
20	4	6.1147E-01	6.4575E-01	3.8420E+00	2.7816E-01	.0000E+00		
21	4	6.8003E-01	7.1431E-01	4.2727E+00	3.0770E-01	.0000E+00		
22	4	7.4859E-01	7.6899E-01	4.7085E+00	1.4687E-01	.0000E+00		
23	4	7.7919E-01	7.8916E-01	4.8558E+00	9.8911E-02	.0000E+00		
24	4	7.9914E-01	8.0854E-01	5.0215E+00	7.5135E-02	.0000E+00		
25		8.1396E-01		5.1143E+00				
400 cl, sas2h: babcock w/look 15x15, 3.00wt%, 20gcl/mu burn high temp								
1								
0	total flux							
0	int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7
1		1.7511E-01	1.3220E+00	1.6774E+00	1.0407E+00	1.5753E+00	3.0309E+00	2.9052E+00
2		1.7517E-01	1.3226E+00	1.6780E+00	1.0412E+00	1.5760E+00	3.0322E+00	2.9059E+00
3		1.7512E-01	1.3220E+00	1.6774E+00	1.0407E+00	1.5752E+00	3.0306E+00	2.9049E+00
4		1.7472E-01	1.3177E+00	1.6720E+00	1.0374E+00	1.5699E+00	3.0200E+00	2.8957E+00
5		1.7370E-01	1.3065E+00	1.6581E+00	1.0288E+00	1.5560E+00	2.9940E+00	2.8825E+00
6		1.7254E-01	1.2943E+00	1.6425E+00	1.0195E+00	1.5418E+00	2.9654E+00	2.8659E+00
7		1.7158E-01	1.2844E+00	1.6305E+00	1.0124E+00	1.5308E+00	2.9444E+00	2.8535E+00
8		1.7085E-01	1.2751E+00	1.6189E+00	1.0056E+00	1.5204E+00	2.9252E+00	2.8429E+00
9		1.7014E-01	1.2702E+00	1.6127E+00	1.0020E+00	1.5149E+00	2.9152E+00	2.8364E+00
10		1.7004E-01	1.2689E+00	1.6115E+00	1.0013E+00	1.5139E+00	2.9134E+00	2.8355E+00
11		1.6988E-01	1.2674E+00	1.6097E+00	1.0003E+00	1.5124E+00	2.9108E+00	2.8341E+00
12		1.6978E-01	1.2664E+00	1.6085E+00	9.9975E-01	1.5115E+00	2.9092E+00	2.8321E+00
13		1.6959E-01	1.2645E+00	1.6058E+00	9.9851E-01	1.5097E+00	2.9058E+00	2.8312E+00
14		1.6907E-01	1.2594E+00	1.5998E+00	9.9467E-01	1.5039E+00	2.8945E+00	2.8248E+00
15		1.6844E-01	1.2531E+00	1.5914E+00	9.8980E-01	1.4953E+00	2.8778E+00	2.8152E+00
16		1.6821E-01	1.2480E+00	1.5864E+00	9.8890E-01	1.4880E+00	2.8630E+00	2.8085E+00
17		1.6807E-01	1.2475E+00	1.5835E+00	9.8860E-01	1.4858E+00	2.8594E+00	2.8085E+00
18		1.6784E-01	1.2449E+00	1.5798E+00	9.8058E-01	1.4807E+00	2.8483E+00	2.7979E+00
19		1.6767E-01	1.2419E+00	1.5747E+00	9.7725E-01	1.4750E+00	2.8372E+00	2.7914E+00
20		1.6737E-01	1.2379E+00	1.5689E+00	9.7307E-01	1.4679E+00	2.8233E+00	2.7825E+00
21		1.6716E-01	1.2351E+00	1.5647E+00	9.7002E-01	1.4629E+00	2.8135E+00	2.7755E+00
22		1.6716E-01	1.2349E+00	1.5644E+00	9.6974E-01	1.4624E+00	2.8125E+00	2.7771E+00
23		1.6724E-01	1.2358E+00	1.5656E+00	9.7047E-01	1.4636E+00	2.8147E+00	2.7785E+00
24		1.6732E-01	1.2365E+00	1.5665E+00	9.7137E-01	1.4650E+00	2.8176E+00	2.7809E+00
0	int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15
1		1.5862E+00	1.4447E+00	1.3034E+00	7.9480E-01	6.7158E-01	5.9083E-01	3.7152E-01
2		1.5861E+00	1.4446E+00	1.3032E+00	7.9458E-01	6.7154E-01	5.9080E-01	3.7142E-01
3		1.5863E+00	1.4448E+00	1.3037E+00	7.9515E-01	6.7201E-01	5.9133E-01	3.7119E-01
4		1.5873E+00	1.4460E+00	1.3037E+00	7.9819E-01	6.7585E-01	5.9515E-01	3.7161E-01
5		1.5897E+00	1.4480E+00	1.3128E+00	8.0578E-01	6.8093E-01	6.0463E-01	3.7262E-01
6		1.5928E+00	1.4529E+00	1.3200E+00	8.1413E-01	6.8979E-01	6.1512E-01	3.7370E-01
7		1.5950E+00	1.4548E+00	1.3257E+00	8.2040E-01	6.9516E-01	6.2294E-01	3.7489E-01
8		1.5971E+00	1.4570E+00	1.3300E+00	8.2608E-01	6.9922E-01	6.3016E-01	3.7518E-01
9		1.5982E+00	1.4581E+00	1.3325E+00	8.2898E-01	7.0099E-01	6.3394E-01	3.7553E-01
10		1.5983E+00	1.4583E+00	1.3328E+00	8.2942E-01	7.0079E-01	6.3451E-01	3.7559E-01

11	1.5987E+00	1.4586E+00	1.3335E+00	8.3014E-01	7.0137E-01	6.3537E-01	3.7588E-01	2.0844E-01
12	1.5989E+00	1.4587E+00	1.3336E+00	8.3015E-01	7.0138E-01	6.3538E-01	3.7589E-01	2.0845E-01
13	1.5991E+00	1.4591E+00	1.3342E+00	8.3147E-01	7.0251E-01	6.3706E-01	3.7585E-01	2.0852E-01
14	1.6003E+00	1.4602E+00	1.3370E+00	8.3428E-01	7.0490E-01	6.4061E-01	3.7622E-01	2.0877E-01
15	1.6014E+00	1.4613E+00	1.3404E+00	8.3815E-01	7.0820E-01	6.4550E-01	3.7674E-01	2.0908E-01
16	1.6020E+00	1.4623E+00	1.3426E+00	8.4061E-01	7.1033E-01	6.4861E-01	3.7708E-01	2.0928E-01
17	1.6023E+00	1.4636E+00	1.3429E+00	8.4248E-01	7.1186E-01	6.5094E-01	3.7723E-01	2.0940E-01
18	1.6027E+00	1.4647E+00	1.3456E+00	8.4499E-01	7.1393E-01	6.5407E-01	3.7747E-01	2.0957E-01
19	1.6031E+00	1.4658E+00	1.3491E+00	8.4788E-01	7.1633E-01	6.5767E-01	3.7772E-01	2.0975E-01
20	1.6040E+00	1.4673E+00	1.3524E+00	8.5156E-01	7.1938E-01	6.6227E-01	3.7801E-01	2.0992E-01
21	1.6046E+00	1.4684E+00	1.3547E+00	8.5418E-01	7.2153E-01	6.6525E-01	3.7816E-01	2.1013E-01
22	1.6047E+00	1.4685E+00	1.3550E+00	8.5441E-01	7.2167E-01	6.6577E-01	3.7807E-01	2.1011E-01
23	1.6045E+00	1.4684E+00	1.3544E+00	8.5373E-01	7.2106E-01	6.6490E-01	3.7792E-01	2.1008E-01
24	1.6043E+00	1.4681E+00	1.3536E+00	8.5289E-01	7.2034E-01	6.6383E-01	3.7778E-01	2.0995E-01
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.6500E-02	5.3154E-02	1.3168E-01	4.4102E-01	1.1777E-01	2.0735E-01	7.2721E-01	5.2490E-01
2	8.6577E-02	5.3120E-02	1.3164E-01	4.4092E-01	1.1770E-01	2.0720E-01	7.2678E-01	5.2454E-01
3	8.6620E-02	5.3261E-02	1.3171E-01	4.4111E-01	1.1783E-01	2.0775E-01	7.2782E-01	5.2561E-01
4	8.6672E-02	5.3587E-02	1.3216E-01	4.4288E-01	1.1884E-01	2.1059E-01	7.3365E-01	5.3112E-01
5	8.7954E-02	5.5822E-02	1.3326E-01	4.4509E-01	1.2125E-01	2.1771E-01	7.4809E-01	5.4493E-01
6	8.8180E-02	5.7907E-02	1.3458E-01	4.4817E-01	1.2582E-01	2.2574E-01	7.6405E-01	5.6033E-01
7	8.8688E-02	5.9514E-02	1.3532E-01	4.5042E-01	1.2943E-01	2.3182E-01	7.7595E-01	5.7187E-01
8	8.9155E-02	6.1087E-02	1.3611E-01	4.5251E-01	1.2781E-01	2.3753E-01	7.8691E-01	5.8295E-01
9	8.9596E-02	6.1837E-02	1.3652E-01	4.5388E-01	1.2878E-01	2.4052E-01	7.9260E-01	5.8817E-01
10	8.9437E-02	6.1953E-02	1.3658E-01	4.5376E-01	1.2888E-01	2.4096E-01	7.9348E-01	5.8901E-01
11	8.9477E-02	6.2121E-02	1.3668E-01	4.5401E-01	1.2915E-01	2.4194E-01	7.9473E-01	5.9028E-01
12	8.9534E-02	6.2230E-02	1.3674E-01	4.5418E-01	1.2929E-01	2.4201E-01	7.9553E-01	5.9097E-01
13	8.9611E-02	6.2405E-02	1.3687E-01	4.5452E-01	1.2957E-01	2.4283E-01	7.9721E-01	5.9253E-01
14	8.9851E-02	6.3133E-02	1.3727E-01	4.5557E-01	1.3046E-01	2.4540E-01	8.0237E-01	5.9736E-01
15	9.0181E-02	6.4000E-02	1.3783E-01	4.5702E-01	1.3189E-01	2.4891E-01	8.0938E-01	6.0382E-01
16	9.0893E-02	6.4647E-02	1.3819E-01	4.5794E-01	1.3248E-01	2.5113E-01	8.1381E-01	6.0781E-01
17	9.0847E-02	6.5090E-02	1.3846E-01	4.5860E-01	1.3309E-01	2.5286E-01	8.1747E-01	6.1147E-01
18	9.0756E-02	6.5708E-02	1.3881E-01	4.5950E-01	1.3352E-01	2.5534E-01	8.2292E-01	6.1728E-01
19	9.0989E-02	6.6418E-02	1.3922E-01	4.6053E-01	1.3494E-01	2.5823E-01	8.2943E-01	6.2418E-01
20	9.1307E-02	6.7320E-02	1.3974E-01	4.6189E-01	1.3622E-01	2.6193E-01	8.3809E-01	6.3361E-01
21	9.1524E-02	6.7977E-02	1.4010E-01	4.6283E-01	1.3714E-01	2.6466E-01	8.4465E-01	6.4087E-01
22	9.1530E-02	6.8051E-02	1.4012E-01	4.6287E-01	1.3724E-01	2.6497E-01	8.4564E-01	6.4225E-01
23	9.1477E-02	6.7880E-02	1.4001E-01	4.6288E-01	1.3703E-01	2.6434E-01	8.4434E-01	6.4109E-01
24	9.1404E-02	6.7704E-02	1.3989E-01	4.6225E-01	1.3675E-01	2.6365E-01	8.4261E-01	6.3944E-01
0 int.	grp. 25	grp. 26	grp. 27					
1	2.1617E-01	1.3015E-01	1.6826E-02					
2	2.1602E-01	1.3006E-01	1.6826E-02					
3	2.1657E-01	1.3059E-01	1.6881E-02					
4	2.1943E-01	1.3324E-01	1.7716E-02					
5	2.2656E-01	1.3980E-01	1.9569E-02					
6	2.3452E-01	1.4724E-01	2.1737E-02					
7	2.4054E-01	1.5254E-01	2.3487E-02					
8	2.4617E-01	1.5836E-01	2.5229E-02					
9	2.4912E-01	1.6121E-01	2.6161E-02					
10	2.4954E-01	1.6159E-01	2.6268E-02					
11	2.5015E-01	1.6214E-01	2.6419E-02					
12	2.5054E-01	1.6249E-01	2.6517E-02					
13	2.5133E-01	1.6320E-01	2.6719E-02					
14	2.5374E-01	1.6534E-01	2.7302E-02					
15	2.5688E-01	1.6809E-01	2.8027E-02					
16	2.5874E-01	1.6969E-01	2.8431E-02					
17	2.6064E-01	1.7161E-01	2.9088E-02					
18	2.6376E-01	1.7496E-01	3.0202E-02					
19	2.6758E-01	1.7902E-01	3.1543E-02					
20	2.7274E-01	1.8459E-01	3.3308E-02					

21 2.76874E-01 1.89076E-01 3.47586E-02
 22 2.77773E-01 1.90231E-01 3.51897E-02
 23 2.77232E-01 1.89831E-01 3.51395E-02
 24 2.76401E-01 1.89098E-01 3.49777E-02

- elapsed time .02 min.

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

0 grp.	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.0000E+00	2.22774E-02	.0000E+00	1.25166E-02	1.04028E-02	3.17762E-03	1.09607E-02	9.98832E-01
2	.0000E+00	1.91850E-01	2.29992E-03	1.66186E-01	6.60876E-02	1.35819E-02	1.14487E-01	1.00004E+00
3	.0000E+00	2.15499E-01	2.60758E-02	1.60773E-01	8.10389E-02	1.55664E-02	1.44988E-01	1.00000E+00
4	.0000E+00	1.24085E-01	3.89498E-02	1.05171E-01	6.78165E-02	7.43247E-03	8.76831E-02	1.00001E+00
5	.0000E+00	1.64899E-01	6.78165E-02	2.59259E-01	9.47669E-02	4.44869E-03	1.33502E-01	9.99992E-01
6	.0000E+00	1.78374E-01	1.34568E-01	6.53782E-01	5.44059E-02	7.04576E-03	2.51482E-01	1.00003E+00
7	.0000E+00	8.83271E-02	9.84097E-02	7.45204E-01	3.63369E-02	7.63574E-03	1.42763E-01	1.00001E+00
8	.0000E+00	1.36205E-02	4.25737E-02	6.30972E-01	2.14899E-02	1.40324E-02	2.06709E-02	1.00004E+00
9	.0000E+00	9.88735E-04	2.17113E-02	5.35049E-01	2.05561E-02	2.31899E-02	-2.11456E-02	9.99991E-01
10	.0000E+00	7.34411E-05	2.05780E-02	4.59547E-01	1.05799E-02	3.60185E-02	-2.59414E-02	1.00001E+00
11	.0000E+00	5.77788E-06	1.05748E-02	4.20560E-01	8.12718E-03	5.84172E-02	-5.58644E-02	1.00001E+00
12	.0000E+00	4.05887E-07	8.12723E-03	2.37908E-01	9.35703E-03	6.38639E-02	-6.50903E-02	9.99959E-01
13	.0000E+00	6.44511E-08	9.35704E-03	1.76672E-01	6.15561E-03	5.84519E-02	-5.52509E-02	1.00001E+00
14	.0000E+00	1.27725E-08	6.15561E-03	1.51883E-01	7.45442E-03	8.08520E-02	-8.21511E-02	1.00000E+00
15	.0000E+00	1.44343E-09	7.54253E-03	8.50837E-02	8.92281E-03	6.68092E-03	-8.09078E-03	1.00190E+00
16	.0000E+00	4.23842E-10	9.09568E-03	4.31122E-02	9.67890E-03	4.51264E-03	-5.11392E-03	1.00146E+00
17	.0000E+00	1.36498E-10	7.88887E-03	1.49801E-02	7.67337E-03	5.73779E-03	-5.58201E-03	1.00072E+00
18	.0000E+00	9.77284E-11	7.25731E-03	1.02207E-02	5.54822E-03	1.75312E-02	-1.57871E-02	1.00022E+00
19	.0000E+00	1.38167E-10	7.70172E-03	2.52994E-02	9.31264E-03	7.78557E-03	-9.40703E-03	1.00062E+00
20	.0000E+00	2.24674E-10	1.07374E-02	1.05505E-01	9.96470E-03	2.54882E-02	-2.47475E-02	1.00091E+00
21	.0000E+00	3.28850E-11	9.51791E-03	2.29079E-02	8.87943E-03	2.18035E-02	-2.11760E-02	1.00035E+00
22	.0000E+00	3.81541E-11	1.27663E-02	4.69140E-02	1.05478E-02	6.34005E-02	-6.11984E-02	1.00023E+00
23	.0000E+00	3.66796E-11	1.57917E-02	1.77060E-01	1.94305E-02	1.23766E-01	-1.27465E-01	1.00042E+00
24	.0000E+00	9.92926E-12	2.34777E-02	1.20933E-01	2.33516E-02	1.28456E-01	-1.22564E-01	1.00030E+00
25	.0000E+00	2.90664E-12	1.99277E-02	4.55033E-02	1.49592E-02	6.73575E-02	-6.24439E-02	1.00022E+00
26	.0000E+00	2.08815E-12	9.74409E-03	3.14246E-02	6.67929E-03	6.05728E-02	-5.76195E-02	1.00017E+00
27	.0000E+00	4.85702E-13	2.09036E-03	4.65127E-03	1.12921E-03	1.68533E-02	-1.59088E-02	1.00009E+00
28	.0000E+00	1.0000E+00	6.30843E-01	5.44918E+00	6.30843E-01	9.37995E-01	6.39933E-02	1.00016E+00
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rdn rate	fiss rate	flux*db**2	total flux
1	1.70174E-01	1.09607E-02	1.75054E-01	.0000E+00	2.25497E-03	2.60459E-03	.0000E+00	1.19203E-01
2	1.27029E+00	1.14487E-01	1.32142E+00	.0000E+00	1.73357E-05	1.18240E-02	.0000E+00	8.95746E-01
3	1.61311E+00	1.44988E-01	1.67662E+00	.0000E+00	.0000E+00	1.45423E-02	.0000E+00	1.13668E+00
4	1.00226E+00	8.76831E-02	1.04022E+00	.0000E+00	.0000E+00	6.28503E-03	.0000E+00	7.05515E-01
5	1.51516E+00	1.33502E-01	1.57460E+00	.0000E+00	.0000E+00	1.89944E-03	.0000E+00	1.06716E+00
6	2.91569E+00	2.51482E-01	3.02957E+00	.0000E+00	.0000E+00	1.62738E-03	.0000E+00	2.05279E+00
7	2.83678E+00	1.42763E-01	2.90664E+00	.0000E+00	.0000E+00	1.62640E-03	.0000E+00	1.97980E+00
8	2.06815E+00	2.06709E-02	2.07996E+00	.0000E+00	.0000E+00	1.67775E-03	.0000E+00	1.42852E+00
9	1.59821E+00	-2.11456E-02	1.58651E+00	.0000E+00	.0000E+00	2.28980E-03	.0000E+00	1.09549E+00
10	1.45810E+00	-2.59414E-02	1.44483E+00	.0000E+00	.0000E+00	4.83462E-03	.0000E+00	9.98583E-01
11	1.33263E+00	-5.58644E-02	1.30372E+00	.0000E+00	.0000E+00	1.01361E-02	.0000E+00	9.05949E-01
12	8.28830E-01	-6.50903E-02	7.95094E-01	.0000E+00	.0000E+00	1.31558E-02	.0000E+00	5.57221E-01
13	7.00280E-01	-5.52509E-02	6.72015E-01	.0000E+00	.0000E+00	1.35217E-02	.0000E+00	4.70885E-01
14	6.33755E-01	-8.21511E-02	5.91297E-01	.0000E+00	.0000E+00	8.78186E-03	.0000E+00	4.19298E-01
15	3.75527E-01	-8.09078E-03	3.71197E-01	.0000E+00	.0000E+00	2.20594E-03	.0000E+00	2.56839E-01
16	2.08344E-01	-5.11392E-03	2.05792E-01	.0000E+00	.0000E+00	1.50475E-03	.0000E+00	1.42426E-01
17	8.99908E-02	-5.58201E-03	8.66302E-02	.0000E+00	.0000E+00	2.00824E-03	.0000E+00	6.04392E-02
18	6.18088E-02	-1.57871E-02	5.32102E-02	.0000E+00	.0000E+00	2.00612E-03	.0000E+00	3.90798E-02
19	1.36808E-01	-9.40703E-03	1.31732E-01	.0000E+00	.0000E+00	3.19801E-03	.0000E+00	9.20531E-02
20	4.53547E-01	-2.47475E-02	4.41158E-01	.0000E+00	.0000E+00	1.65072E-02	.0000E+00	3.07327E-01
21	1.28750E-01	-2.11760E-02	1.17871E-01	.0000E+00	.0000E+00	1.39008E-02	.0000E+00	8.42857E-02
22	2.40409E-01	-6.11984E-02	2.07574E-01	.0000E+00	.0000E+00	3.96511E-02	.0000E+00	1.52940E-01
23	7.92361E-01	-1.27465E-01	7.2752E-01	.0000E+00	.0000E+00	8.00866E-02	.0000E+00	5.19759E-01
24	5.87949E-01	-1.22564E-01	5.25378E-01	.0000E+00	.0000E+00	7.97521E-02	.0000E+00	3.79811E-01

25 2.4900E-01 -6.2438E-02 2.1640E-01 .0000E+00 .0000E+00 4.5785E-02 .0000E+00 1.5839E-01
 26 1.6110E-01 -5.7619E-02 1.3033E-01 .0000E+00 .0000E+00 4.2088E-02 .0000E+00 9.8551E-02
 27 2.6130E-02 -1.5903E-02 1.6856E-02 .0000E+00 .0000E+00 1.1806E-02 .0000E+00 1.4183E-02
 28 2.3454E-01 6.3993E-02 2.3427E-01 .0000E+00 2.2529E-03 4.3517E-01 .0000E+00 1.6138E-01
 1 fine group summary for zone 2 by group including sum for all groups in line 28
 0 grp. fix source fias source in scatter self scatter out scatter absorption leakage balance
 1 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -4.6565E-09 1.0000E+00
 2 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 7.4505E-09 1.0000E+00
 3 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -8.9407E-08 1.0000E+00
 4 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -1.4401E-08 1.0000E+00
 5 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 1.0000E+00
 6 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -2.9802E-08 1.0000E+00
 7 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -2.9802E-08 1.0000E+00
 8 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -3.3527E-08 1.0000E+00
 9 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 5.9604E-08 9.9999E-01
 10 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 2.2951E-08 9.9999E-01
 11 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -5.9604E-08 1.0000E+00
 12 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -7.4505E-09 1.0000E+00
 13 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 2.2951E-08 1.0000E+00
 14 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 4.4703E-08 9.9999E-01
 15 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -1.4401E-08 1.0000E+00
 16 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -9.3132E-10 1.0000E+00
 17 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -9.3132E-10 1.0000E+00
 18 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -1.8526E-09 1.0000E+00
 19 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -1.8526E-09 1.0000E+00
 20 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -1.8526E-09 1.0000E+00
 21 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 5.9679E-09 1.0000E+00
 22 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 3.7252E-09 1.0000E+00
 23 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 5.9604E-08 1.0000E+00
 24 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -7.4505E-09 1.0000E+00
 25 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 3.7252E-09 1.0000E+00
 26 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -1.1175E-08 1.0000E+00
 27 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -3.7252E-09 1.0000E+00
 28 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 .0000E+00 -6.3329E-08 9.9999E-01
 0 grp. rt bdy flux rt leakage lft bdy flux lft leakage rdn rate fias rate flux*rdn**2 total flux
 1 1.6975E-01 1.0960E-02 1.7017E-01 1.0960E-02 .0000E+00 .0000E+00 .0000E+00 5.3989E-03
 2 1.2662E-01 1.1448E-01 1.2702E-01 1.1448E-01 .0000E+00 .0000E+00 .0000E+00 4.0247E-02
 3 1.6080E-01 1.4498E-01 1.6131E-01 1.4498E-01 .0000E+00 .0000E+00 .0000E+00 5.1114E-02
 4 9.9999E-01 8.7683E-02 1.0022E-01 8.7683E-02 .0000E+00 .0000E+00 .0000E+00 3.1763E-02
 5 1.5113E+00 1.3360E-01 1.5151E+00 1.3360E-01 .0000E+00 .0000E+00 .0000E+00 4.8021E-02
 6 2.9089E+00 2.5148E-01 2.9156E+00 2.5148E-01 .0000E+00 .0000E+00 .0000E+00 9.2418E-02
 7 2.8829E+00 1.4276E-01 2.8867E+00 1.4276E-01 .0000E+00 .0000E+00 .0000E+00 8.9963E-02
 8 2.0673E+00 2.0670E-02 2.0681E+00 2.0670E-02 .0000E+00 .0000E+00 .0000E+00 6.5620E-02
 9 1.9989E+00 -2.1145E-02 1.9982E+00 -2.1145E-02 .0000E+00 .0000E+00 .0000E+00 5.0731E-02
 10 1.4588E+00 -2.5944E-02 1.4581E+00 -2.5944E-02 .0000E+00 .0000E+00 .0000E+00 4.6284E-02
 11 1.3339E+00 -5.5864E-02 1.3323E+00 -5.5864E-02 .0000E+00 .0000E+00 .0000E+00 4.2309E-02
 12 8.3069E-01 -6.5090E-02 8.2886E-01 -6.5090E-02 .0000E+00 .0000E+00 .0000E+00 2.6339E-02
 13 7.0184E-01 -5.5208E-02 7.0028E-01 -5.5208E-02 .0000E+00 .0000E+00 .0000E+00 2.2249E-02
 14 6.3606E-01 -8.2151E-02 6.3375E-01 -8.2151E-02 .0000E+00 .0000E+00 .0000E+00 2.0150E-02
 15 3.7575E-01 -8.0907E-03 3.7552E-01 -8.0907E-03 .0000E+00 .0000E+00 .0000E+00 1.1921E-02
 16 2.0949E-01 -5.1192E-03 2.0834E-01 -5.1192E-03 .0000E+00 .0000E+00 .0000E+00 6.6142E-03
 17 8.9547E-02 -5.5820E-03 8.9900E-02 -5.5820E-03 .0000E+00 .0000E+00 .0000E+00 2.8929E-03
 18 6.2259E-02 -1.5787E-02 6.1808E-02 -1.5787E-02 .0000E+00 .0000E+00 .0000E+00 1.9887E-03
 19 1.3676E-01 -9.4070E-03 1.3650E-01 -9.4070E-03 .0000E+00 .0000E+00 .0000E+00 4.3361E-03
 20 4.5425E-01 -2.4747E-02 4.5354E-01 -2.4747E-02 .0000E+00 .0000E+00 .0000E+00 1.4404E-02
 21 1.2933E-01 -2.1176E-02 1.2850E-01 -2.1176E-02 .0000E+00 .0000E+00 .0000E+00 4.0951E-03
 22 2.4210E-01 -6.1198E-02 2.4040E-01 -6.1198E-02 .0000E+00 .0000E+00 .0000E+00 7.6570E-03
 23 7.9574E-01 -1.2746E-01 7.9236E-01 -1.2746E-01 .0000E+00 .0000E+00 .0000E+00 2.5201E-02
 24 5.9115E-01 -1.2254E-01 5.8945E-01 -1.2254E-01 .0000E+00 .0000E+00 .0000E+00 1.8712E-02
 25 2.5063E-01 -6.2438E-02 2.4900E-01 -6.2438E-02 .0000E+00 .0000E+00 .0000E+00 7.9895E-03

26	1.6257E-01	-5.7619E-02	1.6110E-01	-5.7619E-02	.0000E+00	.0000E+00	.0000E+00	5.1368E-03
27	2.6541E-02	-1.5903E-02	2.6133E-02	-1.5903E-02	.0000E+00	.0000E+00	.0000E+00	8.3602E-04
28	2.3449E-01	6.3992E-02	2.3454E-01	6.3993E-02	.0000E+00	.0000E+00	.0000E+00	7.4425E-01
1fire group summary for zone 3 by group including sun for all groups in line 28								
0 grp.	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	3.7615E-03	2.8047E-03	1.4373E-05	-2.7190E-03	1.0000E+00
2	.0000E+00	.0000E+00	.0000E+00	4.8884E-04	2.5801E-02	1.8513E-02	5.1258E-05	-1.8075E-02
3	.0000E+00	.0000E+00	.0000E+00	2.6288E-03	5.0026E-02	1.5817E-02	1.3682E-04	-1.3324E-02
4	.0000E+00	.0000E+00	.0000E+00	5.1105E-03	4.2048E-02	5.4444E-03	1.0225E-04	-4.3670E-04
5	.0000E+00	.0000E+00	.0000E+00	1.1018E-02	8.1585E-02	5.1594E-03	1.5199E-04	5.7060E-03
6	.0000E+00	.0000E+00	.0000E+00	1.8423E-02	2.3497E-01	3.2104E-03	3.1997E-04	1.4892E-02
7	.0000E+00	.0000E+00	.0000E+00	1.2270E-02	2.3513E-01	1.1619E-03	3.4468E-04	1.0744E-02
8	.0000E+00	.0000E+00	.0000E+00	2.1575E-03	1.5851E-01	7.6327E-03	2.9479E-04	-5.7705E-03
9	.0000E+00	.0000E+00	.0000E+00	7.6687E-03	1.0515E-01	8.7656E-04	1.1088E-03	5.6807E-03
10	.0000E+00	.0000E+00	.0000E+00	8.7773E-04	8.5514E-02	8.4852E-04	8.3510E-04	-8.0579E-04
11	.0000E+00	.0000E+00	.0000E+00	8.4851E-04	7.6977E-02	8.6951E-04	1.3366E-03	-1.3565E-03
12	.0000E+00	.0000E+00	.0000E+00	8.6957E-04	4.6752E-02	8.6981E-04	4.1625E-05	-4.2155E-05
13	.0000E+00	.0000E+00	.0000E+00	8.6981E-04	3.9520E-02	8.0619E-04	6.0003E-05	3.6207E-06
14	.0000E+00	.0000E+00	.0000E+00	8.0619E-04	3.6060E-02	6.7956E-04	9.6048E-05	3.0502E-05
15	.0000E+00	.0000E+00	.0000E+00	7.2379E-04	2.0673E-02	8.4608E-04	8.3021E-05	-2.0478E-04
16	.0000E+00	.0000E+00	.0000E+00	9.4781E-04	1.0984E-02	9.5193E-04	5.1765E-05	-5.5179E-05
17	.0000E+00	.0000E+00	.0000E+00	1.0331E-03	4.1289E-03	1.0158E-03	2.4815E-05	-7.6266E-06
18	.0000E+00	.0000E+00	.0000E+00	1.0690E-03	2.7468E-03	8.8957E-04	1.8810E-05	1.6330E-04
19	.0000E+00	.0000E+00	.0000E+00	9.1927E-04	6.8425E-03	1.0104E-03	4.4367E-05	-1.3542E-04
20	.0000E+00	.0000E+00	.0000E+00	1.2106E-03	2.5005E-02	1.0630E-03	1.8591E-04	-3.7508E-05
21	.0000E+00	.0000E+00	.0000E+00	1.3487E-03	6.0454E-03	1.4405E-03	6.6602E-05	-1.6181E-04
22	.0000E+00	.0000E+00	.0000E+00	1.8226E-03	1.2657E-02	1.6648E-03	1.4515E-04	1.2882E-05
23	.0000E+00	.0000E+00	.0000E+00	2.4114E-03	4.2892E-02	3.1489E-03	6.4954E-04	-1.3870E-03
24	.0000E+00	.0000E+00	.0000E+00	3.8595E-03	3.0176E-02	4.1412E-03	7.0294E-04	-9.8491E-04
25	.0000E+00	.0000E+00	.0000E+00	3.7288E-03	1.1600E-02	2.8857E-03	3.9455E-04	3.4844E-04
26	.0000E+00	.0000E+00	.0000E+00	1.5539E-03	8.4123E-03	1.1117E-03	3.6733E-04	7.4833E-05
27	.0000E+00	.0000E+00	.0000E+00	3.2236E-04	1.5793E-03	8.1374E-07	1.1516E-04	2.0602E-04
28	.0000E+00	.0000E+00	.0000E+00	8.4986E-02	1.4053E+00	8.4986E-02	7.7448E-03	-7.6421E-03
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtb rate	fiss rate	flux*ddt**2	total flux
1	1.6815E-01	8.2615E-03	1.6758E-01	1.0960E-02	1.0021E-04	.0000E+00	.0000E+00	3.6882E-02
2	1.2488E+00	9.6411E-02	1.2642E+00	1.1448E-01	.0000E+00	.0000E+00	.0000E+00	2.7227E-01
3	1.5952E+00	1.3166E-01	1.6083E+00	1.4488E-01	.0000E+00	.0000E+00	.0000E+00	3.4581E-01
4	9.8498E-01	8.7264E-02	9.9799E-01	8.7883E-02	.0000E+00	.0000E+00	.0000E+00	2.1477E-01
5	1.4882E+00	1.3920E-01	1.5113E+00	1.3302E-01	.0000E+00	.0000E+00	.0000E+00	3.2481E-01
6	2.8531E+00	2.6637E-01	2.9089E+00	2.5148E-01	.0000E+00	.0000E+00	.0000E+00	6.2540E-01
7	2.8066E+00	1.5350E-01	2.8529E+00	1.4276E-01	.0000E+00	.0000E+00	.0000E+00	6.1110E-01
8	2.0642E+00	1.4899E-02	2.0673E+00	2.0670E-02	.0000E+00	.0000E+00	.0000E+00	4.4764E-01
9	1.6021E+00	-1.5464E-02	1.5988E+00	-2.1145E-02	.0000E+00	.0000E+00	.0000E+00	3.4694E-01
10	1.4631E+00	-2.6747E-02	1.4588E+00	-2.5941E-02	.0000E+00	.0000E+00	.0000E+00	3.1654E-01
11	1.3432E+00	-5.7220E-02	1.3396E+00	-5.5844E-02	.0000E+00	.0000E+00	.0000E+00	2.9014E-01
12	8.4129E-01	-6.5132E-02	8.3089E-01	-6.5090E-02	.0000E+00	.0000E+00	.0000E+00	1.8124E-01
13	7.1088E-01	-5.5247E-02	7.0184E-01	-5.5250E-02	.0000E+00	.0000E+00	.0000E+00	1.5314E-01
14	6.4943E-01	-8.2120E-02	6.3606E-01	-8.2151E-02	.0000E+00	.0000E+00	.0000E+00	1.3983E-01
15	3.7718E-01	-8.2955E-03	3.7575E-01	-8.0907E-03	.0000E+00	.0000E+00	.0000E+00	8.1594E-02
16	2.0933E-01	-5.1691E-03	2.0849E-01	-5.1192E-03	.0000E+00	.0000E+00	.0000E+00	4.5281E-02
17	9.0451E-02	-5.5864E-03	8.9547E-02	-5.5820E-03	.0000E+00	.0000E+00	.0000E+00	1.9509E-02
18	6.4799E-02	-1.5623E-02	6.2292E-02	-1.5787E-02	.0000E+00	.0000E+00	.0000E+00	1.3785E-02
19	1.3829E-01	-9.5424E-03	1.3676E-01	-9.4070E-03	.0000E+00	.0000E+00	.0000E+00	2.9813E-02
20	4.5819E-01	-2.4785E-02	4.5429E-01	-2.4747E-02	.0000E+00	.0000E+00	.0000E+00	9.8895E-02
21	1.3289E-01	-2.1357E-02	1.2953E-01	-2.1176E-02	.0000E+00	.0000E+00	.0000E+00	2.8412E-02
22	2.5169E-01	-6.1185E-02	2.4210E-01	-6.1198E-02	.0000E+00	.0000E+00	.0000E+00	5.3575E-02
23	8.1498E-01	-1.2882E-01	7.9574E-01	-1.2746E-01	.0000E+00	.0000E+00	.0000E+00	1.7467E-01
24	6.0880E-01	-1.2354E-01	5.9115E-01	-1.2256E-01	.0000E+00	.0000E+00	.0000E+00	1.3017E-01
25	2.5921E-01	-6.2093E-02	2.5063E-01	-6.2443E-02	.0000E+00	.0000E+00	.0000E+00	5.5362E-02
26	1.7007E-01	-5.7544E-02	1.6257E-01	-5.7619E-02	.0000E+00	.0000E+00	.0000E+00	3.6132E-02

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27 2.8523E-02 -1.5697E-02 2.6541E-02 -1.5908E-02 .0000E+00 .0000E+00 .0000E+00 5.9947E-03
28 2.3429E+01 5.6351E-02 2.3449E+01 6.3992E-02 1.0021E-04 .0000E+00 .0000E+00 5.0794E+00
1 ifne group summary for zone 4 by group including sum for all groups in line 28
0 grp. fix source fiss source in scatter sif scatter out scatter absorption leakage balance
1 .0000E+00 .0000E+00 .0000E+00 5.9119E-03 7.8248E-03 4.1705E-04 -8.2415E-03 9.9994E-01
2 .0000E+00 .0000E+00 4.4888E-03 7.5959E-02 9.9832E-02 1.0885E-03 -9.6411E-02 9.9992E-01
3 .0000E+00 .0000E+00 4.7357E-02 6.8835E-02 1.7901E-01 5.4080E-06 -1.3163E-01 9.9997E-01
4 .0000E+00 .0000E+00 7.0092E-02 4.5782E-02 1.5730E-01 3.2292E-06 -8.7263E-02 9.9998E-01
5 .0000E+00 .0000E+00 1.2960E-01 1.4857E-01 2.6881E-01 3.7720E-06 -1.3920E-01 9.9999E-01
6 .0000E+00 .0000E+00 2.7457E-01 4.5513E-01 5.4094E-01 1.1473E-05 -2.6637E-01 9.9999E-01
7 .0000E+00 .0000E+00 5.5240E-01 7.9499E-01 7.0589E-01 2.5345E-05 -1.5350E-01 9.9999E-01
8 .0000E+00 .0000E+00 7.3527E-01 1.0005E+00 7.5019E-01 4.6992E-05 -1.4898E-02 9.9991E-01
9 .0000E+00 .0000E+00 7.4042E-01 9.1551E-01 7.2500E-01 9.5849E-05 1.5460E-02 9.9989E-01
10 .0000E+00 .0000E+00 7.2175E-01 8.6440E-01 6.9485E-01 2.1127E-04 2.6747E-02 9.9989E-01
11 .0000E+00 .0000E+00 6.9883E-01 8.0457E-01 6.4224E-01 4.5683E-04 5.7221E-02 9.9994E-01
12 .0000E+00 .0000E+00 5.5915E-01 4.1964E-01 4.9843E-01 5.9670E-04 6.5132E-02 9.9997E-01
13 .0000E+00 .0000E+00 4.8957E-01 3.3782E-01 4.3324E-01 8.9735E-04 5.5247E-02 9.9997E-01
14 .0000E+00 .0000E+00 4.7002E-01 3.2350E-01 3.8644E-01 1.4640E-03 8.2120E-02 9.9989E-01
15 .0000E+00 .0000E+00 2.5176E-01 1.2927E-01 2.4218E-01 1.2880E-03 8.2967E-03 9.9992E-01
16 .0000E+00 .0000E+00 1.6714E-01 5.4699E-02 1.6102E-01 8.8512E-04 5.1701E-03 9.9993E-01
17 .0000E+00 .0000E+00 8.6248E-02 1.5418E-02 8.0222E-02 4.3067E-04 5.5899E-03 1.0000E+00
18 .0000E+00 .0000E+00 7.6562E-02 1.1090E-02 6.0606E-02 3.3922E-04 1.5620E-02 1.0000E+00
19 .0000E+00 .0000E+00 1.2649E-01 3.5007E-02 1.1618E-01 7.6731E-04 9.5367E-03 1.0000E+00
20 .0000E+00 .0000E+00 3.0979E-01 2.4925E-01 2.8181E-01 3.1888E-03 2.4787E-02 1.0000E+00
21 .0000E+00 .0000E+00 1.4627E-01 4.7572E-02 1.2575E-01 1.1787E-03 2.1329E-02 1.0000E+00
22 .0000E+00 .0000E+00 2.7816E-01 1.3774E-01 2.1436E-01 2.6182E-03 6.1188E-02 9.9999E-01
23 .0000E+00 .0000E+00 6.6182E-01 7.9418E-01 5.2151E-01 1.1449E-02 1.2885E-01 1.0000E+00
24 .0000E+00 .0000E+00 6.7500E-01 6.9800E-01 5.3898E-01 1.2854E-02 1.2554E-01 1.0000E+00
25 .0000E+00 .0000E+00 4.3460E-01 2.8395E-01 3.6530E-01 7.2020E-03 6.2094E-02 1.0000E+00
26 .0000E+00 .0000E+00 3.4294E-01 3.0145E-01 2.7843E-01 6.9644E-03 5.7542E-02 1.0000E+00
27 .0000E+00 .0000E+00 1.1389E-01 6.2916E-02 9.5847E-02 2.3940E-03 1.5697E-02 9.9999E-01
28 .0000E+00 .0000E+00 9.1651E+00 9.0813E+00 9.1651E+00 5.6665E-02 -5.6570E-02 9.9998E-01
0 grp. rt bdy flux rt leakage lft bdy flux lft leakage nbn rate fiss rate flux*db**2 total flux
1 1.6737E-01 9.5170E-09 1.6854E-01 8.2615E-03 4.3274E-10 .0000E+00 .0000E+00 1.91561E-01
2 1.2373E+00 -5.4348E-08 1.2488E+00 9.6411E-02 .0000E+00 .0000E+00 .0000E+00 1.41672E+00
3 1.5676E+00 3.6141E-08 1.5825E+00 1.3166E-01 .0000E+00 .0000E+00 .0000E+00 1.7544E+00
4 9.7183E-01 3.7553E-08 9.8498E-01 8.7244E-02 .0000E+00 .0000E+00 .0000E+00 1.1134E+00
5 1.4658E+00 5.8493E-08 1.4882E+00 1.3920E-01 .0000E+00 .0000E+00 .0000E+00 1.6780E+00
6 2.8191E+00 -1.8957E-08 2.8531E+00 2.6637E-01 .0000E+00 .0000E+00 .0000E+00 3.23071E+00
7 2.7813E+00 1.0143E-07 2.8066E+00 1.5350E-01 .0000E+00 .0000E+00 .0000E+00 3.18526E+00
8 2.0643E+00 4.7404E-08 2.0642E+00 1.4899E-02 .0000E+00 .0000E+00 .0000E+00 2.3619E+00
9 1.6042E+00 1.4423E-07 1.6021E+00 -1.5464E-02 .0000E+00 .0000E+00 .0000E+00 1.8360E+00
10 1.4679E+00 3.9719E-08 1.4631E+00 -2.6747E-02 .0000E+00 .0000E+00 .0000E+00 1.6797E+00
11 1.3533E+00 7.5644E-08 1.3432E+00 -5.7220E-02 .0000E+00 .0000E+00 .0000E+00 1.5480E+00
12 8.5245E-01 -4.7053E-08 8.4129E-01 -6.5132E-02 .0000E+00 .0000E+00 .0000E+00 9.7482E-01
13 7.1992E-01 -9.2750E-09 7.1088E-01 -5.5247E-02 .0000E+00 .0000E+00 .0000E+00 8.2347E-01
14 6.6329E-01 -2.5847E-08 6.4943E-01 -8.2120E-02 .0000E+00 .0000E+00 .0000E+00 7.5819E-01
15 3.7774E-01 1.1739E-08 3.7718E-01 -8.2958E-03 .0000E+00 .0000E+00 .0000E+00 4.32571E-01
16 2.0991E-01 1.0141E-06 2.0933E-01 -5.1691E-03 .0000E+00 .0000E+00 .0000E+00 2.40520E-01
17 9.1349E-02 -3.6869E-06 9.0451E-02 -5.5864E-03 .0000E+00 .0000E+00 .0000E+00 1.04515E-01
18 6.7603E-02 -3.4573E-06 6.4799E-02 -1.5629E-02 .0000E+00 .0000E+00 .0000E+00 7.71151E-02
19 1.3983E-01 -5.7289E-06 1.3829E-01 -9.5423E-03 .0000E+00 .0000E+00 .0000E+00 1.59953E-01
20 4.6208E-01 2.1978E-06 4.5819E-01 -2.4785E-02 .0000E+00 .0000E+00 .0000E+00 5.28690E-01
21 1.3661E-01 -8.1818E-06 1.3289E-01 -2.1337E-02 .0000E+00 .0000E+00 .0000E+00 1.5998E-01
22 2.6312E-01 2.6445E-06 2.5169E-01 -6.1188E-02 .0000E+00 .0000E+00 .0000E+00 3.0002E-01
23 8.4169E-01 -5.5803E-07 8.1492E-01 -1.2885E-01 .0000E+00 .0000E+00 .0000E+00 9.60176E-01
24 6.3854E-01 -2.0887E-06 6.0880E-01 -1.2554E-01 .0000E+00 .0000E+00 .0000E+00 7.2648E-01
25 2.7594E-01 -8.8332E-07 2.9921E-01 -6.2095E-02 .0000E+00 .0000E+00 .0000E+00 3.1303E-01
26 1.8882E-01 -2.0815E-06 1.7007E-01 -5.7544E-02 .0000E+00 .0000E+00 .0000E+00 2.1253E-01
27 3.4878E-02 1.4615E-07 2.8523E-02 -1.5697E-02 .0000E+00 .0000E+00 .0000E+00 3.85081E-02

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28 2.34641E+01 -1.91602E-05 2.34295E+01 5.63513E-02 4.32742E-10 .00000E+00 .00000E+00 2.68450E+01
ifine group summary for system
0 grp. fix source fiss source in scatter self scatter out scatter absorption leakage balance
1 .00000E+00 2.22774E-02 .00000E+00 2.21701E-02 2.10825E-02 3.60903E-03 9.51706E-09 9.98826E-01
2 .00000E+00 1.91850E-01 7.27575E-03 2.67948E-01 1.84336E-01 1.47028E-02 -5.43483E-03 1.00000E+00
3 .00000E+00 2.15499E-01 7.60814E-02 2.79605E-01 2.75875E-01 1.57086E-02 3.61414E-03 9.99986E-01
4 .00000E+00 1.24085E-01 1.14020E-01 1.93002E-01 2.30569E-01 7.53892E-03 3.75537E-03 1.00000E+00
5 .00000E+00 1.64899E-01 2.09442E-01 4.8521E-01 3.68741E-01 4.6045E-03 5.84933E-03 9.99989E-01
6 .00000E+00 1.78374E-01 4.27561E-01 1.34390E+00 5.98500E-01 7.37721E-03 -1.89576E-03 1.00001E+00
7 .00000E+00 8.83271E-02 6.68086E-01 1.77534E+00 7.43416E-01 8.00577E-03 1.01438E-07 9.99989E-01
8 .00000E+00 1.36203E-02 7.80003E-01 1.78998E+00 7.79313E-01 1.43741E-02 4.74046E-03 9.99920E-01
9 .00000E+00 9.88735E-04 7.69859E-01 1.95572E+00 7.46535E-01 2.43945E-02 1.44233E-07 9.99892E-01
10 .00000E+00 7.34411E-05 7.43306E-01 1.40970E+00 7.05395E-01 3.70648E-02 3.97199E-03 9.99899E-01
11 .00000E+00 5.77788E-06 7.11406E-01 1.30199E+00 6.51244E-01 6.02097E-02 7.56448E-03 9.99942E-01
12 .00000E+00 4.05887E-07 5.68147E-01 7.04020E-01 5.08660E-01 6.45023E-02 -4.70533E-03 9.99974E-01
13 .00000E+00 6.44511E-08 4.99803E-01 5.54024E-01 4.40209E-01 5.94098E-02 -9.27500E-09 9.99971E-01
14 .00000E+00 1.27725E-08 4.76985E-01 5.11443E-01 3.94578E-01 8.24122E-02 -2.58478E-03 9.99989E-01
15 .00000E+00 1.44343E-09 2.60030E-01 2.36030E-01 2.51949E-01 8.05198E-03 1.17399E-06 1.00011E+00
16 .00000E+00 4.23842E-10 1.77189E-01 1.08776E-01 1.71720E-01 5.44952E-03 1.01414E-06 1.00011E+00
17 .00000E+00 1.36498E-10 9.51138E-02 3.45256E-02 8.89116E-02 6.19840E-03 -3.68692E-06 1.00013E+00
18 .00000E+00 9.77284E-11 8.44250E-02 2.40580E-02 6.70588E-02 1.78898E-02 -3.45730E-06 1.00009E+00
19 .00000E+00 1.38167E-10 1.35115E-01 6.7547E-02 1.26508E-01 8.59726E-03 -5.72888E-06 1.00011E+00
20 .00000E+00 2.24674E-10 3.21742E-01 3.79767E-01 2.92846E-01 2.88529E-02 2.19781E-06 1.00010E+00
21 .00000E+00 3.28850E-11 1.57138E-01 7.65254E-02 1.34080E-01 2.30489E-02 -8.18188E-06 1.00011E+00
22 .00000E+00 3.81541E-11 2.92750E-01 1.97113E-01 2.26569E-01 6.61639E-02 2.64454E-06 1.00005E+00
23 .00000E+00 3.64796E-11 6.80028E-01 1.01413E+00 5.44077E-01 1.35858E-01 -5.58053E-07 1.00010E+00
24 .00000E+00 9.92926E-12 7.02342E-01 8.49118E-01 5.66291E-01 1.36003E-01 -2.05871E-06 1.00007E+00
25 .00000E+00 2.90664E-12 4.58258E-01 3.41057E-01 3.85249E-01 7.49903E-02 -8.85322E-07 1.00004E+00
26 .00000E+00 2.03815E-12 3.54288E-01 3.41289E-01 2.85222E-01 6.80043E-02 -2.05815E-06 1.00004E+00
27 .00000E+00 4.85702E-13 1.16352E-01 6.91474E-02 9.69772E-02 1.93729E-02 1.46157E-07 1.00001E+00
28 .00000E+00 1.00000E+00 9.88100E+00 1.59899E+01 9.88100E+00 1.00241E+00 -1.90419E-05 9.99997E-01
0 grp. rt body flux rt leakage lft body flux lft leakage rfn rate flss rate flux*db*#2 total flux
1 1.67374E-01 9.51706E-09 1.75054E-01 .00000E+00 2.33518E-03 2.60459E-03 .00000E+00 3.52741E-01
2 1.25737E+00 -5.43483E-03 1.32142E+00 .00000E+00 1.73374E-03 1.18240E-02 .00000E+00 2.63499E+00
3 1.56766E+00 3.61414E-03 1.67662E+00 .00000E+00 .00000E+00 1.45423E-02 .00000E+00 3.32905E+00
4 9.71899E-01 3.75537E-03 1.04022E+00 .00000E+00 .00000E+00 6.26508E-03 .00000E+00 2.08570E+00
5 1.46584E+00 5.84933E-03 1.57402E+00 .00000E+00 .00000E+00 1.89444E-03 .00000E+00 3.11997E+00
6 2.81914E+00 -1.89576E-03 3.02557E+00 .00000E+00 .00000E+00 1.62738E-03 .00000E+00 6.00132E+00
7 2.78133E+00 1.01438E-07 2.90454E+00 .00000E+00 .00000E+00 1.62640E-03 .00000E+00 5.86612E+00
8 2.06435E+00 4.74046E-03 2.07920E+00 .00000E+00 .00000E+00 1.67775E-03 .00000E+00 4.30877E+00
9 1.60428E+00 1.44233E-07 1.58631E+00 .00000E+00 .00000E+00 2.26889E-03 .00000E+00 3.32917E+00
10 1.46795E+00 3.97199E-03 1.44480E+00 .00000E+00 .00000E+00 4.89462E-03 .00000E+00 3.04124E+00
11 1.35330E+00 7.56448E-03 1.30372E+00 .00000E+00 .00000E+00 1.01361E-02 .00000E+00 2.78650E+00
12 8.52453E-01 -4.70533E-03 7.95094E-01 .00000E+00 .00000E+00 1.31558E-02 .00000E+00 1.73928E+00
13 7.19952E-01 -9.27500E-09 6.72015E-01 .00000E+00 .00000E+00 1.35217E-02 .00000E+00 1.48975E+00
14 6.63266E-01 -2.58478E-03 5.91297E-01 .00000E+00 .00000E+00 8.78186E-03 .00000E+00 1.33712E+00
15 3.77714E-01 1.17399E-06 3.71197E-01 .00000E+00 .00000E+00 2.20594E-03 .00000E+00 7.82927E-01
16 2.0915E-01 1.01414E-06 2.05792E-01 .00000E+00 .00000E+00 1.50475E-03 .00000E+00 4.34404E-01
17 9.13686E-02 -3.68692E-06 8.66302E-02 .00000E+00 .00000E+00 2.00824E-03 .00000E+00 1.87304E-01
18 6.76043E-02 -3.45730E-06 5.32102E-02 .00000E+00 .00000E+00 2.00512E-03 .00000E+00 1.31949E-01
19 1.39831E-01 -5.72888E-06 1.31732E-01 .00000E+00 .00000E+00 3.19801E-03 .00000E+00 2.86196E-01
20 4.62087E-01 2.19781E-06 4.41150E-01 .00000E+00 .00000E+00 1.65072E-02 .00000E+00 9.48516E-01
21 1.36618E-01 -8.18188E-06 1.17871E-01 .00000E+00 .00000E+00 1.39003E-02 .00000E+00 2.72790E-01
22 2.63122E-01 2.64454E-06 2.07574E-01 .00000E+00 .00000E+00 3.96511E-02 .00000E+00 5.13658E-01
23 8.41693E-01 -5.58053E-07 7.27752E-01 .00000E+00 .00000E+00 8.00869E-02 .00000E+00 1.67984E+00
24 6.38542E-01 -2.05871E-06 5.25378E-01 .00000E+00 .00000E+00 7.97521E-02 .00000E+00 1.25517E+00
25 2.75942E-01 -8.85322E-07 2.16400E-01 .00000E+00 .00000E+00 4.57852E-02 .00000E+00 5.34696E-01
26 1.88682E-01 -2.05815E-06 1.30331E-01 .00000E+00 .00000E+00 4.20884E-02 .00000E+00 3.52153E-01
27 3.48789E-02 1.46157E-07 1.68556E-02 .00000E+00 .00000E+00 1.18066E-02 .00000E+00 5.95219E-02
28 2.34641E+01 -1.91602E-05 2.34271E+01 .00000E+00 2.35251E-03 4.35177E-01 .00000E+00 4.88072E+01

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- 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	2.35140E-03	2.47475E-02	3.15079E-02	1.90954E-02	2.92078E-02	5.58110E-02	3.17882E-02	4.62073E-03
2	3.68453E-03	3.84858E-02	4.87392E-02	2.94756E-02	4.48780E-02	8.45382E-02	4.79912E-02	6.94858E-03
3	2.99950E-03	3.28340E-02	4.30313E-02	2.71787E-02	4.29468E-02	8.09800E-02	4.99882E-02	5.55032E-03
4	1.03346E-03	1.20820E-02	1.64948E-02	1.09253E-02	1.74268E-02	3.33499E-02	1.92844E-02	1.99253E-03
5	1.71392E-03	1.88345E-02	2.47151E-02	1.56028E-02	2.43366E-02	4.64582E-02	2.66432E-02	3.30782E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.73259E-03	5.81293E-03	1.24849E-02	1.44916E-02	1.29077E-02	1.81939E-02	1.83083E-03	1.14541E-03
2	7.10833E-03	8.72049E-03	1.87794E-02	2.18808E-02	1.85752E-02	2.76159E-02	2.71977E-03	1.71908E-03
3	5.71089E-03	8.18237E-03	1.75532E-02	2.02512E-02	1.71671E-02	2.55214E-02	2.54517E-03	1.59734E-03
4	1.90219E-03	3.32937E-03	7.13284E-03	8.12566E-03	6.98066E-03	1.02636E-02	1.11012E-03	6.69828E-04
5	3.31430E-03	4.73831E-03	1.01667E-02	1.17014E-02	9.95242E-03	1.47398E-02	1.52246E-03	9.39700E-04
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.24160E-03	3.40662E-03	2.11873E-03	5.53585E-03	4.65843E-03	1.33223E-02	2.81858E-02	2.69236E-02
2	1.87639E-03	5.30680E-03	3.16215E-03	8.31893E-03	7.11816E-03	2.05725E-02	4.28471E-02	4.12017E-02
3	1.73551E-03	4.87994E-03	2.94379E-03	7.69526E-03	6.60366E-03	1.90131E-02	3.98161E-02	3.82320E-02
4	7.00512E-04	1.92966E-03	1.20433E-03	3.13711E-03	2.65565E-03	7.62001E-03	1.63514E-02	1.56410E-02
5	1.00523E-03	2.77685E-03	1.71774E-03	4.48411E-03	3.79719E-03	1.08980E-02	2.31129E-02	2.21147E-02
Ozone	grp. 25	grp. 26	grp. 27	grp. 28				
1	1.36428E-02	1.24020E-02	3.25945E-03	3.84827E-01				
2	2.09914E-02	1.93696E-02	5.34630E-03	5.87971E-01				
3	1.99504E-02	1.78922E-02	4.91070E-03	5.41912E-01				
4	7.84082E-03	7.13736E-03	1.79954E-03	2.18080E-01				
5	1.11587E-02	1.01850E-02	2.66043E-03	3.12590E-01				

1 400 cl, sea2h: babcock wilcox 15x15, 3.00McK, 20gcl/mcu burn high temp
Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.73149E-01	1.90112E+00	1.65109E+00	1.02480E+00	1.55011E+00	2.98179E+00	2.87576E+00	2.07500E+00
2	1.69563E-01	1.28823E+00	1.61065E+00	1.00089E+00	1.51319E+00	2.91216E+00	2.83481E+00	2.06776E+00
3	1.68800E-01	1.25632E+00	1.59568E+00	9.91934E-01	1.49552E+00	2.88571E+00	2.81979E+00	2.06548E+00
4	1.67370E-01	1.23781E+00	1.56870E+00	9.72832E-01	1.46767E+00	2.82272E+00	2.78800E+00	2.06370E+00
5	1.69470E-01	1.26114E+00	1.59940E+00	9.92436E-01	1.49894E+00	2.88325E+00	2.81830E+00	2.06789E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59128E+00	1.43049E+00	1.51594E+00	8.09989E-01	6.89985E-01	6.09198E-01	3.73073E-01	2.06881E-01
2	1.99860E+00	1.45846E+00	1.33321E+00	8.29800E-01	7.01087E-01	6.34941E-01	3.75641E-01	2.08199E-01
3	1.60088E+00	1.46107E+00	1.33877E+00	8.36282E-01	7.06612E-01	6.43135E-01	3.76492E-01	2.08934E-01
4	1.60414E+00	1.46780E+00	1.35259E+00	8.51721E-01	7.19479E-01	6.62442E-01	3.77944E-01	2.09771E-01
5	1.59945E+00	1.46112E+00	1.33873E+00	8.35779E-01	7.06119E-01	6.42401E-01	3.76146E-01	2.08817E-01
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.77912E-02	5.67655E-02	1.53770E-01	4.46408E-01	1.22423E-01	2.21282E-01	7.55026E-01	5.51698E-01
2	8.94680E-02	6.20875E-02	1.36689E-01	4.53889E-01	1.29042E-01	2.41279E-01	7.94111E-01	5.89604E-01
3	9.00218E-02	6.36089E-02	1.37564E-01	4.56321E-01	1.31103E-01	2.47207E-01	8.05973E-01	6.00657E-01
4	9.13169E-02	6.73785E-02	1.39753E-01	4.61904E-01	1.36296E-01	2.62186E-01	8.38920E-01	6.34726E-01
5	8.99879E-02	6.33932E-02	1.37499E-01	4.56086E-01	1.31058E-01	2.46779E-01	8.07058E-01	6.03028E-01
Ozone	grp. 25	grp. 26	grp. 27					
1	2.30083E-01	1.43152E-01	2.06017E-02					
2	2.49847E-01	1.61866E-01	2.63436E-02					
3	2.55330E-01	1.66721E-01	2.76404E-02					
4	2.73501E-01	1.85517E-01	3.36451E-02					
5	2.56887E-01	1.69187E-01	2.85965E-02					

Of flux 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	1.02171E+00	1.08170E+00	1.08252E+00	1.03261E+00	1.03413E+00	1.03417E+00	1.02059E+00	1.00854E+00
2	1.00291E+00	1.00562E+00	1.00704E+00	1.00852E+00	1.00950E+00	1.01003E+00	1.00886E+00	1.00008E+00
3	9.96045E-01	9.96177E-01	9.97857E-01	9.99484E-01	1.00038E+00	1.00085E+00	1.00051E+00	9.98934E-01

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4 9.87609E-01 9.81500E-01 9.80807E-01 9.80847E-01 9.79134E-01 9.79005E-01 9.87477E-01 9.98073E-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 9.94874E-01 9.92725E-01 9.82973E-01 9.68425E-01 9.68653E-01 9.48313E-01 9.91825E-01 9.90727E-01
2 9.99464E-01 9.98179E-01 9.95877E-01 9.92846E-01 9.92873E-01 9.88886E-01 9.98656E-01 9.98094E-01
3 1.00089E+00 9.99960E-01 1.00003E+00 1.00060E+00 1.00070E+00 1.00114E+00 1.00092E+00 1.00055E+00
4 1.00293E+00 1.00433E+00 1.01085E+00 1.01907E+00 1.01892E+00 1.03120E+00 1.00478E+00 1.00552E+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 9.75994E-01 8.95651E-01 9.72881E-01 9.78781E-01 9.34160E-01 8.96684E-01 9.35529E-01 9.14875E-01
2 9.94227E-01 9.78616E-01 9.95718E-01 9.95182E-01 9.84616E-01 9.77703E-01 9.83957E-01 9.77739E-01
3 1.00088E+00 1.00840E+00 1.00047E+00 1.00051E+00 1.00083E+00 1.00173E+00 9.98656E-01 9.98094E-01
4 1.01477E+00 1.06284E+00 1.01640E+00 1.01280E+00 1.08997E+00 1.05243E+00 1.08948E+00 1.05256E+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 8.95655E-01 8.46115E-01 7.20428E-01
2 9.72593E-01 9.56730E-01 9.21219E-01
3 9.98999E-01 9.85427E-01 9.67266E-01
4 1.08467E+00 1.09852E+00 1.17859E+00
5 1.00000E+00 1.00000E+00 1.00000E+00

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Ocell averaged currents

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Ozone grp. 1 grp. 2 grp. 3 grp. 4 grp. 5 grp. 6 grp. 7 grp. 8
1 2.35140E-03 2.47475E-02 3.15079E-02 1.50954E-02 2.92078E-02 5.58110E-02 3.17882E-02 4.62073E-03
2 3.68453E-03 3.84858E-02 4.87393E-02 2.94756E-02 4.48780E-02 8.45382E-02 4.79912E-02 6.94858E-03
3 2.99990E-03 3.28340E-02 4.30513E-02 2.71787E-02 4.29465E-02 8.09800E-02 4.98882E-02 5.55032E-03
4 1.03346E-03 1.20820E-02 1.66948E-02 1.09253E-02 1.74268E-02 3.33499E-02 1.98594E-02 1.99253E-03
5 1.71392E-03 1.88345E-02 2.47151E-02 1.56028E-02 2.43366E-02 4.64582E-02 2.66432E-02 3.30782E-03
Ozone grp. 9 grp. 10 grp. 11 grp. 12 grp. 13 grp. 14 grp. 15 grp. 16
1 4.73299E-03 5.81298E-03 1.34844E-02 1.44916E-02 1.29077E-02 1.81939E-02 1.83033E-03 1.14541E-03
2 7.10833E-03 8.72049E-03 1.87794E-02 2.18808E-02 1.85732E-02 2.76159E-02 2.71977E-03 1.71908E-03
3 5.71089E-03 8.18237E-03 1.75632E-02 2.02512E-02 1.71671E-02 2.55214E-02 2.54517E-03 1.59734E-03
4 1.90219E-03 3.32957E-03 7.13284E-03 8.12556E-03 6.98056E-03 1.02636E-02 1.11012E-03 6.69828E-04
5 3.31430E-03 4.73831E-03 1.01667E-02 1.17014E-02 9.95242E-03 1.47398E-02 1.52246E-03 9.39700E-04
Ozone grp. 17 grp. 18 grp. 19 grp. 20 grp. 21 grp. 22 grp. 23 grp. 24
1 1.24160E-03 3.40662E-03 2.11873E-03 5.53885E-03 4.68049E-03 1.33228E-02 2.81858E-02 2.69236E-02
2 1.87699E-03 5.30680E-03 3.16215E-03 8.31889E-03 7.11816E-03 2.05725E-02 4.28497E-02 4.12017E-02
3 1.73551E-03 4.87994E-03 2.94379E-03 7.69526E-03 6.80266E-03 1.90131E-02 3.98161E-02 3.82530E-02
4 7.00612E-04 1.92966E-03 1.20433E-03 3.13711E-03 2.65565E-03 7.62001E-03 1.68514E-02 1.56410E-02
5 1.00523E-03 2.77688E-03 1.71774E-03 4.48411E-03 3.79719E-03 1.08898E-02 2.31129E-02 2.21147E-02
Ozone grp. 25 grp. 26 grp. 27
1 1.36428E-02 1.24020E-02 3.2945E-03
2 2.09714E-02 1.93696E-02 5.34630E-03
3 1.98904E-02 1.78922E-02 4.91070E-03
4 7.84082E-03 7.13736E-03 1.79954E-03
5 1.11587E-02 1.01850E-02 2.66043E-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 .05 min.

Requested param:hal(t8,skipcellwt,skipshipdata

pass=3, exec halts after pass 8

```

1 bbbbbb oooooooooo m m
bbb oooooooooo m m
bb bb oo oo m m m m
bb bb oo oo m m m m

```

```

oooooooo m m
oooooooo m m
bb bb m m m m
bb bb m m m m

```

```

iiiiiiii
iiiiiiii
ii
22 22
22

```

[illegible]

Journal of Interpersonal Violence 26(10)

[illegible]

Journal of Management Inquiry 16(4)

[illegible]

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.

Onixing table

Entry	mixture	isotope	number density	new identifier
1	3	8016	2.09710E-02	2001
2	3	1001	4.19420E-02	2002
3	3	9010	3.81519E-06	2003
4	3	5011	1.54884E-05	2004
5	2	40902	4.25156E-02	2005
6	1	92235	1.78765E-04	200006
7	1	92234	1.66922E-06	200007
8	1	92236	1.01900E-05	200008
9	1	92238	7.26421E-03	200009
10	1	8016	1.50611E-02	200010
11	1	8016	1.15315E-02	200011
12	1	36085	2.39826E-07	200012
13	1	36085	1.15802E-07	200013
14	1	38090	2.60028E-06	200014
15	1	39089	1.81056E-06	200015
16	1	42095	2.08470E-06	200016
17	1	40093	1.97826E-06	200017
18	1	40094	3.06390E-06	200018
19	1	40095	6.95210E-07	200019
20	1	41094	1.19135E-12	200020
21	1	43099	2.98592E-06	200021
22	1	45108	1.45725E-06	200022
23	1	45105	5.54075E-09	200023
24	1	44101	2.61262E-06	200024
25	1	44106	3.77085E-07	200025
26	1	46105	8.23960E-07	200026
27	1	46108	1.79948E-07	200027
28	1	47109	1.29418E-07	200028
29	1	51124	3.32722E-11	200029
30	1	54131	1.37688E-06	200030
31	1	54132	2.31720E-06	200031
32	1	54135	2.18432E-09	200032
33	1	54136	4.97240E-06	200033
34	1	55134	7.36175E-08	200034
35	1	55135	1.55832E-06	200035
36	1	55137	3.13142E-06	200036
37	1	56136	1.42899E-08	200037
38	1	57139	3.11998E-06	200038
39	1	59141	2.51929E-06	200039
40	1	59143	1.30169E-07	200040
41	1	58144	1.65612E-06	200041
42	1	60143	2.56534E-06	200042
43	1	60145	1.86380E-06	200043
44	1	61147	8.21699E-07	200044
45	1	61148	2.25854E-09	200045
46	1	60147	4.38963E-08	200046
47	1	62147	1.21021E-07	200047
48	1	62149	2.48712E-08	200048
49	1	62150	5.79478E-07	200049
50	1	62151	9.50057E-08	200050
51	1	62152	2.80778E-07	200051

52	1	64155	2.63991E-10	200052
53	1	63153	1.30658E-07	200053
54	1	63154	1.53097E-08	200054
55	1	63155	1.68089E-08	200055
56	1	40802	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	3.25773E-06	200060
61	1	95237	4.09226E-07	200061
62	1	94298	2.63252E-08	200062
63	1	94299	2.16321E-05	200063
64	1	94240	2.36745E-06	200064
65	1	94241	8.29987E-07	200065
66	1	94242	3.87820E-08	200066
67	1	95241	1.12958E-08	200067
68	1	95243	1.41059E-09	200068
69	1	96244	5.44610E-11	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	1.28032E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0
4	1	2.96100E+00	9.75000E+02	2.32835E-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**bondami 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 218g	from log 12 to log 18	bondarenko trigger 0
Ocopy	5010	b-10 1273 218g	from log 18 to log 1	bondarenko trigger 0
Ocopy	5010	b-10 1273 218g	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	rb-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	45108	rh-108	from log 12 to log 1	bondarenko trigger 0
Ocopy	45108	rh-108	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

```

Ocapy 47109 silver-109 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 51124 sb-124 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 54131 xe-131 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 54132 xe-132 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 54135 xenon-135 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 54136 xe-136 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 55133 cesium-133 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 55134 cs-134 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 55135 cs-135 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 55137 cs-137 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 56136 ba-136 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 57139 la-139 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 58144 ce-144 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 59141 pr-141 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 59143 pr-143 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 60143 nd-143 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 60145 nd-145 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 60147 nd-147 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 61147 pm-147 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 61148 pm-148 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 62147 sm-147 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 62149 sm-149 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 62150 sm-150 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 62151 sm-151 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 62152 sm-152 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 63153 eu-153 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 63154 eu-154 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 63155 eu-155 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 64155 gd-155 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 92234 u-234 1043 sigs from lag 12 to lag 1 bondarenko trigger 0
Ocapy 92235 uranium-235 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 92236 u-236 1163 sigs from lag 12 to lag 1 bondarenko trigger 0
Ocapy 92238 uranium-238 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 92237 neptunium-237 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 94238 pu-238 1050 sigs from lag 12 to lag 1 bondarenko trigger 0
Ocapy 94239 plutonium-239 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 94240 plutonium-240 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 94241 plutonium-241 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 94242 plutonium-242 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 95241 am-241 1056 sigs from lag 12 to lag 1 bondarenko trigger 0
Ocapy 95243 am-243 1057 218 from lag 12 to lag 1 bondarenko trigger 0
Ocapy 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 9/16/95
 l.m.petrie - omf

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

hydrogen endf/b-iv mat 1269/thrml002 updated 10/13/89

hydrogen endf/b-iv mat 1269/thrml002 updated 10/13/89

b-10 1273 218hnp 042375 p-3 293k

b-10 1273 218hnp 042375 p-3 293k

boron-11 endf/b-iv mat 1160 updated 10/13/89

boron-11 endf/b-iv mat 1160 updated 10/13/89

oxygen-16 endf/b-iv mat 1276 updated 10/13/89

oxygen-16 endf/b-iv mat 1276 updated 10/13/89

id	200070
id	202
id	200057
id	203
id	200058
id	204
id	200059
id	201
id	200010

oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 200011
kr-83	mt=102, 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-98	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-137	endf/b-iv mat 1141	updated 10/13/89	id 200040
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 sigs-5+4 newlacs p-3 298k f-1/e-m(1.+5)			id 200007
uranium-235	endf/b-iv mat 1261	updated 10/13/89	id 200006
u-236 1163 sigs-5+4 newlacs p-3 298k 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 sigs-5+4 newlacs p-3 298k 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 200064
plutonium-241	endf/b-iv mat 1266	updated 10/13/89	id 200065
plutonium-242	endf/b-iv mat 1161	updated 10/13/89	id 200066
am-241 1056 sigs-5+4 newlacs 218ggs p-3 298k			id 200067
am-243 1057 218 ggs wt f-1/e-m 090876 ps 298k			id 200068


```

SS          CC          BA          BA  ||          CC
SS          CC          BA          BA  ||          CC
SSSSSSSSSS CC          BA          BA  ||          CC
SSSSSSSSSS CC          BA          BA  ||          CC
SS          CC          BA          BA  ||          CC
SS          CC          BA          BA  ||          CC
SS          CC          CC          BA  ||          CC
SSSSSSSSSS CC          BA          BA  ||          CC
SSSSSSSSSS CC          BA          BA  ||          CC

```

```
*****  
**** program verification information ****  
*****  
*** code system      scale version   4.2 ***  
*****  
  
*****  
**** program         c0c002          ****  
*****  
*** creation date    06/27/95       ***  
*****  
** library           /neutronics/scale/exe  
*****  
  
this is not a scale configuration controlled code  
  
jobname: davis  
  
date of execution: 02/16/96  
  
time of execution: 09:59:31
```

```

1
0 -1q array has 1 entries.
0 0q array has 4 entries.
0 1q array has 12 entries.
Oselect 5 nuclides from the master library on logical 1
        6 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 ampk formatted cross section data
Other 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
 - xsdm 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 - omk

- work tape 4349

xsdm weighted tape--parent case entitled-- 400 d, sas2h: babcock wilcox 15x15,
 3.00wt%, 20gic/mfu burn high temp

0 nuclides from xsdm tape

1	hydrogen	endf/b-iv mat 1269/therm1002	updated 10/13/89	202
2	b-10 1273 218gp 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/therm1002	updated 10/13/89	1001
8	b-10 1273 218gp 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, 105, 106, 107	updated 10/13/89	36085
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		40058
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	40902
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-105	mt=102	updated 10/13/89	44105
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 1234	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 sigs=5+4 newlacs p-3 258k f-1/e-m(1.+5)			92234
59	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
60	u-236 1163 sigs=5+4 newlacs p-3 258k 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	92237
63	pu-238 1050 sigs=5+4 newlacs p-3 258k 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 sigs=5+4 newlacs 218ngp p-3 258k			95241
69	am-243 1057 218 gp ut f-1/e-m 090376 p3 258k			95243
70	curium-244	endf/b-iv mat 1162	updated 10/13/89	96244
0	hydrogen	endf/b-iv mat 1269/thrm002	updated 10/13/89	202
		thermal scattering matrix number	2 at a temperature of	temperature= 607.60
				550.00 was selected.
0b-10	1273 218ngp 042375 p-3 258k			203
		thermal scattering matrix number	2 at a temperature of	temperature= 607.60
				550.00 was selected.
0	boron-11	endf/b-iv mat 1160	updated 10/13/89	204
		thermal scattering matrix number	2 at a temperature of	temperature= 607.60
				550.00 was selected.
0	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	201
0	zircalloy	endf/b-iv mat 1284	updated 10/13/89	205
				temperature= 607.60
				temperature= 650.00
Resonance data for this nuclide				
0	res number (a)	= 90.436	temperature(kelvin)	= 650.000
0	potential scatter sigma	= 6.385	lumped nuclear density	= 4.2515602E-02
0	spin factor (g)	= 1.079	lump dimension (a-bar)	= 6.7309999E-01
0	Dirmer radius	= 6.3266000E-01	dercoff correction (c)	= 1.6809507E-01
Other absorber will be treated by the neheim integral method.				
Other 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	
8	-1.156752E-03	.000000E+00	-7.806083E-01	
9	-4.625978E-02	.000000E+00	-2.073270E+00	
10	-5.962230E-02	.000000E+00	-1.351594E+00	
11	-1.761672E-01	.000000E+00	-7.360731E-01	
Oexcess resonance integrals				
0	resolved			
Oabsorption	2.98402E-01			
fission	.000000E+00			
- elapsed time	.00 min.			
- elapsed time	.02 min.			
1	this xsdm working tape was created 02/16/96 at 09:59:31			

the title of the parent case is as follows
 xadm weighted tape-parent case entitled-- 400 d, sas2h: babcock wilcox 15x15,
 3.00wt%, 20gwt/mu 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 1289/thrmf002	updated 10/13/89	id 202
b-10 1273 218g	042375 p-3 253k		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 1289/thrmf002	updated 10/13/89	id 1001
b-10 1273 218g	042375 p-3 253k		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-85	mt=102, 103, 105, 106, 107	updated 10/13/89	id 36085
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-105	mt=102	updated 10/13/89	id 45105
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 1254	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

id	62152
id	63153
id	63154
id	63155
id	64155
id	92234
id	92235
id	92236
id	92238
id	95237
id	94238
id	94239
id	94240
id	94241
id	94242
id	95241
id	95243
id	95244

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INFORMATION ONLY

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1
400 d, second part of ses2h 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.
0 direct access unit 9 requires 12 blocks of length 704 for cross section mixing.
1 400 d, second part of ses2h pass to make library
General problem description data block
0 general problem data
ige 1/2/3 = plane/cylinder/sphere 2 isq quadrature order 8
ian 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 im inner iteration maximum 20
ibr right boundary condition 3 ion outer iteration maximum 25
mx number of mixtures 3 iclc -1/0/n-flat res/any/opt 0
ms mixing table length 70 ith 0/1 = forward/adjoint 0
ign number of energy groups 27 iflu not used(always wgted) 0
nrg number of neutron groups 27 iprt -2/-1/0/mixture xsec print -2
ngg number of gamma groups 0 idl 0/1/2/3-no/prt no/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
iqn volumetric sources (0/n/no/yes) 0 idfm 0/1 = none/density factors 39* 0
ipm boundary sources (0/n/no/yes) 0 isz 0/n = none/n activities by zone 0
ifn 0/1/2 = input 33*/34*/use last 14 isl 0/1=none/activities by interval 0
itm maximum time (minutes) 10 ifct 0/1=no/yes upscatter scaling 0
idk1 0/1/2/3=no/xsect/srce/flux--out 0 ipvt 0/1/2=no/k/alpha parametric and 0
isk broad group fluxes 0 isen outer iteration acceleration 0
ibln activity data unit 0 rind band rebaln parameter 0
jtkl 0/1/2 buckling geometry 0
0 weighting data (ifg=1)
icon -1/0/1=cell/zone/region weight -1 ihtf total xsect per in brd gp tables 3
ignf number of broad groups 3 rddf par g-g or file number 4
itp 0/10/20/30/40 0/c/e/ac/a 0 rusef table length or max order 6
ipp -2/-1/0/n=weighted xsect print -2 rson extra 1-d x-sect positions 0
iap -1/n anisot 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
evn eigenvalue modifier .00000E+00 eqt ev change eps for search 1.00000E-05
bf buckling factor=1.420892 1.42089E+00 xrpm raw param mod for search 7.50000E-01
this case will require 2611 locations for mixing
this case has been allocated 20000 locations
1 400 d, second part of ses2h 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.)

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INFORMATION ONLY

0	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-05	
4	201		3	204	1.54894E-05	
5	205		2	205	4.25154E-02	
6	999		1	92235	1.78785E-04	
7	1001		1	92234	1.66922E-05	
8	5010		1	92236	1.01900E-05	
9	5011		1	92238	7.26421E-03	
10	8016		1	8016	1.50611E-02	
11	6		1	6	1.15315E-02	
12	36083		1	36083	2.39826E-07	
13	36085		1	36085	1.15802E-07	
14	38090		1	38090	2.60028E-06	
15	39089		1	39089	1.81056E-06	
16	40095		1	42095	2.08470E-06	
17	40094		1	40095	1.97826E-06	
18	40095		1	40094	3.06390E-06	
19	40802		1	40095	6.95210E-07	
20	41094		1	41094	1.19135E-12	
21	42095		1	43099	2.96992E-06	
22	43099		1	45103	1.45725E-06	
23	44101		1	45105	5.54075E-09	
24	44106		1	44101	2.61262E-06	
25	45103		1	44106	3.77085E-07	
26	45105		1	46105	8.29960E-07	
27	46105		1	46108	1.79948E-07	
28	46108		1	47109	1.29418E-07	
29	47109		1	51124	3.32722E-11	
30	51124		1	54131	1.37688E-06	
31	54131		1	54132	2.31720E-06	
32	54132		1	54135	2.18432E-09	
33	54135		1	54136	4.97240E-06	
34	54136		1	55134	7.36175E-08	
35	55133		1	55135	1.55832E-06	
36	55134		1	55137	3.13142E-06	
37	55135		1	56136	1.42899E-08	
38	55137		1	57139	3.11938E-06	
39	56136		1	59141	2.51929E-06	
40	57139		1	59143	1.30169E-07	
41	58144		1	58144	1.65612E-06	
42	59141		1	60143	2.56634E-06	
43	59143		1	60145	1.86380E-06	
44	60143		1	61147	8.21699E-07	
45	60145		1	61148	2.25854E-09	
46	60147		1	60147	4.38963E-08	
47	61147		1	62147	1.21021E-07	
48	61148		1	62149	2.48712E-08	
49	62147		1	62150	5.79478E-07	
50	62149		1	62151	9.50067E-03	
51	62150		1	62152	2.80778E-07	
52	62151		1	64155	2.63991E-10	
53	62152		1	63153	1.30658E-07	
54	63153		1	63154	1.53097E-08	
55	63154		1	63155	1.69083E-08	
56	63155		1	40802	4.42681E-03	
57	64155		1	1001	2.30630E-02	
58	92234		1	5010	2.09769E-06	

11/11/1996

59	92235	1	5011	8.51673E-06
60	92236	1	55133	3.25773E-06
61	92238	1	95237	4.09226E-07
62	95237	1	94238	2.63252E-08
63	94238	1	94239	2.16321E-05
64	94239	1	94240	2.36745E-06
65	94240	1	94241	8.25987E-07
66	94241	1	94242	3.87820E-08
67	94242	1	95241	1.12558E-08
68	95241	1	95243	1.41059E-09
69	95243	1	95244	5.44610E-11
70	95244	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.

1 400 d, second part of ses2h pass to make library

neutron group parameters									
gp	energy	lethargy	weighted	broad gp	calc	group	right	left	
	boundaries	boundaries	velocities	numbers	type	band	albedo	albedo	
1	2.0000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.0000E+00		
2	6.4340E+06	4.40989E-01	2.85737E+09	1	0	2	1.0000E+00		
3	3.0000E+06	1.20597E+00	2.12201E+09	1	0	3	1.0000E+00		
4	1.8500E+06	1.68740E+00	1.75673E+09	1	0	4	1.0000E+00		
5	1.4000E+06	1.96611E+00	1.46535E+09	1	0	5	1.0000E+00		
6	9.0000E+05	2.40795E+00	1.06520E+09	2	0	6	1.0000E+00		
7	4.0000E+05	3.21888E+00	6.07557E+08	2	0	7	1.0000E+00		
8	1.0000E+05	4.60517E+00	2.72415E+08	2	0	8	1.0000E+00		
9	1.7000E+04	6.37713E+00	1.13526E+08	2	0	9	1.0000E+00		
10	3.0000E+03	8.11173E+00	4.82126E+07	2	0	10	1.0000E+00		
11	5.5000E+02	9.80818E+00	2.05946E+07	2	0	11	1.0000E+00		
12	1.0000E+02	1.15123E+01	1.01036E+07	2	0	12	1.0000E+00		
13	3.0000E+01	1.27169E+01	5.69595E+06	2	0	13	1.0000E+00		
14	1.0000E+01	1.38155E+01	3.20557E+06	2	0	14	1.0000E+00		
15	3.06999E+00	1.50030E+01	2.10601E+06	2	0	15	1.0000E+00		
16	1.7700E+00	1.55471E+01	1.70522E+06	2	0	16	1.0000E+00		
17	1.29999E+00	1.58557E+01	1.52543E+06	2	0	17	1.0000E+00		
18	1.12999E+00	1.59959E+01	1.42857E+06	2	0	18	1.0000E+00		
19	1.0000E+00	1.61181E+01	1.31002E+06	2	0	19	1.0000E+00		
20	8.0000E-01	1.63412E+01	9.05888E+05	2	0	20	1.0000E+00		
21	4.0000E-01	1.70844E+01	8.17974E+05	3	0	21	1.0000E+00		
22	3.2500E-01	1.72420E+01	6.90070E+05	3	0	22	1.0000E+00		
23	2.2500E-01	1.76088E+01	4.86633E+05	3	0	23	1.0000E+00		
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.0000E+00		
25	5.0000E-02	1.91138E+01	2.71895E+05	3	0	25	1.0000E+00		
26	3.0000E-02	1.96247E+01	1.87283E+05	3	0	26	1.0000E+00		
27	1.0000E-02	2.07233E+01	8.85201E+04	3	0	27	1.0000E+00		
28	1.0000E-05	2.76310E+01							

1 400 d, second part of ses2h pass to make library

quadrature constants									
mixture		order p(l)	activity table		weights		directions	refl direc	wt x cos
by zone	by zone		matl no.	reaction					
1	3	3			0	-2.79004E-01	3		0
2	2	3			5.06143E-02	-1.97285E-01	3		-9.98548E-05
3	3	3			5.06143E-02	1.97285E-01	2		9.98548E-05
4	1	3			0	-6.04419E-01	8		0
5					5.59953E-02	-5.58410E-01	8		-3.10450E-02

6		5.55953E-02	-2.31301E-01	7	-1.28599E-02
7		5.55953E-02	2.31301E-01	6	1.28599E-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	-4.29666E-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	4.29666E-02
16		0	-9.83032E-01	24	0
17		4.53355E-02	-9.64143E-01	24	-4.37099E-02
18		4.53355E-02	-8.17361E-01	23	-3.70556E-02
19		4.53355E-02	-5.46143E-01	22	-2.47597E-02
20		4.53355E-02	-1.91780E-01	21	-8.69444E-03
21		4.53355E-02	1.91780E-01	20	8.69444E-03
22		4.53355E-02	5.46143E-01	19	2.47597E-02
23		4.53355E-02	8.17361E-01	18	3.70556E-02
24		4.53355E-02	9.64143E-01	17	4.37099E-02

Constants for p(3) scattering

Origl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52014E-01	3.16379E-01	-8.04436E-01	-1.74564E-01
5	-5.58410E-01	4.52014E-01	2.25714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52014E-01	-2.25713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52014E-01	-2.25713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52014E-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	3.44243E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44243E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40830E-01	-3.44243E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44243E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51003E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91033E-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	9.78824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.78824E-02	-4.17236E-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	-4.91033E-01	6.24438E-01

1	int	radcl	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	5.92511E-02		1	2.48866E-01	1.47264E-02		0	
3	7.90575E-02	1.18588E-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	1.98528E+00	1.76717E-01			
7	3.95288E-01	4.34814E-01		1	2.48866E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01		1	2.98040E+00	2.56258E-01			
9	5.53403E-01	5.73167E-01		1	3.47713E+00	1.42355E-01			
10	5.92511E-01	6.12896E-01		1	3.72590E+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	8.46409E-02			
13	6.73100E-01	6.96588E-01		3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43600E-01		3	4.53631E+00	2.19422E-01			

INFORMATION ONLY

15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33283E-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	5.88971E-01
18	1.00918E+00	1.10577E+00	4	6.34089E+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	8.78800E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78971E+00	1.88750E+00	4	1.12433E+01	2.31478E+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	2.47306E+00	4	1.49254E+01	3.03286E+00
26	2.57064E+00	2.66829E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.86461E+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			1.86048E+01	

- elapsed time .00 min.

outer iter	inner iter	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	209	-6.79447E-06	1.10245E+00	-1.13242E-01	1.00000E+00	-3.37148E-02	.00000E+00	.0000
2	310	9.83679E-06	1.11343E+00	-1.52187E-05	-1.43890E-02	-4.02258E-03	.00000E+00	.0167
3	391	-1.79683E-07	1.11486E+00	-1.88561E-04	-1.61512E-03	-8.38010E-04	.00000E+00	.0167
4	450	3.41931E-07	1.11512E+00	-3.48739E-05	-3.42568E-04	-1.73054E-04	.00000E+00	.0167
5	490	-3.09952E-07	1.11519E+00	-7.12939E-06	-7.15446E-05	-3.53365E-05	.00000E+00	.0167

grp	inner	md	max. flux	msf	max. scale	coarse
1	1	1	17	1.87323E-06	28	1.00000E+00
2	2	1	17	2.27993E-06	28	1.00000E+00
3	3	1	17	2.11385E-06	28	1.00000E+00
4	4	1	17	2.06738E-06	28	1.00000E+00
5	5	1	17	2.17288E-06	28	1.00000E+00
6	6	1	17	1.48735E-06	28	1.00000E+00
7	7	1	24	8.67078E-07	28	1.00000E+00
8	8	1	3	1.58245E-07	20	1.00000E+00
9	9	1	27	9.38889E-06	28	1.00001E+00
10	10	1	26	2.98939E-06	28	1.00000E+00
11	11	1	26	2.40436E-06	28	1.00000E+00
12	12	1	26	6.88131E-07	28	1.00000E+00
13	13	1	26	3.40379E-06	28	9.99997E-01
14	14	1	25	1.08215E-06	28	9.99999E-01
15	15	1	2	3.61842E-05	28	9.99999E-01
16	16	1	2	4.45262E-05	28	9.99993E-01
17	17	1	27	9.69789E-05	28	1.00002E+00
18	18	1	2	5.90621E-05	28	9.99985E-01
19	19	1	2	5.16668E-05	28	9.99895E-01
20	20	1	2	4.13515E-05	28	9.99919E-01
21	21	1	2	6.33971E-05	28	9.99945E-01
22	22	1	25	2.90040E-06	28	9.99989E-01
23	23	1	27	2.77437E-05	28	1.00001E+00
24	24	1	1	3.29003E-05	9	1.00002E+00
25	25	1	1	3.33667E-05	8	1.00002E+00
26	26	1	1	2.69977E-05	6	1.00002E+00
27	27	1	1	2.52290E-05	5	1.00007E+00

6 517 -1.47045E-06 1.11521E+00 -1.32887E-05 -1.47463E-05 -7.73289E-06 .00000E+00 .0167

final monitor

lambda 1.11520E+00

production/absorption 1.12981E+00

angular flux on 16

- elapsed time .02 min.

1 400 d, second part of search pass to make library

int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97844E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92951E-02	2.48966E-01	1.47284E-02	.00000E+00

3	1	7.9057E-02	1.1858E-01	4.9673E-01	5.8905E-02	.0000E+00		
4	1	1.5811E-01	1.9764E-01	9.9346E-01	9.8176E-02	.0000E+00		
5	1	2.3717E-01	2.7670E-01	1.4902E+00	1.3747E-01	.0000E+00		
6	1	3.1620E-01	3.5575E-01	1.9895E+00	1.7671E-01	.0000E+00		
7	1	3.9288E-01	4.3481E-01	2.4866E+00	2.1598E-01	.0000E+00		
8	1	4.7345E-01	5.1387E-01	2.9804E+00	2.5525E-01	.0000E+00		
9	1	5.5340E-01	5.7316E-01	3.4771E+00	1.4265E-01	.0000E+00		
10	1	5.9293E-01	6.1289E-01	3.7259E+00	1.5217E-01	.0000E+00		
11	2	6.3240E-01	6.4262E-01	3.9798E+00	8.2046E-02	.0000E+00		
12	2	6.5278E-01	6.6294E-01	4.1015E+00	8.4640E-02	.0000E+00		
13	3	6.7510E-01	6.9683E-01	4.2292E+00	2.0856E-01	.0000E+00		
14	3	7.2006E-01	7.4355E-01	4.5831E+00	2.1942E-01	.0000E+00		
15	3	7.6703E-01	7.9051E-01	4.8194E+00	2.3282E-01	.0000E+00		
16	4	8.1400E-01	8.6275E-01	5.1145E+00	2.5375E-01	2.5375E-02		
17	4	9.1591E-01	9.6038E-01	5.7278E+00	5.8897E-01	2.7638E-02		
18	4	1.0091E+00	1.1067E+00	6.3408E+00	1.3573E+00	6.2437E-02		
19	4	1.2043E+00	1.3019E+00	7.5672E+00	1.5967E+00	7.1962E-02		
20	4	1.3995E+00	1.4971E+00	8.7826E+00	1.8540E+00	8.1587E-02		
21	4	1.5947E+00	1.6923E+00	1.0000E+01	2.0754E+00	9.1266E-02		
22	4	1.7891E+00	1.8870E+00	1.1243E+01	2.3147E+00	1.0100E-01		
23	4	1.9830E+00	2.0826E+00	1.2472E+01	2.5541E+00	1.1080E-01		
24	4	2.1802E+00	2.2778E+00	1.3691E+01	2.7934E+00	1.2057E-01		
25	4	2.3754E+00	2.4730E+00	1.4925E+01	3.0528E+00	1.3065E-01		
26	4	2.5704E+00	2.6682E+00	1.6161E+01	3.2722E+00	1.4075E-01		
27	4	2.7658E+00	2.8146E+00	1.7378E+01	1.7258E+00	7.4216E-02		
28	4	2.8534E+00	2.9122E+00	1.7991E+01	1.7857E+00	7.6825E-02		
29		2.9610E+00		1.8605E+01				
400 d, second part of each pass to make library								
1	0 total flux							
0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.2507E-02	8.9531E-02	1.1185E-01	6.8773E-02	1.0254E-01	1.9255E-01	1.9299E-01	1.4691E-01
2	1.2508E-02	8.9512E-02	1.1178E-01	6.8735E-02	1.0249E-01	1.9256E-01	1.9295E-01	1.4691E-01
3	1.2501E-02	8.9525E-02	1.1181E-01	6.8753E-02	1.0253E-01	1.9253E-01	1.9291E-01	1.4692E-01
4	1.2507E-02	8.9604E-02	1.1192E-01	6.8831E-02	1.0260E-01	1.9287E-01	1.9316E-01	1.4695E-01
5	1.2519E-02	8.9744E-02	1.1211E-01	6.8964E-02	1.0287E-01	1.9327E-01	1.9341E-01	1.4695E-01
6	1.2535E-02	8.9874E-02	1.1235E-01	6.9174E-02	1.0317E-01	1.9362E-01	1.9375E-01	1.4695E-01
7	1.2556E-02	9.0183E-02	1.1273E-01	6.9385E-02	1.0356E-01	1.9454E-01	1.9417E-01	1.4712E-01
8	1.2582E-02	9.0497E-02	1.1316E-01	6.9608E-02	1.0409E-01	1.9548E-01	1.9477E-01	1.4720E-01
9	1.2601E-02	9.0762E-02	1.1356E-01	6.9974E-02	1.0455E-01	1.9635E-01	1.9531E-01	

2 1.15851E-01 1.07025E-01 1.00746E-01 6.53311E-02 5.58679E-02 5.34771E-02 2.91719E-02 1.62060E-02
 3 1.15849E-01 1.07015E-01 1.00725E-01 6.53072E-02 5.58457E-02 5.34451E-02 2.91656E-02 1.62027E-02
 4 1.15845E-01 1.06994E-01 1.00675E-01 6.52698E-02 5.57984E-02 5.33681E-02 2.91503E-02 1.61949E-02
 5 1.15838E-01 1.06960E-01 1.00599E-01 6.51622E-02 5.57115E-02 5.32510E-02 2.91274E-02 1.61831E-02
 6 1.15830E-01 1.06915E-01 1.00498E-01 6.50332E-02 5.56021E-02 5.30922E-02 2.90972E-02 1.61674E-02
 7 1.15815E-01 1.06854E-01 1.00359E-01 6.48573E-02 5.54593E-02 5.28894E-02 2.90591E-02 1.61475E-02
 8 1.15801E-01 1.06774E-01 1.00179E-01 6.46818E-02 5.52724E-02 5.26115E-02 2.90112E-02 1.61220E-02
 9 1.15790E-01 1.06698E-01 1.00009E-01 6.44900E-02 5.50986E-02 5.23572E-02 2.89683E-02 1.60988E-02
 10 1.15790E-01 1.06627E-01 9.98521E-02 6.43155E-02 5.49420E-02 5.21263E-02 2.89305E-02 1.60782E-02
 11 1.15795E-01 1.06571E-01 9.97279E-02 6.41785E-02 5.48174E-02 5.19440E-02 2.88976E-02 1.60607E-02
 12 1.15790E-01 1.06500E-01 9.96815E-02 6.41246E-02 5.47661E-02 5.18708E-02 2.88794E-02 1.60521E-02
 13 1.15745E-01 1.06529E-01 9.96181E-02 6.40429E-02 5.46608E-02 5.17622E-02 2.88642E-02 1.60436E-02
 14 1.15674E-01 1.06459E-01 9.94734E-02 6.38652E-02 5.45380E-02 5.15298E-02 2.88395E-02 1.60279E-02
 15 1.15597E-01 1.06352E-01 9.92570E-02 6.36855E-02 5.42961E-02 5.11648E-02 2.88021E-02 1.60034E-02
 16 1.15490E-01 1.06176E-01 9.88450E-02 6.31250E-02 5.38967E-02 5.05607E-02 2.87335E-02 1.59609E-02
 17 1.15395E-01 1.06001E-01 9.84532E-02 6.26478E-02 5.34921E-02 4.99534E-02 2.86511E-02 1.59139E-02
 18 1.15324E-01 1.05854E-01 9.81182E-02 6.22715E-02 5.31377E-02 4.94330E-02 2.85619E-02 1.58667E-02
 19 1.15272E-01 1.05718E-01 9.78056E-02 6.19052E-02 5.28019E-02 4.89466E-02 2.84672E-02 1.58180E-02
 20 1.15244E-01 1.05632E-01 9.76034E-02 6.16688E-02 5.25803E-02 4.86311E-02 2.83957E-02 1.57829E-02
 21 1.15233E-01 1.05573E-01 9.74629E-02 6.15042E-02 5.24238E-02 4.84108E-02 2.83411E-02 1.57555E-02
 22 1.15227E-01 1.05532E-01 9.73628E-02 6.13871E-02 5.23111E-02 4.82535E-02 2.82996E-02 1.57351E-02
 23 1.15223E-01 1.05503E-01 9.72917E-02 6.13088E-02 5.22303E-02 4.81415E-02 2.82655E-02 1.57202E-02
 24 1.15221E-01 1.05483E-01 9.72433E-02 6.12472E-02 5.21755E-02 4.80653E-02 2.82479E-02 1.57100E-02
 25 1.15218E-01 1.05471E-01 9.72144E-02 6.12134E-02 5.21430E-02 4.80202E-02 2.82341E-02 1.57043E-02
 26 1.15214E-01 1.05467E-01 9.72050E-02 6.12035E-02 5.21336E-02 4.80065E-02 2.82344E-02 1.57034E-02
 27 1.15213E-01 1.05469E-01 9.72103E-02 6.12094E-02 5.21414E-02 4.80166E-02 2.82358E-02 1.57060E-02
 28 1.15212E-01 1.05475E-01 9.72254E-02 6.12279E-02 5.21608E-02 4.80427E-02 2.82492E-02 1.57106E-02
 0 int. grp. 17 grp. 18 grp. 19 grp. 20 grp. 21 grp. 22 grp. 23 grp. 24
 1 7.18656E-03 5.77404E-03 1.11361E-02 3.67568E-02 1.17085E-02 2.45114E-02 8.25524E-02 6.72908E-02
 2 7.18914E-03 5.77505E-03 1.11370E-02 3.67591E-02 1.17085E-02 2.45130E-02 8.25472E-02 6.72749E-02
 3 7.18674E-03 5.76971E-03 1.11326E-02 3.67463E-02 1.16988E-02 2.44814E-02 8.22286E-02 6.71417E-02
 4 7.18094E-03 5.75685E-03 1.11221E-02 3.67161E-02 1.16714E-02 2.44096E-02 8.19579E-02 6.68551E-02
 5 7.17246E-03 5.73712E-03 1.11051E-02 3.66707E-02 1.16377E-02 2.43017E-02 8.15812E-02 6.64307E-02
 6 7.16031E-03 5.71012E-03 1.10846E-02 3.66099E-02 1.15919E-02 2.41561E-02 8.10660E-02 6.58652E-02
 7 7.14487E-03 5.67441E-03 1.10557E-02 3.65314E-02 1.15322E-02 2.39668E-02 8.04095E-02 6.51457E-02
 8 7.12469E-03 5.62686E-03 1.10205E-02 3.64259E-02 1.14537E-02 2.37201E-02 7.95802E-02 6.42412E-02
 9 7.10594E-03 5.58210E-03 1.09870E-02 3.63364E-02 1.13805E-02 2.34919E-02 7.88345E-02 6.34325E-02
 10 7.08890E-03 5.54090E-03 1.09557E-02 3.62528E-02 1.13135E-02 2.32861E-02 7.81864E-02 6.27365E-02
 11 7.07524E-03 5.50932E-03 1.09242E-02 3.61859E-02 1.12521E-02 2.31311E-02 7.77151E-02 6.22517E-02
 12 7.06553E-03 5.48785E-03 1.08922E-02 3.61580E-02 1.12443E-02 2.30792E-02 7.75701E-02 6.21288E-02
 13 7.06188E-03 5.47757E-03 1.09090E-02 3.61211E-02 1.12153E-02 2.29849E-02 7.72897E-02 6.18219E-02
 14 7.04569E-03 5.43221E-03 1.08814E-02 3.60439E-02 1.11489E-02 2.27717E-02 7.66667E-02 6.11202E-02
 15 7.02004E-03 5.36094E-03 1.08383E-02 3.59251E-02 1.10631E-02 2.24408E-02 7.57563E-02 6.01143E-02
 16 6.97771E-03 5.26065E-03 1.07657E-02 3.57294E-02 1.08713E-02 2.19032E-02 7.43599E-02 5.86188E-02
 17 6.93481E-03 5.12525E-03 1.06925E-02 3.55267E-02 1.07018E-02 2.13714E-02 7.29415E-02 5.71256E-02
 18 6.89685E-03 5.03039E-03 1.06245E-02 3.53387E-02 1.05580E-02 2.09211E-02 7.15866E-02 5.57125E-02
 19 6.86046E-03 4.94801E-03 1.05580E-02 3.51531E-02 1.04257E-02 2.05008E-02 7.02214E-02 5.42902E-02
 20 6.83605E-03 4.86816E-03 1.05128E-02 3.50042E-02 1.03364E-02 2.02273E-02 6.92483E-02 5.32798E-02
 21 6.81853E-03 4.86498E-03 1.04798E-02 3.48297E-02 1.02749E-02 2.00342E-02 6.85188E-02 5.25261E-02
 22 6.80577E-03 4.84202E-03 1.04558E-02 3.48594E-02 1.02306E-02 1.98945E-02 6.79658E-02 5.19580E-02
 23 6.79658E-03 4.82608E-03 1.04385E-02 3.48083E-02 1.01987E-02 1.97930E-02 6.75511E-02 5.15330E-02
 24 6.79052E-03 4.81536E-03 1.04266E-02 3.47728E-02 1.01764E-02 1.97221E-02 6.72513E-02 5.12511E-02
 25 6.78670E-03 4.80890E-03 1.04197E-02 3.47518E-02 1.01627E-02 1.96769E-02 6.70536E-02 5.10188E-02
 26 6.78581E-03 4.80639E-03 1.04178E-02 3.47450E-02 1.01574E-02 1.96571E-02 6.69571E-02 5.09080E-02
 27 6.78591E-03 4.80730E-03 1.04192E-02 3.47508E-02 1.01588E-02 1.96581E-02 6.69478E-02 5.08833E-02
 28 6.78647E-03 4.81043E-03 1.04236E-02 3.47628E-02 1.01648E-02 1.96738E-02 6.69992E-02 5.09183E-02
 0 int. grp. 25 grp. 26 grp. 27
 1 3.05898E-02 2.19058E-02 4.15995E-03
 2 3.05783E-02 2.18929E-02 4.15685E-03
 3 3.05061E-02 2.18294E-02 4.14383E-03

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4 3.01527E-02 2.16951E-02 4.11622E-03
 5 2.99252E-02 2.14949E-02 4.07443E-03
 6 2.96217E-02 2.12533E-02 4.01718E-03
 7 2.92655E-02 2.08794E-02 3.94217E-03
 8 2.87521E-02 2.04428E-02 3.84524E-03
 9 2.83220E-02 2.00533E-02 3.75744E-03
 10 2.79580E-02 1.97200E-02 3.68178E-03
 11 2.77139E-02 1.95052E-02 3.63997E-03
 12 2.76618E-02 1.94729E-02 3.63293E-03
 13 2.74883E-02 1.93123E-02 3.58808E-03
 14 2.70915E-02 1.89801E-02 3.48563E-03
 15 2.65368E-02 1.83881E-02 3.32999E-03
 16 2.57315E-02 1.76111E-02 3.10172E-03
 17 2.49430E-02 1.68792E-02 2.90579E-03
 18 2.41992E-02 1.62261E-02 2.75952E-03
 19 2.34580E-02 1.55963E-02 2.62914E-03
 20 2.25981E-02 1.51746E-02 2.55060E-03
 21 2.25547E-02 1.48750E-02 2.49817E-03
 22 2.22897E-02 1.46597E-02 2.46212E-03
 23 2.20574E-02 1.45035E-02 2.43669E-03
 24 2.19050E-02 1.43925E-02 2.41907E-03
 25 2.18021E-02 1.43186E-02 2.40711E-03
 26 2.17446E-02 1.42760E-02 2.40071E-03
 27 2.17277E-02 1.42609E-02 2.39818E-03
 28 2.17389E-02 1.42640E-02 2.39807E-03

- elapsed time .02 min.

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

0 grp.	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	4.87090E-04	6.44704E-04	5.36821E-05	-6.98354E-04	9.99954E-01
2	.0000E+00	.0000E+00	3.69919E-04	6.08007E-03	7.99113E-03	1.73744E-04	-7.79466E-03	9.99963E-01
3	.0000E+00	.0000E+00	3.79336E-03	5.43308E-03	1.41358E-02	9.22434E-05	-1.04344E-02	9.99978E-01
4	.0000E+00	.0000E+00	5.54790E-03	3.58874E-03	1.23006E-02	4.18804E-05	-6.89411E-03	9.99988E-01
5	.0000E+00	.0000E+00	1.02112E-02	1.19085E-02	2.08699E-02	4.99949E-05	-1.06881E-02	9.99992E-01
6	.0000E+00	.0000E+00	2.14361E-02	3.44799E-02	4.09796E-02	8.42484E-05	-1.96277E-02	9.99999E-01
7	.0000E+00	.0000E+00	4.21852E-02	6.09506E-02	5.41196E-02	6.12018E-05	-1.19949E-02	9.99988E-01
8	.0000E+00	.0000E+00	5.63323E-02	7.83160E-02	5.87228E-02	3.63888E-05	-2.42176E-03	9.99912E-01
9	.0000E+00	.0000E+00	5.77629E-02	7.25727E-02	5.74709E-02	2.92600E-05	-2.68312E-04	9.99886E-01
10	.0000E+00	.0000E+00	5.70519E-02	6.91057E-02	5.95375E-02	3.40291E-05	-1.48634E-03	9.99895E-01
11	.0000E+00	.0000E+00	5.98297E-02	6.59088E-02	5.22981E-02	5.50834E-05	-3.47392E-03	9.99939E-01
12	.0000E+00	.0000E+00	4.53617E-02	3.50518E-02	4.12627E-02	6.03735E-05	-4.04653E-03	9.99979E-01
13	.0000E+00	.0000E+00	4.05122E-02	2.85695E-02	3.66385E-02	8.46320E-05	-3.79086E-03	9.99969E-01
14	.0000E+00	.0000E+00	3.94478E-02	2.83211E-02	3.38317E-02	1.36678E-04	-5.47987E-03	9.99988E-01
15	.0000E+00	.0000E+00	2.17288E-02	1.09097E-02	2.04384E-02	1.13197E-04	-1.17730E-03	9.99999E-01
16	.0000E+00	.0000E+00	1.42777E-02	4.61551E-03	1.35977E-02	7.69716E-05	-6.02584E-04	1.00000E+00
17	.0000E+00	.0000E+00	7.35010E-03	1.32371E-03	6.88720E-03	3.78928E-05	-4.25050E-04	9.99994E-01
18	.0000E+00	.0000E+00	6.53283E-03	1.02337E-03	5.99193E-03	3.20218E-05	-9.08651E-04	1.00000E+00
19	.0000E+00	.0000E+00	1.09093E-02	3.03867E-03	1.00611E-02	6.80572E-05	-7.56118E-04	1.00001E+00
20	.0000E+00	.0000E+00	2.68510E-02	2.16304E-02	2.44656E-02	2.82106E-04	-2.11266E-03	1.00001E+00
21	.0000E+00	.0000E+00	1.30419E-02	4.41290E-03	1.14784E-02	1.10553E-04	-1.45278E-03	1.00000E+00
22	.0000E+00	.0000E+00	2.60528E-02	1.37994E-02	2.14639E-02	2.64914E-04	-4.32368E-03	1.00001E+00
23	.0000E+00	.0000E+00	6.85292E-02	8.34136E-02	5.47754E-02	1.21087E-03	-1.29403E-02	1.00004E+00
24	.0000E+00	.0000E+00	7.33842E-02	7.84664E-02	6.06612E-02	1.42736E-03	-1.13952E-02	1.00003E+00
25	.0000E+00	.0000E+00	4.88794E-02	3.32289E-02	4.27468E-02	8.44487E-04	-5.28140E-03	1.00002E+00
26	.0000E+00	.0000E+00	3.90251E-02	3.71037E-02	3.42702E-02	8.58082E-04	-3.88628E-03	1.00001E+00
27	.0000E+00	.0000E+00	1.32287E-02	8.05151E-03	1.22856E-02	3.05472E-04	-6.56608E-04	1.00000E+00
28	.0000E+00	.0000E+00	8.05411E-01	8.00971E-01	8.05411E-01	6.62813E-03	-6.60952E-03	9.99977E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtb rate	fiss rate	flux*db**2	total flux
1	1.26224E-02	-6.98354E-04	1.25008E-02	.0000E+00	3.56540E-11	.0000E+00	1.95222E-05	1.57825E-02
2	9.10870E-02	-7.79466E-03	8.96060E-02	.0000E+00	.0000E+00	.0000E+00	8.81274E-05	1.13397E-01
3	1.14068E-01	-1.04344E-02	1.11909E-01	.0000E+00	.0000E+00	.0000E+00	9.18164E-05	1.41773E-01

4	7.0562E-02	-6.8244E-03	6.8807E-02	.0000E+00	.0000E+00	.0000E+00	4.1627E-05	8.7279E-02
5	1.0519E-01	-1.0688E-02	1.0259E-01	.0000E+00	.0000E+00	.0000E+00	4.9802E-05	1.3029E-01
6	1.9758E-01	-1.9627E-02	1.9273E-01	.0000E+00	.0000E+00	.0000E+00	8.3379E-05	2.4474E-01
7	1.9607E-01	-1.1994E-02	1.9808E-01	.0000E+00	.0000E+00	.0000E+00	5.9258E-05	2.4420E-01
8	1.4734E-01	-2.4217E-03	1.4692E-01	.0000E+00	.0000E+00	.0000E+00	3.2710E-05	1.8489E-01
9	1.1579E-01	2.6812E-04	1.1585E-01	.0000E+00	.0000E+00	.0000E+00	2.1662E-05	1.4554E-01
10	1.0585E-01	1.4834E-03	1.0702E-01	.0000E+00	.0000E+00	.0000E+00	1.9143E-05	1.3425E-01
11	9.9761E-02	3.4739E-03	1.0073E-01	.0000E+00	.0000E+00	.0000E+00	1.7884E-05	1.2606E-01
12	6.4215E-02	4.0462E-03	6.5317E-02	.0000E+00	.0000E+00	.0000E+00	1.0498E-05	8.1479E-02
13	5.4852E-02	3.7902E-03	5.5854E-02	.0000E+00	.0000E+00	.0000E+00	8.7449E-06	6.9638E-02
14	5.1994E-02	5.4798E-03	5.3458E-02	.0000E+00	.0000E+00	.0000E+00	8.5047E-06	6.6376E-02
15	2.8910E-02	1.1773E-03	2.9167E-02	.0000E+00	.0000E+00	.0000E+00	4.4946E-06	3.6806E-02
16	1.6066E-02	6.0298E-04	1.6208E-02	.0000E+00	.0000E+00	.0000E+00	2.2589E-06	2.0285E-02
17	7.0791E-03	4.2505E-04	7.1879E-03	.0000E+00	.0000E+00	.0000E+00	9.1833E-07	8.9727E-03
18	5.5173E-03	9.0881E-04	5.7724E-03	.0000E+00	.0000E+00	.0000E+00	7.1051E-07	7.1158E-03
19	1.0939E-02	7.5611E-04	1.1134E-02	.0000E+00	.0000E+00	.0000E+00	1.4527E-06	1.3884E-02
20	3.6206E-02	2.1126E-03	3.6733E-02	.0000E+00	.0000E+00	.0000E+00	5.3774E-06	4.5879E-02
21	1.1275E-02	1.4527E-03	1.1700E-02	.0000E+00	.0000E+00	.0000E+00	1.3266E-06	1.4468E-02
22	2.3168E-02	4.3244E-03	2.4509E-02	.0000E+00	.0000E+00	.0000E+00	2.7468E-06	3.0047E-02
23	7.7818E-02	1.2340E-02	8.2331E-02	.0000E+00	.0000E+00	.0000E+00	8.3179E-06	1.0084E-01
24	6.2342E-02	1.1392E-02	6.7275E-02	.0000E+00	.0000E+00	.0000E+00	5.0051E-06	8.1655E-02
25	2.7753E-02	5.2816E-03	3.0884E-02	.0000E+00	.0000E+00	.0000E+00	1.7346E-06	3.6629E-02
26	1.9532E-02	3.8926E-03	2.1904E-02	.0000E+00	.0000E+00	.0000E+00	9.1394E-07	2.6134E-02
27	3.6382E-03	6.5660E-04	4.1607E-03	.0000E+00	.0000E+00	.0000E+00	1.0766E-07	4.9279E-03
28	1.7578E+00	-6.6095E-03	1.7648E+00	.0000E+00	3.5654E-11	.0000E+00	5.8734E-04	2.2130E+00
1 fine 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	.0000E+00	.0000E+00	.0000E+00	2.1588E-04	1.6145E-04	2.4221E-05	-1.5812E-04	1.0000E+00
2	.0000E+00	.0000E+00	2.8198E-05	1.4408E-05	1.0538E-05	1.3877E-05	-1.0195E-05	1.0000E+00
3	.0000E+00	.0000E+00	1.4789E-04	2.7549E-05	8.7109E-04	2.0159E-05	-7.4331E-04	9.9999E-01
4	.0000E+00	.0000E+00	2.8413E-04	2.2581E-05	2.9754E-04	1.3059E-05	-2.6474E-05	9.9999E-01
5	.0000E+00	.0000E+00	6.1148E-04	4.4104E-05	2.7892E-04	1.6840E-05	3.1569E-04	1.0000E+00
6	.0000E+00	.0000E+00	1.0158E-03	1.2394E-02	1.6941E-04	2.7055E-05	8.1931E-04	1.0000E+00
7	.0000E+00	.0000E+00	6.6913E-04	1.2591E-02	6.3290E-05	2.6808E-05	5.7905E-04	1.0000E+00
8	.0000E+00	.0000E+00	1.1709E-04	9.2041E-05	4.4319E-04	2.2103E-05	-3.4825E-04	1.0000E+00
9	.0000E+00	.0000E+00	4.4502E-04	6.3559E-05	5.2983E-05	7.6644E-05	3.1534E-04	9.9997E-01
10	.0000E+00	.0000E+00	5.3042E-05	4.9833E-05	4.9432E-05	5.9284E-05	-5.5684E-05	1.0000E+00
11	.0000E+00	.0000E+00	4.9446E-05	4.4491E-05	5.0241E-05	8.9904E-05	-9.0704E-05	1.0000E+00
12	.0000E+00	.0000E+00	5.0464E-05	2.7583E-05	5.1318E-05	5.6670E-05	-6.7632E-05	1.0000E+00
13	.0000E+00	.0000E+00	5.1318E-05	2.3584E-05	4.8079E-05	6.3153E-05	-3.0720E-05	9.9999E-01
14	.0000E+00	.0000E+00	4.8080E-05	2.2394E-05	4.2184E-05	8.5485E-05	-2.6542E-05	1.0000E+00
15	.0000E+00	.0000E+00	4.4798E-05	1.2202E-05	4.9931E-05	6.3182E-05	-1.1414E-05	9.9999E-01
16	.0000E+00	.0000E+00	5.6078E-05	6.4923E-04	5.6244E-05	3.8479E-05	-3.9886E-05	9.9996E-01
17	.0000E+00	.0000E+00	6.2002E-05	2.4863E-04	6.1381E-05	1.8534E-05	-1.2191E-05	9.9997E-01
18	.0000E+00	.0000E+00	6.4701E-05	1.8279E-04	5.9029E-05	1.5218E-05	4.1673E-05	9.9990E-01
19	.0000E+00	.0000E+00	6.0286E-05	4.1890E-04	6.1729E-05	3.2466E-05	-4.6712E-05	9.9997E-01
20	.0000E+00	.0000E+00	7.5726E-05	1.5249E-05	6.4812E-05	1.3105E-05	-2.1327E-05	9.9997E-01
21	.0000E+00	.0000E+00	8.7045E-05	3.9910E-04	9.5331E-05	4.9472E-05	-1.3209E-05	9.9998E-01
22	.0000E+00	.0000E+00	1.2623E-04	8.9547E-04	1.1980E-04	1.1562E-05	-4.9616E-05	9.9999E-01
23	.0000E+00	.0000E+00	1.8254E-04	3.1779E-03	2.3331E-04	5.1905E-05	-1.0270E-04	1.0000E+00
24	.0000E+00	.0000E+00	2.9936E-04	2.4029E-03	3.2977E-04	5.8884E-05	-8.8902E-05	1.0000E+00
25	.0000E+00	.0000E+00	3.0508E-04	9.6787E-04	2.4601E-04	3.4257E-05	2.1728E-05	1.0000E+00
26	.0000E+00	.0000E+00	1.2957E-04	7.5631E-04	9.9949E-05	3.3952E-05	-4.3378E-05	1.0000E+00
27	.0000E+00	.0000E+00	2.8981E-05	1.5960E-04	8.2235E-05	1.1841E-05	1.7054E-05	1.0000E+00
28	.0000E+00	.0000E+00	5.0932E-03	8.1460E-02	5.0932E-03	6.2809E-04	-6.2022E-04	9.9999E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rn rate	fiss rate	fluxdb**2	total flux
1	1.2648E-02	-8.5647E-04	1.2622E-02	-6.9834E-04	5.7686E-06	.0000E+00	1.5947E-06	2.1089E-03
2	9.1348E-02	-8.8142E-03	9.1087E-02	-7.7946E-03	.0000E+00	.0000E+00	1.1015E-05	1.5204E-02
3	1.1441E-01	-1.1177E-02	1.1406E-01	-1.0634E-02	.0000E+00	.0000E+00	1.2627E-05	1.9044E-02
4	7.0578E-02	-6.8508E-03	7.0362E-02	-6.8244E-03	.0000E+00	.0000E+00	7.4177E-06	1.1749E-02

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5 1.05537E-01 -1.05724E-02 1.05198E-01 -1.06881E-02 .00000E+00 .00000E+00 8.62403E-06 1.75684E-02
6 1.98262E-01 -1.88084E-02 1.97887E-01 -1.96277E-02 .00000E+00 .00000E+00 1.01711E-05 3.30015E-02
7 1.96485E-01 -1.14159E-02 1.96079E-01 -1.19949E-02 .00000E+00 .00000E+00 8.36152E-06 3.27240E-02
8 1.47332E-01 -2.77001E-03 1.47344E-01 -2.42176E-03 .00000E+00 .00000E+00 5.27251E-06 2.45674E-02
9 1.15782E-01 5.84706E-04 1.15792E-01 2.68512E-04 .00000E+00 .00000E+00 4.58111E-06 1.93011E-02
10 1.06545E-01 1.42866E-03 1.06885E-01 1.48344E-03 .00000E+00 .00000E+00 4.90574E-06 1.77622E-02
11 9.96685E-02 3.38321E-03 9.97614E-02 3.47392E-03 .00000E+00 .00000E+00 4.75856E-06 1.66194E-02
12 6.41083E-02 4.04289E-03 6.42154E-02 4.04963E-03 .00000E+00 .00000E+00 3.21119E-06 1.06932E-02
13 5.47497E-02 3.78719E-03 5.48522E-02 3.79026E-03 .00000E+00 .00000E+00 2.73684E-06 9.13293E-03
14 5.18477E-02 5.47721E-03 5.19940E-02 5.47887E-03 .00000E+00 .00000E+00 2.58638E-06 8.65217E-03
15 2.88734E-02 1.16589E-03 2.89100E-02 1.17730E-03 .00000E+00 .00000E+00 1.41874E-06 4.81530E-03
16 1.60494E-02 5.98994E-04 1.60667E-02 6.02584E-04 .00000E+00 .00000E+00 7.88577E-07 2.67637E-03
17 7.06775E-03 4.29830E-04 7.07912E-03 4.29090E-04 .00000E+00 .00000E+00 3.47178E-07 1.17887E-03
18 5.49442E-03 9.13028E-04 5.51736E-03 9.08861E-04 .00000E+00 .00000E+00 2.70079E-07 9.17358E-04
19 1.09197E-02 7.51447E-04 1.09390E-02 7.56118E-04 .00000E+00 .00000E+00 5.36007E-07 1.82142E-03
20 3.61504E-02 2.11051E-03 3.62062E-02 2.11265E-03 .00000E+00 .00000E+00 1.77184E-06 6.02934E-03
21 1.12395E-02 1.43957E-03 1.12751E-02 1.45278E-03 .00000E+00 .00000E+00 5.50808E-07 1.87573E-03
22 2.30644E-02 4.31871E-03 2.31684E-02 4.32368E-03 .00000E+00 .00000E+00 1.12842E-06 3.85125E-03
23 7.75285E-02 1.22576E-02 7.78185E-02 1.23403E-02 .00000E+00 .00000E+00 3.77857E-06 1.28418E-02
24 6.20970E-02 1.13038E-02 6.23427E-02 1.13932E-02 .00000E+00 .00000E+00 3.00818E-06 1.03661E-02
25 2.76489E-02 5.30833E-03 2.77532E-02 5.28140E-03 .00000E+00 .00000E+00 1.33133E-06 4.61513E-03
26 1.94675E-02 3.89192E-03 1.95322E-02 3.89626E-03 .00000E+00 .00000E+00 9.27238E-07 3.24852E-03
27 3.63316E-03 6.73660E-04 3.63920E-03 6.56606E-04 .00000E+00 .00000E+00 1.67621E-07 6.05812E-04
28 1.75864E+00 -7.22974E-03 1.75780E+00 -6.60954E-03 5.76889E-06 .00000E+00 1.08879E-04 2.93069E-01

lfine group summary for zone 3 by group including sun for all groups in line 28
0 grp. fix source fiss source in scatter self scatter out scatter absorption leakage balance
1 .00000E+00 .00000E+00 .00000E+00 2.58233E-04 3.41793E-04 2.84598E-05 -3.70236E-04 9.99985E-01
2 .00000E+00 .00000E+00 1.96114E-04 3.26545E-03 4.26555E-03 9.27431E-05 -4.16202E-03 9.99989E-01
3 .00000E+00 .00000E+00 2.02449E-03 2.90447E-03 7.55686E-03 4.95124E-05 -5.58153E-03 9.99991E-01
4 .00000E+00 .00000E+00 2.96483E-03 1.92142E-03 6.60181E-03 2.24228E-05 -3.69532E-03 9.99994E-01
5 .00000E+00 .00000E+00 5.46216E-03 6.17154E-03 1.11810E-02 2.69958E-05 -5.74531E-03 9.99995E-01
6 .00000E+00 .00000E+00 1.14832E-02 1.84847E-02 2.19692E-02 4.51666E-05 -1.05312E-02 9.99997E-01
7 .00000E+00 .00000E+00 2.26100E-02 3.23819E-02 2.89528E-02 3.25154E-05 -6.17468E-03 9.99991E-01
8 .00000E+00 .00000E+00 2.99803E-02 4.11483E-02 3.08538E-02 1.91192E-05 -8.68860E-04 9.99919E-01
9 .00000E+00 .00000E+00 3.04122E-02 3.79673E-02 3.06666E-02 1.53077E-05 3.33720E-04 9.99889E-01
10 .00000E+00 .00000E+00 2.98807E-02 3.60666E-02 2.89849E-02 1.88038E-05 8.80193E-04 9.99900E-01
11 .00000E+00 .00000E+00 2.91533E-02 3.40130E-02 2.71547E-02 2.86010E-05 1.97182E-03 9.99945E-01
12 .00000E+00 .00000E+00 2.35793E-02 1.80730E-02 2.18622E-02 3.11292E-05 2.27800E-03 9.99982E-01
13 .00000E+00 .00000E+00 2.09422E-02 1.47182E-02 1.88751E-02 4.35999E-05 2.02418E-03 9.99974E-01
14 .00000E+00 .00000E+00 2.08471E-02 1.44680E-02 1.72699E-02 6.97662E-05 3.00769E-03 9.99971E-01
15 .00000E+00 .00000E+00 1.11300E-02 5.67224E-03 1.06264E-02 5.88538E-05 4.45320E-04 1.00000E+00
16 .00000E+00 .00000E+00 7.3654E-03 2.4001E-03 7.07066E-03 4.00243E-05 2.52856E-04 1.00000E+00
17 .00000E+00 .00000E+00 3.79802E-03 6.89820E-04 3.57889E-03 1.95752E-05 2.20581E-04 9.99995E-01
18 .00000E+00 .00000E+00 3.37567E-03 5.13196E-04 2.80421E-03 1.60581E-05 5.55392E-04 1.00000E+00
19 .00000E+00 .00000E+00 5.61321E-03 1.56689E-03 5.19969E-03 3.50891E-05 3.78374E-04 1.00001E+00
20 .00000E+00 .00000E+00 1.38132E-02 1.11805E-02 1.26411E-02 1.45818E-04 1.02620E-03 1.00001E+00
21 .00000E+00 .00000E+00 6.68412E-03 2.23468E-03 5.81345E-03 5.60422E-05 8.14637E-04 1.00000E+00
22 .00000E+00 .00000E+00 1.32322E-02 6.86523E-03 1.06838E-02 1.31853E-04 2.41643E-03 1.00001E+00
23 .00000E+00 .00000E+00 3.32578E-02 4.16726E-02 2.73653E-02 6.0441E-04 5.96659E-03 1.00002E+00
24 .00000E+00 .00000E+00 3.61385E-02 3.85702E-02 2.97727E-02 7.01708E-04 5.66290E-03 1.00003E+00
25 .00000E+00 .00000E+00 2.38829E-02 1.61333E-02 2.07555E-02 4.10039E-04 2.71690E-03 1.00001E+00
26 .00000E+00 .00000E+00 1.89825E-02 1.76232E-02 1.62774E-02 4.07566E-04 2.29739E-03 1.00001E+00
27 .00000E+00 .00000E+00 6.39842E-03 3.72651E-03 5.67391E-03 1.41769E-04 5.82721E-04 1.00000E+00
28 .00000E+00 .00000E+00 4.13381E-01 4.10651E-01 4.13381E-01 3.29889E-03 -3.28243E-03 9.99975E-01

0 grp. rt bdy flux rt leakage lft bdy flux lft leakage r2n rate fiss rate flux*cd**2 total flux
1 1.27800E-02 -1.22671E-03 1.26481E-02 -8.56474E-04 1.89021E-11 .00000E+00 1.02638E-05 8.36737E-03
2 9.26692E-02 -1.29762E-02 9.13489E-02 -8.81422E-03 .00000E+00 .00000E+00 4.70411E-05 6.05306E-02
3 1.16041E-01 -1.67592E-02 1.14414E-01 -1.11777E-02 .00000E+00 .00000E+00 4.90841E-05 7.57903E-02
4 7.15465E-02 -1.05102E-02 7.05785E-02 -6.85089E-03 .00000E+00 .00000E+00 2.22874E-05 4.67294E-02
5 1.07001E-01 -1.61177E-02 1.05537E-01 -1.05724E-02 .00000E+00 .00000E+00 2.64389E-05 6.98991E-02

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6 2.00871E-01 -2.95395E-02 1.98262E-01 -1.88084E-02 .00000E+00 .00000E+00 4.46996E-05 1.31210E-01
7 1.98001E-01 -1.75909E-02 1.96485E-01 -1.14159E-02 .00000E+00 .00000E+00 3.14890E-05 1.29743E-01
8 1.47723E-01 -3.65987E-03 1.47432E-01 -2.77001E-03 .00000E+00 .00000E+00 1.71865E-05 9.71437E-02
9 1.15554E-01 9.18426E-04 1.15782E-01 5.84706E-04 .00000E+00 .00000E+00 1.13328E-05 7.61409E-02
10 1.06287E-01 2.30885E-03 1.06545E-01 1.42846E-03 .00000E+00 .00000E+00 9.99000E-06 7.00663E-02
11 9.90944E-02 5.35503E-03 9.96685E-02 3.38321E-03 .00000E+00 .00000E+00 9.28590E-06 6.54543E-02
12 6.34182E-02 6.32092E-03 6.41083E-02 4.04289E-03 .00000E+00 .00000E+00 5.41334E-06 4.20115E-02
13 5.41521E-02 5.81137E-03 5.47497E-02 3.78719E-03 .00000E+00 .00000E+00 4.90513E-06 3.58759E-02
14 5.09467E-02 8.48490E-03 5.18477E-02 5.47721E-03 .00000E+00 .00000E+00 4.34134E-06 3.38625E-02
15 2.87815E-02 1.61121E-03 2.88734E-02 1.16589E-03 .00000E+00 .00000E+00 2.33683E-06 1.89804E-02
16 1.95893E-02 8.51850E-04 1.60494E-02 5.98994E-04 .00000E+00 .00000E+00 1.17450E-06 1.05481E-02
17 7.00473E-03 6.44412E-04 7.06757E-03 4.23830E-04 .00000E+00 .00000E+00 4.74431E-07 4.63528E-03
18 5.31703E-03 1.46842E-03 5.49442E-03 9.13028E-04 .00000E+00 .00000E+00 3.56304E-07 3.56840E-03
19 1.08129E-02 1.12962E-03 1.07191E-02 7.51447E-04 .00000E+00 .00000E+00 7.49018E-07 7.15944E-03
20 3.58560E-02 3.13671E-03 3.61504E-02 2.11051E-03 .00000E+00 .00000E+00 2.77957E-06 2.37147E-02
21 1.09799E-02 2.25421E-03 1.12395E-02 1.43957E-03 .00000E+00 .00000E+00 6.71908E-07 7.32790E-03
22 2.22435E-02 6.73514E-03 2.30646E-02 4.31871E-03 .00000E+00 .00000E+00 1.36727E-06 1.49566E-02
23 7.52274E-02 1.82042E-02 7.75285E-02 1.22575E-02 .00000E+00 .00000E+00 4.15565E-06 5.03827E-02
24 5.95314E-02 1.69657E-02 6.20970E-02 1.13038E-02 .00000E+00 .00000E+00 2.46060E-06 4.01429E-02
25 2.62168E-02 8.02028E-03 2.76485E-02 5.30333E-03 .00000E+00 .00000E+00 8.42212E-07 1.77855E-02
26 1.80720E-02 6.18951E-03 1.94675E-02 3.89192E-03 .00000E+00 .00000E+00 4.34099E-07 1.24131E-02
27 3.29510E-03 1.25638E-03 3.65316E-03 6.73660E-04 .00000E+00 .00000E+00 4.98052E-08 2.27959E-03
28 1.75538E-03 -1.05122E-02 1.75854E-03 -7.22974E-03 1.89021E-11 .00000E+00 3.11186E-04 1.15671E+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 self scatter out scatter absorption leakage balance
1 .00000E+00 2.25011E-02 .00000E+00 2.08848E-02 1.98131E-02 3.68826E-03 1.22670E-03 9.98900E-01
2 .00000E+00 1.92525E-01 6.85378E-03 2.48705E-01 1.71191E-01 1.52242E-02 1.29761E-02 1.00002E+00
3 .00000E+00 2.15618E-01 7.06590E-02 2.56701E-01 2.53277E-01 1.62444E-02 1.67591E-02 9.99980E-01
4 .00000E+00 1.24001E-01 1.04953E-01 1.76351E-01 2.10673E-01 7.77117E-03 1.05101E-02 1.00000E+00
5 .00000E+00 1.64661E-01 1.91269E-01 4.44024E-01 3.34070E-01 5.20950E-03 1.61178E-02 9.99990E-01
6 .00000E+00 1.77976E-01 3.90072E-01 1.19096E+00 5.30432E-01 8.26884E-03 2.93942E-02 1.00001E+00
7 .00000E+00 8.80747E-02 5.92882E-01 1.56441E+00 6.56091E-01 8.28064E-03 1.75914E-02 9.99990E-01
8 .00000E+00 1.35773E-02 6.89252E-01 1.57337E+00 6.85878E-01 1.33484E-02 3.69991E-03 9.99920E-01
9 .00000E+00 9.85518E-04 6.77889E-01 1.37120E+00 6.57991E-01 2.19720E-02 -9.12580E-04 9.99885E-01
10 .00000E+00 7.32011E-03 6.55054E-01 1.24691E+00 6.26316E-01 3.31857E-02 -2.30688E-03 9.99896E-01
11 .00000E+00 5.75899E-06 6.28420E-01 1.15921E+00 5.78823E-01 5.39952E-02 -5.35353E-03 9.99940E-01
12 .00000E+00 4.04599E-07 5.05087E-01 6.33423E-01 4.53159E-01 5.82623E-02 -6.32114E-03 9.99975E-01
13 .00000E+00 6.42403E-08 4.47805E-01 5.02815E-01 3.99520E-01 5.41136E-02 -5.81247E-03 9.99974E-01
14 .00000E+00 1.27307E-08 4.30994E-01 4.71038E-01 3.63406E-01 7.60782E-02 -8.48626E-03 9.99990E-01
15 .00000E+00 1.43871E-09 2.37987E-01 2.16462E-01 2.32045E-01 7.52740E-03 -1.61600E-03 1.00013E+00
16 .00000E+00 4.22456E-10 1.62648E-01 1.00337E-01 1.98397E-01 5.08498E-03 -8.55121E-04 1.00013E+00
17 .00000E+00 1.36051E-10 8.74822E-02 3.19811E-02 8.25889E-02 5.79778E-03 -6.43200E-04 1.00008E+00
18 .00000E+00 9.74088E-11 7.82257E-02 2.25708E-02 6.28919E-02 1.67968E-02 -1.47086E-03 1.00007E+00
19 .00000E+00 1.37715E-10 1.26769E-01 6.25669E-02 1.17846E-01 8.04437E-03 -1.13803E-03 1.00011E+00
20 .00000E+00 2.29959E-10 2.98152E-01 3.56475E-01 2.74113E-01 2.71452E-02 -3.14668E-03 1.00014E+00
21 .00000E+00 3.27775E-11 1.48254E-01 7.32825E-02 1.28395E-01 2.21013E-02 -2.25739E-03 1.00007E+00
22 .00000E+00 3.80258E-11 2.85287E-01 1.95241E-01 2.24171E-01 6.55885E-02 -6.73878E-03 1.00007E+00
23 .00000E+00 3.63602E-11 6.84653E-01 1.04821E+00 5.62382E-01 1.40511E-01 -1.81967E-02 1.00008E+00
24 .00000E+00 9.89678E-12 7.26702E-01 8.98954E-01 5.99529E-01 1.44029E-01 -1.68575E-02 1.00007E+00
25 .00000E+00 2.89713E-12 4.80701E-01 3.63702E-01 4.08946E-01 8.00060E-02 -8.01983E-03 1.00004E+00
26 .00000E+00 2.05149E-12 3.72577E-01 3.64711E-01 3.05884E-01 7.28891E-02 -6.18951E-03 1.00003E+00
27 .00000E+00 4.84114E-13 1.27271E-01 7.36785E-02 1.03332E-01 2.06441E-02 -1.25642E-03 1.00001E+00
28 .00000E+00 1.00000E+00 9.19945E+00 1.44682E+01 9.19945E+00 9.91732E-01 1.06544E-02 9.99999E-01
0 grp. rt body flux rt leakage lft body flux lft leakage nfn rate fiss rate flux*ch**2 total flux
1 1.30728E-02 -8.23645E-09 1.27800E-02 -1.22671E-03 2.19580E-03 2.43399E-03 2.88654E-04 3.32292E-01
2 9.59542E-02 -9.29957E-08 9.26692E-02 -1.29762E-02 1.60523E-05 1.09749E-02 1.57752E-03 2.43648E+00
3 1.20401E-01 -8.61707E-08 1.16041E-01 -1.67992E-02 .00000E+00 1.33511E-02 1.82264E-03 3.05635E+00
4 7.43687E-02 -7.46999E-08 7.15466E-02 -1.05102E-02 .00000E+00 5.74283E-03 8.82679E-04 1.88748E+00
5 1.11593E-01 -1.30847E-07 1.07001E-01 -1.61177E-02 .00000E+00 1.66916E-03 1.03125E-03 2.83115E+00
6 2.09705E-01 -1.39526E-07 2.00871E-01 -2.95395E-02 .00000E+00 1.44218E-03 1.73119E-03 5.31835E+00

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INFORMATION ONLY

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7 2.08560E-01 4.72277E-07 1.98001E-01 -1.75909E-02 .00000E+00 1.43317E-03 1.22604E-03 5.16917E+00
8 1.48889E-01 3.86691E-08 1.47723E-01 -3.65987E-03 .00000E+00 1.47659E-03 6.97612E-04 3.78777E+00
9 1.15211E-01 5.85755E-06 1.15554E-01 9.18426E-04 .00000E+00 2.00666E-03 4.70875E-04 2.93430E+00
10 1.05478E-01 1.96873E-06 1.05287E-01 2.30886E-03 .00000E+00 4.27290E-03 4.28257E-04 2.68789E+00
11 9.72367E-02 1.50113E-06 9.90944E-02 5.35503E-03 .00000E+00 9.02446E-03 3.86574E-04 2.48091E+00
12 6.12403E-02 -2.25212E-07 6.34182E-02 6.32092E-03 .00000E+00 1.18367E-02 2.27595E-04 1.56520E+00
13 5.21739E-02 -1.05146E-06 5.41521E-02 5.81137E-03 .00000E+00 1.22719E-02 1.95662E-04 1.33903E+00
14 4.80601E-02 -3.63766E-07 5.09467E-02 8.48490E-03 .00000E+00 8.08807E-03 1.76823E-04 1.23149E+00
15 2.82560E-02 -4.78584E-06 2.87815E-02 1.61121E-03 .00000E+00 2.05167E-03 1.11532E-04 7.21075E-01
16 1.57140E-02 -3.27042E-06 1.59893E-02 8.51850E-04 .00000E+00 1.38800E-03 5.82700E-05 4.00918E-01
17 6.79082E-03 1.20404E-06 7.00473E-03 6.44412E-04 .00000E+00 1.86029E-03 2.28359E-05 1.73500E-01
18 4.81286E-03 -2.43980E-06 5.31703E-03 1.46842E-03 .00000E+00 1.88211E-03 1.34088E-05 1.23793E-01
19 1.04274E-02 -5.21187E-06 1.08125E-02 1.12582E-03 .00000E+00 2.97904E-03 3.57887E-05 2.66599E-01
20 3.47734E-02 -9.93118E-06 3.58560E-02 3.13671E-03 .00000E+00 1.54512E-02 1.28595E-04 8.88591E-01
21 1.01692E-02 -3.17838E-06 1.07799E-02 2.25421E-03 .00000E+00 1.33112E-02 2.91887E-05 2.61231E-01
22 1.96854E-02 -3.64302E-06 2.22636E-02 6.7314E-03 .00000E+00 3.92745E-02 5.30524E-05 5.08776E-01
23 6.70355E-02 7.43641E-06 7.52274E-02 1.82042E-02 .00000E+00 8.27260E-02 1.80689E-04 1.73629E+00
24 5.09464E-02 -7.86148E-07 5.95314E-02 1.69667E-02 .00000E+00 8.44330E-02 1.07313E-04 1.32884E+00
25 2.17400E-02 4.55754E-07 2.62168E-02 8.02028E-03 .00000E+00 4.88251E-02 3.65120E-05 5.70198E-01
26 1.42682E-02 -2.01242E-07 1.80720E-02 6.18931E-03 .00000E+00 4.49767E-02 1.79214E-05 3.76320E-01
27 2.39824E-03 -3.56412E-03 3.29510E-03 1.25638E-03 .00000E+00 1.25808E-02 1.83468E-06 6.34222E-02
28 1.74397E+00 -1.67794E-05 1.75358E+00 -1.05122E-02 2.21589E-03 4.37757E-01 1.19400E-02 4.44723E+01

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ifine group summary for system

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0 grp. fix source fiss source in scatter self scatter out scatter absorption leakage balance
1 .00000E+00 2.25011E-02 .00000E+00 2.18455E-02 2.09611E-02 3.77282E-03 -8.25645E-09 9.98898E-01
2 .00000E+00 1.92525E-01 7.44801E-03 2.59471E-01 1.84482E-01 1.55045E-02 -9.29967E-03 1.00001E+00
3 .00000E+00 2.15618E-01 7.66367E-02 2.67793E-01 2.75841E-01 1.64062E-02 -8.61707E-03 9.99987E-01
4 .00000E+00 1.24001E-01 1.13750E-01 1.84195E-01 2.29903E-01 7.84853E-03 -7.46699E-03 9.99999E-01
5 .00000E+00 1.64661E-01 2.07554E-01 4.66115E-01 3.66916E-01 5.30253E-03 -1.30847E-07 9.99990E-01
6 .00000E+00 1.77978E-01 4.24007E-01 1.25632E+00 5.8550E-01 8.42531E-03 -1.39526E-07 1.00001E+00
7 .00000E+00 8.80747E-02 6.58346E-01 1.67033E+00 7.39026E-01 8.40117E-03 4.72277E-07 9.99990E-01
8 .00000E+00 1.35773E-02 7.75682E-01 1.70404E+00 7.75877E-01 1.34200E-02 3.86697E-03 9.99919E-01
9 .00000E+00 9.85518E-04 7.66606E-01 1.48809E+00 7.65581E-01 2.20932E-02 5.86763E-06 9.99885E-01
10 .00000E+00 7.32011E-05 7.42040E-01 1.35607E+00 7.08888E-01 3.33008E-02 1.96873E-06 9.99895E-01
11 .00000E+00 5.75899E-06 7.13446E-01 1.26318E+00 6.95326E-01 5.41668E-02 1.50113E-06 9.99940E-01
12 .00000E+00 4.06599E-07 5.74053E-01 6.89312E-01 5.15718E-01 5.83594E-02 -2.25212E-07 9.99975E-01
13 .00000E+00 6.42403E-08 5.09315E-01 5.48460E-01 4.55082E-01 5.42482E-02 -1.09514E-06 9.99973E-01
14 .00000E+00 1.27307E-08 4.90897E-01 5.16054E-01 4.14550E-01 7.62932E-02 -3.63766E-07 9.99989E-01
15 .00000E+00 1.43871E-09 2.70891E-01 2.34264E-01 2.63160E-01 7.70577E-03 -4.78584E-06 1.00011E+00
16 .00000E+00 4.22656E-10 1.84345E-01 1.08002E-01 1.79121E-01 5.20583E-03 -3.27042E-06 1.00011E+00
17 .00000E+00 1.36051E-10 9.86924E-02 3.42580E-02 9.28654E-02 5.81911E-03 1.20404E-06 1.00007E+00
18 .00000E+00 9.74088E-11 8.81959E-02 2.42902E-02 7.13471E-02 1.68464E-02 -2.43980E-06 1.00007E+00
19 .00000E+00 1.37715E-10 1.41352E-01 6.75802E-02 1.33192E-01 8.15076E-03 -5.21187E-06 1.00010E+00
20 .00000E+00 2.25939E-10 3.38892E-01 3.89810E-01 3.11275E-01 2.75863E-02 -9.93118E-06 1.00012E+00
21 .00000E+00 3.27775E-11 1.68057E-01 8.03287E-02 1.45786E-01 2.22730E-02 -3.17838E-06 1.00006E+00
22 .00000E+00 3.80258E-11 3.22895E-01 2.16794E-01 2.56684E-01 6.59988E-02 -3.64302E-06 1.00007E+00
23 .00000E+00 3.63602E-11 7.87302E-01 1.17648E+00 6.44756E-01 1.42479E-01 7.43641E-06 1.00008E+00
24 .00000E+00 9.89678E-12 8.36529E-01 1.01839E+00 6.90192E-01 1.46281E-01 -7.86148E-07 1.00006E+00
25 .00000E+00 2.89713E-12 5.53762E-01 4.14030E-01 4.72447E-01 8.12947E-02 4.55754E-07 1.00004E+00
26 .00000E+00 2.03149E-12 4.30614E-01 4.20194E-01 3.56512E-01 7.39887E-02 -2.01242E-07 1.00008E+00
27 .00000E+00 4.84144E-13 1.42378E-01 8.56141E-02 1.21272E-01 2.11042E-02 -3.56412E-03 1.00001E+00
28 .00000E+00 1.00000E+00 1.04293E+01 1.59613E+01 1.04293E+01 1.00228E+00 -1.67538E-05 9.99997E-01

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0 grp. rt body flux rt leakage left body flux left leakage nln rate fiss rate flux*dm^2 total flux
1 1.30728E-02 -8.25645E-09 1.25098E-02 .00000E+00 2.20557E-03 2.45389E-03 3.19615E-04 3.58548E-01
2 9.99542E-02 -9.29967E-03 8.96050E-02 .00000E+00 1.07923E-05 1.09749E-02 1.72350E-03 2.62561E+00
3 1.20401E-01 -8.61707E-03 1.11909E-01 .00000E+00 1.33511E-02 1.97616E-03 3.29566E-04 2.93430E+00
4 7.43687E-02 -7.46999E-03 6.88079E-02 .00000E+00 .00000E+00 5.74283E-03 9.54011E-04 2.08324E+00
5 1.11593E-01 -1.30847E-07 1.02592E-01 .00000E+00 .00000E+00 1.66914E-03 1.11566E-03 3.04888E+00
6 2.09708E-01 -1.35826E-07 1.92794E-01 .00000E+00 .00000E+00 1.44218E-03 1.85944E-03 5.72731E+00
7 2.08560E-01 4.72277E-07 1.98009E-01 .00000E+00 .00000E+00 1.43317E-03 1.32514E-03 5.57586E+00

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NO CALCULATION ONLY

8	1.4889E-01	3.8669E-08	1.4692E-01	.0000E+00	.0000E+00	1.4769E-03	7.5278E-04	4.0943E+00
9	1.5211E-01	5.8675E-06	1.5850E-01	.0000E+00	.0000E+00	2.0006E-03	5.0845E-04	3.1752E+00
10	1.0547E-01	1.9882E-06	1.0700E-01	.0000E+00	.0000E+00	4.2729E-03	4.6233E-04	2.9097E+00
11	9.7236E-02	1.5013E-01	1.0734E-01	.0000E+00	.0000E+00	9.0244E-03	4.1850E-04	2.6890E+00
12	6.1240E-02	2.2321E-07	6.5317E-02	.0000E+00	.0000E+00	1.1835E-02	2.4671E-04	1.6993E+00
13	5.2173E-02	1.0951E-06	5.5854E-02	.0000E+00	.0000E+00	1.2271E-02	2.1164E-04	1.4485E+00
14	4.8001E-02	3.6376E-07	5.3458E-02	.0000E+00	.0000E+00	8.0887E-03	1.9255E-04	1.3404E+00
15	2.8256E-02	4.7858E-06	2.9671E-02	.0000E+00	.0000E+00	2.0516E-03	1.1978E-04	7.8137E-01
16	1.5714E-02	3.2704E-06	1.6208E-02	.0000E+00	.0000E+00	1.3890E-03	6.2691E-05	4.3428E-01
17	6.7908E-03	1.2040E-06	7.1879E-03	.0000E+00	.0000E+00	1.8602E-03	2.4575E-05	1.8828E-01
18	4.8128E-03	2.4380E-06	5.7724E-03	.0000E+00	.0000E+00	1.8821E-03	1.4739E-05	1.3539E-01
19	1.0427E-02	5.2118E-06	1.1134E-02	.0000E+00	.0000E+00	2.9790E-03	3.8525E-05	2.8946E-01
20	3.4773E-02	9.9311E-06	3.6733E-02	.0000E+00	.0000E+00	1.5451E-02	1.3852E-04	9.6424E-01
21	1.0169E-02	3.1783E-06	1.1700E-02	.0000E+00	.0000E+00	1.3311E-02	3.1737E-05	2.8490E-01
22	1.9685E-02	3.6430E-06	2.4508E-02	.0000E+00	.0000E+00	3.9276E-02	5.8294E-05	5.5763E-01
23	6.7035E-02	7.4364E-06	8.2531E-02	.0000E+00	.0000E+00	8.2726E-02	1.9694E-04	1.9004E+00
24	5.0946E-02	7.8614E-07	6.7252E-02	.0000E+00	.0000E+00	8.4433E-02	1.1778E-04	1.4610E+00
25	2.1749E-02	4.5575E-07	3.0884E-02	.0000E+00	.0000E+00	4.8825E-02	4.0420E-05	6.2822E-01
26	1.4268E-02	2.0124E-07	2.1904E-02	.0000E+00	.0000E+00	4.4976E-02	2.0196E-05	4.1811E-01
27	2.3982E-03	3.5841E-08	4.1601E-03	.0000E+00	.0000E+00	1.2580E-02	2.1597E-06	7.1235E-02
28	1.7439E+00	1.6779E-05	1.7648E+00	.0000E+00	2.2216E-03	4.3775E-01	1.2942E-02	4.8135E+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	1.1194E-03	5.0049E-03	5.2739E-03	2.5052E-03	3.1819E-03	5.5275E-03	3.7188E-03	1.7420E-03
2	6.8198E-04	4.9426E-03	5.7709E-03	3.4385E-03	4.2888E-03	6.1941E-03	4.3368E-03	2.1477E-03
3	1.1476E-03	5.4247E-03	5.8574E-03	2.9122E-03	3.8641E-03	6.7868E-03	4.3825E-03	1.8233E-03
4	7.8946E-04	4.2602E-03	4.9198E-03	2.3875E-03	2.8282E-03	4.8021E-03	3.3289E-03	1.7970E-03
5	8.1150E-04	4.3261E-03	4.9636E-03	2.4101E-03	2.8780E-03	4.8908E-03	3.3761E-03	1.7973E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.1125E-03	1.0147E-03	1.0956E-03	8.7345E-04	7.8808E-04	1.0214E-03	3.1485E-04	1.5861E-04
2	1.7901E-03	1.9532E-03	2.0436E-03	1.6004E-03	1.4166E-03	1.6774E-03	6.2548E-04	3.4224E-04
3	1.1216E-03	1.0598E-03	1.2907E-03	1.2205E-03	1.1110E-03	1.5417E-03	3.7536E-04	1.9283E-04
4	1.1945E-03	1.0947E-03	1.0305E-03	6.7787E-04	6.0182E-04	6.4014E-04	3.1124E-04	1.6138E-04
5	1.1926E-03	1.0951E-03	1.0460E-03	7.0530E-04	6.2742E-04	6.8539E-04	3.1484E-04	1.6310E-04
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.8841E-05	1.5254E-04	1.4995E-04	4.6002E-04	2.5088E-04	7.3127E-04	2.1510E-03	1.9468E-03
2	1.7105E-04	2.4610E-04	2.7925E-04	8.6405E-04	4.1348E-04	1.1429E-03	3.3430E-03	3.0086E-03
3	1.2283E-04	2.5428E-04	2.1317E-04	6.2144E-04	3.9715E-04	1.1795E-03	3.2681E-03	3.0191E-03
4	7.0133E-05	7.0895E-05	1.1480E-04	3.8528E-04	1.3402E-04	3.3672E-04	1.0950E-03	8.8321E-04
5	7.2761E-05	7.9879E-05	1.1983E-04	3.9724E-04	1.4733E-04	3.7975E-04	1.2087E-03	9.9544E-04
Ozone	grp. 25	grp. 26	grp. 27	grp. 28				
1	8.9071E-04	6.3294E-04	9.6489E-05	4.2008E-02				
2	1.3921E-03	1.0168E-03	1.7495E-04	5.5280E-02				
3	1.4155E-03	1.0888E-03	1.9985E-04	5.1880E-02				
4	3.7088E-04	2.2540E-04	2.7948E-05	3.4530E-02				
5	4.2583E-04	2.6809E-04	3.6073E-05	3.5415E-02				

libroad group parameters

grp	upper energy	mid energy	velocity	fix spec
1	2.000E+07	2.649E+05	1.963E+09	7.193E-01
2	9.000E+05	1.509E+05	9.774E+05	2.808E-01
3	4.000E-01	1.265E-01	3.672E+05	1.224E-10
4	1.000E-05			

1 400 d, second part of sea2h pass to make library

Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.8574E-01	1.1378E+00	2.3452E-01
2	3.5988E-01	1.1342E+00	2.8499E-01

3 3.9893E-01 1.1356E+00 2.2071E-01
 4 4.14071E-01 1.14221E+00 1.90284E-01
 5 4.12403E-01 1.14198E+00 1.95240E-01

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

Ozone	grp. 1	grp. 2	grp. 3
1	9.42642E-01	9.9394E-01	1.21353E+00
2	9.55339E-01	9.97625E-01	1.16433E+00
3	9.62485E-01	9.97925E-01	1.14218E+00
4	1.00409E+00	1.00025E+00	9.84705E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3
1	1.70652E-02	1.82180E-02	6.70026E-03
2	1.91329E-02	2.56544E-02	1.04924E-02
3	1.92059E-02	2.21225E-02	1.05520E-02
4	1.51825E-02	1.62791E-02	3.07334E-03
5	1.53894E-02	1.65639E-02	3.46244E-03

Ozone	volume	vol. fraction
-------	--------	---------------

1	1.25665E+00	4.56236E-02
2	1.66487E-01	6.05165E-03
3	6.38265E-01	2.38987E-02
4	2.54624E+01	9.24426E-01
5	2.75440E+01	1.00000E+00

elapsed time .03 min.

```

1  cccccccccc  oooooooooo  w  w  ppppppppp  ll  cccccccccc
   cccccccccc  oooooooooo  w  w  ppppppppp  ll  cccccccccc
cc      cc  oo      oo  w  w  pp      pp  ll  cc      cc
cc      oo      oo  w  w  pp      pp  ll  cc      cc
cc      oo      oo  w  w  pp      pp  ll  cc      cc
cc      oo      oo  w  w  ppppppppp  ll  cccccccccc
cc      oo      oo  w  w  ppppppppp  ll  cccccccccc
cc      oo      oo  w  w  pp      pp  ll  cc      cc
cc      oo      oo  w  w  pp      pp  ll  cc      cc
ccccccccc  cccccccccc  w  w  pp      pp  ll  cccccccccc
ccccccccc  cccccccccc  w  w  pp      pp  ll  cccccccccc
    
```

```

0  dddddddddd  sssssssss  w  w  fffffff  sssssssss
   dddddddddd  sssssssss  w  w  fffffff  sssssssss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  sssssssss  w  w  f  f  sssssssss
dd      dd  sssssssss  w  w  f  f  sssssssss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
dd      dd  ss      ss  w  w  f  f  ss      ss
    
```

```

0  oooooooo  zzzzzzzzz  //  11  cccccccccc  //  99999999  cccccccccc
   oooooooo  zzzzzzzzz  //  111  cccccccccc  //  99999999  cccccccccc
oo      oo  22      22  //  111  66      66  //  99      99  66
oo      oo  22      22  //  11  66      66  //  99      99  66
oo      oo  22      22  //  11  66      66  //  99      99  66
    
```

CONFIDENTIAL ONLY


```
*****      Jobname: davis      *****
*****                                         *****
*****      date of execution: 02/16/98      *****
*****                                         *****
*****      time of execution: 09:59:36      *****
*****                                         *****
*****                                         *****
*****                                         *****
*****                                         *****
*****                                         *****
```

```

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  1q array has      1 entries.
0  2q array has      1 entries.
0  * core allocated to array data (by -100 or default) was 200000 words. *
1  * broad 3-group flux weighting factors *

```

```

0      therm = .5096
0      res   = .4040
0      fast  = 3.0945

```

0 user requested (see jadd) that only the nuclide transitions presently included in
0 origin library be updated.
1 cross sections, available from `aprx` (normalized to thermal flux), barns

10010	to	10020	2.78515E-01
10010	tot-cap		2.78515E-01
50100	to	40100	2.20952E-02
50100	to	10010	2.20952E-02
50100	to	40090	3.32705E-03
50100	to	10020	3.32705E-03
50100	to	30070	3.30410E+03
50100	to	20040	3.20427E+03
50100	to	10080	8.26805E-02
50100	tot-cap		3.30421E+03
50110	to	50100	9.51888E-05
50110	to	50120	4.23931E-05
50110	to	40110	1.24727E-05
50110	to	10010	1.24727E-05
50110	to	40090	1.08401E-05
50110	to	10030	1.08401E-05
50110	to	30080	1.5412E-04
50110	to	20040	1.5412E-04
50110	tot-cap		4.40840E-05
80160	to	80170	1.48835E-04
80160	to	70160	8.32895E-05
80160	to	10010	8.32895E-05
80160	to	70150	1.57083E-05
80160	to	10020	1.57083E-05
80160	to	60130	2.35267E-02
80160	to	20040	2.35267E-02
80160	to	80161	3.65276E-03
80160	tot-cap		2.37745E-02
360890	to	360920	1.89114E-02
360890	to	360810	1.99657E-09

360830 to 360840 1.50852E+02
 360830 to 360830 7.81413E-04
 360830 to 10010 7.81413E-04
 360830 to 360820 6.26591E-06
 360830 to 10020 6.26591E-06
 360830 to 360810 2.18306E-06
 360830 to 10030 2.18306E-06
 360830 to 340810 3.53311E-08
 360830 to 20080 3.53311E-08
 360830 to 340800 4.15132E-06
 360830 to 20040 4.15132E-06
 360830 tot-cap 1.50871E+02
 360850 to 360860 1.35661E+00
 360850 tot-cap 1.35661E+00
 380900 to 380910 6.18195E-01
 380900 tot-cap 6.18195E-01
 390880 to 390900 9.64542E-01
 390880 tot-cap 9.64542E-01
 400930 to 400940 1.26328E+01
 400930 tot-cap 1.26328E+01
 400940 to 400950 1.73545E-01
 400940 tot-cap 1.73545E-01
 400950 to 400960 2.06668E+00
 400950 tot-cap 2.06668E+00
 410940 to 410950 3.60758E+01
 410940 tot-cap 3.60758E+01
 420950 to 420960 3.64035E+01
 420950 tot-cap 3.64035E+01
 430990 to 430980 5.73799E-03
 430990 to 431000 8.45651E+01
 430990 tot-cap 8.45608E+01
 441010 to 441020 2.61238E+01
 441010 tot-cap 2.61238E+01
 441060 to 441070 8.02991E-01
 441060 tot-cap 8.02991E-01
 451030 to 451020 2.07809E-03
 451030 to 451040 3.46027E+02
 451030 tot-cap 3.46025E+02
 451050 to 451060 8.01723E+03
 451050 tot-cap 8.01723E+03
 461050 to 461060 3.17534E+01
 461050 tot-cap 3.17534E+01
 461080 to 461090 6.36886E+01
 461080 tot-cap 6.36886E+01
 471090 to 471080 4.83245E-03
 471090 to 471100 3.49156E+02
 471090 to 461090 2.75182E-04
 471090 to 10010 2.75182E-04
 471090 to 451060 2.26861E-04
 471090 to 20040 2.26861E-04
 471090 to 471091 5.85322E-01
 471090 tot-cap 3.49162E+02
 511240 to 511250 1.13999E+01
 511240 tot-cap 1.13999E+01
 541310 to 541300 5.89952E-02
 541310 to 541290 1.22524E-06
 541310 to 541320 2.46987E+02
 541310 to 531310 3.55357E-06
 541310 to 10010 3.55357E-06
 541310 to 531300 4.91379E-07

541310 to 10020 4.91375E-07
 541310 to 531290 5.03860E-07
 541310 to 10080 5.03860E-07
 541310 to 521280 1.65901E-05
 541310 to 20040 1.65901E-05
 541310 tot-cap 2.47065E+02
 541320 to 541310 9.46579E-08
 541320 to 541300 2.00762E-05
 541320 to 541330 8.72303E-01
 541320 to 531320 7.24232E-06
 541320 to 10010 7.24232E-06
 541320 to 531310 3.05084E-07
 541320 to 10020 3.05084E-07
 541320 to 531300 4.10795E-08
 541320 to 10080 4.10795E-08
 541320 to 521290 8.89628E-07
 541320 to 20040 8.89628E-07
 541320 tot-cap 8.81797E-01
 541350 to 541360 1.45326E+06
 541350 tot-cap 1.45326E+06
 541360 to 541350 1.61918E-02
 541360 to 541340 4.94533E-05
 541360 to 541370 1.20415E-01
 541360 to 531360 2.99028E-07
 541360 to 10010 2.99028E-07
 541360 to 531350 1.11314E-07
 541360 to 10020 1.11314E-07
 541360 to 531340 2.51478E-08
 541360 to 10080 2.51478E-08
 541360 to 521330 2.50809E-07
 541360 to 20040 2.50809E-07
 541360 tot-cap 1.36657E-01
 551330 to 551320 7.58235E-05
 551330 to 551340 9.64131E+01
 551330 to 541330 8.28025E-04
 551330 to 10010 8.28025E-04
 551330 to 531300 1.29559E-05
 551330 to 20040 1.29559E-05
 551330 tot-cap 9.64215E+01
 551340 to 551350 1.24610E+02
 551340 tot-cap 1.24610E+02
 551350 to 551360 2.00841E+01
 551350 tot-cap 2.00841E+01
 551370 to 551380 2.15936E-01
 551370 tot-cap 2.15936E-01
 561360 to 561370 8.46268E-01
 561360 tot-cap 8.46268E-01
 571390 to 571400 7.70902E+00
 571390 tot-cap 7.70902E+00
 581440 to 581450 1.18140E+00
 581440 tot-cap 1.18140E+00
 591410 to 591420 5.43332E-08
 591410 to 591390 1.56113E-06
 591410 to 571370 2.34117E-06
 591410 to 20040 4.83725E-05
 591410 to 581400 1.65777E-05
 591410 to 10010 4.73127E-05
 591410 to 591420 1.14107E+01
 591410 to 581410 4.45780E-05
 591410 to 10020 1.38430E-05

591410 to 581390 1.45175E-06
591410 to 10080 1.45175E-06
591410 to 571390 1.40204E-08
591410 to 20080 1.40204E-08
591410 to 571390 4.60817E-05
591410 tot-cap 1.14163E+01
591430 to 591440 9.39733E+01
591430 tot-cap 9.39733E+01
601430 to 601420 8.31773E-02
601430 to 601410 8.48474E-06
601430 to 581390 1.85769E-05
601430 to 20040 5.19298E-04
601430 to 591420 3.55170E-06
601430 to 10010 3.66370E-05
601430 to 601440 1.96475E+02
601430 to 591430 3.52389E-05
601430 to 10020 2.21360E-06
601430 to 591410 3.18980E-06
601430 to 10080 3.18980E-06
601430 to 581410 1.53257E-08
601430 to 20080 1.53257E-08
601430 to 581400 5.00721E-04
601430 tot-cap 1.98599E+02
601450 to 601440 1.06753E-01
601450 to 601430 1.08831E-04
601450 to 581410 7.70277E-06
601450 to 20040 1.93360E-04
601450 to 591440 2.03498E-06
601450 to 10010 1.32486E-05
601450 to 601460 7.45670E+01
601450 to 591450 1.26389E-05
601450 to 10020 1.22324E-06
601450 to 591430 1.92846E-06
601450 to 10080 1.92846E-06
601450 to 581430 3.92636E-09
601450 to 20080 3.92636E-09
601450 to 581420 1.86652E-04
601450 tot-cap 7.46641E+01
601470 to 601480 1.76354E+02
601470 tot-cap 1.76354E+02
611470 to 611460 2.91898E-02
611470 to 611450 9.10767E-05
611470 to 591430 8.10318E-06
611470 to 20040 7.52552E-05
611470 to 601460 1.11681E-05
611470 to 10010 2.54828E-08
611470 to 611480 5.53018E+02
611470 to 601470 2.27148E-05
611470 to 10020 8.40014E-06
611470 to 601450 3.17158E-06
611470 to 10080 3.17158E-06
611470 to 591450 4.76856E-09
611470 to 20080 4.76856E-09
611470 to 591440 6.71520E-05
611470 tot-cap 5.53047E+02
611480 to 611490 1.17726E+04
611480 tot-cap 1.17726E+04
621470 to 621460 7.67521E-02
621470 to 621450 6.85655E-03
621470 to 601430 5.97975E-05

621470 to 20040 1.15630E-03
 621470 to 611460 1.38191E-04
 621470 to 10010 1.97999E-04
 621470 to 621480 2.17637E+02
 621470 to 611470 1.74704E-04
 621470 to 10020 1.14896E-04
 621470 to 611450 1.23372E-04
 621470 to 10030 1.23372E-04
 621470 to 601450 5.67657E-06
 621470 to 20030 5.67657E-06
 621470 to 601440 1.09651E-03
 621470 to 621471 1.53107E+00
 621470 tot-cap 2.17722E+02
 621490 to 621480 4.30478E-02
 621490 to 621470 3.41785E-05
 621490 to 621500 4.48466E+04
 621490 to 611490 4.42692E-04
 621490 to 10010 4.42692E-04
 621490 to 601460 4.42692E-04
 621490 to 20040 4.42692E-04
 621490 tot-cap 4.48466E+04
 621500 to 621510 1.28323E+02
 621500 tot-cap 1.28323E+02
 621510 to 621500 1.43962E-01
 621510 to 621490 1.28606E-04
 621510 to 601470 1.44846E-05
 621510 to 20040 1.13153E-04
 621510 to 611500 1.78098E-06
 621510 to 10010 1.37227E-05
 621510 to 621520 4.86412E+03
 621510 to 611510 1.26468E-05
 621510 to 10020 6.85087E-07
 621510 to 611490 1.24510E-06
 621510 to 10030 1.24510E-06
 621510 to 601490 1.28269E-09
 621510 to 20030 1.28269E-09
 621510 to 601480 9.86677E-05
 621510 tot-cap 4.86427E+03
 621520 to 621510 1.72214E-02
 621520 to 621500 1.16367E-04
 621520 to 601480 2.60120E-06
 621520 to 20040 1.08056E-05
 621520 to 611510 7.45938E-07
 621520 to 10010 2.20124E-06
 621520 to 621530 7.01828E+02
 621520 to 611520 1.95538E-06
 621520 to 10020 5.00079E-07
 621520 to 611500 1.30059E-07
 621520 to 10030 1.30059E-07
 621520 to 601500 3.94152E-10
 621520 to 20030 3.94152E-10
 621520 to 601490 8.20436E-06
 621520 tot-cap 7.01824E+02
 631530 to 631520 1.67262E-02
 631530 to 631510 2.49775E-05
 631530 to 611490 4.05236E-05
 631530 to 20040 5.82415E-04
 631530 to 621520 7.00077E-06
 631530 to 10010 5.92402E-06
 631530 to 631540 5.87260E+02

631530 to 621530 5.68491E-05
 631530 to 10020 4.60967E-06
 631530 to 621510 1.03267E-06
 631530 to 10030 1.03267E-06
 631530 to 611510 2.36057E-08
 631530 to 20030 2.36057E-08
 631530 to 611500 5.41891E-04
 631530 tot-cap 5.87270E+02
 631540 to 631530 2.67380E-02
 631540 to 631520 9.60517E-06
 631540 to 611500 9.33931E-11
 631540 to 20040 6.96791E-04
 631540 to 621530 2.10257E-06
 631540 to 10010 1.12821E-08
 631540 to 631550 1.04373E+03
 631540 to 621540 1.12821E-08
 631540 to 10020 2.10140E-06
 631540 to 621520 3.59999E-06
 631540 to 10080 3.59999E-06
 631540 to 611520 1.50913E-08
 631540 to 20080 1.50913E-08
 631540 to 611510 6.96791E-04
 631540 tot-cap 1.04373E+03
 631550 to 631540 2.19537E-02
 631550 to 631530 6.14752E-05
 631550 to 611510 1.68527E-06
 631550 to 20040 8.14666E-06
 631550 to 621540 3.35213E-06
 631550 to 10010 7.04497E-06
 631550 to 631560 2.52414E+03
 631550 to 621550 5.41892E-06
 631550 to 10020 1.72109E-06
 631550 to 621530 5.69740E-07
 631550 to 10030 5.69740E-07
 631550 to 611530 1.29134E-10
 631550 to 20030 1.29134E-10
 631550 to 611520 6.49139E-06
 631550 tot-cap 2.52417E+03
 641550 to 641560 1.67300E+04
 641550 tot-cap 1.67300E+04
 922340 to 922330 5.75156E-03
 922340 fission 4.07947E+00
 922340 nu-sigf 1.07202E+01
 922340 to 922320 8.33942E-05
 922340 to 922350 1.75502E+02
 922340 to 922341 2.74562E+00
 922340 tot-cap 1.75587E+02
 922350 to 922340 2.63156E-02
 922350 fission 3.55154E+02
 922350 nu-sigf 8.59928E+02
 922350 to 922330 2.51212E-05
 922350 to 922360 8.29762E+01
 922350 to 922351 7.80918E-02
 922350 tot-cap 4.38156E+02
 922360 to 922350 2.92596E-02
 922360 fission 1.74637E+00
 922360 nu-sigf 4.79174E+00
 922360 to 922340 3.90467E-04
 922360 to 922370 7.08938E+01
 922360 to 922361 3.00375E+00

922360 tot-cap 7.26699E+01
 922380 to 922370 5.85234E-02
 922380 fission 8.74312E-01
 922380 nu-sigf 2.46057E+00
 922380 to 922360 3.78177E-04
 922380 to 922390 7.93024E+00
 922380 tot-cap 8.86345E+00
 922370 to 922360 1.33402E-02
 922370 fission 4.73060E+00
 922370 nu-sigf 1.42624E+01
 922370 to 922360 5.10854E-05
 922370 to 922380 2.86381E+02
 922370 to 922371 7.04022E-01
 922370 tot-cap 2.91123E+02
 942380 to 942370 2.14425E-05
 942380 fission 2.09637E+01
 942380 nu-sigf 5.93716E+01
 942380 to 942360 1.20003E-05
 942380 to 942390 2.60244E+02
 942380 to 942381 2.74885E+00
 942380 tot-cap 2.81210E+02
 942390 to 942380 1.13665E-02
 942390 fission 8.48173E+02
 942390 nu-sigf 2.43855E+03
 942390 to 942370 1.95193E-05
 942390 to 942360 1.97520E-05
 942390 to 942400 4.78014E+02
 942390 tot-cap 1.32620E+03
 942400 to 942390 5.34014E-03
 942400 fission 5.45402E+00
 942400 nu-sigf 1.70563E+01
 942400 to 942380 5.21113E-05
 942400 to 942410 1.75951E+03
 942400 tot-cap 1.76497E+03
 942410 to 942400 6.76750E-02
 942410 fission 8.92208E+02
 942410 nu-sigf 2.61778E+03
 942410 to 942390 1.11504E-04
 942410 to 942420 2.93726E+02
 942410 tot-cap 1.18500E+03
 942420 to 942410 2.17690E-02
 942420 fission 4.09857E+00
 942420 nu-sigf 1.28855E+01
 942420 to 942400 2.64680E-04
 942420 to 942430 3.10808E-02
 942420 tot-cap 3.14423E+02
 952410 fission 1.19256E+01
 952410 nu-sigf 3.84612E-01
 952410 to 952420 1.00850E+03
 952410 tot-cap 1.02042E+03
 952430 fission 3.16277E+00
 952430 nu-sigf 1.06299E+01
 952430 to 952440 3.97104E+02
 952430 tot-cap 4.00267E+02
 962440 to 962430 5.23168E-03
 962440 fission 1.42553E+01
 962440 nu-sigf 4.76814E+01
 962440 to 962420 5.21723E-05
 962440 to 962450 1.31903E+02
 962440 to 962441 3.50653E+00

[illegible]

0



1

```

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 dol. prec. machine word applied has, at least, a 16 significant figure accuracy.
0 short-lived split test fraction,  $\phi_n = 9.1182E-04$ 
0 half-norm of matrix used,  $\phi_n = 7.0000E+00$ 
0 4-place-accuracy-retention ratio,  $\text{ratio} = 6.4516E-13$ 
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 5q array has 12 entries.
1 library information...

```

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

```
pass 3
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 origins binary working library--id = 1143
*      made from modified card-image origins 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
*
*****
```

```
*****
*
*      .other identification and sizes of library.
*      data set name: ft15f001
*      2/16/1996 date library was produced
*      1697 total number of nuclides in library
*      689 number of light-element nuclides
*      129 number of actinide nuclides
*      879 number of fission product nuclides
*      7955 number of nonzero off-diagonal matrix elements
*
*****
```

sas2h: basbook wilcox 15x15, 3.00wck, 20gwt/mu burn high temp
 power= 8.466E-05mw, burnup=2.0818E-02md, flux= 1.62E+13w/cm**2-sec

```

      nuclide concentrations, gram atoms
      basis = converted to atoms/(barn-cm)
change 360.0 d 400.0 d 440.0 d 480.0 d 480.0 d 520.0 d 560.0 d
u230 9.43E-22 1.21E-21 1.46E-21 1.82E-21 2.18E-21 2.18E-21 2.60E-21 3.08E-21
u231 2.22E-20 2.82E-20 3.39E-20 4.04E-20 4.77E-20 4.75E-20 5.59E-20 6.51E-20
u232 2.94E-13 3.63E-13 4.42E-13 5.32E-13 6.36E-13 6.36E-13 7.53E-13 8.86E-13
u233 1.71E-11 1.90E-11 2.09E-11 2.28E-11 2.43E-11 2.43E-11 2.59E-11 2.74E-11
u234 5.14E-06 5.09E-06 5.04E-06 4.99E-06 4.99E-06 4.99E-06 4.90E-06 4.86E-06
u235 5.67E-04 5.54E-04 5.40E-04 5.27E-04 5.15E-04 5.15E-04 5.02E-04 4.90E-04
u236 2.59E-05 2.84E-05 3.09E-05 3.32E-05 3.55E-05 3.55E-05 3.77E-05 3.98E-05
u237 4.08E-08 4.44E-08 4.67E-08 4.86E-08 5.11E-08 5.10E-08 5.32E-08 5.54E-08
u238 2.20E-02 2.20E-02 2.20E-02 2.20E-02 2.19E-02 2.19E-02 2.19E-02 2.19E-02
u239 3.23E-09 5.73E-09 5.72E-09 5.71E-09 5.71E-09 2.52E-09 5.71E-09 5.71E-09
u240 .00E+00 1.46E-36 4.66E-36 1.30E-35 3.28E-35 3.28E-35 7.67E-35 1.68E-34
u241 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
rp235 7.21E-15 9.47E-15 1.20E-14 1.46E-14 1.80E-14 1.80E-14 2.15E-14 2.52E-14
rp235m 1.60E-14 2.01E-14 2.32E-14 2.66E-14 2.98E-14 2.94E-14 3.33E-14 3.69E-14
rp236 5.75E-13 7.68E-13 9.92E-13 1.25E-12 1.54E-12 1.54E-12 1.87E-12 2.23E-12
rp237 9.17E-07 1.08E-06 1.24E-06 1.42E-06 1.60E-06 1.60E-06 1.79E-06 1.98E-06
rp238 1.09E-09 1.31E-09 1.52E-09 1.73E-09 1.95E-09 1.94E-09 2.18E-09 2.41E-09
rp239 8.03E-07 8.27E-07 8.28E-07 8.25E-07 8.24E-07 8.23E-07 8.24E-07 8.24E-07
rp240m .00E+00 1.27E-38 3.98E-38 1.11E-37 2.80E-37 2.80E-37 6.55E-37 1.43E-36
```

INFORMATION ONLY

```

np240      1.09E-11  1.42E-11  1.42E-11  1.42E-11  1.41E-11  1.04E-11  1.41E-11  1.42E-11
np261      .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
pu236      7.27E-13  9.64E-13  1.24E-12  1.54E-12  1.89E-12  1.89E-12  2.27E-12  2.69E-12
pu237      8.31E-14  9.77E-14  1.11E-13  1.24E-13  1.37E-13  1.37E-13  1.49E-13  1.61E-13
pu238      4.70E-08  6.27E-08  8.03E-08  1.00E-07  1.23E-07  1.23E-07  1.48E-07  1.77E-07
pu239      5.57E-05  6.11E-05  6.61E-05  7.07E-05  7.50E-05  7.50E-05  7.90E-05  8.27E-05
pu240      5.13E-06  6.16E-06  7.22E-06  8.30E-06  9.39E-06  9.39E-06  1.05E-05  1.16E-05
pu241      1.47E-06  1.90E-06  2.41E-06  2.98E-06  3.61E-06  3.61E-06  4.30E-06  5.05E-06
pu242      5.43E-08  8.09E-08  1.19E-07  1.57E-07  2.08E-07  2.08E-07  2.69E-07  3.41E-07
pu243      6.51E-12  1.05E-11  1.48E-11  2.02E-11  2.69E-11  2.52E-11  3.48E-11  4.41E-11
pu244      2.08E-26  7.43E-26  2.32E-25  6.46E-25  1.63E-24  1.64E-24  3.82E-24  8.35E-24
pu245      .00E+00   5.36E-32  1.67E-31  4.64E-31  1.17E-30  1.14E-30  2.74E-30  6.00E-30
pu246      .00E+00   1.58E-34  5.23E-34  1.50E-33  3.90E-33  3.89E-33  9.31E-33  2.08E-32
en239      2.33E-19  3.67E-19  5.17E-19  7.02E-19  9.24E-19  8.99E-19  1.19E-18  1.49E-18
en240      1.02E-16  1.58E-16  2.23E-16  3.03E-16  3.99E-16  3.96E-16  5.13E-16  6.46E-16
en241      1.60E-08  2.37E-08  3.36E-08  4.54E-08  5.98E-08  5.98E-08  7.69E-08  9.66E-08
en242m     1.84E-10  2.98E-10  4.54E-10  6.59E-10  9.19E-10  9.19E-10  1.24E-09  1.63E-09
en242      1.81E-11  2.70E-11  3.80E-11  5.16E-11  6.73E-11  6.65E-11  8.72E-11  1.10E-10
en243      1.57E-09  2.70E-09  4.32E-09  6.57E-09  9.57E-09  9.57E-09  1.35E-08  1.85E-08
en244m     .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
en244      5.08E-13  9.10E-13  1.46E-12  2.21E-12  3.22E-12  3.12E-12  4.53E-12  6.22E-12
en245      1.35E-30  4.91E-30  1.52E-29  4.19E-29  1.05E-28  1.05E-28  2.42E-28  5.23E-28
en246      .00E+00   3.95E-37  1.31E-36  3.75E-36  9.74E-36  9.73E-36  2.33E-35  5.19E-35
totals     2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02
0 flux      1.62E+13  1.62E+13  1.62E+13  1.62E+13  1.62E+13  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)
0 title: ses2h: babcock wilcox Bx15, 3.00McK, 20guc/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)
0 title: ses2h: babcock wilcox Bx15, 3.00McK, 20guc/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)
0 title: ses2h: babcock wilcox Bx15, 3.00McK, 20guc/mtu burn high temp
0 terminated logical unit no. 71 with zero flag record.
1 * normal termination of execution *
0
0          table of contents for material tables
0          case or subcase printed           page
Ordbet              33                      1                      1
    15                4                    1                    27                    6                    0                    0                    0
    0                  0                    0                    0                    0                    0                    -1                   1698
    880               7985                 0                    5                    99                   2                    16                    96
    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.
```

[illegible]

INFORMATION ONLY

```

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
Qmaster library 12
Qworking library 0
Qscratch file 18
Qnew library 1
Qproblem description
Q1g--geometry (0/1/2/3--inf hnd/slab/cyl/sphere) 2
Q1az--number of zones or material regions 4
Q1s--mixing table length 66
Q1bl--shielded cross section edit option (0/1--no/yes) 0
Q1br--borderedko factor edit option (0/1--no/yes) 0
Q1scpt--cutoff factor option 0
Q1convergence criterion 1.0000E-08
Q1geometry correction factor for higher 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.
Qmixing table

```

entry	mixture	isotope	number density	new identifier
1	1	92235	4.90251E-04	92235
2	1	92234	4.84939E-05	92234
3	1	92236	3.98239E-05	92236
4	1	92238	2.19185E-02	92238
5	1	8016	4.55359E-02	8016
6	3	8016	2.09710E-02	6
7	1	36083	9.77039E-07	36083
8	1	36085	4.70956E-07	36085
9	1	38090	1.06191E-05	38090
10	1	39089	7.90165E-06	39089
11	1	42095	9.68029E-06	42095
12	1	40098	8.21428E-06	40098
13	1	40094	1.27843E-05	40094
14	1	40095	2.07596E-06	40095
15	1	41094	5.48977E-12	41094
16	1	43099	1.24470E-05	43099
17	1	45103	6.47551E-06	45103
18	1	45105	1.88692E-08	45105
19	1	44101	1.10669E-05	44101
20	1	44106	1.66007E-06	44106
21	1	46105	3.81543E-06	46105
22	1	46108	9.30827E-07	46108
23	1	47109	6.68336E-07	47109
24	1	51124	1.62036E-10	51124
25	1	54131	5.77241E-06	54131
26	1	54132	1.00606E-06	54132
27	1	54135	6.65420E-09	54135
28	1	54136	2.10435E-06	54136
29	1	55134	4.21443E-07	55134
30	1	55135	6.63814E-06	55135
31	1	55137	1.31904E-05	55137
32	1	56136	8.15114E-08	56136
33	1	57139	1.31073E-06	57139
34	1	59141	1.09870E-05	59141
35	1	59143	3.85024E-07	59143
36	1	58144	5.87019E-06	58144
37	1	60143	1.06631E-05	60143
38	1	60145	7.73967E-06	60145
39	1	61147	3.14142E-06	61147
40	1	61148	8.89976E-09	61148
41	1	60147	1.31997E-07	60147
42	1	62147	6.67818E-07	62147
43	1	62149	8.02025E-08	62149
44	1	62150	2.54419E-06	62150
45	1	62151	3.32006E-07	62151
46	1	62152	1.24460E-06	62152
47	1	64155	1.18371E-09	64155
48	1	63153	6.30790E-07	63153
49	1	63154	9.52980E-08	63154
50	1	63155	7.31344E-08	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-06	5011
55	1	55133	1.36295E-06	55133
56	1	98237	1.97946E-06	98237
57	1	94238	1.77348E-07	94238
58	1	94239	8.26636E-06	94239
59	1	94240	1.15796E-05	94240

60	1	94241	5.05481E-06	94241
61	1	94242	3.41071E-07	94242
62	1	95241	9.66555E-08	95241
63	1	95243	1.84688E-08	95243
64	1	96244	1.04617E-09	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Geometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.0584E-01	0
2	4	4.78790E-01	2.93000E+02	5.46010E-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

One nuclide in your problem have bondarenko factor data^{***} bondami will copy from logical 12 to logical 1

Copy	999	1/v cross sectio	from log 12 to log 18	bondarenko trigger 0
Copy	999	1/v cross sectio	from log 18 to log 1	bondarenko trigger 0
Copy	999	1/v cross sectio	from log 18 to log 1	bondarenko trigger 0
Copy	1001	hydrogen	from log 12 to log 1	bondarenko trigger 0
Copy	5010	b-10 1273 218np	from log 12 to log 1	bondarenko trigger 0
Copy	5011	boron-11	from log 12 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 12 to log 18	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	36083	kr-83	from log 12 to log 1	bondarenko trigger 0
Copy	36085	kr-85	from log 12 to log 1	bondarenko trigger 0
Copy	38090	sr-90	from log 12 to log 1	bondarenko trigger 0
Copy	39089	y-89	from log 12 to log 1	bondarenko trigger 0
Copy	40093	zr-93	from log 12 to log 1	bondarenko trigger 0
Copy	40094	zr-94	from log 12 to log 1	bondarenko trigger 0
Copy	40095	zr-95	from log 12 to log 1	bondarenko trigger 0
Copy	40802	zircalloy	from log 12 to log 1	bondarenko trigger 0
Copy	41094	rb-94	from log 12 to log 1	bondarenko trigger 0
Copy	42095	mo-95	from log 12 to log 1	bondarenko trigger 0
Copy	43099	tc-99	from log 12 to log 1	bondarenko trigger 0
Copy	44101	ru-101	from log 12 to log 1	bondarenko trigger 0
Copy	44106	ru-106	from log 12 to log 1	bondarenko trigger 0
Copy	45108	rh-108	from log 12 to log 1	bondarenko trigger 0
Copy	45105	rh-105	from log 12 to log 1	bondarenko trigger 0
Copy	46105	pd-105	from log 12 to log 1	bondarenko trigger 0
Copy	46108	pd-108	from log 12 to log 1	bondarenko trigger 0
Copy	47109	silver-109	from log 12 to log 1	bondarenko trigger 0
Copy	51124	sb-124	from log 12 to log 1	bondarenko trigger 0
Copy	54131	xe-131	from log 12 to log 1	bondarenko trigger 0
Copy	54132	xe-132	from log 12 to log 1	bondarenko trigger 0
Copy	54135	xenon-135	from log 12 to log 1	bondarenko trigger 0
Copy	54136	xe-136	from log 12 to log 1	bondarenko trigger 0
Copy	55133	cesium-133	from log 12 to log 1	bondarenko trigger 0
Copy	55134	cs-134	from log 12 to log 1	bondarenko trigger 0
Copy	55135	cs-135	from log 12 to log 1	bondarenko trigger 0
Copy	55137	cs-137	from log 12 to log 1	bondarenko trigger 0
Copy	56136	ba-136	from log 12 to log 1	bondarenko trigger 0
Copy	57139	la-139	from log 12 to log 1	bondarenko trigger 0
Copy	58144	ce-144	from log 12 to log 1	bondarenko trigger 0
Copy	59141	pr-141	from log 12 to log 1	bondarenko trigger 0
Copy	59143	pr-143	from log 12 to log 1	bondarenko trigger 0
Copy	60143	nd-143	from log 12 to log 1	bondarenko trigger 0
Copy	60145	nd-145	from log 12 to log 1	bondarenko trigger 0
Copy	60147	nd-147	from log 12 to log 1	bondarenko trigger 0
Copy	61147	pm-147	from log 12 to log 1	bondarenko trigger 0

COPY TO LOGICAL 1 ONLY

Ocapy 6148 pm-148 from log 12 to log 1 banderenko trigger 0
 Ocapy 6247 sm-147 from log 12 to log 1 banderenko trigger 0
 Ocapy 6249 sm-149 from log 12 to log 1 banderenko trigger 0
 Ocapy 6250 sm-150 from log 12 to log 1 banderenko trigger 0
 Ocapy 6251 sm-151 from log 12 to log 1 banderenko trigger 0
 Ocapy 6252 sm-152 from log 12 to log 1 banderenko trigger 0
 Ocapy 63153 eu-153 from log 12 to log 1 banderenko trigger 0
 Ocapy 63154 eu-154 from log 12 to log 1 banderenko trigger 0
 Ocapy 63155 eu-155 from log 12 to log 1 banderenko trigger 0
 Ocapy 64155 gd-155 from log 12 to log 1 banderenko trigger 0
 Ocapy 92234 u-234 1043 sigs from log 12 to log 1 banderenko trigger 0
 Ocapy 92235 uranium-235 from log 12 to log 1 banderenko trigger 0
 Ocapy 92236 u-236 1163 sigs from log 12 to log 1 banderenko trigger 0
 Ocapy 92238 uranium-238 from log 12 to log 1 banderenko trigger 0
 Ocapy 92237 neptunium-237 from log 12 to log 1 banderenko trigger 0
 Ocapy 94238 pu-238 1050 sigs from log 12 to log 1 banderenko trigger 0
 Ocapy 94239 plutonium-239 from log 12 to log 1 banderenko trigger 0
 Ocapy 94240 plutonium-240 from log 12 to log 1 banderenko trigger 0
 Ocapy 94241 plutonium-241 from log 12 to log 1 banderenko trigger 0
 Ocapy 94242 plutonium-242 from log 12 to log 1 banderenko trigger 0
 Ocapy 95241 sm-241 1056 sigs from log 12 to log 1 banderenko trigger 0
 Ocapy 95243 am-243 1057 218 from log 12 to log 1 banderenko trigger 0
 Ocapy 95244 curium-244 from log 12 to log 1 banderenko 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 - oml

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 1289/thrm1002 updated 10/13/89	id	1001
b-10 1273 218gp 042375 p-3 233k	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=102,103,105,106,107 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


```

1 0 -1q array has 1 entries.
0 0 0q array has 9 entries.
0 0 1q array has 12 entries.
0 select 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 apix formatted cross section data
0 the 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
- xschm 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 rrc 1/27/89
last updated 9/16/93
l.m.petrie - ornl

0 nuclides from xactm tape		unimpaired - cont	
1	1/v cross sections normalized to 1.0 at 0.0253 ev		999
2	hydrogen	encl/b-i-v net 1269/thrml002	1001
3	b-10 1273 218g	042375 p-3 293k	5010
4	boron-11	encl/b-i-v net 1160	5011
5	oxygen-16	encl/b-i-v net 1276	8016
6	oxygen-16	encl/b-i-v net 1276	6
7	kr-83	mt=102, 103, 105, 106, 107	36083
8	kr-85	mt= 102	36085
9	sr-90	mt=102	38090

10	y-89	mt=102	updated 10/13/89	39089
11	zr-95	mt= 102		40095
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	rb-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
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 sigs-54 newlacs p-3 293k f-1/e-m(1.45)			92234
54	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
55	u-236 1163 sigs-54 newlacs p-3 293k f-1/e-m(1.45)			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	92237
58	pu-238 1050 sigs-54 newlacs p-3 293k f-1/e-m(1.45)			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 sigs-54 newlacs 218np p-3 293k			95241
64	am-243 1057 218 sp wt f-1/e-m 090376 p3 293k			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
0 hydrogen endf/b-iv mat 1289/thrm1002 updated 10/13/89				1001
thermal scattering matrix number 2 at a temperature of				550.00 was selected
0b-10 1273 218np 042375 p-3 293k				5010
				temperature= 975.00
				temperature= 607.60
				temperature= 607.60

FOR INFORMATION ONLY

0 boron-11 thermal scattering matrix number 2 at a temperature of 550.00 was selected.
 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, 105, 106, 107 updated 10/13/89 36083 temperature= 975.00
 Resonance data for this nuclide
 Omass number (a) = 82.202 temperature(kelvin) = 975.000
 Opotential scatter sigma = 7.004 lumped nuclear density = 9.7708585E-07
 Ospin factor (g) = 4988.190 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.7477258E+05
 Omderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 1.9499170E+05
 Omderator-2 will be treated by the norheim 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 -1.385983E-03 .000000E+00 -1.759590E-03
 12 2.166790E-02 .000000E+00 9.901676E-03
 13 -3.216016E-01 .000000E+00 -9.862368E-02
 14 4.782765E-05 .000000E+00 -1.722650E-05
 Oexcess resonance integrals
 0 resolved
 Oabsorption 1.44905E+02
 Ofission .000000E+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
 Resonance data for this nuclide
 Omass number (a) = 88.142 temperature(kelvin) = 975.000
 Opotential scatter sigma = 3.644 lumped nuclear density = 7.9016527E-06
 Ospin factor (g) = 78.664 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 2.1610631E+04
 Omderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 2.4110725E+04
 Omderator-2 will be treated by the norheim 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 -1.668715E-06 .000000E+00 -8.242978E-05
 10 -4.720007E-05 .000000E+00 -1.330676E-04
 Oexcess resonance integrals
 0 resolved
 Oabsorption 1.46444E-01
 Ofission .000000E+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
 Resonance data for this nuclide
 Omass number (a) = 93.100 temperature(kelvin) = 975.000
 Opotential scatter sigma = 3.779 lumped nuclear density = 1.2784308E-05
 Ospin factor (g) = 180.853 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.3356978E+04

Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.953 sigma(per absorber atom)= 1.4902220E+04
 Moderator-2 will be treated by the nordheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 8 -6.747734E-07 .000000E+00 -6.500250E-04
 9 -2.446607E-05 .000000E+00 -2.167085E-03
 Oexcess resonance integrals
 0 resolved
 Oabsorption 3.43940E-02
 Ofission .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
 Resonance data for this nuclide
 Mass number (a) = 90.436 temperature(kelvin) = 650.000
 Potential scatterer sigma = 6.385 lumped nuclear density = 4.2515602E-02
 Spin factor (g) = 1.079 lump dimension (a-bar) = 5.4610002E-01
 Oinner radius = 4.7878999E-01 darcoff correction (c) = 5.0364637E-01
 The absorber will be treated by the nordheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 8 -1.780596E-03 .000000E+00 -1.286907E+00
 9 -5.853373E-02 .000000E+00 -2.695297E+00
 10 -6.999285E-02 .000000E+00 -1.601321E+00
 11 -1.883957E-01 .000000E+00 -7.920912E-01
 Oexcess resonance integrals
 0 resolved
 Oabsorption 2.28539E-01
 Ofission .00000E+00
 - elapsed time .02 min.
 0 rb-94 mt=102 updated 10/13/89 41094 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 93.101 temperature(kelvin) = 975.000
 Potential scatterer sigma = 3.779 lumped nuclear density = 5.4897680E-12
 Spin factor (g) = 43808.801 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4289261E-01
 The absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.1105079E+10
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 257.953 sigma(per absorber atom)= 3.4708569E+10
 Moderator-2 will be treated by the nordheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 13 1.063419E-02 .000000E+00 9.253893E-04
 14 9.836701E-03 .000000E+00 -4.064784E-04
 Oexcess resonance integrals
 0 resolved
 Oabsorption 9.15001E+01
 Ofission .00000E+00
 - elapsed time .02 min.
 0 mo-95 mt=102 updated 10/13/89 42095 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 94.091 temperature(kelvin) = 975.000
 Potential scatterer sigma = 3.806 lumped nuclear density = 9.6902851E-06
 Spin factor (g) = 607.724 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4289261E-01

Other absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.763994E+04
 Moderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 1.968067E+04
 Moderator-2 will be treated by the norheim integral method.
 Other 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 -2.101411E-03 .000000E+00 -1.219284E-02
 11 -3.741213E-03 .000000E+00 -6.328940E-03
 12 -2.768862E+00 .000000E+00 -3.186731E+00
 13 1.591845E-04 .000000E+00 -2.397023E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 9.97895E+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 = 1.2446981E-05
 Ospin factor (g) = 4527.940 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .000000E+00 dencoff correction (c) = 3.4269261E-01
 Other absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.371896E+04
 Moderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 1.5306087E+04
 Moderator-2 will be treated by the norheim integral method.
 Other 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 -1.596682E-02 .000000E+00 -7.532893E-03
 12 -4.130031E-03 .000000E+00 -1.416189E-04
 13 -2.602912E-01 .000000E+00 -1.372238E-02
 14 -5.629467E+00 .000000E+00 -1.798363E-01
 15 1.070845E-02 .000000E+00 -5.397120E-04
 16 4.836022E-03 .000000E+00 -2.802316E-04
 17 2.074402E-04 .000000E+00 -1.192082E-05

Oexcess resonance integrals
 0 resolved
 Oabsorption 3.27549E+02
 fission .00000E+00
 - elapsed time .03 min.
 0 ru-101 mt=102 updated 10/13/89 44101 temperature= 975.00

Oresonance data for this nuclide
 Omass number (a) = 100.039 temperature(kelvin) = 975.000
 Opotential scatter sigma = 3.965 lumped nuclear density = 1.1066534E-05
 Ospin factor (g) = 8785.250 lump dimension (a-bar) = 4.6812201E-01
 Oirmer radius = .000000E+00 dencoff correction (c) = 3.4269261E-01
 Other absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.5430277E+04
 Moderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.953 sigma(per absorber atom)= 1.7215379E+04
 Moderator-2 will be treated by the norheim integral method.
 Other 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 -3.600798E-02 .000000E+00 -3.661688E-03
 12 -7.148226E-02 .000000E+00 -2.072446E-02
 13 -2.960912E-01 .000000E+00 -7.977196E-03

FOR ORIENTATION ONLY

14 2.37483E-04 .00000E+00 -4.17089E-05
 Deccess resonance integrals
 0 resolved
 Oabsorption 7.95266E+01
 fission .00000E+00
 - elapsed time .03 min.
 0 ru-105 mt=102 updated 10/13/89 44105 temperature= 975.00
 0 rh-105 mt=102 updated 10/13/89 45105 temperature= 975.00
 Resonance data for this nuclide
 Qmass number (a) = 102.021 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 5.408 lumped nuclear density = 6.475510E-06
 Qspin factor (g) = .500 lump dimension (a-bar) = 4.681220E-01
 Qirmer radius = .000000E+00 clncoff correction (c) = 3.426926E-01
 Othe absorber will be treated by the nordheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 2.657007E+04
 Qmoderator-1 will be treated by the nordheim integral method.
 Qmass of moderator-2 = 257.953 sigma(per absorber atom)= 2.942077E+04
 Qmoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Qgroup res abs res fias res scat
 9 1.27147E-03 .00000E+00 1.99638E-03
 10 -2.97708E-03 .00000E+00 -4.18653E-03
 11 -1.28198E-02 .00000E+00 -1.13671E-02
 12 -1.83391E-04 .00000E+00 -1.93401E-05
 13 .00000E+00 .00000E+00 .00000E+00
 14 .00000E+00 .00000E+00 .00000E+00
 15 2.29555E-01 .00000E+00 3.32406E-03
 16 3.50669E+01 .00000E+00 -5.38979E-02
 17 -1.84200E+02 .00000E+00 -1.50431E-01
 18 8.73913E+01 .00000E+00 2.61307E-01
 19 1.15189E+01 .00000E+00 -1.56078E-03
 20 1.08983E+00 .00000E+00 -2.46259E-03
 21 2.16593E-01 .00000E+00 1.93489E-03
 22 2.58994E-01 .00000E+00 2.92526E-03
 23 -9.88052E-02 .00000E+00 1.75903E-03
 Deccess resonance integrals
 0 resolved
 Oabsorption 1.15157E+03
 fission .00000E+00
 - elapsed time .07 min.
 0 rh-105 mt= 102 45105 temperature= 975.00
 0 pd-105 mt=102 updated 10/13/89 46105 temperature= 975.00
 Resonance data for this nuclide
 Qmass number (a) = 104.004 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 4.069 lumped nuclear density = 3.815434E-06
 Qspin factor (g) = 15210.000 lump dimension (a-bar) = 4.681220E-01
 Qirmer radius = .000000E+00 clncoff correction (c) = 3.426926E-01
 Othe absorber will be treated by the nordheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 4.475497E+04
 Qmoderator-1 will be treated by the nordheim integral method.
 Qmass of moderator-2 = 257.953 sigma(per absorber atom)= 4.998259E+04
 Qmoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Qgroup res abs res fias res scat
 12 -5.26740E-02 .00000E+00 -1.04982E-03
 13 5.37017E-03 .00000E+00 -3.61421E-04
 14 7.77344E-04 .00000E+00 -8.15720E-05
 Deccess resonance integrals

```

0 resolved
Absorption 6.12702E+01
fission .00000E+00
- elapsed time .07 min.
0 pd-108 mt=102 updated 10/13/89 46108 temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 106.977 temperature(kelvin) = 975.000
Potential scatter sigma = 4.146 lumped nuclear density = 9.3032725E-07
Spin factor (g) = 21175.100 lump dimension (a-bar) = 4.6812201E-01
Oimer radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01
Other absorber will be treated by the norheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.8354798E+05
Moderator-1 will be treated by the norheim integral method.
Mass of moderator-2 = 237.933 sigma(per absorber atom)= 2.0478233E+05
Moderator-2 will be treated by the norheim integral method.
Other resonance material will be treated as a 2-dimensional object.
Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup res abs res fiss res scat
11 1.170385E-04 .000000E+00 3.531856E-04
12 -8.421333E-01 .000000E+00 -6.202699E-01
13 6.898885E-03 .000000E+00 1.834003E-03
14 8.561365E-02 .000000E+00 -3.207094E-05
15 -1.840486E-01 .000000E+00 8.089802E-05
16 2.946586E-04 .000000E+00 -9.256640E-06
Deccess resonance integrals
0 resolved
Absorption 2.13080E+02
fission .00000E+00
- elapsed time .07 min.
0 silver-109 endf/b-iv mat 1139 updated 10/13/89 47109 temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 107.969 temperature(kelvin) = 975.000
Potential scatter sigma = 4.988 lumped nuclear density = 6.6533451E-07
Spin factor (g) = 1441.870 lump dimension (a-bar) = 4.6812201E-01
Oimer radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01
Other absorber will be treated by the norheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.5550083E+05
Moderator-1 will be treated by the norheim integral method.
Mass of moderator-2 = 237.933 sigma(per absorber atom)= 2.8505872E+05
Moderator-2 will be treated by the norheim integral method.
Other resonance material will be treated as a 2-dimensional object.
Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup res abs res fiss res scat
10 -5.320484E-05 .000000E+00 -3.352181E-05
11 -2.755409E-03 .000000E+00 -2.078532E-03
12 -7.117940E-01 .000000E+00 -3.246696E-02
13 7.671432E-01 .000000E+00 3.380747E-02
14 -6.185493E+00 .000000E+00 -5.847073E-01
Deccess resonance integrals
0 resolved
Absorption 1.39527E+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
Resonance data for this nuclide
Mass number (a) = 129.781 temperature(kelvin) = 975.000
Potential scatter sigma = 4.301 lumped nuclear density = 5.7724055E-06
Spin factor (g) = 246.825 lump dimension (a-bar) = 4.6812201E-01
Oimer radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01

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Othe absorber will be treated by the nonheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 2.9582066E+04
 Qmoderator-1 will be treated by the nonheim integral method.
 Qmass of moderator-2 = 237.933 sigma(per absorber atom)= 3.3004363E+04
 Qmoderator-2 will be treated by the nonheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-1.74657E-06	.000000E+00	-1.644019E-05
10	-1.217036E-04	.000000E+00	-1.011729E-04
11	-1.522097E-03	.000000E+00	-1.149261E-03
12	-2.946790E-02	.000000E+00	-2.748222E-03
13	-4.86081E+01	.000000E+00	-1.140207E+02
14	1.085607E-02	.000000E+00	1.520949E-02

Oexcess resonance integrals
 0 resolved
 Oabsorption 7.83722E+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
 Qmass number (a) = 130.771 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 4.301 lumped nuclear density = 1.0060623E-05
 Qspin factor (g) = 675.899 lump dimension (a-bar) = 4.6812207E-01
 Qinner radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nonheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.6973074E+04
 Qmoderator-1 will be treated by the nonheim integral method.
 Qmass of moderator-2 = 237.933 sigma(per absorber atom)= 1.8936658E+04
 Qmoderator-2 will be treated by the nonheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-1.536122E-05	.000000E+00	-6.967560E-05
10	-4.775116E-03	.000000E+00	-6.079132E-02
11	3.338609E-03	.000000E+00	-9.216575E-07

Oexcess resonance integrals
 0 resolved
 Oabsorption 9.76256E-01
 fission .00000E+00
 - elapsed time .08 min.

0 xenon-135 endf/b-iv met 1294 updated 10/13/89 54135 temperature= 975.00
 0 xe-136 mt= 102, 103, 104, 105, 107 updated 10/13/89 54136 temperature= 975.00
 0 cesium-133 endf/b-iv met 1141 updated 10/13/89 55133 temperature= 975.00

Oresonance data for this nuclide
 Qmass number (a) = 131.764 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 7.100 lumped nuclear density = 1.3629538E-05
 Qspin factor (g) = 374.437 lump dimension (a-bar) = 4.6812207E-01
 Qinner radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01

Othe absorber will be treated by the nonheim integral method.
 Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.2528647E+04
 Qmoderator-1 will be treated by the nonheim integral method.
 Qmass of moderator-2 = 238.051 sigma(per absorber atom)= 1.3438617E+04
 Qmoderator-2 will be treated by the nonheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-3.902142E-05	.000000E+00	-2.371830E-04
10	-1.85991E-03	.000000E+00	-3.566480E-03
11	-7.03014E-02	.000000E+00	-1.231307E-01

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12 -1.08736E-01 .000000E+00 -1.51690E-02
13 -1.806647E-01 .000000E+00 -9.89493E-03
14 -8.02715E+00 .000000E+00 -3.51723E-01
15 5.625014E-03 .000000E+00 -4.05442E-04
16 2.77785E-03 .000000E+00 -2.21527E-04
17 2.35227E-03 .000000E+00 -1.89070E-04
18 2.215057E-03 .000000E+00 -1.67948E-04
19 1.317054E-03 .000000E+00 -9.67162E-05
Deccss resonance integrals
0 resolved
Oabsorption 3.56736E+02
ffission .000000E+00
- elapsed time .10 min.
0 cs-134 mt=102 updated 10/13/89 55134 temperature= 975.00
0 cs-135 mt= 102 updated 10/13/89 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
Onesance data for this nuclide
Oness number (a) = 134.737 temperature(kelvin) = 975.000
Opotential scatter sigma = 4.885 lumped nuclear density = 8.1511402E-08
Ospin factor (g) = 1267.680 lump dimension (a-bar) = 4.6812201E-01
Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Oness of moderator-1 = 15.995 sigma(per absorber atom)= 2.094917E+06
Onoderator-1 will be treated by the norheim integral method.
Oness of moderator-2 = 237.953 sigma(per absorber atom)= 2.337275E+06
Onoderator-2 will be treated by the norheim 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 fias res scat
10 1.264057E-06 .000000E+00 5.433292E-07
11 1.019501E-05 .000000E+00 8.952831E-06
Deccss resonance integrals
0 resolved
Oabsorption 1.39473E+00
ffission .000000E+00
- elapsed time .10 min.
0 la-139 mt=102 updated 10/13/89 57139 temperature= 975.00
Onesance data for this nuclide
Oness number (a) = 137.713 temperature(kelvin) = 975.000
Opotential scatter sigma = 4.906 lumped nuclear density = 1.3107317E-05
Ospin factor (g) = 145.855 lump dimension (a-bar) = 4.6812201E-01
Oirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Oness of moderator-1 = 15.995 sigma(per absorber atom)= 1.3027813E+04
Onoderator-1 will be treated by the norheim integral method.
Oness of moderator-2 = 237.953 sigma(per absorber atom)= 1.4534978E+04
Onoderator-2 will be treated by the norheim 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 fias res scat
9 1.241050E-05 .000000E+00 2.717702E-03
10 -2.74788E-04 .000000E+00 -1.731751E-02
11 .000000E+00 .000000E+00 .000000E+00
12 -4.45841E-02 .000000E+00 -2.717459E-02
Deccss resonance integrals
0 resolved
Oabsorption 8.09612E+00
ffission .000000E+00
- elapsed time .12 min.

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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

Resonance data for this nuclide

Mass number (a) = 139.697 temperature(kelvin) = 975.000
 Potential scatter sigma = 4.953 lumped nuclear density = 1.0987084E-05
 Spin factor (g) = 1026.500 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.5541928E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 1.7339945E+04

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	-4.312013E-03	.000000E+00	-1.464163E-01
11	-7.124887E-02	.000000E+00	-9.475036E-01
12	-1.590714E-03	.000000E+00	-1.548419E-04

Deconv resonance integrals

0 resolved

Absorption 1.21742E+01

fission .00000E+00

- elapsed time .12 min.

0 pr-143 mt=102 updated 10/13/89 59143 temperature= 975.00

0 rd-143 mt=102 updated 10/13/89 60143 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 141.682 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.000 lumped nuclear density = 1.0563101E-05
 Spin factor (g) = 1964.860 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.6014073E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 1.7866713E+04

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
10	-1.073421E-04	.000000E+00	-4.672364E-05
11	-2.502659E-01	.000000E+00	-2.911259E+00
12	-1.644718E-01	.000000E+00	-8.09245E-02

Deconv resonance integrals

0 resolved

Absorption 5.10661E+01

fission .00000E+00

- elapsed time .12 min.

0 rd-145 mt=102 updated 10/13/89 60145 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 143.668 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.047 lumped nuclear density = 7.7356683E-06
 Spin factor (g) = 1007.250 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 dencoff correction (c) = 3.4269261E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.2062980E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 2.4615338E+04

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
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10	-3.127119E-03	.000000E+00	-4.923112E-02
11	-4.765503E-02	.000000E+00	-1.440322E-01
12	-1.169613E+00	.000000E+00	-7.364430E+00
13	9.609872E-05	.000000E+00	2.040021E-04
14	-1.043070E+00	.000000E+00	-2.743980E-02
15	5.904857E-03	.000000E+00	-4.619551E-04
16	1.326494E-03	.000000E+00	-1.451367E-04
17	9.642499E-04	.000000E+00	-1.063983E-04
18	8.539778E-04	.000000E+00	-9.314087E-05
19	7.634344E-04	.000000E+00	-8.070501E-05
20	2.838992E-05	.000000E+00	-2.979078E-06

Excess resonance integrals

0 resolved
 0 absorption 2.07412E+02
 fission .00000E+00
 - elapsed time .13 min.

0 rd-147	mt=102	updated 10/13/89	60147	temperature=	975.00
0 pm-147	mt=102	updated 10/13/89	61147	temperature=	975.00

Resonance data for this nuclide

Mass number (a)	= 145.653	temperature(kelvin)	= 975.000
Potential scatter sigma	= 5.093	lumped nuclear density	= 3.1414177E-06
Spin factor (g)	= 21589.500	lump dimension (a-bar)	= 4.6812201E-01
Dimer radius	= .000000E+00	denoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 5.4357527E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 6.0646059E+04

Moderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fiss	res scat
12	-1.563805E-01	.000000E+00	-5.028190E-02
13	-4.012225E-02	.000000E+00	-2.350459E-03
14	-7.182008E-01	.000000E+00	-3.089703E+01
15	4.130403E-02	.000000E+00	6.981774E-03
16	1.697950E-02	.000000E+00	1.746757E-03
17	1.369752E-02	.000000E+00	1.750408E-03
18	1.253762E-02	.000000E+00	9.646074E-04
19	6.999463E-04	.000000E+00	5.089173E-05

Excess resonance integrals

0 resolved
 0 absorption 2.02910E+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

Resonance data for this nuclide

Mass number (a)	= 145.653	temperature(kelvin)	= 975.000
Potential scatter sigma	= 5.093	lumped nuclear density	= 6.6781757E-07
Spin factor (g)	= .000	lump dimension (a-bar)	= 4.6812201E-01
Dimer radius	= .000000E+00	denoff correction (c)	= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.5568811E+05

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 257.953 sigma(per absorber atom)= 2.8527988E+05

Moderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fiss	res scat
11	2.836913E-01	.000000E+00	1.112904E+00

12	1.08894E+00	.00000E+00	-1.40855E+00
13	-2.80585E+00	.00000E+00	-1.30260E+00
14	-2.40562E-01	.00000E+00	-1.39150E-03
15	3.11767E-01	.00000E+00	-1.91867E-03
16	7.28784E-03	.00000E+00	-3.73570E-04
17	4.28147E-03	.00000E+00	-2.40153E-04
18	3.51039E-03	.00000E+00	-1.99705E-04
19	2.91060E-03	.00000E+00	-1.64943E-04
20	8.43499E-04	.00000E+00	-4.62685E-05

Deccess resonance integrals
 0 resolved
 Absorption 7.2552E+02
 fission .00000E+00
 - elapsed time .15 min.

0 sm-149 thermal scattering matrix number 3 at a temperature of 900.03 was selected.
 nt=102, 103, 107 updated 10/13/89 62149 temperature= 975.00

Resonance data for this nuclide
 Mass number (a) = 147.638 temperature(kelvin) = 975.000
 Potential scatter sigma = 3.260 lumped nuclear density = 8.020240E-08
 Spin factor (g) = 10407.900 lump dimension (a-bar) = 4.681220E-01
 Oimer radius = .000000E+00 darcoff correction (c) = 3.426926E-01

Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.129107E+06
 Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.953 sigma(per absorber atom)= 2.375419E+06
 Moderator-2 will be treated by the norheim 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	8.54661E-03	.00000E+00	3.07117E-02
12	-5.40039E-02	.00000E+00	-1.79696E-01
13	2.35636E-02	.00000E+00	2.89901E-03
14	9.78699E-03	.00000E+00	-7.09089E-03

Deccess resonance integrals
 0 resolved
 Absorption 8.04343E+02
 fission .00000E+00
 - elapsed time .15 min.

0 sm-150 nt=102 updated 10/13/89 62150 temperature= 975.00

Resonance data for this nuclide
 Mass number (a) = 148.629 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.162 lumped nuclear density = 2.544190E-06
 Spin factor (g) = 4376.420 lump dimension (a-bar) = 4.681220E-01
 Oimer radius = .000000E+00 darcoff correction (c) = 3.426926E-01

Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 6.711750E+04

Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 237.953 sigma(per absorber atom)= 7.488220E+04

Moderator-2 will be treated by the norheim 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	-8.86041E-04	.00000E+00	-8.23827E-03
11	-1.90925E-02	.00000E+00	-2.16953E-01
12	-6.20205E-02	.00000E+00	-1.87471E-02
13	-4.47161E+00	.00000E+00	-3.52265E+00
14	1.05973E-04	.00000E+00	-6.40971E-05

Deccess resonance integrals
 0 resolved
 Absorption 2.89862E+02

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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
 Resonance data for this nuclide
 Mass number (a) = 149.623 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.185 lumped nuclear density = 3.320570E-07
 Spin factor (g) = 7574.703 lump dimension (a-bar) = 4.681220E-01
 Dirner radius = .000000E+00 denooff correction (c) = 3.426926E-01
 Other absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 5.1432759E+05
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 237.933 sigma(per absorber atom)= 5.7382925E+05
 Moderator-2 will be treated by the norheim integral method.
 Other resonance material will be treated as a 2-dimensional object.
 Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fss res scat
 14 -1.902656E-01 .000000E+00 -1.953556E-02
 15 1.489455E+01 .000000E+00 7.541747E-02
 16 -2.179166E+01 .000000E+00 -6.184655E-02
 17 1.737730E+02 .000000E+00 8.287366E-01
 18 -3.205274E+02 .000000E+00 -1.782191E+00
 19 6.255297E+01 .000000E+00 3.868173E-01
 20 1.141397E+00 .000000E+00 -1.408118E-04
 21 -7.117594E-02 .000000E+00 1.244099E-02
 22 6.952561E-02 .000000E+00 3.899921E-08
 23 -1.091915E-02 .000000E+00 3.374085E-04
 Oexcess resonance integrals
 0 resolved
 Oabsorption 2.05658E+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
 Resonance data for this nuclide
 Mass number (a) = 150.615 temperature(kelvin) = 975.000
 Potential scatter sigma = 5.208 lumped nuclear density = 1.2444013E-06
 Spin factor (g) = 863.594 lump dimension (a-bar) = 4.681220E-01
 Dirner radius = .000000E+00 denooff correction (c) = 3.426926E-01
 Other absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.3720081E+05
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 237.933 sigma(per absorber atom)= 1.5307278E+05
 Moderator-2 will be treated by the norheim integral method.
 Other resonance material will be treated as a 2-dimensional object.
 Ovolute fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fss res scat
 9 2.402917E-06 .000000E+00 1.158824E-04
 10 -9.668040E-04 .000000E+00 -1.527281E-02
 11 -1.426155E-02 .000000E+00 -5.438628E-02
 12 -9.672705E-02 .000000E+00 -3.073028E-01
 13 4.225402E-02 .000000E+00 1.027737E-01
 14 -8.765422E+01 .000000E+00 -1.690672E+02
 Oexcess resonance integrals
 0 resolved
 Oabsorption 2.79773E+03
 fission .00000E+00
 - elapsed time .17 min.
 0 sm-153 mt=102,103,104,105,106,107 updated 10/13/89 63153 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 151.607 temperature(kelvin) = 975.000
 Potential scatter sigma = 9.731 lumped nuclear density = 6.307897E-07

Ospin factor (g) = 12865.900 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 denoff 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)= 2.7070775E+05
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 257.983 sigma(per absorber atom)= 3.020547E+05
 Omoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-2.77284E-01	.000000E+00	-5.409002E-02
13	-1.013753E-01	.000000E+00	-2.071325E-03
14	-6.82480E-01	.000000E+00	1.708121E-03
15	2.400970E+00	.000000E+00	-2.694528E-02
16	-3.294738E+00	.000000E+00	8.19251E-03
17	1.505605E-01	.000000E+00	-3.437719E-03
18	7.726888E-02	.000000E+00	-2.23119E-03
19	5.05546E-02	.000000E+00	-1.541131E-03
20	-1.253801E-01	.000000E+00	-1.275065E-03

Deccess resonance integrals

0 resolved
 Oabsorption 1.35519E+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

Onesonance data for this nuclide

Omss number (a) = 152.601 temperature(kelvin) = 975.000
 Opotential scatter sigma = 9.731 lumped nuclear density = 9.5298013E-08
 Ospin factor (g) = 19135.801 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 denoff 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)= 1.7918495E+06
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 257.983 sigma(per absorber atom)= 1.9991453E+06
 Omoderator-2 will be treated by the nordheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-3.879111E-01	.000000E+00	-6.058321E-02
13	-3.050694E-01	.000000E+00	-2.464727E-02
14	3.428014E-01	.000000E+00	1.488880E-02
15	1.892024E-01	.000000E+00	2.110245E-02
16	7.259676E+00	.000000E+00	9.253874E-02
17	-1.438728E+02	.000000E+00	-1.895837E+00
18	1.137163E+02	.000000E+00	1.894022E+00
19	-1.014623E+02	.000000E+00	1.187256E+00

Deccess resonance integrals

0 resolved
 Oabsorption 2.13692E+03
 fission .00000E+00
 - elapsed time .18 min.

0 eu-155 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

Onesonance data for this nuclide

Omss number (a) = 153.592 temperature(kelvin) = 975.000
 Opotential scatter sigma = 5.277 lumped nuclear density = 1.1837075E-09
 Ospin factor (g) = 12700.100 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 denoff 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)= 1.4425835E+08

Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 257.983 sigma(per absorber atom)= 1.609473E+08
 Moderator-2 will be treated by the norheim integral method.
 This resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	-1.439291E+00	.000000E+00	-1.899456E-01
13	1.541241E+00	.000000E+00	1.985186E-01
14	2.190766E-01	.000000E+00	9.807291E-03
15	-3.322711E-01	.000000E+00	-3.651623E-05
16	1.477359E+00	.000000E+00	-4.148859E-03
17	1.568654E-01	.000000E+00	-1.479120E-03
18	9.605173E-02	.000000E+00	-1.078083E-03
19	6.295319E-02	.000000E+00	-8.026669E-04
20	1.670382E-02	.000000E+00	1.627042E-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	-2.127761E+03	.000000E+00	-1.621977E+00
26	-5.205660E+03	.000000E+00	1.951468E+00
27	-1.697989E+03	.000000E+00	7.392578E-01

Deepest resonance integrals

0 resolved
 Absorption 3.97057E+04
 fission .00000E+00
 - elapsed time .18 min.

U-234 1043 sig=5+4 new(lacs p-3 293k f-1/e-m(1.+5)

9224 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 252.029	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.021	lumped nuclear density	= 4.8495789E-06
Spin factor (g)	= 6948.450	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .000000E+00	denoiff correction (c)	= 3.4289261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.5212695E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 237.925 sigma(per absorber atom)= 3.9274359E+04

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
11	-2.320080E-02	.000000E+00	-6.765317E-02
12	-1.891160E-01	.000000E+00	-7.984187E-02
13	7.759874E-04	.000000E+00	-6.471546E-04
14	-1.852598E-01	.000000E+00	-3.033657E+00

Deepest resonance integrals

0 resolved
 Absorption 5.81870E+02
 fission .00000E+00
 - elapsed time .20 min.

U uranium-235 endf/b-iv net 1261

updated 10/13/89

9225 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 235.025	temperature(kelvin)	= 975.000
Potential scatter sigma	= 11.500	lumped nuclear density	= 4.9025125E-04
Spin factor (g)	= 15171.100	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .000000E+00	denoiff correction (c)	= 3.4289261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.4831059E+02

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.049 sigma(per absorber atom)= 3.7379553E+02

Qmoderator-2 will be treated by the norheim 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	-2.044447E+00	-1.275228E+00	-4.783008E-02
13	-7.108612E+00	-3.537716E+00	-1.536470E-01
14	-5.710854E+00	-3.502140E+00	-3.885792E-02

Qdevice resonance integrals

0 resolved

Qabsorption 2.10693E+02

Qfission 1.25499E+02

- elapsed time .22 min.

Qr-236 1163 sigs=5+4 new(lacs p-3 293k f-1/e-m(1.5)

92236 temperature= 975.00

Qresonance data for this nuclide

Qmass number (a)	= 234.017	temperature(kelvin)	= 975.000
Qpotential scatter sigma	= 10.995	lumped nuclear density	= 3.9829801E-05
Qspin factor (g)	= 6328.490	lump dimension (a-bar)	= 4.6812201E-01
Qinner radius	= .0000000E+00	denoiff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 4.2878804E+03

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 237.984 sigma(per absorber atom)= 4.7831025E+03

Qmoderator-2 will be treated by the norheim 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	-1.949282E-01	.000000E+00	-4.880892E-01
12	-1.041914E+00	.000000E+00	-7.155065E-01
13	-6.308462E-02	.000000E+00	-3.415031E-03
14	-3.580088E+01	.000000E+00	-3.132152E+00

Qdevice resonance integrals

0 resolved

Qabsorption 2.87438E+02

Qfission .00000E+00

- elapsed time .22 min.

Quranium-238 endf/b-iv mat 1262

updated 10/13/89

92238 temperature= 975.00

Qresonance data for this nuclide

Qmass number (a)	= 236.006	temperature(kelvin)	= 975.000
Qpotential scatter sigma	= 10.999	lumped nuclear density	= 2.1918545E-02
Qspin factor (g)	= 656.527	lump dimension (a-bar)	= 4.6812201E-01
Qinner radius	= .0000000E+00	denoiff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 7.7906489E+00

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 235.041 sigma(per absorber atom)= 3.3544325E-01

Qmoderator-2 will be treated by the norheim 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	-3.939776E-02	.000000E+00	-4.046975E-01
10	-1.025897E+00	-1.750993E-05	-6.481733E+00
11	-9.708024E+00	.000000E+00	-2.689807E+01
12	-4.304811E+01	.000000E+00	-4.998776E+01
13	-5.401412E+01	.000000E+00	-1.789715E+01
14	-1.045008E+02	.000000E+00	-6.089761E+00

Qdevice resonance integrals

0 resolved

Qabsorption 1.80080E+01

Qfission 5.08969E-04

- elapsed time .23 min.

0 neptunium-237 endf/b-iv mat 1253 updated 10/13/89 95237 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 235.012 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.500 lumped nuclear density = 1.9794916E-06
 Spin factor (g) = 10100.800 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 8.626444E+04

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 9.252891E+04

Moderator-2 will be treated by the nordheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fias	res scat
11	-6.338531E-02	-2.012413E-05	-7.400325E-03
12	3.148655E-02	-9.852386E-05	7.995239E-03
13	-4.917675E-03	8.985276E-05	-4.406471E-04
14	-4.483762E-02	-5.801127E-05	-1.160987E-03

Excess resonance integrals

0 resolved

Absorption 2.95103E+02

fission 1.38574E+01

- elapsed time .27 min.

Qpu-238 1050 sigo-5+4 newtacs p-3 258k f-1/e-m(1.45) 94238 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 236.167 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.890 lumped nuclear density = 1.7734772E-07
 Spin factor (g) = 13130.600 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 9.6285250E+05

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 1.0527656E+06

Moderator-2 will be treated by the nordheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fias	res scat
11	-8.062604E-04	-1.198825E-04	-8.329950E-04
12	-5.152005E-04	-5.715002E-05	-2.714376E-04
13	4.091211E-01	7.547670E-02	-9.684728E-03
14	-3.823655E-01	-6.990144E-02	8.535011E-03

Excess resonance integrals

0 resolved

Absorption 8.25438E+01

fission 9.08494E+00

- elapsed time .27 min.

0 plutonium-239 endf/b-iv mat 1264 updated 10/13/89 94239 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 236.999 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.200 lumped nuclear density = 8.263488E-05
 Spin factor (g) = 6435.710 lump dimension (a-bar) = 4.6812201E-01
 Omer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.0657207E+03

Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.2157563E+03

Moderator-2 will be treated by the nordheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fias	res scat
--------	---------	----------	----------

11 -1.73143E-01 -6.96258E-02 -5.30926E-02
 12 -1.54383E+00 -5.79401E-01 -2.03313E-01
 13 -5.06989E+00 -2.98939E+00 -7.73412E-02
 14 -1.61661E+00 -8.59655E-01 -1.44785E-02

Deccess resonance integrals

0 resolved

Absorption 3.09609E+02

fission 1.73873E+02

- elapsed time .28 min.

0 plutonium-240 endf/b-iv mat 1265

updated 10/13/89

94340

temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 237.992

temperature(kelvin)

= 975.000

Potential scatter sigma = 10.599

lumped nuclear density

= 1.1579618E-05

Spin factor (g) = 669.244

lump dimension (a-bar)

= 4.6812201E-01

Ormer radius = .0000000E+00

dercoff correction (c)

= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995

sigma(per absorber atom)= 1.4746573E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051

sigma(per absorber atom)= 1.5817633E+04

Moderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fias	res scat
9	-3.52737E-05	-8.45446E-07	-1.12216E-04
10	-2.74197E-03	-1.69944E-04	-1.25363E-02
11	-8.85667E-02	-5.12013E-04	-1.17872E-01
12	-1.23651E+00	-6.75213E-03	-1.18853E+00
13	-1.51177E-01	-9.26966E-04	-1.10198E-02
14	.00000E+00	.00000E+00	.00000E+00
15	1.74494E-02	3.33080E-06	3.45191E-03
16	3.07524E+00	5.88924E-04	3.87785E-01
17	4.90477E+02	9.36097E-02	4.40670E+01
18	-6.40936E+03	-1.22925E+00	-5.07054E+02
19	7.66334E+02	1.46258E-01	5.94295E+01
20	-9.32789E+01	-1.78026E-02	1.79813E+00

Deccess resonance integrals

0 resolved

Absorption 5.56424E+03

fission 2.07910E+00

- elapsed time .30 min.

0 plutonium-241 endf/b-iv mat 1266

updated 10/13/89

94241

temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 238.978

temperature(kelvin)

= 975.000

Potential scatter sigma = 10.599

lumped nuclear density

= 5.0548110E-06

Spin factor (g) = 16402.100

lump dimension (a-bar)

= 4.6812201E-01

Ormer radius = .0000000E+00

dercoff correction (c)

= 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995

sigma(per absorber atom)= 3.3781617E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051

sigma(per absorber atom)= 3.6235211E+04

Moderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fias	res scat
12	5.99087E-03	5.13861E-03	6.30321E-04
13	-3.51303E-01	-2.73308E-01	-1.09347E-02
14	-2.87456E-01	-1.94083E-01	-1.54898E-05
15	1.79442E-02	1.60844E-02	-4.67321E-04

Deccess resonance integrals

0 resolved

Absorption 5.08611E+02
 fission 4.26404E+02
 - elapsed time .32 min.
 0 plutonium-242 endf/b-iv met 1161 updated 10/13/89 94242 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 240.145 temperature(kelvin) = 975.000
 Potential scatter sigma = 10.694 lumped nuclear density = 3.4107088E-07
 Spin factor (g) = 6606.710 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01
 Other absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 5.0065744E+05
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 298.051 sigma(per absorber atom)= 5.3702075E+05
 Moderator-2 will be treated by the nordheim integral method.
 Other resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 11 -7.84598E-04 .000000E+00 -2.27278E-03
 12 -1.84165E-02 .000000E+00 -3.61567E-02
 13 5.77682E-05 .000000E+00 4.30036E-06
 14 8.14496E-02 .000000E+00 1.52580E-02
 15 -6.45830E+00 .000000E+00 -5.53311E-01
 16 4.05291E-02 .000000E+00 -3.45723E-03
 17 1.55039E-02 .000000E+00 -1.84824E-03
 18 1.11256E-02 .000000E+00 -1.43069E-03
 Excess resonance integrals
 0 resolved
 Absorption 1.10786E+03
 fission .00000E+00
 - elapsed time .32 min.
 Oam-241 1056 sigs=544 newlacs 218gp p-3 258k 95241 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 238.950 temperature(kelvin) = 975.000
 Potential scatter sigma = 9.511 lumped nuclear density = 9.6635489E-08
 Spin factor (g) = 82058.203 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01
 Other absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.7670494E+06
 Moderator-1 will be treated by the nordheim integral method.
 Mass of moderator-2 = 298.051 sigma(per absorber atom)= 1.895921E+06
 Moderator-2 will be treated by the nordheim integral method.
 Other resonance material will be treated as a 2-dimensional object.
 Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 13 4.90857E-01 1.21201E-02 4.87139E-03
 14 -4.36651E-01 -1.11335E-02 -4.60361E-03
 Excess resonance integrals
 0 resolved
 Absorption 1.98465E+02
 fission 1.07605E+00
 - elapsed time .32 min.
 Oam-243 1057 218 gp wt f-1/e-m 090376 p3 258k 95243 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 240.940 temperature(kelvin) = 975.000
 Potential scatter sigma = 9.511 lumped nuclear density = 1.8468327E-08
 Spin factor (g) = 82052.602 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 cutoff correction (c) = 3.4269261E-01
 Other absorber will be treated by the nordheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 9.2460830E+06
 Moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 9.917636E+06

moderator-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

Ogroup	res abs	res fiss	res scat
13	-6.80679E-03	.000000E+00	4.328656E-04
14	2.13422E-02	.000000E+00	2.224311E-04

0excess resonance integrals

0 resolved

0absorption 1.60150E+02

0fission .00000E+00

- elapsed time .32 min.

0 curium-244 endf/b-iv met 1162

updated 10/13/89

96344

temperature= 975.00

0resonance data for this nuclide

Mass number (a) = 242.133 temperature(kelvin) = 975.000

0potential scatter sigma = 10.320 lumped nuclear density = 1.046174E-09

0spin factor (g) = 5251.150 lump dimension (a-bar) = 4.681220E-01

0inner radius = .000000E+00 denoff correction (c) = 3.428926E-01

0the absorber will be treated by the nordheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.632228E+08

moderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 1.750779E+08

moderator-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

Ogroup	res abs	res fiss	res scat
11	2.55326E-04	6.98624E-06	3.07531E-04
12	6.83191E-04	3.21137E-05	1.34060E-04
13	2.70853E-03	1.32941E-04	7.12190E-04
14	7.95863E-02	4.76157E-03	1.46298E-02

0excess resonance integrals

0 resolved

0absorption 6.1389E+02

0fission 3.5421E+01

- elapsed time .33 min.

- elapsed time .33 min.

1 this xsdm working tape was created 02/16/96 at 09:59:42

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 met 1289/thml002 updated 10/13/89	id	1001
b-10 1273 218ngp 042375 p-3 252k updated 10/13/89	id	5010
boron-11 endf/b-iv met 1160 updated 10/13/89	id	5011
oxygen-16 endf/b-iv met 1276 updated 10/13/89	id	8016
oxygen-16 endf/b-iv met 1276 updated 10/13/89	id	6
kr-85 mt=102,103,105,106,107 updated 10/13/89	id	36085
kr-85 mt= 102 updated 10/13/89	id	36085
sr-90 mt=102 updated 10/13/89	id	38090
y-89 mt=102 updated 10/13/89	id	39089
zn-65 mt= 102 updated 10/13/89	id	40065
zn-64 mt=102 updated 10/13/89	id	40064
zn-66 mt=102 updated 10/13/89	id	40066
zincalloy endf/b-iv met 1284 updated 10/13/89	id	40302
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 1063 sigs=54 newtlacs p-3 298k f-1/e-m(1.45)			id	92234
uranium-235	endf/b-iv mat 1261	updated 10/13/89	id	92235
u-235 1163 sigs=54 newtlacs p-3 298k f-1/e-m(1.45)			id	92236
uranium-238	endf/b-iv mat 1263	updated 10/13/89	id	92238
neptunium-237	endf/b-iv mat 1263	updated 10/13/89	id	92237
pu-238 1050 sigs=54 newtlacs p-3 298k f-1/e-m(1.45)			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 1265	updated 10/13/89	id	94241
plutonium-242	endf/b-iv mat 1161	updated 10/13/89	id	94242
am-241 1056 sigs=54 newtlacs 218gpp p-3 298k			id	95241
am-243 1057 218 sp wt f-1/e-m 092576 pb 298k			id	95243
curium-244	endf/b-iv mat 1162	updated 10/13/89	id	96244

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465
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1      560 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gcd/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 70% for cross section mixing.
1      560 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gcd/mtu burn high temp
0general problem description data block
0      general problem data

ige 1/2/3 = plane/cylinder/sphere      2      ign quadrature order      8
ign number of zones                     4      ists order of scattering      3
im number of spatial intervals          24      levt 0/1/2/3/4/5=eq/l/alpha/c/z/r/h      1
ibl 0/1/2/3 = vacuum/refl/per/white     1      im inner iteration maximum      20
ibr right boundary condition             3      ion outer iteration maximum      25
mox number of mixtures                  3      iclc -1/0/n=flat nes/any/opt      0
ms mixing table length                  65      ith 0/1 = forward/adjoint         0
ign number of energy groups              27      iflu not used(always wgtcd)        0
mrg number of neutron groups             27      iprt -2/-1/0=mmixture xsc print    -2
ngg number of gamma groups               0      idl 0/1/2/3=no/prt nd/pch ny/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. paran 0
iqn volumetric sources (0/nno/yes) 0 idim 0/1 = none/density factors 39* 1
ipn boundary sources (0/nno/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=none/yes upscatter scaling 0
ict1 0/1/2/3=no/xsect/sroe/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 nrnd band rebal 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
ignf number of broad groups 27 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 4
ipp -2/-1/0=weighted xsect print -2 ncom 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 eq1 ev change eps for search 1.00000E-05
bf buckling factor=1.420892 1.42089E+00 xrpm new paran mod for search 7.50000E-01
this case will require 2535 locations for mixing
this case has been allocated 20000 locations
1 560 cl, sash: babcock wilcox 15x15, 3.00wt%, 20gcl/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.)
nucleides      occc      mixture      component      atom density
on tape      identification
1 999          1          92235         4.90251E-04
2 1001         1          92234         4.84939E-05
3 5010         1          92236         3.98239E-05
4 5011         1          92238         2.19185E-02
5 8016         1          8016         4.55399E-02
6 6            3          6            2.09710E-02
7 36085        1          36085        9.77039E-07
8 36085        1          36085        4.70956E-07
9 38090        1          38090        1.06191E-05
10 39089        1          39089        7.90165E-06
11 40095        1          42095        9.68029E-06
12 40094        1          40094        8.21428E-06
13 40095        1          40094        1.27843E-05
14 40902        1          40095        2.07596E-06
15 41094        1          41094        5.48977E-12
16 42095        1          43099        1.26470E-05
17 43099        1          45105        6.47551E-06
18 44101        1          45105        1.88692E-08
19 44105        1          44101        1.10665E-05
20 45103        1          44106        1.65007E-06
21 45105        1          46105        3.81543E-06
22 46105        1          46108        9.30827E-07
23 46108        1          47109        6.6835E-07
24 47109        1          51124        1.62036E-10
25 51124        1          54131        5.77261E-06
26 54131        1          54132        1.00606E-06
27 54132        1          54135        6.65420E-09

```

extra
xsect id's

28	54135	1	54136	2.10436E-05
29	54136	1	55134	4.21443E-07
30	55133	1	55135	6.63814E-06
31	55134	1	55137	1.31904E-05
32	55135	1	56136	8.15114E-08
33	55137	1	57139	1.31073E-05
34	56136	1	59141	1.09870E-05
35	57139	1	59143	3.85024E-07
36	58144	1	58144	5.87019E-06
37	59141	1	60143	1.06631E-05
38	59143	1	60145	7.73967E-06
39	60143	1	61147	3.14142E-06
40	60145	1	61148	8.83976E-09
41	60147	1	60147	1.31597E-07
42	61147	1	62147	6.67818E-07
43	61148	1	62149	8.02025E-08
44	62147	1	62150	2.54419E-06
45	62149	1	62151	3.32006E-07
46	62150	1	62152	1.24460E-06
47	62151	1	64155	1.18371E-09
48	62152	1	63153	6.30790E-07
49	63153	1	63154	9.5280E-08
50	63154	1	63155	7.31344E-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-06
55	92236	1	55133	1.36295E-06
56	92238	1	95237	1.97946E-06
57	95237	1	94238	1.77348E-07
58	94238	1	94239	8.26636E-06
59	94239	1	94240	1.15796E-06
60	94240	1	94241	5.05481E-06
61	94241	1	94242	3.41071E-07
62	94242	1	95241	9.66935E-08
63	95241	1	95243	1.84683E-08
64	95243	1	96244	1.04617E-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.

1 560 d, see2h: babcock wilcox 15x15, 3.00MW, 20gpd/mtu burn high temp

neutron group parameters

0	gp	energy	lethargy	weighted	broad gp	calc	group	right	left
		boundaries	boundaries	velocities	numbers	type	band	albedo	albedo
1	2.00000E+07	6.95147E-01	4.60581E+09	1	0	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46538E+09	5	0	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72615E+08	8	0	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13628E+08	9	0	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	1.15123E+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	1.38156E+01	3.20578E+06	14	0	14	1.00000E+00
15	3.04999E+00	1.50080E+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	1.52543E+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	8.17974E+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	4.86683E+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	1.91139E+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	560 d, sas2h: babcock wilcox 15x15, 3.00MW, 20gcl/mu burn high temp						
0	mixture	order p(l)	activity table	quadrature constants			
	by zone	by zone	matl no.	reaction	weights	directions	refl direc
1	1	3			0	-2.79004E-01	3
2	1	3			5.06143E-02	-1.97286E-01	3
3	2	3			5.06143E-02	1.97286E-01	2
4	3	3			0	-6.04419E-01	8
5					5.59533E-02	-5.58410E-01	8
6					5.59533E-02	-2.31301E-01	7
7					5.59533E-02	2.31301E-01	6
8					5.59533E-02	5.58410E-01	5
9					0	-8.50774E-01	15
10					5.22844E-02	-8.21784E-01	15
11					5.22844E-02	-6.01588E-01	14
12					5.22844E-02	-2.20196E-01	13
13					5.22844E-02	2.20196E-01	12
14					5.22844E-02	6.01588E-01	11
15					5.22844E-02	8.21784E-01	10
16					0	-9.83032E-01	24
17					4.53355E-02	-9.64143E-01	24
18					4.53355E-02	-8.17361E-01	23
19					4.53355E-02	-5.46143E-01	22
20					4.53355E-02	-1.91780E-01	21
21					4.53355E-02	1.91780E-01	20
22					4.53355E-02	5.46143E-01	19
23					4.53355E-02	8.17361E-01	18
24					4.53355E-02	9.64143E-01	17

0 constants for p(3) scattering

Origl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16395E-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	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42863E-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	-5.42863E-01	-5.13643E-02	3.44245E-01

13	2.2019E-01	-8.5723E-02	-5.4286E-01	5.1364E-02	-3.4424E-01
14	6.0158E-01	-8.5723E-02	.0000E+00	1.4033E-01	-3.4424E-01
15	8.2178E-01	-8.5723E-02	5.4286E-01	1.9169E-01	3.4424E-01
16	-9.8305E-01	-4.4952E-01	8.3689E-01	5.0070E-01	-7.5100E-01
17	-9.6414E-01	-4.4952E-01	7.7318E-01	4.9103E-01	-6.2643E-01
18	-8.1736E-01	-4.4952E-01	3.2026E-01	4.1632E-01	1.4651E-01
19	-5.4614E-01	-4.4952E-01	-3.2026E-01	2.7817E-01	7.3657E-01
20	-1.9178E-01	-4.4952E-01	-7.7318E-01	9.7682E-02	4.1723E-01
21	1.9178E-01	-4.4952E-01	-7.7318E-01	-9.7682E-02	-4.1723E-01
22	5.4614E-01	-4.4952E-01	-3.2026E-01	-2.7817E-01	-7.3657E-01
23	8.1736E-01	-4.4952E-01	3.2026E-01	-4.1632E-01	-1.4651E-01
24	9.6414E-01	-4.4952E-01	7.7318E-01	-4.9103E-01	6.2643E-01

1	int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.2955E-02	1	0	2.1090E-03	1.0000E+00	0		
2	2.5910E-02	4.3340E-02	1	1	1.6279E-01	9.4931E-03	1.0000E+00	0	
3	6.0771E-02	8.7510E-02	1	1	3.8183E-01	2.9404E-02	1.0000E+00	0	
4	1.1434E-01	1.7415E-01	1	1	7.1784E-01	1.3110E-01	1.0000E+00	0	
5	2.3406E-01	2.9397E-01	1	1	1.4706E+00	2.2129E-01	1.0000E+00		
6	3.5387E-01	3.8061E-01	1	1	2.2234E+00	1.2789E-01	1.0000E+00		
7	4.0735E-01	4.2478E-01	1	1	2.5594E+00	9.3042E-02	1.0000E+00		
8	4.4221E-01	4.5516E-01	1	1	2.7780E+00	7.4100E-02	1.0000E+00		
9	4.6812E-01	4.6881E-01	2	2	2.9413E+00	4.0794E-03	0		
10	4.8950E-01	4.7148E-01	2	2	2.9500E+00	1.1698E-02	0		
11	4.7945E-01	4.7541E-01	2	2	2.9748E+00	1.1798E-02	0		
12	4.7740E-01	4.7808E-01	2	2	2.9992E+00	4.1602E-03	0		
13	4.7890E-01	4.8319E-01	3	3	3.0083E+00	2.6528E-02	1.0000E+00		
14	4.8752E-01	4.9987E-01	3	3	3.0632E+00	7.8276E-02	1.0000E+00		
15	5.1243E-01	5.2490E-01	3	3	3.2197E+00	8.2177E-02	1.0000E+00		
16	5.3732E-01	5.4173E-01	3	3	3.3763E+00	2.9742E-02	1.0000E+00		
17	5.4610E-01	5.5351E-01	4	4	3.4312E+00	5.1561E-02	1.0000E+00		
18	5.6092E-01	5.7090E-01	4	4	3.5244E+00	7.1554E-02	1.0000E+00		
19	5.8087E-01	5.9617E-01	4	4	3.6477E+00	1.1462E-01	1.0000E+00		
20	6.1147E-01	6.4575E-01	4	4	3.8420E+00	2.7816E-01	1.0000E+00		
21	6.8004E-01	7.1431E-01	4	4	4.2727E+00	3.0702E-01	1.0000E+00		
22	7.4892E-01	7.6383E-01	4	4	4.7054E+00	1.4687E-01	1.0000E+00		
23	7.7919E-01	7.8916E-01	4	4	4.8958E+00	9.8914E-02	1.0000E+00		
24	7.9914E-01	8.0654E-01	4	4	5.0211E+00	7.5135E-02	1.0000E+00		
25	8.1398E-01				5.11431E+00				

- elapsed time .00 min.

1	outer	inner	1 - balance	eigenvalue	1 - source	1 - scatter	1 - upscat	search	time
iter	iters			ratio	ratio	ratio	ratio	parameter	(min)
1	134	1.1743E-05	1.0727E+00	-8.0102E-02	1.0000E+00	-2.7021E-02	.0000E+00	.0000	.0000
2	209	-9.5204E-06	1.0807E+00	-1.4410E-03	-8.4288E-03	-3.6092E-03	.0000E+00	.0000	.0000
3	269	1.2649E-05	1.0815E+00	-2.1192E-04	-1.0496E-03	-7.9082E-04	.0000E+00	.0000	.0000
4	314	3.1502E-05	1.0818E+00	-4.3872E-05	-2.3358E-04	-1.6822E-04	.0000E+00	.0167	.0167
5	343	-1.4954E-05	1.0821E+00	-9.7434E-06	-4.9763E-05	-3.2962E-05	.0000E+00	.0167	.0167

grp to grp	inner	mid	max. flux	msf	max. scale	coarse
iters	int.	int.	difference	int.	factor	mesh
1	1	1	1.8405E-08	24	1.0000E+00	1
2	2	1	1.9745E-08	24	1.0000E+00	1
3	3	1	1.7029E-08	24	1.0000E+00	1
4	4	1	1.4974E-08	24	1.0000E+00	1
5	5	1	8.7126E-09	24	1.0000E+00	1
6	6	1	3.0927E-09	24	1.0000E+00	1
7	7	1	1.8492E-09	24	1.0000E+00	1
8	8	1	1.0195E-09	24	1.0000E+00	1
9	9	1	1.9884E-09	24	1.0000E+00	1
10	10	1	1.7508E-09	24	1.0000E+00	1
11	11	1	1.7839E-09	24	1.0000E+00	1
12	12	1	3.2681E-09	24	1.0000E+00	1

13	13	1	24	4.40522E-09	24	1.00000E+00	1
14	14	1	24	4.21909E-09	24	1.00000E+00	1
15	15	1	24	3.79112E-05	24	9.99977E-01	1
16	16	1	24	4.69885E-05	24	9.99982E-01	1
17	17	1	24	6.01809E-05	24	9.99988E-01	1
18	18	1	18	2.16487E-05	24	9.99959E-01	1
19	19	1	24	5.91300E-05	24	9.99984E-01	1
20	20	1	24	4.62845E-05	24	9.99967E-01	1
21	21	1	18	2.49877E-05	24	9.99945E-01	1
22	22	1	24	4.22500E-05	24	9.99989E-01	1
23	23	1	24	1.98220E-06	24	1.00000E+00	1
24	24	1	2	9.31992E-06	24	1.00001E+00	1
25	25	1	24	1.63619E-05	24	1.00000E+00	1
26	26	1	1	1.06731E-05	24	9.99996E-01	2
27	27	1	2	4.91808E-06	24	1.00000E+00	2

6 370 -3.35889E-07 1.08195E+00 -2.18376E-06 -9.78602E-06 -6.60534E-06 .00000E+00 .0167

final monitor

elapsed time .02 min. Lambda 1.08195E+00 production/absorption 1.08195E+00 angular flux on 16

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gcl/mtu burn high temp

0 int. zone number	radius	int. midpoint	area	volume	prod density
1	.00000E+00	1.29551E-02	.00000E+00	2.10909E-03	3.16633E-03
2	2.59102E-02	4.33406E-02	1.62798E-01	9.46318E-03	1.42656E-02
3	6.07710E-02	8.75100E-02	3.81839E-01	2.94043E-02	4.42066E-02
4	1.14249E-01	1.74159E-01	7.17848E-01	1.31104E-01	1.98987E-01
5	2.34061E-01	2.99667E-01	1.47066E+00	2.21299E-01	3.43822E-01
6	3.53873E-01	3.80612E-01	2.22349E+00	1.27890E-01	2.03951E-01
7	4.07351E-01	4.26781E-01	2.59946E+00	9.30429E-02	1.51156E-01
8	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.22515E-01
9	4.68122E-01	4.68914E-01	2.94130E+00	4.07946E-03	.00000E+00
10	4.69507E-01	4.71481E-01	2.99000E+00	1.16688E-02	.00000E+00
11	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	4.78990E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	4.87528E-01	4.99987E-01	3.06323E+00	7.82768E-02	.00000E+00
15	5.12445E-01	5.26903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	6.11475E-01	6.45759E-01	3.84201E+00	2.78169E-01	.00000E+00
21	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	7.48592E-01	7.63893E-01	4.70854E+00	1.46879E-01	.00000E+00
23	7.79158E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25	8.13968E-01		5.11431E+00		

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gcl/mtu burn high temp

0 total flux	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
0 int.								
1	1.77250E-01	1.32813E+00	1.68099E+00	1.04172E+00	1.57999E+00	3.03114E+00	2.90549E+00	2.08069E+00
2	1.77319E-01	1.32876E+00	1.68142E+00	1.04222E+00	1.57666E+00	3.03244E+00	2.90613E+00	2.08089E+00
3	1.77263E-01	1.32814E+00	1.68064E+00	1.04174E+00	1.57588E+00	3.03083E+00	2.90510E+00	2.08060E+00
4	1.76868E-01	1.32888E+00	1.67519E+00	1.03942E+00	1.57058E+00	3.02833E+00	2.89878E+00	2.07944E+00
5	1.75833E-01	1.31299E+00	1.66134E+00	1.03008E+00	1.55730E+00	2.99433E+00	2.88322E+00	2.07684E+00
6	1.74643E-01	1.30044E+00	1.64574E+00	1.02064E+00	1.54254E+00	2.96584E+00	2.86628E+00	2.07395E+00
7	1.73694E-01	1.29066E+00	1.63371E+00	1.01349E+00	1.53144E+00	2.94482E+00	2.85385E+00	2.07178E+00
8	1.72753E-01	1.28113E+00	1.62217E+00	1.00674E+00	1.52110E+00	2.92562E+00	2.84261E+00	2.06973E+00
9	1.72290E-01	1.27597E+00	1.61597E+00	1.00015E+00	1.51567E+00	2.91563E+00	2.83481E+00	2.06865E+00
10	1.72131E-01	1.27479E+00	1.61473E+00	1.00046E+00	1.51467E+00	2.91384E+00	2.83382E+00	2.06846E+00
11	1.71973E-01	1.27342E+00	1.61295E+00	1.00147E+00	1.51329E+00	2.91130E+00	2.83442E+00	2.06817E+00

12	1.71870E-01	1.27263E+00	1.61178E+00	1.00083E+00	1.51233E+00	2.90967E+00	2.83353E+00	2.05798E+00
13	1.71677E-01	1.27058E+00	1.60756E+00	9.99585E-01	1.51052E+00	2.90629E+00	2.83160E+00	2.05760E+00
14	1.71522E-01	1.26833E+00	1.60304E+00	9.97511E-01	1.50871E+00	2.89479E+00	2.82517E+00	2.05656E+00
15	1.70564E-01	1.25897E+00	1.59465E+00	9.90433E-01	1.49631E+00	2.87831E+00	2.81558E+00	2.05433E+00
16	1.70278E-01	1.25545E+00	1.58963E+00	9.88962E-01	1.49058E+00	2.86676E+00	2.80887E+00	2.05491E+00
17	1.70139E-01	1.25343E+00	1.58652E+00	9.88462E-01	1.48661E+00	2.85880E+00	2.80420E+00	2.05477E+00
18	1.69556E-01	1.25082E+00	1.58253E+00	9.81660E-01	1.48154E+00	2.84882E+00	2.79833E+00	2.05462E+00
19	1.69730E-01	1.24772E+00	1.57791E+00	9.78296E-01	1.47590E+00	2.83767E+00	2.79176E+00	2.05440E+00
20	1.69426E-01	1.24370E+00	1.57203E+00	9.74080E-01	1.46878E+00	2.82582E+00	2.78361E+00	2.05407E+00
21	1.69218E-01	1.24090E+00	1.56790E+00	9.71095E-01	1.46370E+00	2.81400E+00	2.77792E+00	2.05397E+00
22	1.69219E-01	1.24077E+00	1.56760E+00	9.70813E-01	1.46324E+00	2.81258E+00	2.77748E+00	2.05420E+00
23	1.69296E-01	1.24163E+00	1.56873E+00	9.77542E-01	1.46441E+00	2.81528E+00	2.77896E+00	2.05448E+00
24	1.69394E-01	1.24264E+00	1.57009E+00	9.72639E-01	1.46587E+00	2.81813E+00	2.78078E+00	2.05475E+00
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58702E+00	1.44599E+00	1.30507E+00	7.95512E-01	6.71182E-01	5.87528E-01	3.70100E-01	2.04382E-01
2	1.58694E+00	1.44589E+00	1.30487E+00	7.95281E-01	6.70971E-01	5.87261E-01	3.70074E-01	2.04359E-01
3	1.58713E+00	1.44610E+00	1.30533E+00	7.95829E-01	6.71429E-01	5.87837E-01	3.70151E-01	2.04404E-01
4	1.58816E+00	1.44733E+00	1.30797E+00	7.98070E-01	6.74040E-01	5.91827E-01	3.70574E-01	2.04662E-01
5	1.59075E+00	1.45033E+00	1.31447E+00	8.06515E-01	6.80489E-01	6.01479E-01	3.71959E-01	2.05292E-01
6	1.59363E+00	1.45361E+00	1.32158E+00	8.14890E-01	6.87572E-01	6.12163E-01	3.72894E-01	2.05979E-01
7	1.59582E+00	1.45601E+00	1.32681E+00	8.21038E-01	6.92817E-01	6.20137E-01	3.73488E-01	2.06482E-01
8	1.59789E+00	1.45819E+00	1.33158E+00	8.26593E-01	6.97627E-01	6.27489E-01	3.74189E-01	2.06899E-01
9	1.59899E+00	1.45931E+00	1.33404E+00	8.29780E-01	7.00125E-01	6.31313E-01	3.74551E-01	2.07175E-01
10	1.59971E+00	1.45950E+00	1.33444E+00	8.30234E-01	7.00539E-01	6.31929E-01	3.74612E-01	2.07216E-01
11	1.59947E+00	1.45976E+00	1.33501E+00	8.30917E-01	7.01118E-01	6.32792E-01	3.74699E-01	2.07274E-01
12	1.59966E+00	1.45998E+00	1.33537E+00	8.31357E-01	7.01494E-01	6.33360E-01	3.74753E-01	2.07312E-01
13	1.60003E+00	1.46027E+00	1.33612E+00	8.32259E-01	7.02268E-01	6.34513E-01	3.74871E-01	2.07388E-01
14	1.60106E+00	1.46138E+00	1.33851E+00	8.35064E-01	7.04683E-01	6.38129E-01	3.75263E-01	2.07629E-01
15	1.60220E+00	1.46295E+00	1.34188E+00	8.38940E-01	7.08014E-01	6.43096E-01	3.75771E-01	2.07962E-01
16	1.60273E+00	1.46401E+00	1.34410E+00	8.41440E-01	7.10163E-01	6.46296E-01	3.76120E-01	2.08177E-01
17	1.60303E+00	1.46480E+00	1.34578E+00	8.43278E-01	7.11706E-01	6.48629E-01	3.76309E-01	2.08315E-01
18	1.60346E+00	1.46567E+00	1.34802E+00	8.45791E-01	7.13803E-01	6.51808E-01	3.76518E-01	2.08491E-01
19	1.60401E+00	1.46708E+00	1.35060E+00	8.48682E-01	7.16220E-01	6.55472E-01	3.76763E-01	2.08698E-01
20	1.60477E+00	1.46862E+00	1.35388E+00	8.52367E-01	7.19299E-01	6.60142E-01	3.77051E-01	2.08956E-01
21	1.60534E+00	1.46972E+00	1.35622E+00	8.54994E-01	7.21465E-01	6.63449E-01	3.77208E-01	2.09115E-01
22	1.60540E+00	1.46982E+00	1.35644E+00	8.55225E-01	7.21609E-01	6.63707E-01	3.77117E-01	2.09082E-01
23	1.60525E+00	1.46956E+00	1.35589E+00	8.54542E-01	7.20998E-01	6.62814E-01	3.76970E-01	2.09013E-01
24	1.60505E+00	1.46921E+00	1.35512E+00	8.53700E-01	7.20258E-01	6.61788E-01	3.76822E-01	2.08927E-01
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.44258E-02	4.40822E-02	1.26328E-01	4.31233E-01	1.11259E-01	1.85316E-01	6.92556E-01	5.05696E-01
2	8.43977E-02	4.40589E-02	1.26282E-01	4.31129E-01	1.11225E-01	1.85182E-01	6.92536E-01	5.05349E-01
3	8.44475E-02	4.42677E-02	1.26374E-01	4.31332E-01	1.11413E-01	1.85773E-01	6.93574E-01	5.06328E-01
4	8.47397E-02	4.51692E-02	1.26900E-01	4.32512E-01	1.12444E-01	1.92806E-01	6.99964E-01	5.11670E-01
5	8.54633E-02	4.75197E-02	1.28185E-01	4.35412E-01	1.15019E-01	2.00427E-01	7.13720E-01	5.24652E-01
6	8.62611E-02	5.02350E-02	1.29583E-01	4.38580E-01	1.17899E-01	2.09044E-01	7.28600E-01	5.39721E-01
7	8.68531E-02	5.23688E-02	1.30602E-01	4.40806E-01	1.20059E-01	2.15638E-01	7.41441E-01	5.50804E-01
8	8.73979E-02	5.44291E-02	1.31522E-01	4.43027E-01	1.22073E-01	2.21852E-01	7.52356E-01	5.61089E-01
9	8.78817E-02	5.55185E-02	1.31994E-01	4.44127E-01	1.23122E-01	2.25109E-01	7.58029E-01	5.66447E-01
10	8.77287E-02	5.56669E-02	1.32074E-01	4.44309E-01	1.23284E-01	2.25787E-01	7.58908E-01	5.67250E-01
11	8.77599E-02	5.58786E-02	1.32185E-01	4.44571E-01	1.23514E-01	2.26249E-01	7.60149E-01	5.68392E-01
12	8.78394E-02	5.60162E-02	1.32256E-01	4.44739E-01	1.23664E-01	2.26689E-01	7.60954E-01	5.69128E-01
13	8.79284E-02	5.62554E-02	1.32403E-01	4.45085E-01	1.23968E-01	2.27568E-01	7.62600E-01	5.70632E-01
14	8.82066E-02	5.76589E-02	1.33889E-01	4.46168E-01	1.24921E-01	2.30314E-01	7.67724E-01	5.75289E-01
15	8.85897E-02	5.85288E-02	1.3521E-01	4.47648E-01	1.26228E-01	2.34044E-01	7.7481E-01	5.81468E-01
16	8.88349E-02	5.90546E-02	1.35947E-01	4.48597E-01	1.27066E-01	2.36404E-01	7.79071E-01	5.85305E-01
17	8.90140E-02	5.96209E-02	1.36253E-01	4.49867E-01	1.27712E-01	2.38265E-01	7.82891E-01	5.88816E-01
18	8.92589E-02	6.03961E-02	1.36468E-01	4.50175E-01	1.28623E-01	2.40875E-01	7.88089E-01	5.94347E-01
19	8.95415E-02	6.12874E-02	1.36141E-01	4.51236E-01	1.29677E-01	2.43926E-01	7.94528E-01	6.01029E-01
20	8.99014E-02	6.24211E-02	1.35747E-01	4.52992E-01	1.31030E-01	2.47880E-01	8.03091E-01	6.10031E-01
21	9.01566E-02	6.32566E-02	1.36172E-01	4.53633E-01	1.32009E-01	2.50746E-01	8.09564E-01	6.17057E-01

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22 9.0174E-02 6.3321E-02 1.3619E-01 4.5366E-01 1.3211E-01 2.5106E-01 8.1053E-01 6.1839E-01
23 9.0105E-02 6.3127E-02 1.3607E-01 4.5327E-01 1.3186E-01 2.5089E-01 8.0923E-01 6.1727E-01
24 9.0021E-02 6.2883E-02 1.3592E-01 4.5290E-01 1.3158E-01 2.4954E-01 8.0752E-01 6.1568E-01
0 int. grp. 25 grp. 26 grp. 27
1 2.0917E-01 1.2649E-01 1.6476E-02
2 2.0902E-01 1.2640E-01 1.6477E-02
3 2.0754E-01 1.2600E-01 1.6630E-02
4 2.1227E-01 1.2944E-01 1.7326E-02
5 2.1907E-01 1.3660E-01 1.9052E-02
6 2.2667E-01 1.4276E-01 2.1162E-02
7 2.3240E-01 1.4818E-01 2.2827E-02
8 2.3777E-01 1.5332E-01 2.4481E-02
9 2.4057E-01 1.5600E-01 2.5361E-02
10 2.4098E-01 1.5695E-01 2.5467E-02
11 2.4155E-01 1.5691E-01 2.5612E-02
12 2.4198E-01 1.5724E-01 2.5708E-02
13 2.4268E-01 1.5794E-01 2.5850E-02
14 2.4488E-01 1.5996E-01 2.6454E-02
15 2.4783E-01 1.6258E-01 2.7144E-02
16 2.4977E-01 1.6414E-01 2.7532E-02
17 2.5157E-01 1.6593E-01 2.8131E-02
18 2.5454E-01 1.6913E-01 2.9226E-02
19 2.5817E-01 1.7301E-01 3.0503E-02
20 2.6312E-01 1.7829E-01 3.2192E-02
21 2.6708E-01 1.8261E-01 3.3579E-02
22 2.6794E-01 1.8374E-01 3.3992E-02
23 2.6742E-01 1.8334E-01 3.3942E-02
24 2.6663E-01 1.8265E-01 3.3789E-02

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elapsed time .02 min.

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

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0 grp. fix source fiss source in scatter self scatter out scatter absorption leakage balance
1 .0000E+00 2.2546E-02 .0000E+00 1.2892E-02 1.0528E-02 3.2098E-03 1.1093E-02 9.9834E-01
2 .0000E+00 1.9263E-01 2.3256E-03 1.6882E-01 6.6887E-02 1.3615E-02 1.1488E-01 1.0000E+00
3 .0000E+00 2.1563E-01 2.6232E-02 1.6101E-01 8.1183E-02 1.5556E-02 1.4513E-01 1.0000E+00
4 .0000E+00 1.2985E-01 3.8953E-02 1.0530E-01 6.7854E-02 7.4195E-03 8.7661E-02 1.0000E+00
5 .0000E+00 1.6461E-01 6.7946E-02 2.9533E-01 9.4766E-02 4.4297E-03 1.3336E-01 9.9999E-01
6 .0000E+00 1.7790E-01 1.3474E-01 6.5381E-01 5.4392E-02 6.9986E-03 2.5121E-01 1.0000E+00
7 .0000E+00 8.8027E-02 9.8453E-02 7.4301E-01 3.6585E-02 7.5544E-03 1.4259E-01 1.0000E+00
8 .0000E+00 1.3569E-02 4.2577E-02 6.3087E-01 2.1497E-02 1.3925E-02 2.0721E-02 1.0000E+00
9 .0000E+00 9.8491E-04 2.1719E-02 5.3531E-01 2.0573E-02 2.3051E-02 -2.1019E-02 9.9999E-01
10 .0000E+00 7.3157E-05 2.0995E-02 4.6051E-01 1.0990E-02 3.5790E-02 -2.5713E-02 1.0000E+00
11 .0000E+00 5.7554E-06 1.0991E-02 4.2204E-01 8.1406E-03 5.8208E-02 -5.5652E-02 1.0000E+00
12 .0000E+00 4.0430E-07 8.1407E-03 2.3876E-01 9.3672E-03 6.3953E-02 -6.5176E-02 9.9999E-01
13 .0000E+00 6.4204E-08 9.3672E-03 1.7889E-01 6.1537E-03 5.8986E-02 -5.5772E-02 1.0000E+00
14 .0000E+00 1.2728E-08 6.1537E-03 1.5190E-01 7.4175E-03 8.2258E-02 -8.3522E-02 1.0000E+00
15 .0000E+00 1.4376E-09 7.5049E-03 8.4790E-02 8.8966E-03 6.7806E-03 -8.1946E-03 1.0028E+00
16 .0000E+00 4.2219E-10 9.0642E-03 4.2827E-02 9.6146E-03 4.9433E-03 -5.5244E-03 1.0021E+00
17 .0000E+00 1.3996E-10 7.7430E-03 1.4695E-02 7.5147E-03 6.6813E-03 -6.4657E-03 1.0009E+00
18 .0000E+00 9.7348E-11 7.1751E-03 9.3198E-03 4.8116E-03 2.2190E-02 -1.9833E-02 1.0002E+00
19 .0000E+00 1.3763E-10 7.0276E-03 2.4408E-02 8.9894E-03 8.9663E-03 -1.0921E-02 1.0007E+00
20 .0000E+00 2.2980E-10 1.0265E-02 1.0312E-01 9.7478E-03 2.5783E-02 -2.5311E-02 1.0013E+00
21 .0000E+00 3.2757E-11 9.2170E-03 2.1732E-02 8.4346E-03 2.3362E-02 -2.2584E-02 1.0004E+00
22 .0000E+00 3.8005E-11 1.2888E-02 4.3252E-02 9.7352E-03 6.7529E-02 -6.5053E-02 1.0003E+00
23 .0000E+00 3.6377E-11 1.4848E-02 1.6879E-01 1.8536E-02 1.2269E-01 -1.2646E-01 1.0006E+00
24 .0000E+00 9.8906E-12 2.2507E-02 1.1632E-01 2.2694E-02 1.1789E-01 -1.1773E-01 1.0004E+00
25 .0000E+00 2.8953E-12 1.9213E-02 4.3914E-02 1.4463E-02 6.4338E-02 -5.9612E-02 1.0003E+00
26 .0000E+00 2.0902E-12 9.4239E-03 3.0436E-02 6.4786E-03 5.7854E-02 -5.4927E-02 1.0002E+00
27 .0000E+00 4.8381E-13 2.0285E-03 4.5262E-03 1.1006E-03 1.6119E-02 -1.5182E-02 1.0001E+00
28 .0000E+00 1.0000E+00 6.2617E-01 5.4288E+00 6.2617E-01 9.3983E-01 6.2074E-02 1.0002E+00
0 grp. rt bdy flux rt leakage lft bdy flux lft leakage rdn rate fiss rate flux*bd**2 total flux

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1	1.7226E-01	1.10953E-02	1.77193E-01	.00000E+00	2.2584E-03	2.62977E-03	.00000E+00	1.20666E-01
2	1.2762E+00	1.1468E-01	1.3275E+00	.00000E+00	1.7185E-05	1.1850E-02	.00000E+00	8.99916E-01
3	1.61630E+00	1.45130E-01	1.6797E+00	.00000E+00	.00000E+00	1.4532E-02	.00000E+00	1.13888E+00
4	1.00333E+00	8.76617E-02	1.06123E+00	.00000E+00	.00000E+00	6.27267E-03	.00000E+00	7.06237E-01
5	1.51592E+00	1.33369E-01	1.57523E+00	.00000E+00	.00000E+00	1.82307E-03	.00000E+00	1.06764E+00
6	2.9161E+00	2.51218E-01	3.02978E+00	.00000E+00	.00000E+00	1.58570E-03	.00000E+00	2.05301E+00
7	2.83707E+00	1.42590E-01	2.90473E+00	.00000E+00	.00000E+00	1.55715E-03	.00000E+00	1.97997E+00
8	2.06870E+00	2.07217E-02	2.08053E+00	.00000E+00	.00000E+00	1.58895E-03	.00000E+00	1.42897E+00
9	1.59894E+00	2.10198E-02	1.5871E+00	.00000E+00	.00000E+00	2.13181E-03	.00000E+00	1.09602E+00
10	1.45928E+00	2.57133E-02	1.4461E+00	.00000E+00	.00000E+00	4.54090E-03	.00000E+00	9.99431E-01
11	1.33394E+00	5.5652E-02	1.30533E+00	.00000E+00	.00000E+00	9.59878E-03	.00000E+00	9.07030E-01
12	8.29634E-01	6.51767E-02	7.9580E-01	.00000E+00	.00000E+00	1.25419E-02	.00000E+00	5.57729E-01
13	7.00018E-01	5.57729E-02	6.71440E-01	.00000E+00	.00000E+00	1.33689E-02	.00000E+00	4.70578E-01
14	6.3151E-01	8.35227E-02	5.87894E-01	.00000E+00	.00000E+00	8.47353E-03	.00000E+00	4.1728E-01
15	3.76539E-01	8.19649E-03	3.70150E-01	.00000E+00	.00000E+00	2.09234E-03	.00000E+00	2.56137E-01
16	2.0716E-01	5.5244E-03	2.0441E-01	.00000E+00	.00000E+00	1.44179E-03	.00000E+00	1.45330E-01
17	8.76697E-02	6.46574E-03	8.44542E-02	.00000E+00	.00000E+00	1.82542E-03	.00000E+00	5.9073E-02
18	5.5481E-02	1.98532E-02	4.4139E-02	.00000E+00	.00000E+00	1.59461E-03	.00000E+00	3.3580E-02
19	1.31977E-01	1.09213E-02	1.26380E-01	.00000E+00	.00000E+00	2.8926E-03	.00000E+00	8.86552E-02
20	4.4408E-01	2.53119E-02	4.3136E-01	.00000E+00	.00000E+00	1.6010E-02	.00000E+00	3.00687E-01
21	1.2308E-01	2.25584E-02	1.1139E-01	.00000E+00	.00000E+00	1.45424E-02	.00000E+00	8.0056E-02
22	2.2698E-01	6.5073E-02	1.8959E-01	.00000E+00	.00000E+00	4.15271E-02	.00000E+00	1.4064E-01
23	7.5778E-01	1.2648E-01	6.9848E-01	.00000E+00	.00000E+00	7.74830E-02	.00000E+00	4.96109E-01
24	5.6622E-01	1.1773E-01	5.0553E-01	.00000E+00	.00000E+00	7.4668E-02	.00000E+00	3.6886E-01
25	2.40462E-01	5.96142E-02	2.0985E-01	.00000E+00	.00000E+00	4.2882E-02	.00000E+00	1.53130E-01
26	1.59581E-01	5.4927E-02	1.2664E-01	.00000E+00	.00000E+00	3.92310E-02	.00000E+00	9.59977E-02
27	2.5338E-02	1.5193E-02	1.6809E-02	.00000E+00	.00000E+00	1.1086E-02	.00000E+00	1.38219E-02
28	2.3556E+01	6.207E-02	2.3527E+01	.00000E+00	2.2759E-03	4.19530E-01	.00000E+00	1.60682E+01

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

0 grp.	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.65661E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.9802E-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	-1.49012E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.9604E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.9802E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.89179E-08	9.99997E-01
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-6.70552E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.7252E-09	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	8.56817E-08	9.99998E-01
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.26517E-08	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	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	.00000E+00	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.77889E-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	-5.58794E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.79597E-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	.00000E+00	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	5.9604E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.9802E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.7252E-09	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.3132E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.14553E-07	9.99997E-01

0 grp. rt bdy flux rt leakage lft bdy flux lft leakage r2n rate fiss rate flux*cd**2 total flux

1	1.7183E-01	1.10953E-02	1.7226E-01	1.10953E-02	.00000E+00	.00000E+00	.00000E+00	5.46010E-03
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2	1.2721E+00	1.1498E-01	1.2762E+00	1.1498E-01	.0000E+00	.0000E+00	.0000E+00	4.0436E-02
3	1.6114E+00	1.4513E-01	1.6163E+00	1.4513E-01	.0000E+00	.0000E+00	.0000E+00	5.1215E-02
4	1.0006E+00	8.7661E-02	1.0033E+00	8.7661E-02	.0000E+00	.0000E+00	.0000E+00	3.1797E-02
5	1.5121E+00	1.3336E-01	1.5159E+00	1.3336E-01	.0000E+00	.0000E+00	.0000E+00	4.8040E-02
6	2.9092E+00	2.5121E-01	2.9161E+00	2.5121E-01	.0000E+00	.0000E+00	.0000E+00	9.2631E-02
7	2.8333E+00	1.4259E-01	2.8370E+00	1.4259E-01	.0000E+00	.0000E+00	.0000E+00	8.9973E-02
8	2.0679E+00	2.0721E-02	2.0687E+00	2.0721E-02	.0000E+00	.0000E+00	.0000E+00	6.5638E-02
9	1.5997E+00	-2.1019E-02	1.5989E+00	-2.1019E-02	.0000E+00	.0000E+00	.0000E+00	5.0751E-02
10	1.4897E+00	-2.5713E-02	1.4898E+00	-2.5713E-02	.0000E+00	.0000E+00	.0000E+00	4.6321E-02
11	1.3394E+00	-5.5622E-02	1.3394E+00	-5.5622E-02	.0000E+00	.0000E+00	.0000E+00	4.2357E-02
12	8.3146E-01	-6.5176E-02	8.2963E-01	-6.5176E-02	.0000E+00	.0000E+00	.0000E+00	2.6385E-02
13	7.0159E-01	-5.5723E-02	7.0001E-01	-5.5723E-02	.0000E+00	.0000E+00	.0000E+00	2.2340E-02
14	6.3360E-01	-8.3527E-02	6.3115E-01	-8.3527E-02	.0000E+00	.0000E+00	.0000E+00	2.0068E-02
15	3.7477E-01	-8.1964E-03	3.7453E-01	-8.1964E-03	.0000E+00	.0000E+00	.0000E+00	1.1889E-02
16	2.0732E-01	-5.5344E-03	2.0716E-01	-5.5344E-03	.0000E+00	.0000E+00	.0000E+00	6.5769E-03
17	8.7860E-02	-6.4657E-03	8.7683E-02	-6.4657E-03	.0000E+00	.0000E+00	.0000E+00	2.7851E-03
18	5.6052E-02	-1.9832E-02	5.5481E-02	-1.9832E-02	.0000E+00	.0000E+00	.0000E+00	1.7694E-03
19	1.3227E-01	-1.0921E-02	1.3197E-01	-1.0921E-02	.0000E+00	.0000E+00	.0000E+00	4.1931E-03
20	4.4479E-01	-2.5311E-02	4.4408E-01	-2.5311E-02	.0000E+00	.0000E+00	.0000E+00	1.4104E-02
21	1.2370E-01	-2.2584E-02	1.2308E-01	-2.2584E-02	.0000E+00	.0000E+00	.0000E+00	3.9160E-03
22	2.2679E-01	-6.5093E-02	2.2498E-01	-6.5093E-02	.0000E+00	.0000E+00	.0000E+00	7.1693E-03
23	7.6114E-01	-1.2648E-01	7.5778E-01	-1.2648E-01	.0000E+00	.0000E+00	.0000E+00	2.4103E-02
24	5.6930E-01	-1.1773E-01	5.6622E-01	-1.1773E-01	.0000E+00	.0000E+00	.0000E+00	1.8019E-02
25	2.4202E-01	-5.9614E-02	2.4042E-01	-5.9614E-02	.0000E+00	.0000E+00	.0000E+00	7.6566E-03
26	1.5732E-01	-5.4927E-02	1.5591E-01	-5.4927E-02	.0000E+00	.0000E+00	.0000E+00	4.9713E-03
27	2.5728E-02	-1.5193E-02	2.5338E-02	-1.5193E-02	.0000E+00	.0000E+00	.0000E+00	8.1051E-04
28	2.3349E+01	6.2071E-02	2.3353E+01	6.2071E-02	.0000E+00	.0000E+00	.0000E+00	7.4105E-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	self scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	3.7874E-03	2.8392E-03	1.4549E-05	-2.7524E-03	1.0000E+00
2	.0000E+00	.0000E+00	.0000E+00	4.9585E-04	2.5922E-02	1.8609E-02	-5.1498E-05	1.0000E+00
3	.0000E+00	.0000E+00	.0000E+00	2.6459E-03	5.0129E-02	1.5849E-02	-1.3339E-02	9.9999E-01
4	.0000E+00	.0000E+00	.0000E+00	5.1307E-03	4.2094E-02	5.4801E-03	-4.2255E-04	9.9999E-01
5	.0000E+00	.0000E+00	.0000E+00	1.1058E-02	8.1627E-02	5.1623E-03	1.5207E-04	1.0000E+00
6	.0000E+00	.0000E+00	.0000E+00	1.8473E-02	2.3501E-01	3.2109E-03	3.2002E-04	1.0000E+00
7	.0000E+00	.0000E+00	.0000E+00	1.2258E-02	2.3516E-01	1.1820E-03	3.4472E-04	1.0000E+00
8	.0000E+00	.0000E+00	.0000E+00	2.1602E-03	1.5858E-01	7.6480E-03	2.9487E-04	1.0000E+00
9	.0000E+00	.0000E+00	.0000E+00	7.6689E-03	1.0519E-01	8.7695E-04	1.1093E-03	9.9998E-01
10	.0000E+00	.0000E+00	.0000E+00	8.7812E-04	8.5581E-02	8.6714E-04	8.3575E-04	9.9999E-01
11	.0000E+00	.0000E+00	.0000E+00	8.4917E-04	7.7063E-02	8.7051E-04	1.3371E-03	1.0000E+00
12	.0000E+00	.0000E+00	.0000E+00	8.7052E-04	4.6796E-02	8.7060E-04	4.1664E-05	1.0000E+00
13	.0000E+00	.0000E+00	.0000E+00	8.7051E-04	3.9508E-02	8.0955E-04	5.9285E-05	1.0000E+00
14	.0000E+00	.0000E+00	.0000E+00	8.0955E-04	3.5923E-02	6.7891E-04	9.5885E-05	1.0000E+00
15	.0000E+00	.0000E+00	.0000E+00	7.2096E-04	2.0619E-02	8.4388E-04	8.2803E-05	9.9994E-01
16	.0000E+00	.0000E+00	.0000E+00	9.4379E-04	1.0984E-02	9.4642E-04	5.1479E-05	9.9994E-01
17	.0000E+00	.0000E+00	.0000E+00	1.0165E-03	4.0527E-03	9.9788E-04	2.4483E-05	9.9997E-01
18	.0000E+00	.0000E+00	.0000E+00	1.0476E-03	2.4942E-03	8.0536E-04	1.7082E-05	9.9999E-01
19	.0000E+00	.0000E+00	.0000E+00	8.4606E-04	6.6314E-03	9.7840E-04	4.2962E-05	9.9997E-01
20	.0000E+00	.0000E+00	.0000E+00	1.1685E-03	2.4490E-02	1.0411E-03	1.8209E-04	9.9997E-01
21	.0000E+00	.0000E+00	.0000E+00	1.3039E-03	5.7915E-03	1.3839E-03	6.3804E-05	9.9999E-01
22	.0000E+00	.0000E+00	.0000E+00	1.7453E-03	1.1702E-02	1.5640E-03	1.3656E-04	9.9999E-01
23	.0000E+00	.0000E+00	.0000E+00	2.2837E-03	4.1046E-02	3.0134E-03	6.2160E-04	1.0000E+00
24	.0000E+00	.0000E+00	.0000E+00	3.7052E-03	2.9097E-02	3.9880E-03	6.7825E-04	1.0000E+00
25	.0000E+00	.0000E+00	.0000E+00	3.5942E-03	1.1199E-02	2.8824E-03	3.8090E-04	1.0000E+00
26	.0000E+00	.0000E+00	.0000E+00	1.5001E-03	8.1378E-03	1.0754E-03	3.5534E-04	1.0000E+00
27	.0000E+00	.0000E+00	.0000E+00	3.1185E-04	1.5302E-03	7.8832E-07	1.1190E-04	1.0000E+00
28	.0000E+00	.0000E+00	.0000E+00	8.4399E-02	1.4003E+00	8.4399E-02	7.6454E-03	9.9998E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtn rate	fiss rate	flux*cm^2	total flux
1	1.7021E-01	8.3428E-03	1.7183E-01	1.1093E-02	1.0144E-04	.0000E+00	.0000E+00	3.7052E-02
2	1.2545E-01	9.6829E-02	1.2721E+00	1.1498E-01	.0000E+00	.0000E+00	.0000E+00	2.7359E-01

3	1.5881E+00	1.3179E-01	1.6114E+00	1.4513E-01	.0000E+00	.0000E+00	.0000E+00	3.4650E-01
4	9.8605E-01	8.7297E-02	1.0006E+00	8.7661E-02	.0000E+00	.0000E+00	.0000E+00	2.1520E-01
5	1.4890E+00	1.3912E-01	1.5121E+00	1.3336E-01	.0000E+00	.0000E+00	.0000E+00	3.2515E-01
6	2.8536E+00	2.6616E-01	2.9092E+00	2.5121E-01	.0000E+00	.0000E+00	.0000E+00	6.2549E-01
7	2.8070E+00	1.5339E-01	2.8333E+00	1.4259E-01	.0000E+00	.0000E+00	.0000E+00	6.1118E-01
8	2.0648E+00	1.4651E-02	2.0579E+00	2.0721E-02	.0000E+00	.0000E+00	.0000E+00	4.4775E-01
9	1.6028E+00	-1.5337E-02	1.5997E+00	-2.1019E-02	.0000E+00	.0000E+00	.0000E+00	3.4710E-01
10	1.4642E+00	-2.6520E-02	1.4599E+00	-2.5713E-02	.0000E+00	.0000E+00	.0000E+00	3.1685E-01
11	1.3468E+00	-5.7010E-02	1.3354E+00	-5.5652E-02	.0000E+00	.0000E+00	.0000E+00	2.9047E-01
12	8.4208E-01	-6.5218E-02	8.3146E-01	-6.5176E-02	.0000E+00	.0000E+00	.0000E+00	1.8141E-01
13	7.1071E-01	-5.5762E-02	7.0159E-01	-5.5778E-02	.0000E+00	.0000E+00	.0000E+00	1.5304E-01
14	6.4712E-01	-8.3489E-02	6.3502E-01	-8.3522E-02	.0000E+00	.0000E+00	.0000E+00	1.3885E-01
15	3.7621E-01	-8.4017E-03	3.7477E-01	-8.1964E-03	.0000E+00	.0000E+00	.0000E+00	8.1383E-02
16	2.0823E-01	-5.5762E-03	2.0732E-01	-5.5345E-03	.0000E+00	.0000E+00	.0000E+00	4.5088E-02
17	8.8882E-02	-6.4710E-03	8.7880E-02	-6.4673E-03	.0000E+00	.0000E+00	.0000E+00	1.9152E-02
18	5.9254E-02	-1.9607E-02	5.8052E-02	-1.9833E-02	.0000E+00	.0000E+00	.0000E+00	1.2517E-02
19	1.3405E-01	-1.1063E-02	1.3227E-01	-1.0921E-02	.0000E+00	.0000E+00	.0000E+00	2.8862E-02
20	4.4885E-01	-2.5369E-02	4.4479E-01	-2.5319E-02	.0000E+00	.0000E+00	.0000E+00	9.6860E-02
21	1.2785E-01	-2.2702E-02	1.2570E-01	-2.2584E-02	.0000E+00	.0000E+00	.0000E+00	2.7219E-02
22	2.3700E-01	-6.5048E-02	2.2579E-01	-6.5093E-02	.0000E+00	.0000E+00	.0000E+00	5.0324E-02
23	7.8017E-01	-1.2780E-01	7.6114E-01	-1.2646E-01	.0000E+00	.0000E+00	.0000E+00	1.6715E-01
24	5.8524E-01	-1.1868E-01	5.6901E-01	-1.1773E-01	.0000E+00	.0000E+00	.0000E+00	1.2534E-01
25	2.5020E-01	-5.9283E-02	2.4200E-01	-5.9614E-02	.0000E+00	.0000E+00	.0000E+00	5.3422E-02
26	1.6447E-01	-5.4858E-02	1.5732E-01	-5.4927E-02	.0000E+00	.0000E+00	.0000E+00	3.4952E-02
27	2.7619E-02	-1.4994E-02	2.5728E-02	-1.5193E-02	.0000E+00	.0000E+00	.0000E+00	5.8073E-03
28	2.3321E-01	5.4530E-02	2.3349E-01	6.2071E-02	1.0144E-04	.0000E+00	.0000E+00	5.0578E+00
ifine group summary for zone 4 by group including sum for all groups in line 28								
0 grp.	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	5.9845E-03	7.9210E-03	4.2215E-04	-8.3426E-03	9.9995E-01
2	.0000E+00	.0000E+00	4.5449E-03	7.6315E-02	1.0030E-01	1.0747E-03	-9.6828E-02	9.9996E-01
3	.0000E+00	.0000E+00	4.7587E-02	6.8943E-02	1.7957E-01	5.4188E-03	-1.3179E-01	9.9997E-01
4	.0000E+00	.0000E+00	7.0295E-02	4.5852E-02	1.5747E-01	3.2295E-03	-8.7297E-02	9.9998E-01
5	.0000E+00	.0000E+00	1.2984E-01	1.4845E-01	2.6860E-01	3.7741E-03	-1.3912E-01	9.9999E-01
6	.0000E+00	.0000E+00	2.7487E-01	4.5521E-01	5.4102E-01	1.1475E-03	-2.6616E-01	9.9999E-01
7	.0000E+00	.0000E+00	5.5264E-01	7.9509E-01	7.0589E-01	2.5349E-03	-1.5339E-01	9.9999E-01
8	.0000E+00	.0000E+00	7.3541E-01	1.0007E+00	7.5036E-01	4.7004E-03	-1.4952E-02	9.9999E-01
9	.0000E+00	.0000E+00	7.4066E-01	9.1590E-01	7.2531E-01	9.5890E-03	1.5337E-02	9.9999E-01
10	.0000E+00	.0000E+00	7.2207E-01	8.6527E-01	6.9530E-01	2.1142E-04	2.6519E-02	9.9999E-01
11	.0000E+00	.0000E+00	7.0036E-01	8.0531E-01	6.4280E-01	4.5731E-04	5.7010E-02	9.9994E-01
12	.0000E+00	.0000E+00	5.9970E-01	4.1976E-01	4.9889E-01	5.9720E-04	6.5218E-02	9.9997E-01
13	.0000E+00	.0000E+00	4.8684E-01	3.3779E-01	4.3195E-01	8.9720E-04	5.5762E-02	9.9996E-01
14	.0000E+00	.0000E+00	4.7014E-01	3.2242E-01	3.8520E-01	1.4953E-03	8.3489E-02	9.9998E-01
15	.0000E+00	.0000E+00	2.5123E-01	1.2894E-01	2.4156E-01	1.2847E-03	8.4028E-03	9.9999E-01
16	.0000E+00	.0000E+00	1.6675E-01	5.4410E-02	1.8029E-01	8.8075E-04	5.5780E-03	9.9999E-01
17	.0000E+00	.0000E+00	8.5885E-02	1.5181E-02	7.8990E-02	4.2406E-04	6.4715E-03	9.9999E-01
18	.0000E+00	.0000E+00	7.6118E-02	1.0284E-02	5.6197E-02	3.1466E-04	1.9607E-02	1.0000E+00
19	.0000E+00	.0000E+00	1.2671E-01	3.4007E-02	1.1286E-01	7.4540E-04	1.1097E-02	9.9999E-01
20	.0000E+00	.0000E+00	3.0460E-01	2.4423E-01	2.7813E-01	3.1245E-03	2.5367E-02	1.0000E+00
21	.0000E+00	.0000E+00	1.4287E-01	4.5760E-02	1.1904E-01	1.1338E-03	2.2651E-02	1.0000E+00
22	.0000E+00	.0000E+00	2.7032E-01	1.3085E-01	2.0285E-01	2.4777E-03	6.5061E-02	9.9999E-01
23	.0000E+00	.0000E+00	6.3852E-01	7.6102E-01	4.9974E-01	1.0971E-02	1.2780E-01	1.0000E+00
24	.0000E+00	.0000E+00	6.4966E-01	6.7203E-01	5.1878E-01	1.2194E-02	1.1868E-01	1.0000E+00
25	.0000E+00	.0000E+00	4.1865E-01	2.7329E-01	3.5242E-01	6.9480E-03	5.9283E-02	1.0000E+00
26	.0000E+00	.0000E+00	3.3056E-01	2.9120E-01	2.6896E-01	6.7274E-03	5.4858E-02	1.0000E+00
27	.0000E+00	.0000E+00	1.0957E-01	6.0804E-02	9.2628E-02	2.3136E-03	1.4994E-02	9.9999E-01
28	.0000E+00	.0000E+00	9.0578E+00	8.9853E+00	9.0578E+00	5.4842E-02	-5.4530E-02	9.9996E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtn rate	fiss rate	flux*cd**2	total flux
1	1.6943E-01	-6.0905E-09	1.7021E-01	8.3428E-03	4.3805E-10	.0000E+00	.0000E+00	1.9391E-01
2	1.2631E+00	-1.0805E-09	1.2546E+00	9.4688E-02	.0000E+00	.0000E+00	.0000E+00	1.4233E+00
3	1.5709E+00	1.3320E-08	1.5881E+00	1.3179E-01	.0000E+00	.0000E+00	.0000E+00	1.7990E+00

4	9.7250E-01	-1.0629E-08	9.8605E-01	8.7297E-02	.0000E+00	.0000E+00	.0000E+00	1.1146E+00
5	1.4666E+00	-4.7165E-08	1.4890E+00	1.3911E-01	.0000E+00	.0000E+00	.0000E+00	1.6807E+00
6	2.8196E+00	4.1137E-08	2.8536E+00	2.6516E-01	.0000E+00	.0000E+00	.0000E+00	3.2312E+00
7	2.7816E+00	1.7861E-08	2.8070E+00	1.5339E-01	.0000E+00	.0000E+00	.0000E+00	3.1856E+00
8	2.0648E+00	-1.2876E-07	2.0648E+00	1.4951E-02	.0000E+00	.0000E+00	.0000E+00	2.3628E+00
9	1.6049E+00	-4.4994E-08	1.6028E+00	-1.5337E-02	.0000E+00	.0000E+00	.0000E+00	1.8367E+00
10	1.4690E+00	-6.2054E-08	1.4642E+00	-2.6520E-02	.0000E+00	.0000E+00	.0000E+00	1.6809E+00
11	1.3547E+00	-7.1137E-08	1.3446E+00	-5.7010E-02	.0000E+00	.0000E+00	.0000E+00	1.5497E+00
12	8.5325E-01	-1.0515E-08	8.4208E-01	-6.5218E-02	.0000E+00	.0000E+00	.0000E+00	9.7574E-01
13	7.1987E-01	-1.0999E-08	7.1071E-01	-5.5782E-02	.0000E+00	.0000E+00	.0000E+00	8.2357E-01
14	6.6115E-01	-1.6900E-09	6.4722E-01	-8.3484E-02	.0000E+00	.0000E+00	.0000E+00	7.5575E-01
15	3.7675E-01	6.4762E-07	3.7621E-01	-8.4017E-03	.0000E+00	.0000E+00	.0000E+00	4.3147E-01
16	2.0888E-01	6.7545E-07	2.0824E-01	-5.5782E-03	.0000E+00	.0000E+00	.0000E+00	2.3913E-01
17	8.9978E-02	4.5851E-07	8.8982E-02	-6.4710E-03	.0000E+00	.0000E+00	.0000E+00	1.0291E-01
18	6.2756E-02	-3.1124E-06	5.9254E-02	-1.9607E-02	.0000E+00	.0000E+00	.0000E+00	7.1511E-02
19	1.3585E-01	6.4978E-07	1.3409E-01	-1.1093E-02	.0000E+00	.0000E+00	.0000E+00	1.9538E-01
20	4.5275E-01	1.8410E-06	4.4865E-01	-2.5369E-02	.0000E+00	.0000E+00	.0000E+00	5.1803E-01
21	1.3144E-01	-7.1058E-06	1.2787E-01	-2.2702E-02	.0000E+00	.0000E+00	.0000E+00	1.5005E-01
22	2.4004E-01	2.0582E-06	2.3700E-01	-6.5041E-02	.0000E+00	.0000E+00	.0000E+00	2.8398E-01
23	8.0660E-01	-3.8663E-07	7.8017E-01	-1.2780E-01	.0000E+00	.0000E+00	.0000E+00	9.2008E-01
24	6.1481E-01	3.4778E-06	5.8524E-01	-1.1868E-01	.0000E+00	.0000E+00	.0000E+00	6.9948E-01
25	2.6619E-01	-7.2019E-07	2.5024E-01	-5.9833E-02	.0000E+00	.0000E+00	.0000E+00	3.0199E-01
26	1.8229E-01	-2.2497E-06	1.6447E-01	-5.4858E-02	.0000E+00	.0000E+00	.0000E+00	2.0511E-01
27	3.3695E-02	1.0407E-07	2.7819E-02	-1.4694E-02	.0000E+00	.0000E+00	.0000E+00	3.7215E-02
28	2.3363E-01	-3.9564E-06	2.3324E-01	5.4530E-02	4.3805E-10	.0000E+00	.0000E+00	2.6730E+01
fine group summary for system								
0 grp.	fix source	fix source	in scatter	elf scatter	out scatter	absorption	leakage	balance
1	.0000E+00	2.2546E-02	.0000E+00	2.2431E-02	2.1289E-02	3.6445E-03	-6.0905E-09	9.98829E-01
2	.0000E+00	1.9865E-01	7.3664E-03	2.6804E-01	1.8529E-01	1.4741E-02	-1.0505E-08	1.0000E+00
3	.0000E+00	2.1563E-01	7.6468E-02	2.8008E-01	2.7641E-01	1.5699E-02	-1.3329E-08	9.99987E-01
4	.0000E+00	1.2986E-01	1.1432E-01	1.9325E-01	2.3076E-01	7.5260E-03	-1.0529E-08	1.0000E+00
5	.0000E+00	1.6461E-01	2.0885E-01	4.8962E-01	3.8888E-01	4.5855E-03	-4.7165E-08	9.99989E-01
6	.0000E+00	1.7790E-01	4.2803E-01	1.3440E+00	5.9830E-01	7.3251E-03	4.1137E-08	1.00001E+00
7	.0000E+00	8.8027E-02	6.6398E-01	1.7752E+00	7.4350E-01	7.9843E-03	1.7861E-08	9.99980E-01
8	.0000E+00	1.3569E-02	7.8015E-01	1.7901E+00	7.7518E-01	1.4267E-02	-1.2876E-07	9.99920E-01
9	.0000E+00	9.8491E-04	7.7005E-01	1.5564E+00	7.6685E-01	2.4256E-02	-4.4994E-08	9.99829E-01
10	.0000E+00	7.3155E-05	7.4361E-01	1.4113E+00	7.0980E-01	3.6880E-02	-6.2054E-08	9.99900E-01
11	.0000E+00	5.7541E-06	7.1188E-01	1.3043E+00	6.5194E-01	6.0008E-02	-7.1137E-08	9.99942E-01
12	.0000E+00	4.0430E-07	5.6871E-01	7.0531E-01	5.0413E-01	6.4592E-02	-1.0515E-08	9.99974E-01
13	.0000E+00	6.4200E-08	5.0084E-01	5.5499E-01	4.4015E-01	5.9943E-02	-1.0999E-08	9.99971E-01
14	.0000E+00	1.2728E-08	4.7710E-01	5.1035E-01	3.9829E-01	8.3813E-02	-1.6900E-09	9.99990E-01
15	.0000E+00	1.4378E-09	2.9947E-01	2.3485E-01	2.5130E-01	8.1282E-03	6.4762E-07	1.00017E+00
16	.0000E+00	4.2219E-10	1.7674E-01	1.0812E-01	1.7089E-01	5.8755E-03	6.7545E-07	1.00017E+00
17	.0000E+00	1.3945E-10	9.4445E-02	3.3980E-02	8.7502E-02	7.1288E-03	4.5851E-07	1.00013E+00
18	.0000E+00	9.7348E-11	8.4341E-02	2.2098E-02	6.1814E-02	2.2524E-02	3.1124E-06	1.00010E+00
19	.0000E+00	1.3763E-11	1.3284E-01	6.5047E-02	1.2281E-01	9.7547E-03	6.4978E-07	1.00010E+00
20	.0000E+00	2.2980E-10	3.1604E-01	3.7184E-01	2.8692E-01	2.9089E-02	1.8410E-06	1.00015E+00
21	.0000E+00	3.2757E-11	1.5339E-01	7.3284E-02	1.2883E-01	2.4529E-02	-7.1058E-06	1.00013E+00
22	.0000E+00	3.8005E-11	2.8631E-01	1.8531E-01	2.1415E-01	7.0198E-02	2.0582E-06	1.00008E+00
23	.0000E+00	3.6337E-11	6.9567E-01	9.7083E-01	5.2128E-01	1.3429E-01	-3.8663E-07	1.00013E+00
24	.0000E+00	9.8904E-12	6.7580E-01	8.1746E-01	5.4525E-01	1.3055E-01	3.4778E-06	1.00009E+00
25	.0000E+00	2.8953E-12	4.4142E-01	3.2905E-01	3.6977E-01	7.1664E-02	-7.2019E-07	1.00006E+00
26	.0000E+00	2.0302E-12	3.4147E-01	3.2978E-01	2.7652E-01	6.4983E-02	-2.2497E-06	1.00006E+00
27	.0000E+00	4.8881E-13	1.1227E-01	6.6803E-02	9.3730E-02	1.8547E-02	1.0407E-07	1.00002E+00
28	.0000E+00	1.0000E+00	9.7784E+00	1.5814E+01	9.7784E+00	1.0025E+00	-3.9944E-06	1.00001E+00
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	ren rate	fix rate	flux*cd**2	total flux
1	1.6943E-01	-6.0905E-09	1.7719E-01	.0000E+00	2.6297E-03	.0000E+00	.0000E+00	3.5707E-01
2	1.2431E-01	-1.0505E-08	1.3275E-01	.0000E+00	1.7185E-03	1.1850E-02	.0000E+00	2.6372E+00
3	1.5709E-01	1.3329E-08	1.6797E-01	.0000E+00	.0000E+00	1.4532E-02	.0000E+00	3.3363E+00
4	9.7250E-01	-1.0529E-08	1.0412E+00	.0000E+00	.0000E+00	6.2767E-03	.0000E+00	2.0597E+00

5	1.4666E+00	-4.7166E-08	1.5752E+00	.0000E+00	.0000E+00	1.8230E-03	.0000E+00	3.1215E+00
6	2.8196E+00	4.1137E-08	3.0297E+00	.0000E+00	.0000E+00	1.5857E-03	.0000E+00	6.0022E+00
7	2.7816E+00	1.7861E-08	2.9047E+00	.0000E+00	.0000E+00	1.5575E-03	.0000E+00	5.8668E+00
8	2.0648E+00	-1.2876E-07	2.0853E+00	.0000E+00	.0000E+00	1.5887E-03	.0000E+00	4.3049E+00
9	1.6049E+00	-4.6942E-08	1.5871E+00	.0000E+00	.0000E+00	2.1318E-03	.0000E+00	3.3306E+00
10	1.4690E+00	-6.2054E-08	1.4461E+00	.0000E+00	.0000E+00	4.5409E-03	.0000E+00	3.0436E+00
11	1.3547E+00	-7.1137E-08	1.3053E+00	.0000E+00	.0000E+00	9.5987E-03	.0000E+00	2.7899E+00
12	8.5329E-01	-1.0515E-08	7.9580E-01	.0000E+00	.0000E+00	1.2541E-02	.0000E+00	1.7412E+00
13	7.1987E-01	-1.0999E-08	6.7144E-01	.0000E+00	.0000E+00	1.3368E-02	.0000E+00	1.4692E+00
14	6.6115E-01	-1.6905E-09	5.8789E-01	.0000E+00	.0000E+00	8.4735E-03	.0000E+00	1.3319E+00
15	3.7675E-01	6.4762E-07	3.7015E-01	.0000E+00	.0000E+00	2.0923E-03	.0000E+00	7.8088E-01
16	2.0888E-01	6.7545E-07	2.0411E-01	.0000E+00	.0000E+00	1.4417E-03	.0000E+00	4.3228E-01
17	8.9978E-02	4.5851E-07	8.4454E-02	.0000E+00	.0000E+00	1.8254E-03	.0000E+00	1.8992E-01
18	6.2756E-02	-3.1124E-06	4.4139E-02	.0000E+00	.0000E+00	1.5946E-03	.0000E+00	1.1988E-01
19	1.3585E-01	6.4978E-07	1.2638E-01	.0000E+00	.0000E+00	2.8988E-03	.0000E+00	2.7710E-01
20	4.5275E-01	1.8410E-06	4.3136E-01	.0000E+00	.0000E+00	1.6010E-02	.0000E+00	9.2968E-01
21	1.3144E-01	-7.1058E-06	1.1138E-01	.0000E+00	.0000E+00	1.4543E-02	.0000E+00	2.6124E-01
22	2.4909E-01	2.0583E-06	1.8953E-01	.0000E+00	.0000E+00	4.1527E-02	.0000E+00	4.8212E-01
23	8.0640E-01	-3.8663E-07	6.9486E-01	.0000E+00	.0000E+00	7.7430E-02	.0000E+00	1.6074E+00
24	6.1481E-01	3.4778E-06	5.0515E-01	.0000E+00	.0000E+00	7.4668E-02	.0000E+00	1.2087E+00
25	2.6619E-01	-7.2019E-07	2.0988E-01	.0000E+00	.0000E+00	4.2682E-02	.0000E+00	5.1628E-01
26	1.8229E-01	-2.2497E-06	1.2664E-01	.0000E+00	.0000E+00	3.9231E-02	.0000E+00	3.4063E-01
27	3.3695E-02	1.0407E-07	1.6909E-02	.0000E+00	.0000E+00	1.1036E-02	.0000E+00	5.7854E-02
28	2.3363E-01	-3.9564E-06	2.3327E-01	.0000E+00	.0000E+00	2.3770E-03	.0000E+00	4.8697E+01

- elapsed time .02 min.

0direct 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	2.5780E-03	2.4838E-02	3.1517E-02	1.9078E-02	2.9162E-02	5.5735E-02	3.1744E-02	4.6309E-03
2	3.7297E-03	3.8533E-02	4.8786E-02	2.9468E-02	4.4833E-02	8.4449E-02	4.7930E-02	6.9681E-03
3	3.0806E-03	3.2976E-02	4.3071E-02	2.7174E-02	4.2310E-02	8.0523E-02	4.5982E-02	5.5634E-03
4	1.0461E-03	1.2134E-02	1.6510E-02	1.0984E-02	1.7448E-02	3.3323E-02	1.9274E-02	1.9980E-03
5	1.7342E-03	1.8909E-02	2.4731E-02	1.5991E-02	2.4310E-02	4.6409E-02	2.6614E-02	3.3166E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.7045E-03	5.7619E-03	1.2637E-02	1.4510E-02	1.2422E-02	1.8491E-02	1.8548E-03	1.2368E-03
2	7.0660E-03	8.6638E-03	1.8708E-02	2.1909E-02	1.8748E-02	2.8077E-02	2.7530E-03	1.8570E-03
3	5.6716E-03	8.1116E-03	1.7497E-02	2.0258E-02	1.7329E-02	2.5947E-02	2.5780E-03	1.7249E-03
4	1.8869E-03	3.3010E-03	7.1064E-03	8.1359E-03	6.9950E-03	1.0433E-02	1.1245E-03	7.2099E-04
5	3.2916E-03	4.6973E-03	1.0128E-02	1.1716E-02	1.0045E-02	1.4983E-02	1.5422E-03	1.0132E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.4364E-03	4.2029E-03	2.4613E-03	5.6644E-03	4.9502E-03	1.4098E-02	2.7950E-02	2.5866E-02
2	2.1735E-03	6.6699E-03	3.6712E-03	8.5086E-03	7.5829E-03	2.1881E-02	4.2519E-02	3.9578E-02
3	2.0098E-03	6.1275E-03	3.4205E-03	7.8731E-03	7.0304E-03	2.0218E-02	3.9499E-02	3.6727E-02
4	8.0892E-04	2.4197E-03	1.3986E-03	3.2177E-03	2.8251E-03	8.0975E-03	1.6219E-02	1.5032E-02
5	1.1623E-03	3.4608E-03	1.9953E-03	4.5923E-03	4.0804E-03	1.1554E-02	2.2984E-02	2.1242E-02
Ozone	grp. 25	grp. 26	grp. 27	grp. 28				
1	1.3030E-02	1.1832E-02	3.1202E-03	3.1614E-01				
2	2.0040E-02	1.8448E-02	5.1075E-03	5.8877E-01				
3	1.8473E-02	1.7056E-02	4.6910E-03	5.4264E-01				
4	7.4892E-03	6.8081E-03	1.7192E-03	2.1836E-01				
5	1.0657E-02	9.7140E-03	2.5437E-03	3.1295E-01				

1 560 d, sss21: babcock wilcox 15x15, 3.00wt%, 20g/d/mfu burn high temp

0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.7527E-01	1.3071E+00	1.6542E+00	1.0258E+00	1.5008E+00	2.9821E+00	2.8760E+00	2.0755E+00
2	1.7205E-01	1.2741E+00	1.6139E+00	1.0019E+00	1.5139E+00	2.9125E+00	2.8551E+00	2.0681E+00
3	1.7087E-01	1.2620E+00	1.5988E+00	9.9299E-01	1.5008E+00	2.8861E+00	2.8200E+00	2.0660E+00
4	1.6942E-01	1.2436E+00	1.5718E+00	9.7390E-01	1.4684E+00	2.8232E+00	2.7833E+00	2.0642E+00
5	1.7150E-01	1.2670E+00	1.6025E+00	9.9349E-01	1.4997E+00	2.8838E+00	2.8185E+00	2.0682E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59203E+00	1.45173E+00	1.31751E+00	8.10131E-01	6.88540E-01	6.06130E-01	3.72052E-01	2.05584E-01
2	1.59783E+00	1.45963E+00	1.33472E+00	8.30575E-01	7.00825E-01	6.32577E-01	3.74655E-01	2.07245E-01
3	1.60160E+00	1.46221E+00	1.34025E+00	8.37055E-01	7.06403E-01	6.40689E-01	3.75518E-01	2.07801E-01
4	1.60483E+00	1.46896E+00	1.35403E+00	8.52528E-01	7.19394E-01	6.60314E-01	3.76986E-01	2.08756E-01
5	1.60017E+00	1.46227E+00	1.34022E+00	8.35599E-01	7.05899E-01	6.39984E-01	3.75166E-01	2.07683E-01
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.58086E-02	4.87777E-02	1.28778E-01	4.36784E-01	1.16285E-01	2.04294E-01	7.20625E-01	5.31425E-01
2	8.77622E-02	5.57722E-02	1.32129E-01	4.44439E-01	1.23399E-01	2.25912E-01	7.59522E-01	5.67817E-01
3	8.84089E-02	5.77576E-02	1.33207E-01	4.46929E-01	1.25994E-01	2.32228E-01	7.71292E-01	5.78423E-01
4	8.99142E-02	6.24807E-02	1.35763E-01	4.52613E-01	1.31107E-01	2.48118E-01	8.05894E-01	6.11151E-01
5	8.83662E-02	5.73543E-02	1.33131E-01	4.46659E-01	1.25513E-01	2.31630E-01	7.72281E-01	5.80744E-01

Ozone	grp. 25	grp. 26	grp. 27
1	2.22430E-01	1.38861E-01	2.00771E-02
2	2.41267E-01	1.56652E-01	2.55397E-02
3	2.46499E-01	1.61278E-01	2.67963E-02
4	2.68866E-01	1.79213E-01	3.25153E-02
5	2.48003E-01	1.63659E-01	2.76993E-02

Offlux 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	1.02170E+00	1.03168E+00	1.03228E+00	1.02560E+00	1.03408E+00	1.03413E+00	1.02036E+00	1.00855E+00
2	1.00292E+00	1.00562E+00	1.00704E+00	1.00852E+00	1.00951E+00	1.01002E+00	1.00586E+00	1.00004E+00
3	9.96052E-01	9.96185E-01	9.97657E-01	9.99495E-01	1.00089E+00	1.00086E+00	1.00052E+00	9.98935E-01
4	9.87612E-01	9.87511E-01	9.80830E-01	9.80275E-01	9.79166E-01	9.79029E-01	9.87492E-01	9.98067E-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	9.54909E-01	9.52798E-01	9.83053E-01	9.68409E-01	9.68325E-01	9.47190E-01	9.91700E-01	9.85854E-01
2	9.59472E-01	9.58195E-01	9.95897E-01	9.98846E-01	9.98812E-01	9.88176E-01	9.98538E-01	9.97850E-01
3	1.00089E+00	9.99959E-01	1.00003E+00	1.00060E+00	1.00071E+00	1.00119E+00	1.00094E+00	1.00057E+00
4	1.00291E+00	1.00639E+00	1.01030E+00	1.01909E+00	1.01912E+00	1.03187E+00	1.00485E+00	1.00609E+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	9.71057E-01	8.50462E-01	9.67291E-01	9.77864E-01	9.26477E-01	8.81983E-01	9.33112E-01	9.15123E-01
2	9.58165E-01	9.72614E-01	9.92674E-01	9.95040E-01	9.85153E-01	9.75314E-01	9.85478E-01	9.77792E-01
3	1.00043E+00	1.00708E+00	1.00057E+00	1.00061E+00	1.00065E+00	1.00258E+00	9.98720E-01	9.98066E-01
4	1.01752E+00	1.08938E+00	1.01977E+00	1.01334E+00	1.04457E+00	1.07118E+00	1.04093E+00	1.05241E+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	8.56885E-01	8.48498E-01	7.24817E-01					
2	9.72899E-01	9.57210E-01	9.22025E-01					
3	9.59257E-01	9.85475E-01	9.67391E-01					
4	1.05392E+00	1.09507E+00	1.17386E+00					
5	1.00000E+00	1.00000E+00	1.00000E+00					

Cell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.57800E-03	2.43358E-02	3.15170E-02	1.50789E-02	2.91628E-02	5.57354E-02	3.17414E-02	4.63097E-03
2	3.72979E-03	3.86535E-02	4.87869E-02	2.94684E-02	4.48333E-02	8.44406E-02	4.79330E-02	6.98581E-03
3	3.08067E-03	3.29757E-02	4.30751E-02	2.71742E-02	4.23109E-02	8.05236E-02	4.99882E-02	5.56634E-03
4	1.04615E-03	1.21344E-02	1.65107E-02	1.09844E-02	1.74148E-02	3.33232E-02	1.92749E-02	1.99890E-03
5	1.73421E-03	1.86099E-02	2.47319E-02	1.59961E-02	2.43107E-02	4.64094E-02	2.66114E-02	3.31664E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.70455E-03	5.76194E-03	1.24377E-02	1.45107E-02	1.24227E-02	1.24916E-02	1.85482E-03	1.23684E-03
2	7.05609E-03	8.64380E-03	1.87081E-02	2.19098E-02	1.87488E-02	2.80770E-02	2.75530E-03	1.85708E-03
3	5.67164E-03	8.11162E-03	1.74979E-02	2.02581E-02	1.73291E-02	2.59472E-02	2.57800E-03	1.72469E-03
4	1.88539E-03	3.30102E-03	7.10645E-03	8.13598E-03	6.99506E-03	1.04338E-02	1.12452E-03	7.20699E-04
5	3.29160E-03	4.69733E-03	1.01286E-02	1.17166E-02	1.00459E-02	1.44832E-02	1.54228E-03	1.01328E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.43647E-03	4.20291E-03	2.46130E-03	5.66414E-03	4.95029E-03	1.40989E-02	2.79502E-02	2.58669E-02

2	2.17352E-03	6.66691E-03	3.67127E-03	8.50867E-03	7.58290E-03	2.18818E-02	4.25139E-02	3.95780E-02
2	2.00981E-03	6.12593E-03	3.42052E-03	7.87317E-03	7.03047E-03	2.02181E-02	3.94993E-02	3.67274E-02
4	8.09292E-04	2.41974E-03	1.93688E-03	3.21777E-03	2.82514E-03	8.09754E-03	1.62194E-02	1.50828E-02
5	1.16233E-03	3.46036E-03	1.95532E-03	4.59251E-03	4.03846E-03	1.07545E-02	2.29244E-02	2.12892E-02

Ozone	grp. 25	grp. 26	grp. 27
1	1.30301E-02	1.18526E-02	3.12027E-03
2	2.00402E-02	1.84546E-02	5.10755E-03
3	1.84738E-02	1.70567E-02	4.69107E-03
4	7.48902E-03	6.80681E-03	1.71927E-03
5	1.06570E-02	9.71403E-03	2.56374E-03

Ozone volume vol. fraction

1	6.8843E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.1454E+00	5.49878E-01
5	2.0814E+00	1.00000E+00

- elapsed time .03 min.

```
On requested parm halt$, skipcellwt, skipshipdata
```

pass= 4, enec halts after pass 8

[illegible]

Q

[illegible]

O


```

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
0working library 17
0scratch file 18
0new library 1
0problem description
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere 2
0iam--number of zones or material regions 4
0as--mixing table length 70
0ibl--shielded cross section edit option (0/1--no/yes) 0
0ibr--bordarenko factor edit option (0/1--no/yes) 0
0isopt--dancoff factor option 0
0convergence criterion 1.00000E-03
0geometry correction factor for higher 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.
0mixing table
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 40902 4.25152E-02 205
6 1 92235 1.62152E-04 200006
7 1 92234 1.60895E-06 200007
8 1 92236 1.31718E-05 200008
9 1 92238 7.24462E-08 200009
10 1 8016 1.50611E-02 200010
11 1 8016 1.15315E-02 200011
12 1 36083 3.23199E-07 200012
13 1 36085 1.55770E-07 200013
14 1 38090 3.51239E-06 200014
15 1 39089 2.61346E-06 200015
16 1 42095 3.20178E-06 200016
17 1 40098 2.71690E-06 200017
18 1 40094 4.22845E-06 200018
19 1 40095 6.86629E-07 200019
20 1 41094 1.81576E-12 200020
21 1 43099 4.11687E-05 200021
22 1 45103 2.14179E-06 200022
23 1 45105 6.24106E-09 200023
24 1 44101 3.66029E-06 200024
25 1 44106 5.45766E-07 200025
26 1 46105 1.26197E-06 200026
27 1 46108 3.07708E-07 200027

```

28	1	47109	2.21053E-07	200028
29	1	51124	5.35940E-11	200029
30	1	54131	1.90924E-06	200030
31	1	54132	3.32758E-06	200031
32	1	54135	2.20090E-09	200032
33	1	54136	6.96021E-06	200033
34	1	55134	1.38528E-07	200034
35	1	55135	2.19558E-06	200035
36	1	55137	4.36275E-06	200036
37	1	56136	2.69601E-08	200037
38	1	57139	4.33528E-06	200038
39	1	59141	3.63599E-06	200039
40	1	59143	1.27348E-07	200040
41	1	58144	1.94158E-06	200041
42	1	60143	3.52685E-06	200042
43	1	60145	2.55992E-06	200043
44	1	61147	1.03908E-06	200044
45	1	61148	2.92578E-09	200045
46	1	60147	4.35282E-08	200046
47	1	62147	2.20888E-07	200047
48	1	62149	2.65272E-08	200048
49	1	62150	8.41498E-07	200049
50	1	62151	1.09812E-07	200050
51	1	62152	4.11675E-07	200051
52	1	64155	3.91515E-10	200052
53	1	63153	2.08535E-07	200053
54	1	63154	3.15201E-08	200054
55	1	63155	2.41894E-08	200055
56	1	40302	4.42681E-08	200056
57	1	1001	2.30530E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	4.50801E-06	200060
61	1	95237	6.54722E-07	200061
62	1	94238	5.86583E-08	200062
63	1	94239	2.73412E-05	200063
64	1	94240	3.82999E-06	200064
65	1	94241	1.67189E-06	200065
66	1	94242	1.12810E-07	200066
67	1	95241	3.19625E-08	200067
68	1	95243	6.10845E-09	200068
69	1	96244	3.46025E-10	200069
70	1	999	3.30753E-21	200070

Geometry and material description

Qzone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.3240E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.29032E+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

8057 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--borani will copy from logical 12 to logical 1

Copy	999	1/v cross sectio	from log 12 to log 1	bondarenko trigger 0
Copy	1001	hydrogen	from log 12 to log 18	bondarenko trigger 0
Copy	1001	hydrogen	from log 18 to log 1	bondarenko trigger 0
Copy	1001	hydrogen	from log 18 to log 1	bondarenko trigger 0
Copy	5010	b-10 1273 218g	from log 12 to log 18	bondarenko trigger 0
Copy	5010	b-10 1273 218g	from log 18 to log 1	bondarenko trigger 0
Copy	5010	b-10 1273 218g	from log 18 to log 1	bondarenko trigger 0
Copy	5011	boron-11	from log 12 to log 18	bondarenko trigger 0
Copy	5011	boron-11	from log 18 to log 1	bondarenko trigger 0

Copy	5011	boron-11	from log 18 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 12 to log 18	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	8016	oxygen-16	from log 18 to log 1	bondarenko trigger 0
Copy	36083	kr-83	from log 12 to log 1	bondarenko trigger 0
Copy	36085	kr-85	from log 12 to log 1	bondarenko trigger 0
Copy	38090	sr-90	from log 12 to log 1	bondarenko trigger 0
Copy	39089	y-89	from log 12 to log 1	bondarenko trigger 0
Copy	40093	zr-93	from log 12 to log 1	bondarenko trigger 0
Copy	40094	zr-94	from log 12 to log 1	bondarenko trigger 0
Copy	40095	zr-95	from log 12 to log 1	bondarenko trigger 0
Copy	40802	zircalloy	from log 12 to log 18	bondarenko trigger 0
Copy	40802	zircalloy	from log 18 to log 1	bondarenko trigger 0
Copy	40802	zircalloy	from log 18 to log 1	bondarenko trigger 0
Copy	41094	rb-94	from log 12 to log 1	bondarenko trigger 0
Copy	42095	mo-95	from log 12 to log 1	bondarenko trigger 0
Copy	43099	tc-99	from log 12 to log 1	bondarenko trigger 0
Copy	44101	ru-101	from log 12 to log 1	bondarenko trigger 0
Copy	44106	ru-106	from log 12 to log 1	bondarenko trigger 0
Copy	45103	rh-103	from log 12 to log 1	bondarenko trigger 0
Copy	45105	rh-105	from log 12 to log 1	bondarenko trigger 0
Copy	46105	pd-105	from log 12 to log 1	bondarenko trigger 0
Copy	46108	pd-108	from log 12 to log 1	bondarenko trigger 0
Copy	47109	silver-109	from log 12 to log 1	bondarenko trigger 0
Copy	51124	sb-124	from log 12 to log 1	bondarenko trigger 0
Copy	54131	xe-131	from log 12 to log 1	bondarenko trigger 0
Copy	54132	xe-132	from log 12 to log 1	bondarenko trigger 0
Copy	54135	xenon-135	from log 12 to log 1	bondarenko trigger 0
Copy	54136	xe-136	from log 12 to log 1	bondarenko trigger 0
Copy	55133	cesium-133	from log 12 to log 1	bondarenko trigger 0
Copy	55134	cs-134	from log 12 to log 1	bondarenko trigger 0
Copy	55135	cs-135	from log 12 to log 1	bondarenko trigger 0
Copy	55137	cs-137	from log 12 to log 1	bondarenko trigger 0
Copy	56136	ba-136	from log 12 to log 1	bondarenko trigger 0
Copy	57139	la-139	from log 12 to log 1	bondarenko trigger 0
Copy	58144	ce-144	from log 12 to log 1	bondarenko trigger 0
Copy	59141	pr-141	from log 12 to log 1	bondarenko trigger 0
Copy	59143	pr-143	from log 12 to log 1	bondarenko trigger 0
Copy	60143	nd-143	from log 12 to log 1	bondarenko trigger 0
Copy	60145	nd-145	from log 12 to log 1	bondarenko trigger 0
Copy	60147	nd-147	from log 12 to log 1	bondarenko trigger 0
Copy	61147	pm-147	from log 12 to log 1	bondarenko trigger 0
Copy	61148	pm-148	from log 12 to log 1	bondarenko trigger 0
Copy	62147	sm-147	from log 12 to log 1	bondarenko trigger 0
Copy	62149	sm-149	from log 12 to log 1	bondarenko trigger 0
Copy	62150	sm-150	from log 12 to log 1	bondarenko trigger 0
Copy	62151	sm-151	from log 12 to log 1	bondarenko trigger 0
Copy	62152	sm-152	from log 12 to log 1	bondarenko trigger 0
Copy	63153	eu-153	from log 12 to log 1	bondarenko trigger 0
Copy	63154	eu-154	from log 12 to log 1	bondarenko trigger 0
Copy	63155	eu-155	from log 12 to log 1	bondarenko trigger 0
Copy	64155	gd-155	from log 12 to log 1	bondarenko trigger 0
Copy	92234	u-234 1043 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	92235	uranium-235	from log 12 to log 1	bondarenko trigger 0
Copy	92236	u-236 1163 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	92238	uranium-238	from log 12 to log 1	bondarenko trigger 0
Copy	92237	neptunium-237	from log 12 to log 1	bondarenko trigger 0
Copy	94238	pu-238 1050 sigs	from log 12 to log 1	bondarenko trigger 0
Copy	94239	plutonium-239	from log 12 to log 1	bondarenko trigger 0

Copy 94240 plutonium-240 from log 12 to log 1 bondarenko trigger 0
 Copy 94241 plutonium-241 from log 12 to log 1 bondarenko trigger 0
 Copy 94242 plutonium-242 from log 12 to log 1 bondarenko trigger 0
 Copy 95241 am-241 1056 sigp from log 12 to log 1 bondarenko trigger 0
 Copy 95243 am-243 1057 218 from log 12 to log 1 bondarenko trigger 0
 Copy 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 nuc 1/27/89
 last updated 9/16/93
 l.m.petrie - oml

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/thrm1002	id	202
hydrogen endf/b-iv mat 1269/thrm1002	id	200057
b-10 1273 218gcp 042375 p-3 293k	id	203
b-10 1273 218gcp 042375 p-3 293k	id	200058
boron-11 endf/b-iv mat 1160	id	204
boron-11 endf/b-iv mat 1160	id	200059
oxygen-16 endf/b-iv mat 1276	id	201
oxygen-16 endf/b-iv mat 1276	id	200010
oxygen-16 endf/b-iv mat 1276	id	200011
kr-83 mt=102, 103, 104, 105, 106, 107	id	200012
kr-85 mt= 102	id	200013
sr-90 mt=102	id	200014
y-89 mt=102	id	200015
zr-93 mt= 102	id	200017
zr-94 mt=102	id	200018
zr-95 mt=102	id	200019
zircalloy endf/b-iv mat 1284	id	205
zircalloy endf/b-iv mat 1284	id	200056
nb-94 mt=102	id	200020
mo-95 mt=102	id	200016
tc-99 mt=102	id	200021
ru-101 mt=102	id	200024
ru-106 mt=102	id	200025
rh-103 mt=102	id	200022
rh-105 mt= 102	id	200023
pd-105 mt=102	id	200026
pd-108 mt=102	id	200027
silver-109 endf/b-iv mat 1139	id	200028
sb-124 mt=102	id	200029
xe-131 mt=102, 103, 104, 105, 106	id	200030
xe-132 mt=102, 103, 104, 105, 106	id	200031
xenon-135 endf/b-iv mat 1254	id	200032
xe-136 mt= 102, 103, 104, 105, 107	id	200033
cesium-133 endf/b-iv mat 1141	id	200030
cs-134 mt=102	id	200034
cs-135 mt= 102	id	200035
cs-137 mt=102	id	200036
ba-136 mt=102	id	200037
la-139 mt=102	id	200038
ce-144 mt= 102	id	200041
pr-141 mt=102, 103, 104, 105, 106, 107	id	200039
pr-143 mt=102	id	200040
nd-143 mt=102	id	200042
nd-145 mt=102	id	200043

15	y-89	mt=102	updated 10/13/89	39089
16	zr-98	mt= 102		40088
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 sig=5+4 newlacs p-3 258k f-1/e-m(1.45)			92234
59	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
60	u-235 1163 sig=5+4 newlacs p-3 258k f-1/e-m(1.45)			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	92237
63	pu-238 1050 sig=5+4 newlacs p-3 258k f-1/e-m(1.45)			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 sig=5+4 newlacs 218hp p-3 258k			95241
69	am-243 1057 218 hp ut f-1/e-m 090376 p3 258k			95243
70	curium-244	endf/b-iv mat 1162	updated 10/13/89	96244
0	hydrogen	endf/b-iv mat 1269/thin1002	updated 10/13/89	202 temperature= 607.60
		thermal scattering matrix number	2 at a temperature of	550.00 was selected.
0b-10	1275 218hp 042575 p-3 258k			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

Resonance data for this nuclide

Mass number (a) = 90.436 temperature(kelvin) = 650.000
 Qpotential scatter sigma = 6.385 lumped nuclear density = 4.251560E-02
 Spin factor (g) = 1.079 lump dimension (a-bar) = 6.730999E-01
 Oinner radius = 6.324600E-01 dercoff correction (c) = 1.680590E-01

Other absorber will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fss	res scat
8	-1.156752E-03	.000000E+00	-7.806053E-01
9	-4.625978E-02	.000000E+00	-2.073270E+00
10	-5.962290E-02	.000000E+00	-1.351984E+00
11	-1.761672E-01	.000000E+00	-7.350731E-01

Excess resonance integrals

0 resolved

Absorption 2.92402E-01

fission .00000E+00

- elapsed time .00 min.

- elapsed time .02 min.

1 this xsdm working tape was created 02/16/96 at 10:00:49

the title of the parent case is as follows

xsdm weighted tape-parent case entitled-- 560 d, sea2h: babcock wilcox 15x15,
 3.00wt%, 20gwt/mib 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/thrm1002	updated 10/13/89	id	202
b-10 1273 218gp 042575 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 218gp 042575 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=102,103,105,106,107	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

INFORMATION ONLY

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 1254	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107	updated 10/13/89	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 sigg-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 sigg-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 1050 sigg-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	id	94242
am-241 1056 sigg-5+4 newlacs 218hp p-3 293k			id	95241
am-243 1057 218 gp wt f-1/e-m 09076 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
1  xx      xx      sssssssssss dtttttttttt mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
  xx      xx      sssssssssss dtttttttttt mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
    xx      xx      ss      ss      dd      dd      rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
    xx      xx      ss      ss      dd      dd      rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
      xx      xx      ss      ss      dd      dd      rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
      xx      xx      sssssssssss dd      dd      mmmmmmmmmmm mmmmmmmmm mmmmmmmmmmm mmmmmmmmm mmmmmmmmm
      xx      xx      sssssssssss dd      dd      mmmmmmmmmmm mmmmmmmmm mmmmmmmmmmm mmmmmmmmm mmmmmmmmm
      xx      xx      ss      ss      dd      dd      rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
      xx      xx      ss      ss      dd      dd      rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
    xx      xx      sssssssssss dtttttttttt rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm
    xx      xx      sssssssssss dtttttttttt rr      rr      mmmmmmmmm mmmmmmmmm mmmmmmmmm mmmmmmmmm

0  dtttttttttt sssssssssss w      w      fffffffftt sssssssssss
  dtttttttttt sssssssssss w      w      fffffffftt sssssssssss
  dd      dd      ss      ss      w      w      fffffffftt ss      ss

```



```

560 d, second part of saszh 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.
Ordirect access unit   9 requires 12 blocks of length 704 for cross section mixing.
1      560 d, second part of saszh pass to make library
General problem description data block
0      general problem data

lge 1/2/3 = plane/cylinder/sphere          2    isn quadrature order                      8
lan number of zones                        4       isct order of scattering                    3
lin number of spatial intervals            28      iext Q/1/2/3/4/5/6-q/k/alpha/c/z/r/h        1
lbl Q/1/2/3 = vacuum/refl/pwr/white         1       itm inner iteration maximum                20
ibr right boundary condition                 3       tom outer iteration maximum                25
mox number of mixtures                       3       iclc -1/0/n--flat res/sn/opt                  0
ms mixing table length                     70      ith Q/1 = forward/adjoint                     0
ign number of energy groups                 27      iflu not used(always wgtcd)                   0
rng number of neutron groups               27      ipt -2/-1/0/mixture xsec print                 -2
rgg number of gamma groups                  0       idl Q/1/2/3-no/prt nd/pch ny/both             14
ifgt number of first thermal group          15     igbt -1/Q/1=no/fine/all bal. prt              0
0      special options

ifg Q/1 = none/weighting calculation         1       ipn Q/1/2 diff. coef. param                   0
iqn volumetric sources (Q/mno/yes)           0      idfm Q/1 = none/density factors 3B*           0
ipn boundary sources (Q/mno/yes)             0       iaz Q/n = none/h activities by zone           0
ifn Q/1/2 = input 33*/34*/use last          14      ial Q/mno/activities by interval             0
imx maximum time (minutes)                  10     ifct Q/1=no/yes upscatter scaling             0
idl Q/1/2/3-no/xsect/srcce/flux--out        0       ipvt Q/1/2/no/k/alpha parametric arrd        0
isx broad group fluxes                      0       isen outer iteration acceleration             0

```

INFORMATION ONLY

ibln activity data unit 0 rtrnd band rebaln parameter 0
 jkl 0/1/2 buckling geometry 0
 0 weighting data (ifg=1)

lcon -1/0/1=cell/zone/region weight -1 ihtf total xsect pan in brd gp tables 3
 ignf number of broad groups 3 rdsf pan g-g or file number 4
 itp 0/10/20/30/40 0/c/e/ac/a 0 rnsf table length or max order 6
 ijp -2/-1/0=weighted xsect print -2 mscn extra 1-d x-sect positions 0
 iap -1/n anisn xsect print -1
 0 floating point parameters

eps overall convergence 1.0000E-04 dy cyl/pla ht for buckling .0000E+00
 ptc point convergence 1.0000E-04 dz plane depth for buckling 2.0000E+02
 xnf normalization factor 1.0000E+00 vac void streaming correction .0000E+00
 ev eigenvalue guess .0000E+00 pv ipvt=1/2--k/alpha 1.0000E+00
 evm eigenvalue modifier .0000E+00 epl ev change eps for search 1.0000E-03
 bf buckling factor=1.420892 1.42089E+00 xrpw new param mod for search 7.5000E-01

this case will require 2611 locations for mixing
 this case has been allocated 200000 locations
 1 560 d, second part of ses2h pass to make library
 0 13q array has 70 entries.
 0 14q array has 70 entries.
 0 15q array has 70 entries.

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-05	
4 201		3	204	1.54884E-05	
5 205		2	205	4.25154E-02	
6 999		1	92235	1.62152E-04	
7 1001		1	92234	1.60395E-06	
8 5010		1	92236	1.31718E-05	
9 5011		1	92238	7.24662E-03	
10 8016		1	8016	1.50611E-02	
11 6		1	6	1.15315E-02	
12 36083		1	36083	3.23199E-07	
13 36085		1	36085	1.55770E-07	
14 38090		1	38090	3.51223E-06	
15 39089		1	39089	2.61344E-06	
16 40093		1	42095	3.20178E-06	
17 40094		1	40093	2.71690E-06	
18 40095		1	40094	4.22845E-06	
19 40302		1	40095	6.86629E-07	
20 41094		1	41094	1.81576E-12	
21 42095		1	43099	4.11687E-06	
22 43099		1	45103	2.14179E-06	
23 44101		1	45105	6.24106E-09	
24 44105		1	44101	3.66029E-06	
25 45103		1	44105	5.45766E-07	
26 45105		1	46105	1.26197E-06	
27 46105		1	46108	3.07708E-07	
28 46108		1	47109	2.21053E-07	
29 47109		1	51124	5.35940E-11	
30 51124		1	54131	1.90924E-06	
31 54131		1	54132	3.32758E-06	
32 54132		1	54135	2.20090E-09	
33 54135		1	54136	6.98021E-06	
34 54136		1	55134	1.39393E-07	

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35	55135	1	55135	2.19598E-06
36	55134	1	55137	4.36275E-06
37	55136	1	56136	2.69601E-08
38	55137	1	57139	4.36528E-06
39	56136	1	59141	3.63992E-06
40	57139	1	59143	1.27348E-07
41	58144	1	58144	1.94158E-06
42	59141	1	60143	3.52485E-06
43	59143	1	60145	2.59992E-06
44	60143	1	61147	1.03903E-06
45	60145	1	61148	2.92378E-09
46	60147	1	60147	4.35262E-08
47	61147	1	62147	2.20883E-07
48	61148	1	62149	2.66272E-08
49	62147	1	62150	8.41498E-07
50	62149	1	62151	1.09812E-07
51	62150	1	62152	4.11665E-07
52	62151	1	64155	3.97515E-10
53	62152	1	63153	2.08635E-07
54	63153	1	63154	3.15201E-08
55	63154	1	63155	2.41894E-08
56	63155	1	40802	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	4.50801E-06
61	92238	1	92237	6.54722E-07
62	92237	1	94238	5.86583E-08
63	94238	1	94239	2.73412E-05
64	94239	1	94240	3.82999E-06
65	94240	1	94241	1.67188E-06
66	94241	1	94242	1.12810E-07
67	94242	1	95241	3.19625E-08
68	95241	1	95243	6.10845E-09
69	95243	1	96244	3.46025E-10
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.

1 560 d, second part of ses2h pass to make library
neutron group parameters

0	gp	energy	lethargy	weighted	broad gp	calc	group	right	left
	boundaries	boundaries	velocities	numbers	type	band	albedo	albedo	
1	2.00000E+07	-6.95147E-01	4.60581E+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	1.20597E+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	1.46530E+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	2.72615E+08	2	0	8	1.00000E+00		
9	1.70000E+04	6.37713E+00	1.13520E+08	2	0	9	1.00000E+00		
10	3.00000E+03	8.11173E+00	4.82125E+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		

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13	3.00000E+01	1.27169E+01	5.69593E+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	1.59471E+01	1.70522E+06	2	0	16	1.00000E+00
17	1.29999E+00	1.58657E+01	1.52543E+06	2	0	17	1.00000E+00
18	1.12999E+00	1.59999E+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	4.86933E+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	1.91139E+01	2.71893E+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	560 d, second part of sas2h pass to make library						
0	mixture	order p(l)	activity table	quadrature constants			
	by zone	by zone	metl no.	reaction	weights	directions	refl direc
1	3	3			0	-2.79004E-01	3
2	2	3			5.06143E-02	-1.97286E-01	3
3	3	3			5.06143E-02	1.97286E-01	2
4	1	3			0	-6.04419E-01	8
5					5.59533E-02	-5.58410E-01	8
6					5.59533E-02	-2.31301E-01	7
7					5.59533E-02	2.31301E-01	6
8					5.59533E-02	5.58410E-01	5
9					0	-8.50774E-01	15
10					5.22844E-02	-8.21784E-01	15
11					5.22844E-02	-6.01588E-01	14
12					5.22844E-02	-2.20196E-01	13
13					5.22844E-02	2.20196E-01	12
14					5.22844E-02	6.01588E-01	11
15					5.22844E-02	8.21784E-01	10
16					0	-9.83052E-01	24
17					4.53355E-02	-9.64143E-01	24
18					4.53355E-02	-8.17361E-01	23
19					4.53355E-02	-5.46143E-01	22
20					4.53355E-02	-1.91780E-01	21
21					4.53355E-02	1.91780E-01	20
22					4.53355E-02	5.46143E-01	19
23					4.53355E-02	8.17361E-01	18
24					4.53355E-02	9.64143E-01	17

00constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.85235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.85235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.85235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.06435E-01	-1.76564E-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	6.26833E-01	-1.98456E-01	-4.26483E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44243E-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	3.44243E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44243E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40830E-01	-3.44243E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44243E-01

[illegible]

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12	12	1	26	1.2587E-06	28	1.0000E+00	3
13	13	1	26	1.7334E-06	28	9.9999E-01	3
14	14	1	25	5.9717E-07	28	9.9999E-01	3
15	15	1	2	3.5057E-05	28	9.9996E-01	2
16	16	1	2	4.3089E-05	28	9.9996E-01	2
17	17	1	2	4.9270E-05	28	9.9986E-01	3
18	18	1	2	5.7420E-05	28	9.9995E-01	3
19	19	1	2	4.9302E-05	28	9.9990E-01	3
20	20	1	2	3.8740E-05	28	9.9992E-01	3
21	21	1	2	5.9931E-05	28	9.9994E-01	3
22	22	1	25	2.7017E-05	28	9.9997E-01	3
23	23	1	1	1.8289E-05	14	1.0000E+00	4
24	24	1	1	2.6080E-05	9	1.0000E+00	4
25	25	1	1	2.9187E-05	8	1.0000E+00	5
26	26	1	1	2.1845E-05	6	1.0000E+00	6
27	27	1	1	2.0299E-05	5	1.0000E+00	8

6 490 -2.8583E-06 1.0887E+00 -1.8850E-06 -1.4194E-05 -7.8710E-06 .0000E+00 .0167
 final monitor
 Lambda 1.0889E+00 production/absorption 1.1031E+00 angular flux on 16
 - elapsed time .02 min.
 1 560 d, second part of ses2h pass to make library
 0 int. zone number radius int. midpoint area volume prod density
 1 1 .0000E+00 1.9764E-02 .0000E+00 4.9088E-03 .0000E+00
 2 1 3.9528E-02 5.9258E-02 2.4886E-01 1.4726E-02 .0000E+00
 3 1 7.9057E-02 1.1858E-01 4.9673E-01 5.8905E-02 .0000E+00
 4 1 1.5811E-01 1.9764E-01 9.9346E-01 9.8176E-02 .0000E+00
 5 1 2.3717E-01 2.7670E-01 1.4902E+00 1.3747E-01 .0000E+00
 6 1 3.1623E-01 3.5579E-01 1.9869E+00 1.7671E-01 .0000E+00
 7 1 3.9528E-01 4.3481E-01 2.4886E+00 2.1598E-01 .0000E+00
 8 1 4.7434E-01 5.1387E-01 2.9804E+00 2.5525E-01 .0000E+00
 9 1 5.5340E-01 5.9316E-01 3.4771E+00 1.4255E-01 .0000E+00
 10 1 5.9258E-01 6.1269E-01 3.7259E+00 1.5217E-01 .0000E+00
 11 2 6.3246E-01 6.4262E-01 3.9738E+00 8.2046E-02 .0000E+00
 12 2 6.5278E-01 6.6294E-01 4.1015E+00 8.4640E-02 .0000E+00
 13 3 6.7310E-01 6.9683E-01 4.2292E+00 2.0562E-01 .0000E+00
 14 3 7.2006E-01 7.4350E-01 4.5231E+00 2.1942E-01 .0000E+00
 15 3 7.6703E-01 7.9051E-01 4.8194E+00 2.3282E-01 .0000E+00
 16 4 8.1400E-01 8.6279E-01 5.1145E+00 5.2905E-01 2.4810E-02
 17 4 9.1159E-01 9.6088E-01 5.7278E+00 5.8889E-01 2.7010E-02
 18 4 1.0071E+00 1.1067E+00 6.3408E+00 1.3573E+00 6.0990E-02
 19 4 1.2034E+00 1.3019E+00 7.5678E+00 1.5966E+00 7.0289E-02
 20 4 1.3995E+00 1.4971E+00 8.7980E+00 1.8960E+00 7.9676E-02
 21 4 1.5947E+00 1.6923E+00 1.0020E+01 2.0754E+00 8.9114E-02
 22 4 1.7899E+00 1.8875E+00 1.1243E+01 2.3147E+00 9.8608E-02
 23 4 1.9850E+00 2.0826E+00 1.2472E+01 2.5541E+00 1.0816E-01
 24 4 2.1802E+00 2.2778E+00 1.3699E+01 2.7944E+00 1.1780E-01
 25 4 2.3754E+00 2.4730E+00 1.4925E+01 3.0338E+00 1.2753E-01
 26 4 2.5706E+00 2.6682E+00 1.6151E+01 3.2722E+00 1.3739E-01
 27 4 2.7658E+00 2.8641E+00 1.7378E+01 1.7258E+00 7.2436E-02
 28 4 2.8694E+00 2.9122E+00 1.7993E+01 1.7857E+00 7.4991E-02
 29 2.9610E+00 1.8604E+01
 1 560 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 1.2680E-02 9.0044E-02 1.1211E-01 6.8851E-02 1.0261E-01 1.9269E-01 1.9202E-01 1.4694E-01
 2 1.2675E-02 8.9994E-02 1.1204E-01 6.8823E-02 1.0256E-01 1.9260E-01 1.9202E-01 1.4693E-01
 3 1.2672E-02 9.0003E-02 1.1207E-01 6.8845E-02 1.0259E-01 1.9267E-01 1.9203E-01 1.4695E-01
 4 1.2682E-02 9.0086E-02 1.1218E-01 6.8919E-02 1.0272E-01 1.9291E-01 1.9219E-01 1.4697E-01
 5 1.2694E-02 9.0227E-02 1.1237E-01 6.9052E-02 1.0293E-01 1.9331E-01 1.9243E-01 1.4702E-01
 6 1.2711E-02 9.0421E-02 1.1264E-01 6.9259E-02 1.0324E-01 1.9386E-01 1.9277E-01 1.4707E-01

HR 00000110000000

7	1.27319E-02	9.06691E-02	1.12991E-01	6.94738E-02	1.08628E-01	1.94582E-01	1.94220E-01	1.47148E-01
8	1.27569E-02	9.09785E-02	1.13430E-01	6.97810E-02	1.04134E-01	1.95519E-01	1.94798E-01	1.47231E-01
9	1.27780E-02	9.12509E-02	1.13823E-01	7.00627E-02	1.04602E-01	1.96387E-01	1.95334E-01	1.47300E-01
10	1.27923E-02	9.14643E-02	1.14151E-01	7.03107E-02	1.05023E-01	1.97174E-01	1.95821E-01	1.47346E-01
11	1.28043E-02	9.16412E-02	1.14426E-01	7.05189E-02	1.05377E-01	1.97850E-01	1.96295E-01	1.47393E-01
12	1.28174E-02	9.17723E-02	1.14599E-01	7.06272E-02	1.05546E-01	1.98187E-01	1.96442E-01	1.47437E-01
13	1.28448E-02	9.20127E-02	1.14859E-01	7.07648E-02	1.05736E-01	1.98527E-01	1.96634E-01	1.47505E-01
14	1.28851E-02	9.23947E-02	1.15321E-01	7.10199E-02	1.06111E-01	1.99187E-01	1.97014E-01	1.47597E-01
15	1.29325E-02	9.28862E-02	1.15945E-01	7.14063E-02	1.06708E-01	2.00261E-01	1.97643E-01	1.47698E-01
16	1.30032E-02	9.36734E-02	1.16959E-01	7.20511E-02	1.07723E-01	2.02103E-01	1.98737E-01	1.47869E-01
17	1.30789E-02	9.44577E-02	1.17973E-01	7.26992E-02	1.08755E-01	2.03999E-01	1.99881E-01	1.48064E-01
18	1.31368E-02	9.50938E-02	1.18805E-01	7.32852E-02	1.09622E-01	2.05637E-01	2.00899E-01	1.48268E-01
19	1.31873E-02	9.56902E-02	1.19554E-01	7.37204E-02	1.10419E-01	2.07167E-01	2.01866E-01	1.48480E-01
20	1.32170E-02	9.59994E-02	1.20012E-01	7.40200E-02	1.10910E-01	2.08153E-01	2.02508E-01	1.48635E-01
21	1.32356E-02	9.62184E-02	1.20311E-01	7.42173E-02	1.11241E-01	2.08824E-01	2.02954E-01	1.48751E-01
22	1.32478E-02	9.63614E-02	1.20511E-01	7.43492E-02	1.11444E-01	2.09258E-01	2.03269E-01	1.48838E-01
23	1.32551E-02	9.64539E-02	1.20641E-01	7.44340E-02	1.11612E-01	2.09610E-01	2.03487E-01	1.48901E-01
24	1.32594E-02	9.65090E-02	1.20720E-01	7.44891E-02	1.11704E-01	2.09813E-01	2.03625E-01	1.48942E-01
25	1.32614E-02	9.65344E-02	1.20758E-01	7.45146E-02	1.11749E-01	2.09917E-01	2.03703E-01	1.48964E-01
26	1.32610E-02	9.65315E-02	1.20756E-01	7.45134E-02	1.11749E-01	2.09925E-01	2.03709E-01	1.48964E-01
27	1.32593E-02	9.65144E-02	1.20730E-01	7.44959E-02	1.11720E-01	2.09870E-01	2.03672E-01	1.48951E-01
28	1.32568E-02	9.64818E-02	1.20690E-01	7.44692E-02	1.11675E-01	2.09775E-01	2.03609E-01	1.48930E-01
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15888E-01	1.07080E-01	1.00822E-01	6.53777E-02	5.58727E-02	5.33752E-02	2.91124E-02	1.61508E-02
2	1.15887E-01	1.07081E-01	1.00826E-01	6.53827E-02	5.58776E-02	5.33821E-02	2.91147E-02	1.61514E-02
3	1.15888E-01	1.07072E-01	1.00805E-01	6.53688E-02	5.58653E-02	5.33496E-02	2.91083E-02	1.61479E-02
4	1.15880E-01	1.07051E-01	1.00756E-01	6.53013E-02	5.58016E-02	5.32715E-02	2.90928E-02	1.61397E-02
5	1.15873E-01	1.07018E-01	1.00680E-01	6.52137E-02	5.57200E-02	5.31525E-02	2.90698E-02	1.61274E-02
6	1.15864E-01	1.06972E-01	1.00577E-01	6.50947E-02	5.56077E-02	5.29913E-02	2.90390E-02	1.61110E-02
7	1.15851E-01	1.06913E-01	1.00441E-01	6.49285E-02	5.54699E-02	5.27804E-02	2.90004E-02	1.60900E-02
8	1.15837E-01	1.06833E-01	1.00281E-01	6.47330E-02	5.52776E-02	5.25032E-02	2.89519E-02	1.60633E-02
9	1.15827E-01	1.06758E-01	1.00092E-01	6.45410E-02	5.51027E-02	5.22450E-02	2.89033E-02	1.60389E-02
10	1.15827E-01	1.06687E-01	9.99599E-02	6.43664E-02	5.49445E-02	5.20105E-02	2.88703E-02	1.60171E-02
11	1.15833E-01	1.06632E-01	9.98123E-02	6.42294E-02	5.48189E-02	5.18254E-02	2.88369E-02	1.59988E-02
12	1.15828E-01	1.06611E-01	9.97660E-02	6.41758E-02	5.47672E-02	5.17511E-02	2.88184E-02	1.59888E-02
13	1.15783E-01	1.06584E-01	9.97029E-02	6.40937E-02	5.46833E-02	5.16408E-02	2.88031E-02	1.59808E-02
14	1.15712E-01	1.06521E-01	9.95990E-02	6.39158E-02	5.45372E-02	5.14046E-02	2.87780E-02	1.59639E-02
15	1.15636E-01	1.06415E-01	9.95254E-02	6.36888E-02	5.42951E-02	5.10535E-02	2.87402E-02	1.59375E-02
16	1.15530E-01	1.06240E-01	9.89259E-02	6.31748E-02	5.38900E-02	5.04191E-02	2.85707E-02	1.58922E-02
17	1.15435E-01	1.06057E-01	9.85427E-02	6.27140E-02	5.34816E-02	4.98014E-02	2.85873E-02	1.58422E-02
18	1.15367E-01	1.05921E-01	9.82090E-02	6.23204E-02	5.31241E-02	4.92724E-02	2.84699E-02	1.57923E-02
19	1.15313E-01	1.05787E-01	9.78978E-02	6.19538E-02	5.27856E-02	4.87783E-02	2.84008E-02	1.57416E-02
20	1.15288E-01	1.05701E-01	9.76963E-02	6.17171E-02	5.25623E-02	4.85580E-02	2.83284E-02	1.57045E-02
21	1.15275E-01	1.05643E-01	9.75564E-02	6.15524E-02	5.24047E-02	4.82944E-02	2.82731E-02	1.56766E-02
22	1.15269E-01	1.05602E-01	9.74567E-02	6.14354E-02	5.22912E-02	4.80751E-02	2.82310E-02	1.56555E-02
23	1.15266E-01	1.05573E-01	9.73859E-02	6.13521E-02	5.22100E-02	4.79515E-02	2.81999E-02	1.56400E-02
24	1.15263E-01	1.05554E-01	9.73377E-02	6.12952E-02	5.21546E-02	4.78842E-02	2.81788E-02	1.56295E-02
25	1.15261E-01	1.05542E-01	9.73000E-02	6.12617E-02	5.21219E-02	4.78394E-02	2.81666E-02	1.56236E-02
26	1.15258E-01	1.05538E-01	9.72997E-02	6.12508E-02	5.21124E-02	4.78244E-02	2.81648E-02	1.56226E-02
27	1.15256E-01	1.05540E-01	9.73052E-02	6.12576E-02	5.21202E-02	4.78346E-02	2.81701E-02	1.56252E-02
28	1.15259E-01	1.05546E-01	9.73208E-02	6.12761E-02	5.21397E-02	4.78509E-02	2.81798E-02	1.56300E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.12314E-03	5.56308E-03	1.09272E-02	3.61687E-02	1.1884E-02	2.36176E-02	7.95371E-02	6.50857E-02
2	7.12377E-03	5.56429E-03	1.09280E-02	3.61712E-02	1.1884E-02	2.36192E-02	7.95321E-02	6.50707E-02
3	7.12109E-03	5.55789E-03	1.09252E-02	3.61577E-02	1.18791E-02	2.35861E-02	7.94143E-02	6.49410E-02
4	7.11461E-03	5.54180E-03	1.09111E-02	3.61261E-02	1.18554E-02	2.35108E-02	7.91554E-02	6.46618E-02
5	7.10477E-03	5.51740E-03	1.08928E-02	3.60786E-02	1.18193E-02	2.33972E-02	7.87713E-02	6.42485E-02
6	7.09148E-03	5.48388E-03	1.08681E-02	3.60151E-02	1.12710E-02	2.32440E-02	7.82597E-02	6.36979E-02
7	7.07410E-03	5.43967E-03	1.08361E-02	3.58531E-02	1.12078E-02	2.30446E-02	7.76078E-02	6.29976E-02
8	7.05134E-03	5.38059E-03	1.07945E-02	3.58273E-02	1.11263E-02	2.27866E-02	7.67814E-02	6.21178E-02

INFORMATION ONLY

9	7.03017E-03	5.3242E-03	1.07560E-02	3.57302E-02	1.10466E-02	2.25437E-02	7.60435E-02	6.13319E-02
10	7.01090E-03	5.27375E-03	1.07212E-02	3.56432E-02	1.09755E-02	2.23263E-02	7.53998E-02	6.06554E-02
11	6.99551E-03	5.23448E-03	1.06933E-02	3.55735E-02	1.09210E-02	2.21626E-02	7.46514E-02	6.01845E-02
12	6.98921E-03	5.22042E-03	1.06816E-02	3.55442E-02	1.09021E-02	2.21078E-02	7.47870E-02	6.00649E-02
13	6.98044E-03	5.19491E-03	1.06644E-02	3.55059E-02	1.08710E-02	2.20079E-02	7.45084E-02	5.97659E-02
14	6.96177E-03	5.13767E-03	1.06344E-02	3.54271E-02	1.08002E-02	2.17815E-02	7.38895E-02	5.90854E-02
15	6.95221E-03	5.04700E-03	1.05847E-02	3.53052E-02	1.06875E-02	2.14297E-02	7.29652E-02	5.81122E-02
16	6.88347E-03	4.89207E-03	1.05019E-02	3.51042E-02	1.05088E-02	2.08548E-02	7.15960E-02	5.66645E-02
17	6.83435E-03	4.74214E-03	1.04162E-02	3.48948E-02	1.03224E-02	2.02858E-02	7.01835E-02	5.52211E-02
18	6.79141E-03	4.62511E-03	1.03377E-02	3.46988E-02	1.01689E-02	1.98079E-02	6.88343E-02	5.38434E-02
19	6.75059E-03	4.52304E-03	1.02614E-02	3.45044E-02	1.00261E-02	1.93647E-02	6.74769E-02	5.24585E-02
20	6.72335E-03	4.46267E-03	1.02079E-02	3.43687E-02	9.93348E-03	1.90784E-02	6.60992E-02	5.14728E-02
21	6.70406E-03	4.42307E-03	1.01723E-02	3.42690E-02	9.86850E-03	1.88774E-02	6.57858E-02	5.07360E-02
22	6.69010E-03	4.39611E-03	1.01451E-02	3.41948E-02	9.82172E-03	1.87325E-02	6.52342E-02	5.01800E-02
23	6.68008E-03	4.37752E-03	1.01255E-02	3.41405E-02	9.78806E-03	1.86278E-02	6.48220E-02	4.97637E-02
24	6.67328E-03	4.36506E-03	1.01120E-02	3.41029E-02	9.76454E-03	1.85546E-02	6.45241E-02	4.94630E-02
25	6.66957E-03	4.35738E-03	1.01041E-02	3.40804E-02	9.75008E-03	1.85080E-02	6.43278E-02	4.92591E-02
26	6.66833E-03	4.35445E-03	1.01019E-02	3.40734E-02	9.74444E-03	1.84873E-02	6.42316E-02	4.91510E-02
27	6.66967E-03	4.35517E-03	1.01034E-02	3.40789E-02	9.74583E-03	1.84880E-02	6.42222E-02	4.91257E-02
28	6.67172E-03	4.35847E-03	1.01082E-02	3.40921E-02	9.75208E-03	1.85039E-02	6.42730E-02	4.91610E-02

0 int. grp. 25 grp. 26 grp. 27

1	2.94143E-02	2.12121E-02	4.02897E-03
2	2.94031E-02	2.11996E-02	4.02596E-03
3	2.93332E-02	2.11382E-02	4.01334E-03
4	2.91844E-02	2.10082E-02	3.98664E-03
5	2.89639E-02	2.08145E-02	3.94622E-03
6	2.86697E-02	2.05538E-02	3.89084E-03
7	2.82957E-02	2.02195E-02	3.81833E-03
8	2.78278E-02	1.97978E-02	3.72674E-03
9	2.74122E-02	1.94217E-02	3.64001E-03
10	2.70597E-02	1.91003E-02	3.56705E-03
11	2.68238E-02	1.88533E-02	3.52259E-03
12	2.67734E-02	1.88620E-02	3.52003E-03
13	2.66057E-02	1.87072E-02	3.47849E-03
14	2.62228E-02	1.83592E-02	3.37814E-03
15	2.56884E-02	1.78182E-02	3.22851E-03
16	2.49135E-02	1.70725E-02	3.00962E-03
17	2.41537E-02	1.63692E-02	2.82145E-03
18	2.34340E-02	1.57391E-02	2.68058E-03
19	2.27163E-02	1.51300E-02	2.55410E-03
20	2.22110E-02	1.47207E-02	2.47773E-03
21	2.18377E-02	1.44292E-02	2.42859E-03
22	2.15592E-02	1.42186E-02	2.39132E-03
23	2.13524E-02	1.40661E-02	2.36688E-03
24	2.12034E-02	1.39581E-02	2.34908E-03
25	2.11028E-02	1.38856E-02	2.33762E-03
26	2.10466E-02	1.38439E-02	2.33103E-03
27	2.10259E-02	1.38291E-02	2.32855E-03
28	2.10409E-02	1.38322E-02	2.32844E-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	fix	source	in	scatter	self	scatter	out	scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.99909E-04	6.53730E-04	5.44336E-05	-7.08123E-04	9.99952E-01					
2	.00000E+00	.00000E+00	3.75097E-04	6.11278E-03	8.03413E-03	1.74681E-04	-7.88340E-03	9.99962E-01					
3	.00000E+00	.00000E+00	3.81462E-03	5.44565E-03	1.41685E-02	9.24568E-05	-1.04460E-02	9.99978E-01					
4	.00000E+00	.00000E+00	5.56442E-03	3.59230E-03	1.23462E-02	4.19336E-05	-6.82599E-03	9.99983E-01					
5	.00000E+00	.00000E+00	1.02332E-02	1.15158E-02	2.08631E-02	4.96263E-05	-1.05753E-02	9.99991E-01					
6	.00000E+00	.00000E+00	2.14641E-02	3.44867E-02	4.09877E-02	8.42651E-05	-1.96078E-02	9.99995E-01					
7	.00000E+00	.00000E+00	4.22059E-02	6.09580E-02	5.41262E-02	6.12093E-05	-1.19759E-02	9.99989E-01					
8	.00000E+00	.00000E+00	5.63437E-02	7.83312E-02	5.87342E-02	3.63958E-05	-2.42175E-03	9.99912E-01					

INTERNAL ONLY

9	.00000E+00	.00000E+00	5.77742E-02	7.25955E-02	5.74889E-02	2.92892E-05	2.62572E-04	9.99897E-01
10	.00000E+00	.00000E+00	5.70884E-02	6.91447E-02	5.55680E-02	3.60489E-05	1.47054E-03	9.99898E-01
11	.00000E+00	.00000E+00	5.58517E-02	6.55604E-02	5.29408E-02	5.51288E-05	3.45910E-03	9.99940E-01
12	.00000E+00	.00000E+00	4.53861E-02	3.50795E-02	4.12754E-02	6.04213E-05	4.05131E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.05438E-02	2.85727E-02	3.66428E-02	8.46415E-05	3.81776E-03	9.99999E-01
14	.00000E+00	.00000E+00	3.94615E-02	2.82648E-02	3.37644E-02	1.36406E-04	5.56112E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.17024E-02	1.08877E-02	2.08970E-02	1.12988E-04	1.19265E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.42544E-02	4.59900E-03	1.35491E-02	7.66962E-05	6.28374E-04	9.99999E-01
17	.00000E+00	.00000E+00	7.32929E-03	1.31047E-03	6.81851E-03	3.75137E-05	4.73347E-04	1.00001E+00
18	.00000E+00	.00000E+00	6.50849E-03	9.80409E-04	5.35716E-03	3.06774E-05	1.11910E-03	1.00000E+00
19	.00000E+00	.00000E+00	1.08108E-02	2.97767E-03	9.88262E-03	6.68909E-05	8.61393E-04	1.00001E+00
20	.00000E+00	.00000E+00	2.65444E-02	2.12759E-02	2.40548E-02	2.77477E-04	2.21191E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.28046E-02	4.28748E-03	1.11537E-02	1.07523E-04	1.54372E-03	9.99999E-01
22	.00000E+00	.00000E+00	2.54533E-02	1.32585E-02	2.06331E-02	2.54660E-04	4.56535E-03	1.00001E+00
23	.00000E+00	.00000E+00	6.63183E-02	8.05025E-02	5.28638E-02	1.16862E-03	1.22839E-02	1.00003E+00
24	.00000E+00	.00000E+00	7.10189E-02	7.58889E-02	5.85699E-02	1.38028E-03	1.10728E-02	1.00003E+00
25	.00000E+00	.00000E+00	4.72941E-02	3.21591E-02	4.13727E-02	8.17348E-04	5.10337E-03	1.00001E+00
26	.00000E+00	.00000E+00	3.77734E-02	3.59319E-02	3.31879E-02	8.30884E-04	3.75412E-03	1.00001E+00
27	.00000E+00	.00000E+00	1.28092E-02	7.79891E-03	1.18808E-02	2.98857E-04	6.32156E-04	1.00000E+00
28	.00000E+00	.00000E+00	7.96709E-01	7.91928E-01	7.96709E-01	6.43521E-03	-6.43520E-03	9.99975E-01
0 grp	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.27992E-02	-7.08129E-04	1.26849E-02	.00000E+00	3.61531E-11	.00000E+00	1.99927E-05	1.60038E-02
2	9.15777E-02	-7.83340E-03	9.00890E-02	.00000E+00	.00000E+00	.00000E+00	8.86016E-05	1.14009E-01
3	1.14330E-01	-1.04460E-02	1.12169E-01	.00000E+00	.00000E+00	.00000E+00	9.20288E-05	1.42101E-01
4	7.04507E-02	-6.82359E-03	6.88958E-02	.00000E+00	.00000E+00	.00000E+00	4.16804E-05	8.73901E-02
5	1.05263E-01	-1.06798E-02	1.02664E-01	.00000E+00	.00000E+00	.00000E+00	4.95336E-05	1.30372E-01
6	1.97634E-01	-1.96078E-02	1.92774E-01	.00000E+00	.00000E+00	.00000E+00	8.39575E-05	2.44738E-01
7	1.96101E-01	-1.19799E-02	1.93054E-01	.00000E+00	.00000E+00	.00000E+00	5.92658E-05	2.44237E-01
8	1.47373E-01	-2.42175E-03	1.46651E-01	.00000E+00	.00000E+00	.00000E+00	3.27167E-05	1.84928E-01
9	1.15830E-01	2.62572E-04	1.15888E-01	.00000E+00	.00000E+00	.00000E+00	2.16688E-05	1.45685E-01
10	1.06646E-01	1.47054E-03	1.07077E-01	.00000E+00	.00000E+00	.00000E+00	1.91537E-05	1.34327E-01
11	9.98456E-02	3.45910E-03	1.00814E-01	.00000E+00	.00000E+00	.00000E+00	1.78988E-05	1.26164E-01
12	6.42663E-02	4.05131E-03	6.53688E-02	.00000E+00	.00000E+00	.00000E+00	1.05072E-05	8.15437E-02
13	5.48539E-02	3.81776E-03	5.58841E-02	.00000E+00	.00000E+00	.00000E+00	8.74591E-06	6.96466E-02
14	5.18781E-02	5.56112E-03	5.33628E-02	.00000E+00	.00000E+00	.00000E+00	8.48780E-06	6.63446E-02
15	2.88493E-02	1.19265E-03	2.91097E-02	.00000E+00	.00000E+00	.00000E+00	4.48547E-06	3.64322E-02
16	1.60049E-02	6.28374E-04	1.61490E-02	.00000E+00	.00000E+00	.00000E+00	2.25061E-06	2.02127E-02
17	6.99993E-03	4.73347E-04	7.12217E-03	.00000E+00	.00000E+00	.00000E+00	9.09197E-07	8.88802E-03
18	5.24432E-03	1.11910E-03	5.56075E-03	.00000E+00	.00000E+00	.00000E+00	6.80682E-07	6.81706E-03
19	1.07014E-02	8.61393E-04	1.09254E-02	.00000E+00	.00000E+00	.00000E+00	1.42360E-06	1.36055E-02
20	3.55946E-02	2.21191E-03	3.61650E-02	.00000E+00	.00000E+00	.00000E+00	5.28925E-06	4.51268E-02
21	1.05948E-02	1.54372E-03	1.13856E-02	.00000E+00	.00000E+00	.00000E+00	1.28912E-06	1.40594E-02
22	2.22018E-02	4.56535E-03	2.36096E-02	.00000E+00	.00000E+00	.00000E+00	2.64054E-06	2.88847E-02
23	7.50345E-02	1.22839E-02	7.95166E-02	.00000E+00	.00000E+00	.00000E+00	8.02753E-06	9.73286E-02
24	6.02731E-02	1.10728E-02	6.50713E-02	.00000E+00	.00000E+00	.00000E+00	4.84009E-06	7.89625E-02
25	2.68618E-02	5.10337E-03	2.94086E-02	.00000E+00	.00000E+00	.00000E+00	1.67882E-06	3.54527E-02
26	1.89193E-02	3.75412E-03	2.12108E-02	.00000E+00	.00000E+00	.00000E+00	8.85084E-07	2.53091E-02
27	3.52607E-03	6.32156E-04	4.02919E-03	.00000E+00	.00000E+00	.00000E+00	1.04289E-07	4.77332E-03
28	1.74998E+00	-6.43513E-03	1.75689E+00	.00000E+00	3.61531E-11	.00000E+00	5.87582E-04	2.20319E+00
1fine group summary for zone 2 by group including sun for all groups in line 28								
0 grp	fix source	fiss source	in scatter	self scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.18597E-04	1.63718E-04	2.45602E-05	-1.60339E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.85980E-05	1.44859E-03	1.08431E-03	1.39523E-05	-1.08481E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.48991E-04	2.76130E-03	8.73095E-04	2.02061E-05	-7.44257E-04	9.99999E-01
4	.00000E+00	.00000E+00	2.85430E-04	2.30098E-03	2.99928E-04	1.30757E-05	-2.55494E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.14061E-04	4.41319E-03	2.79701E-04	1.68510E-05	3.18081E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.01902E-03	1.24017E-02	1.69442E-04	2.70606E-05	8.22512E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.70758E-04	1.23988E-02	6.32978E-05	2.68118E-05	5.80656E-04	9.99997E-01
8	.00000E+00	.00000E+00	1.17251E-04	9.20599E-03	4.43283E-04	2.21074E-05	-3.48166E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45118E-04	6.35797E-03	5.30007E-05	7.66888E-05	3.15442E-04	9.99980E-01

10	.0000E+00	.0000E+00	5.30655E-05	4.98617E-05	4.94715E-05	5.95184E-05	-5.57248E-05	1.0000E+00
11	.0000E+00	.0000E+00	4.94749E-05	4.45287E-05	5.02886E-05	8.99811E-05	-9.07890E-05	9.99998E-01
12	.0000E+00	.0000E+00	5.02889E-05	2.76055E-05	5.13591E-05	5.67154E-05	-6.74790E-05	1.0000E+00
13	.0000E+00	.0000E+00	5.13592E-05	2.35700E-05	4.80811E-05	6.31551E-05	-3.05656E-05	1.0000E+00
14	.0000E+00	.0000E+00	4.80811E-05	2.23332E-05	4.20872E-05	8.52895E-05	-2.53597E-05	1.0000E+00
15	.0000E+00	.0000E+00	4.46912E-05	1.21745E-05	4.98264E-05	6.30490E-05	-1.14019E-05	9.99989E-01
16	.0000E+00	.0000E+00	5.59033E-05	6.46727E-04	5.60289E-05	3.83305E-05	-3.95204E-05	9.99964E-01
17	.0000E+00	.0000E+00	6.13731E-05	2.46542E-04	6.05858E-05	1.83266E-05	-1.13642E-05	9.99981E-01
18	.0000E+00	.0000E+00	6.38657E-05	1.73619E-04	5.60608E-05	1.44544E-05	6.36970E-05	9.99992E-01
19	.0000E+00	.0000E+00	5.75836E-05	4.07806E-04	6.05747E-05	3.17534E-05	-5.94578E-05	9.99981E-01
20	.0000E+00	.0000E+00	7.38647E-05	1.49866E-05	6.37135E-05	1.28845E-05	-2.67895E-05	9.99976E-01
21	.0000E+00	.0000E+00	8.47763E-05	3.85987E-04	9.24372E-05	4.79701E-05	-1.26370E-05	9.99987E-01
22	.0000E+00	.0000E+00	1.22131E-04	8.57902E-04	1.14656E-04	1.10771E-05	-3.58608E-05	9.99997E-01
23	.0000E+00	.0000E+00	1.75714E-04	3.06395E-03	2.24948E-04	5.00445E-05	-9.92585E-05	1.0000E+00
24	.0000E+00	.0000E+00	2.89152E-04	2.32317E-03	3.18820E-04	5.70254E-05	-8.67415E-05	1.0000E+00
25	.0000E+00	.0000E+00	2.95007E-04	9.36405E-04	2.41018E-04	3.31381E-05	2.08272E-05	1.0000E+00
26	.0000E+00	.0000E+00	1.25413E-04	7.32592E-04	9.68193E-05	3.28576E-05	-4.25805E-05	1.0000E+00
27	.0000E+00	.0000E+00	2.80723E-05	1.54644E-04	7.96795E-05	1.14734E-05	1.65162E-05	1.0000E+00
28	.0000E+00	.0000E+00	5.05904E-03	8.11387E-02	5.05904E-03	6.18946E-04	-6.13004E-04	9.99995E-01
0 grp. rt bdy flux rt leakage lft bdy flux lft leakage rdn rate fias rate flux*rdn**2 total flux								
1	1.28253E-02	-8.69464E-04	1.27992E-02	-7.08125E-04	5.84947E-06	.0000E+00	1.61703E-06	2.13541E-03
2	9.18404E-02	-8.85821E-03	9.15771E-02	-7.83340E-03	.0000E+00	.0000E+00	1.10744E-05	1.52865E-02
3	1.14677E-01	-1.11908E-02	1.14330E-01	-1.04440E-02	.0000E+00	.0000E+00	1.26538E-05	1.90879E-02
4	7.06673E-02	-6.84913E-03	7.04507E-02	-6.82359E-03	.0000E+00	.0000E+00	7.42710E-06	1.17637E-02
5	1.05602E-01	-1.03612E-02	1.05263E-01	-1.06792E-02	.0000E+00	.0000E+00	8.62595E-06	1.75792E-02
6	1.98298E-01	-1.87853E-02	1.97824E-01	-1.96078E-02	.0000E+00	.0000E+00	1.01730E-05	3.30075E-02
7	1.96807E-01	-1.13928E-02	1.96101E-01	-1.19799E-02	.0000E+00	.0000E+00	8.35251E-06	3.27276E-02
8	1.47460E-01	-2.76991E-03	1.47373E-01	-2.42175E-03	.0000E+00	.0000E+00	5.27354E-06	2.45722E-02
9	1.15820E-01	5.78015E-04	1.15830E-01	2.62572E-04	.0000E+00	.0000E+00	4.58240E-06	1.93073E-02
10	1.05606E-01	1.41481E-03	1.05646E-01	1.47054E-03	.0000E+00	.0000E+00	4.90854E-06	1.77723E-02
11	9.97532E-02	3.36831E-03	9.98456E-02	3.45910E-03	.0000E+00	.0000E+00	4.76299E-06	1.66334E-02
12	6.41591E-02	4.04457E-03	6.42663E-02	4.05131E-03	.0000E+00	.0000E+00	3.21374E-06	1.07016E-02
13	5.47507E-02	3.81473E-03	5.48539E-02	3.81776E-03	.0000E+00	.0000E+00	2.73691E-06	9.13320E-03
14	5.17277E-02	5.55858E-03	5.18761E-02	5.56112E-03	.0000E+00	.0000E+00	2.58041E-06	8.63231E-03
15	2.88123E-02	1.18105E-03	2.88483E-02	1.19245E-03	.0000E+00	.0000E+00	1.41575E-06	4.80516E-03
16	1.99870E-02	6.24742E-04	1.60049E-02	6.28674E-04	.0000E+00	.0000E+00	7.85520E-07	2.66602E-03
17	6.98732E-03	4.72211E-04	6.99993E-03	4.73347E-04	.0000E+00	.0000E+00	3.63249E-07	1.16952E-03
18	5.21621E-03	1.12547E-03	5.24432E-03	1.11910E-03	.0000E+00	.0000E+00	2.56527E-07	8.71528E-04
19	1.05781E-02	8.55444E-04	1.07014E-02	8.61392E-04	.0000E+00	.0000E+00	5.24242E-07	1.78144E-03
20	3.55359E-02	2.20923E-03	3.55946E-02	2.21191E-03	.0000E+00	.0000E+00	1.74180E-06	5.92714E-03
21	1.08969E-02	1.53125E-03	1.09348E-02	1.54372E-03	.0000E+00	.0000E+00	5.33599E-07	1.81878E-03
22	2.20924E-02	4.56176E-03	2.22018E-02	4.56535E-03	.0000E+00	.0000E+00	1.08105E-06	3.68957E-03
23	7.47458E-02	1.21846E-02	7.50345E-02	1.22839E-02	.0000E+00	.0000E+00	3.64311E-06	1.26778E-02
24	6.00340E-02	1.09851E-02	6.02731E-02	1.10728E-02	.0000E+00	.0000E+00	2.90827E-06	1.00219E-02
25	2.67609E-02	5.12420E-03	2.68618E-02	5.10537E-03	.0000E+00	.0000E+00	1.28857E-06	4.46690E-03
26	1.88568E-02	3.74982E-03	1.89192E-02	3.75412E-03	.0000E+00	.0000E+00	8.98146E-07	3.14661E-03
27	3.52022E-03	6.48672E-04	3.52607E-03	6.32156E-04	.0000E+00	.0000E+00	1.62411E-07	5.86881E-04
28	1.75082E-03	-7.04818E-03	1.74998E-03	-6.43513E-03	5.84947E-06	.0000E+00	1.08568E-07	2.91766E-01
1fine group summary for zone 3 by group including sum for all groups in line 28								
0 grp. fix source fias source in scatter alf scatter out scatter absorption leakage balance								
1	.0000E+00	.0000E+00	.0000E+00	2.61850E-04	3.46681E-04	2.88565E-05	-3.75421E-04	9.99985E-01
2	.0000E+00	.0000E+00	1.98861E-04	3.26292E-03	4.28851E-03	9.32422E-05	-4.18273E-03	9.99988E-01
3	.0000E+00	.0000E+00	2.09583E-03	2.91114E-03	7.57422E-03	4.94257E-05	-5.58765E-03	9.99991E-01
4	.0000E+00	.0000E+00	2.97362E-03	1.92981E-03	6.61003E-03	2.26508E-05	-3.65880E-03	9.99995E-01
5	.0000E+00	.0000E+00	5.47381E-03	6.17528E-03	1.11877E-02	2.66119E-05	-5.74043E-03	9.99995E-01
6	.0000E+00	.0000E+00	1.14978E-02	1.84879E-02	2.19730E-02	4.51734E-05	-1.05205E-02	9.99997E-01
7	.0000E+00	.0000E+00	2.26210E-02	3.29633E-02	2.87568E-02	3.25188E-05	-6.16697E-03	9.99992E-01
8	.0000E+00	.0000E+00	2.99859E-02	4.11564E-02	3.08699E-02	1.91225E-05	-8.90382E-04	9.99991E-01
9	.0000E+00	.0000E+00	3.04181E-02	3.79797E-02	3.07665E-02	1.53128E-05	3.29688E-04	9.99888E-01
10	.0000E+00	.0000E+00	2.98899E-02	3.60876E-02	2.90018E-02	1.88145E-05	8.72389E-04	9.99900E-01

11	.00000E+00	.00000E+00	2.9168E-02	3.4042E-02	2.7178E-02	2.8625E-05	1.9639E-03	9.9994E-01
12	.00000E+00	.00000E+00	2.3526E-02	1.8087E-02	2.1280E-02	3.1153E-05	2.2799E-03	9.9998E-01
13	.00000E+00	.00000E+00	2.0958E-02	1.4717E-02	1.8574E-02	4.3590E-05	2.0412E-03	9.9997E-01
14	.00000E+00	.00000E+00	2.0852E-02	1.4421E-02	1.7227E-02	6.9582E-05	3.0555E-03	9.9999E-01
15	.00000E+00	.00000E+00	1.1113E-02	5.6601E-03	1.0605E-02	5.8728E-05	4.5091E-04	1.0000E+00
16	.00000E+00	.00000E+00	7.3477E-03	2.3903E-03	7.0423E-03	3.9839E-05	2.6753E-04	1.0000E+00
17	.00000E+00	.00000E+00	3.7854E-03	6.7511E-04	3.5151E-03	1.9340E-05	2.5087E-04	1.0000E+00
18	.00000E+00	.00000E+00	3.3607E-03	4.8503E-04	2.6503E-03	1.5178E-05	6.9457E-04	1.0000E+00
19	.00000E+00	.00000E+00	5.5062E-03	1.5307E-03	5.0811E-03	3.4289E-05	4.3511E-04	1.0000E+00
20	.00000E+00	.00000E+00	1.3627E-02	1.0989E-02	1.2434E-02	1.4331E-04	1.0599E-03	1.0000E+00
21	.00000E+00	.00000E+00	6.5521E-03	2.1647E-03	5.6907E-03	5.4281E-05	8.6708E-04	9.9999E-01
22	.00000E+00	.00000E+00	1.2904E-02	6.5604E-03	1.0216E-02	1.2607E-04	2.5663E-03	1.0000E+00
23	.00000E+00	.00000E+00	3.2826E-02	4.0161E-02	2.6372E-02	5.8297E-04	5.9361E-03	1.0000E+00
24	.00000E+00	.00000E+00	3.4942E-02	3.7288E-02	2.8782E-02	6.7835E-04	5.4803E-03	1.0000E+00
25	.00000E+00	.00000E+00	2.3107E-02	1.5613E-02	2.0904E-02	3.9889E-04	2.6132E-03	1.0000E+00
26	.00000E+00	.00000E+00	1.8861E-02	1.7073E-02	1.5770E-02	3.9480E-04	2.2031E-03	1.0000E+00
27	.00000E+00	.00000E+00	6.1953E-03	3.6094E-03	5.4957E-03	1.3740E-04	5.5851E-04	1.0000E+00
28	.00000E+00	.00000E+00	4.0891E-01	4.0611E-01	4.0891E-01	3.2051E-03	-3.1952E-03	9.9997E-01
0 grp. rt bdy flux rt leakage lift bdy flux lift leakage rdn rate fiss rate flux*bdy**2 total flux								
1	1.2997E-02	-1.2438E-03	1.2823E-02	-8.6844E-04	1.9166E-11	.0000E+00	1.0887E-05	8.4845E-03
2	9.3168E-02	-1.3040E-02	9.1840E-02	-8.8821E-03	.0000E+00	.0000E+00	4.7294E-05	6.0864E-02
3	1.1630E-01	-1.6777E-02	1.1467E-01	-1.1190E-02	.0000E+00	.0000E+00	4.9198E-05	7.5964E-02
4	7.1635E-02	-1.0507E-02	7.0657E-02	-8.8491E-03	.0000E+00	.0000E+00	2.2515E-05	4.6787E-02
5	1.0706E-01	-1.6107E-02	1.0560E-01	-1.0361E-02	.0000E+00	.0000E+00	2.6454E-05	6.9971E-02
6	2.0090E-01	-2.9305E-02	1.9829E-01	-1.8785E-02	.0000E+00	.0000E+00	4.4707E-05	1.3123E-01
7	1.9802E-01	-1.7566E-02	1.9650E-01	-1.1398E-02	.0000E+00	.0000E+00	3.1483E-05	1.2975E-01
8	1.4775E-01	-3.6602E-03	1.4746E-01	-2.7899E-03	.0000E+00	.0000E+00	1.7189E-05	9.7162E-02
9	1.5593E-01	9.0771E-04	1.5820E-01	5.7801E-04	.0000E+00	.0000E+00	1.1336E-05	7.6160E-02
10	1.0635E-01	2.2872E-03	1.0604E-01	1.4148E-03	.0000E+00	.0000E+00	9.9963E-06	7.0107E-02
11	9.9181E-02	5.3322E-03	9.9753E-02	3.3883E-03	.0000E+00	.0000E+00	9.2939E-06	6.5510E-02
12	6.3483E-02	6.3245E-03	6.4197E-02	4.0445E-03	.0000E+00	.0000E+00	5.4175E-06	4.2044E-02
13	5.4147E-02	5.8595E-03	5.4790E-02	3.8147E-03	.0000E+00	.0000E+00	4.5050E-06	3.5875E-02
14	5.0811E-02	8.6141E-03	5.1727E-02	5.5888E-03	.0000E+00	.0000E+00	4.3307E-06	3.3799E-02
15	2.8719E-02	1.6319E-03	2.8812E-02	1.1810E-03	.0000E+00	.0000E+00	2.3319E-06	1.8599E-02
16	1.5922E-02	8.9232E-04	1.5987E-02	6.2472E-04	.0000E+00	.0000E+00	1.1697E-06	1.0503E-02
17	6.9146E-03	7.2308E-04	6.9873E-03	4.7221E-04	.0000E+00	.0000E+00	4.6873E-07	4.5794E-03
18	4.9923E-03	1.8204E-03	5.2162E-03	1.1254E-03	.0000E+00	.0000E+00	3.3675E-07	3.3725E-03
19	1.0553E-02	1.2905E-03	1.0678E-02	8.9544E-04	.0000E+00	.0000E+00	7.3194E-07	6.9952E-03
20	3.5234E-02	3.2692E-03	3.5539E-02	2.2092E-03	.0000E+00	.0000E+00	2.7319E-06	2.3308E-02
21	1.0620E-02	2.3983E-03	1.0894E-02	1.5312E-03	.0000E+00	.0000E+00	6.5079E-07	7.0976E-03
22	2.1219E-02	7.1283E-03	2.2094E-02	4.5617E-03	.0000E+00	.0000E+00	1.3074E-06	1.4302E-02
23	7.2659E-02	1.8120E-02	7.4758E-02	1.2184E-02	.0000E+00	.0000E+00	4.0042E-06	4.8552E-02
24	5.7548E-02	1.6469E-02	6.0340E-02	1.0986E-02	.0000E+00	.0000E+00	2.3787E-06	3.8807E-02
25	2.5380E-02	7.7379E-03	2.6760E-02	5.1242E-03	.0000E+00	.0000E+00	8.1522E-07	1.7215E-02
26	1.7514E-02	5.9530E-03	1.8856E-02	3.7492E-03	.0000E+00	.0000E+00	4.2056E-07	1.2082E-02
27	3.1375E-03	1.2071E-03	3.5202E-03	6.4867E-04	.0000E+00	.0000E+00	4.8273E-08	2.2094E-03
28	1.7475E+00	-1.0243E-02	1.7508E+00	-7.0481E-03	1.9166E-11	.0000E+00	3.1130E-04	1.1515E+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 self scatter out scatter absorption leakage balance								
1	.0000E+00	2.2811E-02	.0000E+00	2.1166E-02	2.0088E-02	3.7335E-03	1.2438E-03	9.9890E-01
2	.0000E+00	1.9945E-01	6.9510E-03	2.4990E-01	1.7209E-01	1.5277E-02	1.3040E-02	1.0000E+00
3	.0000E+00	2.1577E-01	7.1060E-02	2.5720E-01	2.5382E-01	1.6263E-02	1.6777E-02	9.9998E-01
4	.0000E+00	1.2388E-01	1.0527E-01	1.7857E-01	2.1088E-01	7.7609E-03	1.0507E-02	1.0000E+00
5	.0000E+00	1.6433E-01	1.9169E-01	4.4429E-01	3.3473E-01	5.1927E-03	1.6101E-02	9.9999E-01
6	.0000E+00	1.7743E-01	3.9080E-01	1.1910E+00	5.3047E-01	8.2223E-03	2.9804E-02	1.0000E+00
7	.0000E+00	8.7720E-02	5.9516E-01	1.5642E+00	6.5129E-01	8.2087E-03	1.7565E-02	9.9999E-01
8	.0000E+00	1.3518E-02	6.8734E-01	1.5744E+00	6.8600E-01	1.3253E-02	3.6602E-03	9.9992E-01
9	.0000E+00	9.8112E-04	6.7811E-01	1.3717E+00	6.5822E-01	2.1849E-02	-9.0590E-04	9.9989E-01
10	.0000E+00	7.2872E-05	6.5526E-01	1.2472E+00	6.2672E-01	3.2582E-02	-2.2881E-03	9.9990E-01
11	.0000E+00	5.7331E-06	6.2878E-01	1.1611E+00	5.8035E-01	5.3800E-02	-5.3340E-03	9.9994E-01

12	.0000E+00	4.02740E-07	5.05519E-01	6.34508E-01	4.53522E-01	5.83351E-02	-6.3244E-03	9.99973E-01
13	.0000E+00	6.39515E-08	4.48175E-01	5.08635E-01	3.99449E-01	5.45948E-02	-5.85654E-03	9.99973E-01
14	.0000E+00	1.26735E-08	4.31066E-01	4.70113E-01	3.62302E-01	7.7833E-02	-8.61438E-03	9.99989E-01
15	.0000E+00	1.4324E-09	2.37505E-01	2.15883E-01	2.31499E-01	7.59882E-03	-1.6853E-03	1.00018E+00
16	.0000E+00	4.20556E-10	1.62281E-01	9.98110E-02	1.57667E-01	5.47975E-03	-8.95428E-04	1.00018E+00
17	.0000E+00	1.35440E-10	8.70766E-02	3.14683E-02	8.11535E-02	6.63470E-03	-7.27074E-04	1.00018E+00
18	.0000E+00	9.69708E-11	7.77200E-02	2.08377E-02	5.82871E-02	2.12485E-02	-1.82174E-03	1.00008E+00
19	.0000E+00	1.37096E-10	1.22542E-01	6.07375E-02	1.14678E-01	9.14271E-03	-1.29525E-03	1.00013E+00
20	.0000E+00	2.22932E-10	2.98208E-01	3.48657E-01	2.69031E-01	2.74015E-02	-3.27833E-03	1.00018E+00
21	.0000E+00	3.26301E-11	1.44684E-01	7.03732E-02	1.25743E-01	2.35772E-02	-2.40192E-03	1.00010E+00
22	.0000E+00	3.78584E-11	2.75992E-01	1.84239E-01	2.12917E-01	6.97813E-02	-7.13160E-03	1.00009E+00
23	.0000E+00	3.61968E-11	6.61892E-01	1.00662E+00	5.40511E-01	1.39414E-01	-1.81174E-02	1.00012E+00
24	.0000E+00	9.85229E-12	7.01257E-01	8.67952E-01	5.78984E-01	1.38722E-01	-1.64675E-02	1.00010E+00
25	.0000E+00	2.88411E-12	4.64370E-01	3.51883E-01	3.95410E-01	7.66682E-02	-7.73850E-03	1.00006E+00
26	.0000E+00	2.02235E-12	3.59944E-01	3.53344E-01	2.96283E-01	6.99957E-02	-5.95318E-03	1.00005E+00
27	.0000E+00	4.81937E-13	1.18737E-01	7.14249E-02	1.00129E-01	1.98126E-02	-1.20721E-03	1.00002E+00
28	.0000E+00	1.0000E+00	9.1020E+00	1.43514E+01	9.1020E+00	9.91916E-01	1.02111E-02	1.00001E+00
0 grp.	rt body flux	rt leakage	lft body flux	lft leakage	rt body flux	rt leakage	lft body flux	lft leakage
1	1.32552E-02	-6.93225E-09	1.29971E-02	-1.24388E-03	2.22678E-03	2.48144E-03	2.92453E-04	3.36935E-01
2	9.64634E-02	-6.52760E-08	9.31681E-02	-1.30409E-02	1.99615E-05	1.10038E-02	1.58569E-03	2.44945E+00
3	1.20666E-01	-9.26605E-08	1.16307E-01	-1.67779E-02	.0000E+00	1.33450E-02	1.82658E-03	3.06311E+00
4	7.44527E-02	-7.14484E-08	7.16350E-02	-1.05079E-02	.0000E+00	5.73192E-03	8.83625E-04	1.88964E+00
5	1.11647E-01	-9.81708E-08	1.07058E-01	-1.61017E-02	.0000E+00	1.65429E-03	1.05172E-03	2.83257E+00
6	2.09722E-01	-1.33088E-07	2.00904E-01	-2.93056E-02	.0000E+00	1.40839E-03	1.73132E-03	5.31884E+00
7	2.08569E-01	-5.84227E-07	1.98020E-01	-1.75662E-02	.0000E+00	1.37206E-03	1.22622E-03	5.14943E+00
8	1.48917E-01	-7.29270E-08	1.47752E-01	-3.66029E-03	.0000E+00	1.39834E-03	6.97878E-04	3.78851E+00
9	1.15253E-01	-4.32258E-08	1.15992E-01	-9.07712E-04	.0000E+00	1.87880E-03	4.71088E-04	2.93538E+00
10	1.05500E-01	-9.69711E-07	1.05351E-01	-2.28920E-03	.0000E+00	4.01284E-03	4.28494E-04	2.68948E+00
11	9.73316E-02	-1.7839E-06	9.91815E-02	-5.33222E-03	.0000E+00	8.54482E-03	3.85770E-04	2.48529E+00
12	6.12884E-02	-4.14981E-07	6.34683E-02	-6.32456E-03	.0000E+00	1.12827E-02	2.27619E-04	1.56643E+00
13	5.21527E-02	-5.72706E-07	5.41477E-02	-5.85996E-03	.0000E+00	1.21320E-02	1.95190E-04	1.33341E+00
14	4.78788E-02	-1.98471E-07	5.08115E-02	-8.61418E-03	.0000E+00	7.80568E-03	1.75561E-04	1.22899E+00
15	2.81857E-02	-4.57034E-06	2.87193E-02	-1.63195E-03	.0000E+00	1.92742E-03	1.11247E-04	7.19335E-01
16	1.56334E-02	-3.10808E-06	1.9924E-02	-8.92325E-04	.0000E+00	1.33047E-03	5.78801E-05	3.98904E-01
17	6.67428E-03	-3.99228E-06	6.91462E-03	-7.23032E-04	.0000E+00	1.69296E-03	2.22114E-05	1.70588E-01
18	4.36092E-03	-1.68847E-06	4.99290E-03	-1.82004E-03	.0000E+00	1.50862E-03	1.12378E-05	1.12568E-01
19	1.01122E-02	-4.68952E-06	1.0553E-02	-1.29056E-03	.0000E+00	2.70100E-03	3.43877E-05	2.58742E-01
20	3.41090E-02	-9.13532E-06	3.52344E-02	-3.26920E-03	.0000E+00	1.50121E-02	1.25958E-04	8.71708E-01
21	9.75682E-03	-3.55369E-06	1.06201E-02	-2.39837E-03	.0000E+00	1.39646E-02	2.76321E-05	2.50869E-01
22	1.85156E-02	-3.21685E-06	2.12168E-02	-7.12838E-03	.0000E+00	4.12870E-02	4.8803E-05	4.79338E-01
23	6.43097E-02	-3.40832E-06	7.24599E-02	-1.81208E-02	.0000E+00	8.05394E-02	1.72789E-04	1.66672E+00
24	4.91885E-02	-5.81248E-07	5.75483E-02	-1.64689E-02	.0000E+00	7.92781E-02	1.08688E-04	1.28337E+00
25	2.10510E-02	-1.10419E-06	2.53804E-02	-7.73739E-03	.0000E+00	4.58524E-02	3.54042E-05	5.51996E-01
26	1.38363E-02	-1.79258E-07	1.75147E-02	-5.95300E-03	.0000E+00	4.20342E-02	1.74251E-05	3.64678E-01
27	2.32861E-03	-1.97389E-08	3.13751E-03	-1.20719E-03	.0000E+00	1.17908E-02	1.78722E-06	6.15910E-02
28	1.73620E+00	-3.23578E-06	1.74758E+00	-1.02434E-02	2.24272E-03	4.22568E-01	1.19308E-02	4.42743E+01
0 grp.	fix source	fix source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.0000E+00	2.28114E-02	.0000E+00	2.21404E-02	2.12528E-02	3.81906E-03	-6.93225E-09	9.98900E-01
2	.0000E+00	1.93451E-01	.0000E+00	2.60728E-01	1.85658E-01	1.59995E-02	-6.52760E-08	1.00002E+00
3	.0000E+00	2.15779E-01	.0000E+00	2.68520E-01	2.76444E-01	1.64053E-02	-9.26605E-08	9.99987E-01
4	.0000E+00	1.23886E-01	.0000E+00	1.84375E-01	2.30141E-01	7.88838E-03	-7.14484E-08	9.99997E-01
5	.0000E+00	1.6433E-01	.0000E+00	2.08014E-01	4.66396E-01	3.67067E-01	-9.81708E-08	9.99991E-01
6	.0000E+00	1.7730E-01	.0000E+00	4.24561E-01	1.25640E+00	5.9640E-01	-1.33088E-07	1.00001E+00
7	.0000E+00	8.77290E-02	.0000E+00	6.58667E-01	1.67020E+00	7.38074E-01	-5.84227E-07	9.99991E-01
8	.0000E+00	1.35181E-02	.0000E+00	1.70414E+00	7.76047E-01	1.33311E-02	-7.29270E-08	9.99975E-01
9	.0000E+00	9.81112E-04	.0000E+00	1.48884E+00	7.46843E-01	2.19704E-02	-4.32258E-06	9.99897E-01
10	.0000E+00	7.28723E-05	.0000E+00	1.35748E+00	7.09332E-01	3.30968E-02	-9.69711E-07	9.99901E-01
11	.0000E+00	5.73310E-06	.0000E+00	1.28522E+00	6.59928E-01	5.39747E-02	-1.77839E-06	9.99944E-01
12	.0000E+00	4.02740E-07	.0000E+00	6.90431E-01	5.16131E-01	5.84324E-02	-4.14981E-07	9.99974E-01

13	.0000E+00	6.3951E-08	5.0972E-01	5.4688E-01	4.5601E-01	5.4728E-02	-5.7270E-07	9.9997E-01
14	.0000E+00	1.2673E-08	4.9092E-01	5.1503E-01	4.1333E-01	7.7980E-02	-1.9847E-07	9.9998E-01
15	.0000E+00	1.4324E-09	2.7036E-01	2.3364E-01	2.6254E-01	7.7762E-03	-4.5702E-06	1.0001E+00
16	.0000E+00	4.2055E-10	1.8994E-01	1.0744E-01	1.7851E-01	5.6001E-03	-3.1080E-06	1.0001E+00
17	.0000E+00	1.3544E-10	9.8252E-02	3.3700E-02	9.1547E-02	6.6833E-03	-3.9922E-06	1.0001E+00
18	.0000E+00	9.6970E-11	8.7809E-02	2.2476E-02	6.6507E-02	2.1295E-02	-1.6924E-06	1.0000E+00
19	.0000E+00	1.3708E-10	1.3981E-01	6.5855E-02	1.2970E-01	9.2468E-03	-4.6895E-06	1.0001E+00
20	.0000E+00	2.2293E-10	3.3345E-01	3.8242E-01	3.0557E-01	2.7852E-02	-9.1353E-06	1.0001E+00
21	.0000E+00	3.2630E-11	1.6437E-01	7.7212E-02	1.4062E-01	2.3743E-02	-3.5536E-06	1.0000E+00
22	.0000E+00	3.7858E-11	3.1407E-01	2.0492E-01	2.4381E-01	7.0173E-02	-3.2168E-06	1.0000E+00
23	.0000E+00	3.6196E-11	7.6127E-01	1.1303E+00	6.1997E-01	1.4121E-01	3.4033E-06	1.0001E+00
24	.0000E+00	9.8522E-12	8.0750E-01	9.8343E-01	6.6699E-01	1.4088E-01	-5.8124E-07	1.0000E+00
25	.0000E+00	2.8841E-12	5.3605E-01	4.0058E-01	4.5711E-01	7.7916E-02	-1.1041E-06	1.0000E+00
26	.0000E+00	2.0225E-12	4.1621E-01	4.0708E-01	3.4533E-01	7.0854E-02	-1.7925E-07	1.0000E+00
27	.0000E+00	4.8193E-13	1.3770E-01	8.2588E-02	1.1750E-01	2.0258E-02	-1.9739E-08	1.0000E+00
28	.0000E+00	1.0000E+00	1.0312E+01	1.5890E+01	1.0312E+01	1.0020E+00	-3.2339E-05	1.0001E+00
0 grp. rt body flux rt leakage lft body flux lft leakage rdn rate floss rate flux*cd**2 total flux								
1	1.3252E-02	-6.9522E-09	1.2884E-02	.0000E+00	2.2521E-03	2.4814E-03	3.2405E-04	3.6359E-01
2	9.6454E-02	-6.5276E-08	9.0080E-02	.0000E+00	1.9615E-05	1.1005E-02	1.7326E-03	2.6390E+00
3	1.2066E-01	-9.2660E-08	1.1216E-01	.0000E+00	.0000E+00	1.3345E-02	1.9804E-03	3.3002E+00
4	7.4452E-02	-7.1448E-08	6.8895E-02	.0000E+00	.0000E+00	5.7319E-03	9.5504E-04	2.0359E+00
5	1.1164E-01	-9.8170E-08	1.0264E-01	.0000E+00	.0000E+00	1.6642E-03	1.1161E-03	3.0503E+00
6	2.0972E-01	-1.3308E-07	1.9277E-01	.0000E+00	.0000E+00	1.4039E-03	1.8695E-03	5.7278E+00
7	2.0859E-01	-5.8422E-07	1.9804E-01	.0000E+00	.0000E+00	1.3720E-03	1.3253E-03	5.5761E+00
8	1.4891E-01	-7.2927E-08	1.4695E-01	.0000E+00	.0000E+00	1.3834E-03	7.5305E-04	4.0951E+00
9	1.1523E-01	-4.3258E-08	1.1588E-01	.0000E+00	.0000E+00	1.8780E-03	5.0857E-04	3.1764E+00
10	1.0555E-01	-9.6971E-07	1.0707E-01	.0000E+00	.0000E+00	4.0128E-03	4.6255E-04	2.9118E+00
11	9.7331E-02	-1.7763E-06	1.0081E-01	.0000E+00	.0000E+00	8.5448E-03	4.1872E-04	2.6916E+00
12	6.1288E-02	-4.1468E-07	6.5368E-02	.0000E+00	.0000E+00	1.1282E-02	2.4675E-04	1.7007E+00
13	5.2152E-02	-5.7270E-07	5.5864E-02	.0000E+00	.0000E+00	1.2130E-02	2.1117E-04	1.4480E+00
14	4.7878E-02	-1.9847E-07	5.3362E-02	.0000E+00	.0000E+00	7.8056E-03	1.9080E-04	1.3354E+00
15	2.8185E-02	-4.5702E-06	2.9107E-02	.0000E+00	.0000E+00	1.9274E-03	1.1948E-04	7.7951E-01
16	1.5633E-02	-3.1080E-06	1.6140E-02	.0000E+00	.0000E+00	1.3304E-03	6.2066E-05	4.3228E-01
17	6.6742E-03	-3.9922E-06	7.1221E-03	.0000E+00	.0000E+00	1.6925E-03	2.3932E-05	1.8521E-01
18	4.3609E-03	-1.6924E-06	5.5607E-03	.0000E+00	.0000E+00	1.5086E-03	1.2511E-05	1.2362E-01
19	1.0112E-02	-4.6895E-06	1.0725E-02	.0000E+00	.0000E+00	2.7010E-03	3.7067E-05	2.8112E-01
20	3.4108E-02	-9.1353E-06	3.6165E-02	.0000E+00	.0000E+00	1.5012E-02	1.3572E-04	9.4608E-01
21	9.7568E-03	-3.5536E-06	1.1385E-02	.0000E+00	.0000E+00	1.3964E-02	3.0105E-05	2.7394E-01
22	1.8515E-02	-3.2168E-06	2.3609E-02	.0000E+00	.0000E+00	4.1287E-02	5.3832E-05	5.2821E-01
23	6.4309E-02	3.4033E-06	7.9516E-02	.0000E+00	.0000E+00	8.0394E-02	1.8844E-04	1.8250E+00
24	4.9188E-02	-5.8124E-07	6.5071E-02	.0000E+00	.0000E+00	7.9278E-02	1.1382E-04	1.4111E+00
25	2.1051E-02	-1.1041E-06	2.9409E-02	.0000E+00	.0000E+00	4.5652E-02	3.9185E-05	6.0913E-01
26	1.3836E-02	-1.7925E-07	2.1210E-02	.0000E+00	.0000E+00	4.2084E-02	1.9628E-05	4.0540E-01
27	2.3285E-03	-1.9739E-08	4.0291E-03	.0000E+00	.0000E+00	1.1790E-02	2.1021E-06	6.9160E-02
28	1.7362E+00	-3.2339E-05	1.7569E+00	.0000E+00	2.2485E-03	4.2256E-01	1.2933E-02	4.7980E+01

- elapsed time .02 min.

Offdirect 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	1.1351E-03	5.0313E-03	5.2854E-03	2.5076E-03	3.1834E-03	5.5261E-03	3.7177E-03	1.7432E-03
2	6.9153E-04	4.9688E-03	5.7827E-03	3.4417E-03	4.2990E-03	6.1599E-03	4.3345E-03	2.1481E-03
3	1.1637E-03	5.4539E-03	5.8682E-03	2.9145E-03	3.8631E-03	6.7826E-03	4.5794E-03	1.8256E-03
4	7.9937E-04	4.2825E-03	4.9800E-03	2.3879E-03	2.8286E-03	4.8013E-03	3.3267E-03	1.7978E-03
5	8.2274E-04	4.3488E-03	4.9738E-03	2.4123E-03	2.8784E-03	4.8892E-03	3.3738E-03	1.7974E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.1128E-03	1.0146E-03	1.0481E-03	8.7390E-04	7.9176E-04	1.0329E-03	3.1636E-04	1.6127E-04
2	1.7906E-03	1.9536E-03	2.0436E-03	1.6015E-03	1.4210E-03	1.6921E-03	6.2614E-04	3.4303E-04
3	1.1217E-03	1.0550E-03	1.2967E-03	1.2217E-03	1.1180E-03	1.5629E-03	3.7813E-04	1.9835E-04
4	1.1950E-03	1.0948E-03	1.0805E-03	6.7794E-04	6.0185E-04	6.4190E-04	3.1123E-04	1.6132E-04
5	1.1931E-03	1.0954E-03	1.0497E-03	7.0545E-04	6.2782E-04	6.8763E-04	3.1499E-04	1.6331E-04

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Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.32159E-05	1.84658E-04	1.64359E-04	4.71573E-04	2.64740E-04	7.68202E-04	2.13828E-03	1.88339E-03
2	1.77245E-04	2.97883E-04	2.98430E-04	8.70172E-04	4.29408E-04	1.19092E-03	3.30816E-03	2.92166E-03
3	1.34967E-04	3.13059E-04	2.39291E-04	6.41944E-04	4.21506E-04	1.24608E-03	3.25212E-03	2.93206E-03
4	7.07468E-05	7.53950E-05	1.17059E-04	3.84825E-04	1.35908E-04	3.40228E-04	1.07862E-03	8.60599E-04
5	7.39512E-05	8.73712E-05	1.25248E-04	3.97866E-04	1.50883E-04	3.86550E-04	1.19240E-03	9.69697E-04

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.61494E-04	6.10588E-04	9.30882E-05	4.20715E-02
2	1.34549E-03	9.80882E-04	1.68602E-04	5.52724E-02
3	1.37027E-03	1.02844E-03	1.92210E-04	5.19737E-02
4	3.60308E-04	2.18504E-04	2.71436E-05	3.45382E-02
5	4.13273E-04	2.60728E-04	3.49507E-05	3.54241E-02

libroad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6512E+06	1.9575E+09	7.2026E-01
2	9.0000E+05	1.5116E+05	9.8944E+06	2.7974E-01
3	4.0000E-01	1.2602E-01	3.6640E+05	1.2198E-10
4	1.0000E-05			

1 560 d, second part of saszh pass to make library

Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.89825E-01	1.13679E+00	2.26610E-01
2	3.95069E-01	1.13009E+00	2.17225E-01
3	3.98022E-01	1.13838E+00	2.13005E-01
4	4.15189E-01	1.14066E+00	1.82970E-01
5	4.13500E-01	1.14041E+00	1.86886E-01

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

Ozone	grp. 1	grp. 2	grp. 3
1	9.42745E-01	9.98804E-01	1.21908E+00
2	9.35428E-01	9.97966E-01	1.16859E+00
3	9.62569E-01	9.98223E-01	1.14599E+00
4	1.00409E+00	1.00022E+00	9.84313E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3
1	1.71420E-02	1.82598E-02	6.62971E-03
2	1.91840E-02	2.57438E-02	1.03446E-02
3	1.98634E-02	2.22676E-02	1.04427E-02
4	1.52286E-02	1.62880E-02	3.02171E-03
5	1.54362E-02	1.65799E-02	3.40798E-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	2.54624E+01	9.24426E-01
5	2.75440E+01	1.00000E+00

- elapsed time .03 min.

1	oooooooooooo	oooooooooooo	uu	uu	TTTTTTTTTT	ll	oooooooooooo	
	oooooooooooo	oooooooooooo	uu	uu	TTTTTTTTTT	ll	oooooooooooo	
cc	cc	oo	oo	uu	uu	pp	ll	cc
		oo	oo	uu	uu	pp	ll	cc
cc		oo	oo	uu	uu	pp	ll	cc
		oo	oo	uu	uu	TTTTTTTTTT	ll	oooooooo
cc		oo	oo	uu	uu	TTTTTTTTTT	ll	oooooooo
		oo	oo	uu	uu	pp	ll	cc
cc		oo	oo	uu	uu	pp	ll	cc


```

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 1q array has 1 entries.
0 2q array has 1 entries.
0 * core allocated to array data (by -19% or default) was 200000 words. *
1 * broad 3-group flux weighting factors *
0
0 therm = .5102
0 res = .4194
0 fast = 3.2255
0 user requested (see jactb) that only the nuclide transitions presently included in
0 origin library be updated.
0 *cross sections, available from anpx (normalized to thermal flux), barns

```

10010 to 10020	2.81074E-01
10010 tot-cap	2.81074E-01
50100 to 40100	2.30587E-02
50100 to 10010	2.30587E-02
50100 to 40090	3.49785E-03
50100 to 10020	3.49785E-03

50100 to 30070 3.23223E+03
50100 to 20040 3.23240E+03
50100 to 10030 8.63863E-02
50100 tot-cap 3.23234E+03
50110 to 50100 1.00841E-05
50110 to 50120 4.27805E-03
50110 to 40110 1.28045E-06
50110 to 10010 1.28045E-06
50110 to 40090 1.14267E-05
50110 to 10030 1.14267E-05
50110 to 30080 1.49170E-04
50110 to 20040 1.49170E-04
50110 tot-cap 4.44997E-03
80160 to 80170 1.50153E-04
80160 to 70160 8.77966E-05
80160 to 10010 8.77966E-05
80160 to 70150 1.65583E-05
80160 to 10020 1.65583E-05
80160 to 60130 2.46487E-02
80160 to 20040 2.46487E-02
80160 to 80161 3.85045E-03
80160 tot-cap 2.46032E-02
360830 to 360820 1.99539E-02
360830 to 360810 2.10453E-09
360830 to 360840 1.52183E+02
360830 to 350830 8.20860E-04
360830 to 10010 8.20860E-04
360830 to 350820 6.58364E-06
360830 to 10020 6.58364E-06
360830 to 350810 2.30111E-06
360830 to 10030 2.30111E-06
360830 to 340810 3.72415E-08
360830 to 20030 3.72415E-08
360830 to 340800 4.37489E-05
360830 to 20040 4.37489E-05
360830 tot-cap 1.52204E+02
360850 to 360860 1.37560E+00
360850 tot-cap 1.37560E+00
380900 to 380910 6.23767E-01
380900 tot-cap 6.23767E-01
390890 to 390900 9.75890E-01
390890 tot-cap 9.75890E-01
400930 to 400940 1.28827E+01
400930 tot-cap 1.28827E+01
400940 to 400950 1.79801E-01
400940 tot-cap 1.79801E-01
400950 to 400960 2.13947E+00
400950 tot-cap 2.13947E+00
410940 to 410950 3.72018E+01
410940 tot-cap 3.72018E+01
420950 to 420960 3.72416E+01
420950 tot-cap 3.72416E+01
430990 to 430980 6.04825E-03
430990 to 431000 8.67992E+01
430990 tot-cap 8.66054E+01
441010 to 441020 2.71307E+01
441010 tot-cap 2.71307E+01
441060 to 441070 8.32121E-01
441060 tot-cap 8.32121E-01
451030 to 451020 2.19045E-03

451080 to 451040 3.49009E+02
451080 tot-cap 3.49011E+02
451050 to 451060 8.09421E+03
451050 tot-cap 8.09421E+03
461050 to 461060 3.27097E+01
461050 tot-cap 3.27097E+01
461080 to 461090 6.58777E+01
461080 tot-cap 6.58777E+01
471090 to 471080 5.09575E-03
471090 to 471100 3.58892E+02
471090 to 461090 2.89243E-04
471090 to 10010 2.89243E-04
471090 to 451060 2.38972E-04
471090 to 20040 2.38972E-04
471090 to 471091 6.08942E-01
471090 tot-cap 3.58897E+02
511240 to 511250 1.16768E+01
511240 tot-cap 1.16768E+01
541310 to 541300 6.17636E-02
541310 to 541290 1.29149E-05
541310 to 541320 2.51254E+02
541310 to 531310 3.72901E-05
541310 to 10010 3.72901E-05
541310 to 531300 5.17949E-07
541310 to 10020 5.17949E-07
541310 to 531290 5.31105E-07
541310 to 10080 5.31105E-07
541310 to 521280 1.74336E-05
541310 to 20040 1.74336E-05
541310 tot-cap 2.51316E+02
541320 to 541310 9.97762E-03
541320 to 541300 2.11618E-05
541320 to 541330 8.96878E-01
541320 to 531320 7.62170E-06
541320 to 10010 7.62170E-06
541320 to 531310 3.21580E-07
541320 to 10020 3.21580E-07
541320 to 531300 4.33008E-08
541320 to 10080 4.33008E-08
541320 to 521290 9.37729E-07
541320 to 20040 9.37729E-07
541320 tot-cap 9.06886E-01
541360 to 541360 1.43939E+06
541360 tot-cap 1.43939E+06
541360 to 541350 1.70674E-02
541360 to 541340 5.21279E-05
541360 to 541370 1.21823E-01
541360 to 531360 3.15184E-07
541360 to 10010 3.15184E-07
541360 to 531350 1.17339E-07
541360 to 10020 1.17339E-07
541360 to 531340 2.68078E-08
541360 to 10080 2.68078E-08
541360 to 521330 2.64371E-07
541360 to 20040 2.64371E-07
541360 tot-cap 1.38949E-01
551330 to 551320 7.99233E-03
551330 to 551340 9.87234E+01
551330 to 541330 8.68658E-04
551330 to 10010 8.68658E-04

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551330 to 551300 1.3659E-05
551330 to 20040 1.3659E-05
551330 tot-cap 9.8732E+01
551340 to 551350 1.2658E+02
551340 tot-cap 1.2658E+02
551350 to 551360 2.0698E+01
551350 tot-cap 2.0698E+01
551370 to 551380 2.2226E-01
551370 tot-cap 2.2226E-01
561360 to 561370 8.7165E-01
561360 tot-cap 8.7165E-01
571390 to 571400 7.8225E+00
571390 tot-cap 7.8225E+00
581440 to 581450 1.2075E+00
581440 tot-cap 1.2075E+00
591410 to 591400 5.7271E-03
591410 to 591390 1.6455E-06
591410 to 571370 2.4639E-06
591410 to 20040 5.0891E-05
591410 to 581400 1.7467E-05
591410 to 10010 4.9766E-05
591410 to 591420 1.1612E+01
591410 to 581410 4.6890E-05
591410 to 10020 1.4591E-05
591410 to 581390 1.5302E-06
591410 to 10030 1.5302E-06
591410 to 571390 1.4778E-08
591410 to 20030 1.4778E-08
591410 to 571380 4.8427E-05
591410 tot-cap 1.1618E+01
591430 to 591440 9.5831E+01
591430 tot-cap 9.5831E+01
601430 to 601420 8.7641E-02
601430 to 601410 8.9435E-06
601430 to 581390 1.9449E-05
601430 to 20040 5.4394E-04
601430 to 591420 3.7637E-06
601430 to 10010 3.8549E-05
601430 to 601440 1.9769E+02
601430 to 591430 3.7138E-05
601430 to 10020 2.3333E-06
601430 to 591410 3.3622E-06
601430 to 10030 3.3622E-06
601430 to 581410 1.6154E-08
601430 to 20030 1.6154E-08
601430 to 581400 5.2446E-04
601430 tot-cap 1.9778E+02
601450 to 601440 1.1246E-01
601450 to 601430 1.1418E-04
601450 to 581410 8.0959E-06
601450 to 20040 2.0883E-04
601450 to 591440 2.1449E-06
601450 to 10010 1.3953E-05
601450 to 601460 7.6332E+01
601450 to 591450 1.3098E-05
601450 to 10020 1.2893E-06
601450 to 591430 2.0827E-06
601450 to 10030 2.0827E-06
601450 to 581430 4.1386E-09
601450 to 20030 4.1386E-09

601450 to 581420 1.94735E-04
 601450 tot-cap 7.64450E+01
 601470 to 601480 1.82057E+02
 601470 tot-cap 1.82057E+02
 611470 to 611460 3.07682E-02
 611470 to 611450 9.60014E-05
 611470 to 591430 8.52691E-06
 611470 to 20040 7.90907E-05
 611470 to 601460 1.17661E-05
 611470 to 10010 2.68168E-05
 611470 to 611480 5.65792E+02
 611470 to 601470 2.39051E-05
 611470 to 10020 8.85435E-06
 611470 to 601450 3.34307E-06
 611470 to 10080 3.34307E-06
 611470 to 591450 5.02640E-09
 611470 to 20080 5.02640E-09
 611470 to 591440 7.05638E-05
 611470 tot-cap 5.65823E+02
 611480 to 611490 1.19845E+04
 611480 tot-cap 1.19845E+04
 621470 to 621460 8.02674E-02
 621470 to 621450 7.22730E-08
 621470 to 601430 6.27089E-05
 621470 to 20040 1.20681E-08
 621470 to 611460 1.45664E-04
 621470 to 10010 2.08286E-04
 621470 to 621480 2.24599E+02
 621470 to 611470 1.83730E-04
 621470 to 10020 1.21108E-04
 621470 to 611450 1.30043E-04
 621470 to 10080 1.30043E-04
 621470 to 601450 5.98351E-06
 621470 to 20080 5.98351E-06
 621470 to 601440 1.44410E-08
 621470 to 621471 1.59214E+00
 621470 tot-cap 2.24682E+02
 621490 to 621480 4.53697E-02
 621490 to 621470 3.60849E-05
 621490 to 621500 4.49604E+04
 621490 to 611490 4.64905E-04
 621490 to 10010 4.64905E-04
 621490 to 601460 4.64905E-04
 621490 to 20040 4.64905E-04
 621490 tot-cap 4.49604E+04
 621500 to 621510 1.31000E+02
 621500 tot-cap 1.31000E+02
 621510 to 621500 1.51533E-01
 621510 to 621490 1.36599E-04
 621510 to 601470 1.52900E-05
 621510 to 20040 1.18783E-04
 621510 to 611500 1.86620E-06
 621510 to 10010 1.44460E-05
 621510 to 621520 4.90133E+03
 621510 to 611510 1.33119E-05
 621510 to 10020 7.22131E-07
 621510 to 611490 1.31243E-06
 621510 to 10080 1.31243E-06
 621510 to 601490 1.35203E-09
 621510 to 20080 1.35203E-09

621510 to 601480 1.03553E-04
621510 tot-cap 4.90148E+03
621520 to 621510 1.81528E-02
621520 to 621500 1.22659E-04
621520 to 601480 2.74143E-06
621520 to 20040 1.13899E-05
621520 to 611510 7.86272E-07
621520 to 10010 2.32027E-06
621520 to 621530 7.15683E+02
621520 to 611520 2.06111E-06
621520 to 10020 5.27119E-07
621520 to 611500 1.37091E-07
621520 to 10080 1.37091E-07
621520 to 601500 4.15444E-10
621520 to 20080 4.15444E-10
621520 to 601490 8.66546E-06
621520 tot-cap 7.15702E+02
631530 to 631520 1.76307E-02
631530 to 631510 2.63281E-05
631530 to 611490 4.21162E-05
631530 to 20040 6.08376E-04
631530 to 621520 7.37617E-06
631530 to 10010 6.22333E-05
631530 to 631540 6.01907E+02
631530 to 621530 5.97147E-05
631530 to 10020 4.86759E-06
631530 to 621510 1.08846E-06
631530 to 10080 1.08846E-06
631530 to 611510 2.48821E-08
631530 to 20080 2.48821E-08
631530 to 611500 5.66260E-04
631530 tot-cap 6.01925E+02
631540 to 631530 2.81847E-02
631540 to 631520 1.01243E-05
631540 to 611500 9.84430E-11
631540 to 20040 7.29194E-04
631540 to 621530 2.21619E-06
631540 to 10010 1.18422E-03
631540 to 631550 1.05700E+03
631540 to 621540 1.18422E-03
631540 to 10020 2.21498E-06
631540 to 621520 3.75205E-06
631540 to 10080 3.75205E-06
631540 to 611520 1.59074E-08
631540 to 20080 1.59074E-08
631540 to 611510 7.29194E-04
631540 tot-cap 1.05703E+03
631550 to 631540 2.31407E-02
631550 to 631530 6.47992E-05
631550 to 611510 1.74437E-06
631550 to 20040 8.58506E-06
631550 to 621540 3.53339E-06
631550 to 10010 7.42022E-06
631550 to 631560 2.53912E+03
631550 to 621550 5.70099E-06
631550 to 10020 1.81415E-06
631550 to 621530 6.00547E-07
631550 to 10080 6.00547E-07
631550 to 611530 1.36117E-10
631550 to 20080 1.36117E-10

INFORMATION ONLY

631550 to 611520 6.84069E-06
631550 tot-cap 2.53975E+03
641550 to 641560 1.68507E+04
641550 tot-cap 1.68507E+04
922340 to 922330 6.06255E-03
922340 fission 4.24957E+00
922340 nu-sigf 1.11695E+01
922340 to 922320 8.79035E-05
922340 to 922350 1.80808E+02
922340 to 922341 2.85447E+00
922340 tot-cap 1.84563E+02
922350 to 922340 2.77011E-02
922350 fission 3.58046E+02
922350 nu-sigf 8.67034E+02
922350 to 922330 2.64796E-05
922350 to 922360 8.43002E+01
922350 to 922351 8.11872E-02
922350 tot-cap 4.42574E+02
922350 to 922350 3.08899E-02
922360 fission 1.82111E+00
922360 nu-sigf 4.99822E+00
922360 to 922340 4.11580E-04
922360 to 922370 7.15549E+01
922360 to 922361 3.12284E+00
922360 tot-cap 7.34073E+01
922380 to 922370 6.16837E-02
922380 fission 9.1298E-01
922380 nu-sigf 2.56852E+00
922380 to 922360 3.98526E-04
922380 to 922390 8.18410E+00
922380 tot-cap 9.15858E+00
922370 to 922360 1.40615E-02
922370 fission 4.92771E+00
922370 nu-sigf 1.48387E+01
922370 to 922360 5.37949E-05
922370 to 922380 2.92721E+02
922370 to 922371 7.31933E-01
922370 tot-cap 2.97663E+02
942380 to 942370 2.26019E-03
942380 fission 2.15714E+01
942380 nu-sigf 6.11385E+01
942380 to 942360 1.26492E-05
942380 to 942370 2.62679E+02
942380 to 942381 2.86197E+00
942380 tot-cap 2.84053E+02
942390 to 942380 1.19732E-02
942390 fission 8.43174E+02
942390 nu-sigf 2.42628E+03
942390 to 942370 2.03645E-05
942390 to 942360 2.01876E-03
942390 to 942400 4.73873E+02
942390 tot-cap 1.31705E+03
942400 to 942390 5.62889E-03
942400 fission 5.63826E+00
942400 nu-sigf 1.76464E+01
942400 to 942380 5.46250E-05
942400 to 942410 1.61630E+03
942400 tot-cap 1.62194E+03
942410 to 942400 7.11470E-02
942410 fission 8.93907E+02

INFORMATION ONLY

942410 nu-sigf 2.62289E+05
 942410 to 942390 1.17533E-04
 942410 to 942420 2.93295E+02
 942410 tot-cap 1.18727E+03
 942420 to 942410 2.29460E-02
 942420 fission 4.27076E+00
 942420 nu-sigf 1.33775E+01
 942420 to 942400 2.78960E-04
 942420 to 942430 3.21212E+02
 942420 tot-cap 3.25506E+02
 952410 fission 1.21625E+01
 952410 nu-sigf 3.92645E+01
 952410 to 952420 1.01112E+03
 952410 tot-cap 1.02328E+03
 952430 fission 3.20622E+00
 952430 nu-sigf 1.10808E+01
 952430 to 952440 4.07930E+02
 952430 tot-cap 4.11227E+02
 962440 to 962430 5.51456E-03
 962440 fission 1.47615E+01
 962440 nu-sigf 4.94657E+01
 962440 to 962420 5.49934E-05
 962440 to 962450 1.36322E+02
 962440 to 962441 3.65043E+00
 962440 tot-cap 1.51089E+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
 Use 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
 Use 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 922370 were not used. library fissile nuclides are
 922330 922350 942410 922380 942390
 Use substitute nuclide in block 8 data. or, update with new fission yield data.
 Othe reaction 922370 to 922371 was not used, because 922371 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
 Use 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
 Use 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
 Use 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


```

0      dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0      short-lived split test fraction, qsn = 9.1188E-04
0      half-norm of matrix used, awn = 7.0000E+00
0      4-place-accuracy-retention ratio, ratios = 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 4
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...
*****
*      prelin 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 uc2 matrix *
*      *
*      see information above this box (if present) for later updates *
*****
*
*****

```

```

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
0      689 number of light-element nuclides
0      129 number of actinide nuclides
0      879 number of fission product nuclides
0      725 number of nonzero off-diagonal matrix elements
0
0
1

```

ses2h: babcock wilcox 15x15, 3.00wt%, 20gdc/mtu burn high temp
power= 8.466E-05mw, burnup=2.0318E-03mwd, flu= 1.61E+13hy/cm**2-sec

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INFORMATION ONLY

	change	520.0 d	560.0 d	600.0 d	640.0 d	680.1 d	720.1 d
he 4	4.44E-09	5.87E-09	7.66E-09	9.90E-09	1.27E-08	1.60E-08	2.00E-08
u230	2.18E-21	2.67E-21	3.19E-21	3.75E-21	4.35E-21	5.10E-21	5.89E-21
u231	4.75E-20	5.79E-20	6.77E-20	7.86E-20	9.06E-20	1.04E-19	1.19E-19
u232	6.36E-13	7.50E-13	8.91E-13	1.04E-12	1.21E-12	1.40E-12	1.61E-12
u233	2.43E-11	2.60E-11	2.76E-11	2.92E-11	3.07E-11	3.21E-11	3.34E-11
u234	4.95E-06	4.90E-06	4.85E-06	4.80E-06	4.75E-06	4.70E-06	4.66E-06
u235	5.15E-04	5.02E-04	4.90E-04	4.78E-04	4.67E-04	4.56E-04	4.44E-04
u236	3.55E-05	3.77E-05	3.99E-05	4.20E-05	4.40E-05	4.60E-05	4.79E-05
u237	5.10E-08	5.41E-08	5.62E-08	5.83E-08	6.03E-08	6.23E-08	6.43E-08
u238	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02
u239	2.52E-09	5.85E-09	5.84E-09	5.85E-09	5.85E-09	1.97E-09	5.85E-09
u240	.00E+00	7.72E-35	1.71E-34	3.56E-34	7.05E-34	1.34E-33	2.43E-33
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.80E-14	2.17E-14	2.57E-14	2.99E-14	3.45E-14	3.94E-14	4.46E-14
np236m	2.94E-14	3.49E-14	3.87E-14	4.27E-14	4.59E-14	5.05E-14	5.52E-14
np236	1.54E-12	1.89E-12	2.27E-12	2.69E-12	3.15E-12	3.66E-12	4.21E-12
np237	1.60E-06	1.79E-06	1.98E-06	2.19E-06	2.39E-06	2.60E-06	2.82E-06
np238	1.94E-09	2.21E-09	2.45E-09	2.70E-09	2.96E-09	3.23E-09	3.50E-09
np239	8.23E-07	8.44E-07	8.44E-07	8.44E-07	8.44E-07	8.43E-07	8.43E-07
np240m	.00E+00	6.59E-37	1.40E-36	3.04E-36	6.02E-36	1.14E-35	2.08E-35
np240	1.04E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	9.84E-12	1.48E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.89E-12	2.29E-12	2.74E-12	3.22E-12	3.75E-12	4.31E-12	4.92E-12
pu237	1.37E-13	1.52E-13	1.67E-13	1.81E-13	1.95E-13	2.09E-13	2.23E-13
pu238	1.23E-07	1.44E-07	1.78E-07	2.10E-07	2.46E-07	2.84E-07	3.26E-07
pu239	7.50E-05	7.93E-05	8.32E-05	8.69E-05	9.04E-05	9.36E-05	9.68E-05
pu240	9.39E-06	1.05E-05	1.17E-05	1.29E-05	1.40E-05	1.51E-05	1.62E-05
pu241	3.61E-06	4.22E-06	4.90E-06	5.62E-06	6.40E-06	7.22E-06	8.09E-06
pu242	2.08E-07	2.68E-07	3.37E-07	4.17E-07	5.07E-07	6.09E-07	7.24E-07
pu243	2.52E-11	3.55E-11	4.47E-11	5.53E-11	6.74E-11	8.10E-11	9.64E-11
pu244	1.64E-24	3.84E-24	8.49E-24	1.77E-23	3.51E-23	6.65E-23	1.21E-22
pu245	1.14E-30	2.74E-30	6.06E-30	1.27E-29	2.51E-29	4.78E-29	8.69E-29
pu246	.00E+00	9.00E-33	2.10E-32	4.46E-32	8.99E-32	1.73E-31	3.20E-31
am239	8.99E-19	1.23E-18	1.53E-18	1.85E-18	2.27E-18	2.71E-18	3.20E-18
am240	3.98E-16	5.29E-16	6.62E-16	8.13E-16	9.83E-16	1.17E-15	1.39E-15
am241	5.98E-08	7.67E-08	9.59E-08	1.18E-07	1.42E-07	1.69E-07	1.99E-07
am242m	9.19E-10	1.24E-09	1.62E-09	2.08E-09	2.61E-09	3.21E-09	3.90E-09
am242	6.66E-11	8.66E-11	1.08E-10	1.33E-10	1.61E-10	1.92E-10	2.28E-10
am243	9.57E-09	1.34E-08	1.85E-08	2.49E-08	3.28E-08	4.18E-08	5.25E-08
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	3.12E-12	4.66E-12	6.39E-12	8.55E-12	1.12E-11	1.44E-11	1.82E-11
am245	1.05E-28	2.48E-28	5.45E-28	1.13E-27	2.21E-27	4.14E-27	7.47E-27
am246	.00E+00	2.25E-35	5.24E-35	1.11E-34	2.25E-34	4.33E-34	8.00E-34
cm241	2.56E-19	4.04E-19	6.01E-19	8.61E-19	1.20E-18	1.76E-18	2.14E-18
cm242	4.63E-09	6.30E-09	8.35E-09	1.08E-08	1.37E-08	1.70E-08	2.09E-08
cm243	3.84E-11	5.72E-11	8.22E-11	1.14E-10	1.59E-10	2.05E-10	2.66E-10
cm244	4.58E-10	7.10E-10	1.05E-09	1.54E-09	2.16E-09	2.97E-09	3.99E-09
cm245	5.42E-12	9.12E-12	1.47E-11	2.27E-11	3.39E-11	4.94E-11	7.01E-11
cm246	1.18E-13	2.15E-13	3.73E-13	6.23E-13	1.00E-12	1.56E-12	2.37E-12
cm247	4.36E-16	8.72E-16	1.64E-15	2.94E-15	5.06E-15	8.40E-15	1.35E-14

ses2h: babcock wilcox 15x15, 3.00wt%, 20gdc/mtu burn high temp
power= 8.466E-05mw, burnup=2.0318E-03mwd, flu= 1.61E+13hy/cm**2-sec

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

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```

charge 520.0 d 560.0 d 600.0 d 640.0 d 640.1 d 680.1 d 720.1 d
on248 7.07E-18 1.55E-17 3.16E-17 6.13E-17 1.13E-16 1.13E-16 2.01E-16 3.44E-16
on249 3.31E-23 1.01E-22 2.06E-22 3.99E-22 7.39E-22 4.96E-22 1.31E-21 2.25E-21
on250 4.02E-27 9.57E-27 2.13E-26 4.45E-26 8.84E-26 8.84E-26 1.68E-25 3.07E-25
on251 .00E+00 2.26E-34 5.06E-34 1.06E-33 2.11E-33 4.61E-34 4.01E-33 7.33E-33
totals 2.26E-02 2.26E-02 2.26E-02 2.25E-02 2.25E-02 2.25E-02 2.25E-02 2.25E-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%, 20gud/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%, 20gud/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%, 20gud/mtu burn high temp
0 .terminated logical unit no. 71 with zero flag record.
1 * normal termination of execution *
0
0 table of contents for material tables
0 case or subcase printed page

Ordsct 33 1 1
15 4 1 27 6 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.
190 97376
1116 60826
132 33663 nuclei (library) storage size
144 33734
1103 75753
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
0jopt 12
0 0 0 0 0 0 0 0 0 0
0 0

Otherr 4
5.102450E-01 4.194440E-01 3.25442E+00 1.000000E-31
Onon 5
7935 20 6 18 1697
Onnn 19
7 7 0 0 1 1 0 0 0 0
21 100 1697 4 3 74 4 1 0

Otcorst 5
8.640000E+04 4.800355E+02 .000000E+00 .000000E+00 1.000000E-08

```

```

0
0000000 22222222 // 11 66666666 // 99999999 88888888
00000000 22222222 // 111 66666666 // 99999999 88888888

```



```

this is not a scale configuration controlled code
      jobname: davis
date of execution: 02/16/96
time of execution: 10:00:59

```

```

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
Master library 12
working library 0
scratch file 18
new library 1
0problem description
0igr--geometry (0/1/2/3--inf hex/slab/cyl/sphere 2
0izm--number of zones or material regions 4
0is--mixing table length 66
0iib--shielded cross section edit option (0/1--no/yes) 0
0iir--bordarenko factor edit option (0/1--no/yes) 0
0iisopt--dencoeff 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.

```

Qnuxing table	isotope	number density	new identifier
1	92235	4.44483E-04	92235
2	92234	4.65639E-06	92234
3	92236	4.78943E-05	92236
4	92238	2.18734E-02	92238
5	8016	4.55359E-02	8016
6	8016	2.09710E-02	6
7	36083	1.21060E-06	36083
8	36085	5.82772E-07	36085
9	38090	1.32013E-05	38090
10	39089	1.02024E-05	39089
11	42095	1.31680E-05	42095
12	40095	1.05729E-05	40095
13	40094	1.62229E-05	40094
14	40095	2.03688E-06	40095
15	41094	7.53797E-12	41094
16	43099	1.58444E-05	43099
17	45103	8.51543E-06	45103

UNCLASSIFIED

18	1	45105	2.07139E-08	45105
19	1	44101	1.42308E-05	44101
20	1	44106	2.14911E-06	44106
21	1	46105	5.27789E-06	46105
22	1	46108	1.39336E-06	46108
23	1	47109	9.89799E-07	47109
24	1	51124	2.30439E-10	51124
25	1	54131	7.31080E-06	54131
26	1	54132	1.32259E-05	54132
27	1	54135	6.67573E-09	54135
28	1	54136	2.70586E-05	54136
29	1	55134	6.68995E-07	55134
30	1	55135	8.57012E-06	55135
31	1	55137	1.68757E-05	55137
32	1	56136	1.31478E-07	56136
33	1	57139	1.67362E-05	57139
34	1	59141	1.43133E-05	59141
35	1	59143	3.77677E-07	59143
36	1	58144	6.39792E-06	58144
37	1	60143	1.33774E-05	60143
38	1	60145	9.77101E-06	60145
39	1	61147	3.64313E-06	61147
40	1	61148	1.04656E-08	61148
41	1	60147	1.30684E-07	60147
42	1	62147	1.01929E-06	62147
43	1	62149	8.40498E-08	62149
44	1	62150	3.35633E-06	62150
45	1	62151	3.68860E-07	62151
46	1	62152	1.63140E-06	62152
47	1	64155	1.63702E-09	64155
48	1	63153	9.03257E-07	63153
49	1	63154	1.63879E-07	63154
50	1	63155	9.91552E-08	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	1.73735E-05	55133
56	1	95237	2.81758E-06	95237
57	1	94238	3.26250E-07	94238
58	1	94239	9.65273E-05	94239
59	1	94240	1.62385E-05	94240
60	1	94241	8.08957E-06	94241
61	1	94242	7.25719E-07	94242
62	1	95241	1.99179E-07	95241
63	1	95243	5.27834E-08	95243
64	1	96244	3.99487E-09	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Geometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-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	8.19568E-01	6.07600E+02	.00000E+00	0

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

On nuclides in your problem have borderenko factor data borderenko will copy from logical 12 to logical 1

Copy 999 1/v cross sectio from log 12 to log 18 borderenko trigger 0

Copy 999 1/v cross sectio from log 18 to log 1 borderenko trigger 0

Copy 999 1/v cross sectio from log 18 to log 1 borderenko trigger 0

Copy	1001	hydrogen	from	log	12	to	log	1	bondarenko	trigger	0
Copy	5010	b-10 1273 218hp	from	log	12	to	log	1	bondarenko	trigger	0
Copy	5011	boron-11	from	log	12	to	log	1	bondarenko	trigger	0
Copy	8016	oxygen-16	from	log	12	to	log	18	bondarenko	trigger	0
Copy	8016	oxygen-16	from	log	18	to	log	1	bondarenko	trigger	0
Copy	8016	oxygen-16	from	log	18	to	log	1	bondarenko	trigger	0
Copy	36083	kr-83	from	log	12	to	log	1	bondarenko	trigger	0
Copy	36085	kr-85	from	log	12	to	log	1	bondarenko	trigger	0
Copy	38090	sr-90	from	log	12	to	log	1	bondarenko	trigger	0
Copy	39089	y-89	from	log	12	to	log	1	bondarenko	trigger	0
Copy	40093	zr-93	from	log	12	to	log	1	bondarenko	trigger	0
Copy	40094	zr-94	from	log	12	to	log	1	bondarenko	trigger	0
Copy	40095	zr-95	from	log	12	to	log	1	bondarenko	trigger	0
Copy	40302	zircalloy	from	log	12	to	log	1	bondarenko	trigger	0
Copy	41094	rb-94	from	log	12	to	log	1	bondarenko	trigger	0
Copy	42095	mo-95	from	log	12	to	log	1	bondarenko	trigger	0
Copy	43099	tc-99	from	log	12	to	log	1	bondarenko	trigger	0
Copy	44101	ru-101	from	log	12	to	log	1	bondarenko	trigger	0
Copy	44106	ru-106	from	log	12	to	log	1	bondarenko	trigger	0
Copy	45103	rh-103	from	log	12	to	log	1	bondarenko	trigger	0
Copy	45105	rh-105	from	log	12	to	log	1	bondarenko	trigger	0
Copy	46105	pd-105	from	log	12	to	log	1	bondarenko	trigger	0
Copy	46108	pd-108	from	log	12	to	log	1	bondarenko	trigger	0
Copy	47109	silver-109	from	log	12	to	log	1	bondarenko	trigger	0
Copy	51124	sb-124	from	log	12	to	log	1	bondarenko	trigger	0
Copy	54131	xe-131	from	log	12	to	log	1	bondarenko	trigger	0
Copy	54132	xe-132	from	log	12	to	log	1	bondarenko	trigger	0
Copy	54135	xenon-135	from	log	12	to	log	1	bondarenko	trigger	0
Copy	54136	xe-136	from	log	12	to	log	1	bondarenko	trigger	0
Copy	55133	cesium-133	from	log	12	to	log	1	bondarenko	trigger	0
Copy	55134	cs-134	from	log	12	to	log	1	bondarenko	trigger	0
Copy	55135	cs-135	from	log	12	to	log	1	bondarenko	trigger	0
Copy	55137	cs-137	from	log	12	to	log	1	bondarenko	trigger	0
Copy	56136	ba-136	from	log	12	to	log	1	bondarenko	trigger	0
Copy	57139	la-139	from	log	12	to	log	1	bondarenko	trigger	0
Copy	58144	ce-144	from	log	12	to	log	1	bondarenko	trigger	0
Copy	59141	pr-141	from	log	12	to	log	1	bondarenko	trigger	0
Copy	59143	pr-143	from	log	12	to	log	1	bondarenko	trigger	0
Copy	60143	nd-143	from	log	12	to	log	1	bondarenko	trigger	0
Copy	60145	nd-145	from	log	12	to	log	1	bondarenko	trigger	0
Copy	60147	nd-147	from	log	12	to	log	1	bondarenko	trigger	0
Copy	61147	pm-147	from	log	12	to	log	1	bondarenko	trigger	0
Copy	61148	pm-148	from	log	12	to	log	1	bondarenko	trigger	0
Copy	62147	sm-147	from	log	12	to	log	1	bondarenko	trigger	0
Copy	62149	sm-149	from	log	12	to	log	1	bondarenko	trigger	0
Copy	62150	sm-150	from	log	12	to	log	1	bondarenko	trigger	0
Copy	62151	sm-151	from	log	12	to	log	1	bondarenko	trigger	0
Copy	62152	sm-152	from	log	12	to	log	1	bondarenko	trigger	0
Copy	63153	eu-153	from	log	12	to	log	1	bondarenko	trigger	0
Copy	63154	eu-154	from	log	12	to	log	1	bondarenko	trigger	0
Copy	63155	eu-155	from	log	12	to	log	1	bondarenko	trigger	0
Copy	64155	gd-155	from	log	12	to	log	1	bondarenko	trigger	0
Copy	92234	u-234 1043 sigs	from	log	12	to	log	1	bondarenko	trigger	0
Copy	92235	uranium-235	from	log	12	to	log	1	bondarenko	trigger	0
Copy	92236	u-236 1163 sigs	from	log	12	to	log	1	bondarenko	trigger	0
Copy	92238	uranium-238	from	log	12	to	log	1	bondarenko	trigger	0
Copy	92237	neptunium-237	from	log	12	to	log	1	bondarenko	trigger	0
Copy	94238	pu-238 1050 sigs	from	log	12	to	log	1	bondarenko	trigger	0
Copy	94239	plutonium-239	from	log	12	to	log	1	bondarenko	trigger	0
Copy	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 sigp 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 95244 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 9/16/95
 L.m.petrie - oml

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 1289/thrm1002 updated 10/13/89	id	1001
b-10 1273 218grp 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
k-85 mt=102,103,105,106,107 updated 10/13/89	id	36083
k-85 mt= 102	id	36085
s-90 mt=102 updated 10/13/89	id	38090
y-89 mt=102 updated 10/13/89	id	39089
z-93 mt= 102	id	40093
z-94 mt=102 updated 10/13/89	id	40094
z-95 mt=102 updated 10/13/89	id	40095
zincalloy 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

0

Q

0


```
*****
*****
*****
*****
```

```
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 amp 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
- xsdm 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
Lunpetrie - anl

0 nuclides from xsdm tape
1 1/v cross sections normalized to 1.0 at 0.0253 ev 999
2 hydrogen endf/b-iv met 1269/therm1002 updated 10/13/89 1001
3 b-10 1273 218ngp 042375 p-3 293k updated 10/13/89 5010
4 boron-11 endf/b-iv met 1160 updated 10/13/89 5011
5 oxygen-16 endf/b-iv met 1276 updated 10/13/89 8016
6 oxygen-16 endf/b-iv met 1276 updated 10/13/89 6
7 kr-83 mt=102,103,105,106,107 updated 10/13/89 36083
8 kr-85 mt= 102 updated 10/13/89 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 updated 10/13/89 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 met 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 updated 10/13/89 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 met 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
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 sigs-5+4 newlacs p-3 259k f-1/e-m(1.+5)			92234
54	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
55	u-235 1163 sigs-5+4 newlacs p-3 259k 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	92237
58	pu-238 1050 sigs-5+4 newlacs p-3 259k 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 sigs-5+4 newlacs 218gp p-3 259k			95241
64	am-243 1057 218 gp wt f-1/e-m 090376 p3 259k			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/thrmf002	updated 10/13/89	1001	temperature= 607.60
	thermal scattering matrix number 2 at a temperature of			550.00 was selected.
0b-10 1273 218gp 042375 p-3 259k			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, 105, 106, 107	updated 10/13/89	36083	temperature= 975.00
Resonance data for this nuclide				
Qmass number (a)	= 82.202	temperature(kelvin)	= 975.000	
Qpotential scatter sigma	= 7.004	lumped nuclear density	= 1.2106000E-06	
Qspin factor (g)	= 4988.190	lump dimension (a-bar)	= 4.6812201E-01	
Qinner radius	= .0000000E+00	dercoff correction (c)	= 3.4269261E-01	
Other absorber will be treated by the norheim integral method.				
Qmass of moderator-1	= 15.995	sigma(per absorber atom)=	1.4105377E+05	
Qmoderator-1 will be treated by the norheim integral method.				
Qmass of moderator-2	= 257.953	sigma(per absorber atom)=	1.5737203E+05	
Qmoderator-2 will be treated by the norheim integral method.				
Other 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      -1.760477E-03      .000000E+00      -2.230056E-03
12      2.166095E-02      .000000E+00      9.896840E-03
13      -3.971375E-01      .000000E+00      -1.204416E-01
14      4.782771E-05      .000000E+00      -1.729045E-05

Deccess resonance integrals
0      resolved
Oabsorption      1.44817E+02
Ofission      .00000E+00
- elapsed time      .00 min.
0 kr-85      mt= 102      updated 10/13/89      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

Resonance data for this nuclide
Omass number (a)      = 88.142      temperature(kelvin)      = 975.000
Opotential scatter sigma      = 3.644      lumped nuclear density      = 1.020244E-05
Ospin factor (g)      = 78.664      lump dimension (a-bar)      = 4.6812201E-01
Oinner radius      = .000000E+00      dencoff correction (c)      = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Omass of moderator-1      = 15.995      sigma(per absorber atom)= 1.673714E+04
Onoderator-1 will be treated by the norheim integral method.
Omass of moderator-2      = 237.953      sigma(per absorber atom)= 1.8573432E+04
Onoderator-2 will be treated by the norheim 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      -2.549601E-06      .000000E+00      -1.696828E-04
10      -6.170661E-05      .000000E+00      -1.799975E-04

Deccess resonance integrals
0      resolved
Oabsorption      1.46419E-01
Ofission      .00000E+00
- elapsed time      .00 min.
0 zr-93      mt= 102      updated 10/13/89      40093      temperature= 975.00
0 zr-94      mt=102      updated 10/13/89      40094      temperature= 975.00

Resonance data for this nuclide
Omass number (a)      = 93.100      temperature(kelvin)      = 975.000
Opotential scatter sigma      = 3.779      lumped nuclear density      = 1.6222853E-05
Ospin factor (g)      = 180.853      lump dimension (a-bar)      = 4.6812201E-01
Oinner radius      = .000000E+00      dencoff correction (c)      = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Omass of moderator-1      = 15.995      sigma(per absorber atom)= 1.0525857E+04
Onoderator-1 will be treated by the norheim integral method.
Omass of moderator-2      = 237.953      sigma(per absorber atom)= 1.1743686E+04
Onoderator-2 will be treated by the norheim 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
8      -9.432010E-07      .000000E+00      -8.957890E-04
9      -3.136592E-05      .000000E+00      -2.775020E-03

Deccess resonance integrals
0      resolved
Oabsorption      3.43817E-02
Ofission      .00000E+00
- elapsed time      .00 min.
0 zr-95      mt=102      updated 10/13/89      40095      temperature= 975.00
0 zircalloy      erdf/b-iv mat 1284      updated 10/13/89      40302      temperature= 650.00

Resonance data for this nuclide
Omass number (a)      = 90.436      temperature(kelvin)      = 650.000
Opotential scatter sigma      = 6.385      lumped nuclear density      = 4.2515602E-02

```

Ospin factor (g) = 1.079 lump dimension (a-bar) = 5.461000E-01
 Oinner radius = 4.787899E-01 darcoff correction (c) = 5.0864637E-01

Othe absorber will be treated by the norheim 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
8	-1.78059E-03	.00000E+00	-1.286907E+00
9	-5.89537E-02	.00000E+00	-2.695297E+00
10	-6.99988E-02	.00000E+00	-1.601321E+00
11	-1.883857E-01	.00000E+00	-7.980912E-01

Oexcess resonance integrals

0 resolved
 Oabsorption 2.28539E-01
 fission .00000E+00
 - elapsed time .02 min.

0 rb-94 mt=102 updated 10/13/89 410% temperature= 975.00

Oresonance data for this nuclide

Omass number (a)	= 93.101	temperature(kelvin)	= 975.000
Opotential scatter sigma	= 3.779	lumped nuclear density	= 7.537974E-12
Ospin factor (g)	= 43808.801	lump dimension (a-bar)	= 4.6812201E-01
Oinner radius	= .000000E+00	darcoff correction (c)	= 3.4289261E-01

Othe absorber will be treated by the norheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 2.2653258E+10

Omoderator-1 will be treated by the norheim integral method.

Omass of moderator-2 = 257.983 sigma(per absorber atom)= 2.5273973E+10

Omoderator-2 will be treated by the norheim 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	1.04322E-02	.00000E+00	9.253080E-04
14	9.83671E-03	.00000E+00	-4.064845E-04

Oexcess resonance integrals

0 resolved
 Oabsorption 9.15001E+01
 fission .00000E+00
 - elapsed time .02 min.

0 ro-95 mt=102 updated 10/13/89 420% 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	= 1.3167981E-05
Ospin factor (g)	= 607.724	lump dimension (a-bar)	= 4.6812201E-01
Oinner radius	= .000000E+00	darcoff correction (c)	= 3.4289261E-01

Othe absorber will be treated by the norheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.2957596E+04

Omoderator-1 will be treated by the norheim integral method.

Omass of moderator-2 = 257.983 sigma(per absorber atom)= 1.4468017E+04

Omoderator-2 will be treated by the norheim 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	-2.827058E-03	.00000E+00	-1.666167E-02
11	-5.154489E-03	.00000E+00	-8.604292E-03
12	-3.707084E+00	.00000E+00	-4.285654E+00
13	1.583315E-04	.00000E+00	-2.254974E-05

Oexcess resonance integrals

0 resolved
 Oabsorption 9.85300E+01
 fission .00000E+00
 - elapsed time .02 min.

0 tc-99 mt=102 updated 10/13/89 430% temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 98.150 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 6.000 lumped nuclear density = 1.5844423E-05
 Qspin factor (g) = 4527.940 lump dimension (a-bar) = 4.6812207E-01
 Qirmer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.0777272E+04

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 257.953 sigma(per absorber atom)= 1.2024078E+04

Qmoderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fias	res scat
11	-2.038773E-02	.000000E+00	-9.611921E-03
12	-5.333800E-03	.000000E+00	-1.853997E-04
13	-3.317793E-01	.000000E+00	-1.747611E-02
14	-7.128074E+00	.000000E+00	-2.274586E-01
15	1.070480E-02	.000000E+00	-5.392398E-04
16	4.836007E-03	.000000E+00	-2.802095E-04
17	2.073935E-04	.000000E+00	-1.191064E-05

Qexcess resonance integrals

0 resolved
 Qabsorption 3.25462E+02
 fission .00000E+00
 - elapsed time .03 min.

0 ru-101 mt=102 updated 10/13/89 44101 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 100.089 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 3.965 lumped nuclear density = 1.4230770E-05
 Qspin factor (g) = 8785.250 lump dimension (a-bar) = 4.6812207E-01
 Qirmer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.1999329E+04

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 257.953 sigma(per absorber atom)= 1.3387510E+04

Qmoderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000

Qgroup	res abs	res fias	res scat
11	-3.62623E-02	.000000E+00	-3.672971E-03
12	-1.064926E-01	.000000E+00	-2.812458E-02
13	-3.819152E-01	.000000E+00	-1.028591E-02
14	2.372853E-04	.000000E+00	-4.161137E-05

Qexcess resonance integrals

0 resolved
 Qabsorption 7.98820E+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

Resonance data for this nuclide

Mass number (a) = 102.021 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 5.408 lumped nuclear density = 8.5154315E-06
 Qspin factor (g) = .500 lump dimension (a-bar) = 4.6812207E-01
 Qirmer radius = .0000000E+00 dancoff correction (c) = 3.4269261E-01

Other absorber will be treated by the norheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 2.0062971E+04

Qmoderator-1 will be treated by the norheim integral method.

Qmass of moderator-2 = 257.953 sigma(per absorber atom)= 2.2572851E+04

Qmoderator-2 will be treated by the norheim 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	1.25397E-03	.00000E+00	1.94235E-03
10	-3.50902E-03	.00000E+00	-4.88056E-03
11	-1.69951E-02	.00000E+00	-1.49988E-02
12	-2.62530E-04	.00000E+00	-2.15984E-05
13	.00000E+00	.00000E+00	.00000E+00
14	.00000E+00	.00000E+00	.00000E+00
15	2.28106E-01	.00000E+00	3.28402E-03
16	3.32877E+01	.00000E+00	-6.20861E-02
17	-1.85218E+02	.00000E+00	-1.57438E-01
18	8.71471E+01	.00000E+00	2.61025E-01
19	1.14854E+01	.00000E+00	-1.47239E-03
20	1.08708E+00	.00000E+00	-2.47056E-03
21	2.16583E-01	.00000E+00	1.92500E-03
22	2.58955E-01	.00000E+00	2.98524E-03
23	-9.87986E-02	.00000E+00	1.79890E-03

Oexcess resonance integrals

0 resolved

Oabsorption 1.14672E+03

fission .00000E+00

- elapsed time .07 min.

0 rh-105 mt= 102

0 pd-105 mt=102

updated 10/13/89

45105 temperature= 975.00

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 = 5.277889E-06

Ospin factor (g) = 15210.000 lump dimension (a-bar) = 4.681220E-01

Oirmer radius = .000000E+00 cutoff correction (c) = 3.428926E-01

Othe absorber will be treated by the nordheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 3.235379E+04

Omoderator-1 will be treated by the nordheim integral method.

Omass of moderator-2 = 237.953 sigma(per absorber atom)= 3.609675E+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	-5.61397E-02	.00000E+00	-1.33843E-03
13	-1.38148E-02	.00000E+00	-6.98531E-04
14	7.78915E-04	.00000E+00	-8.14549E-05

Oexcess resonance integrals

0 resolved

Oabsorption 6.12433E+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 = 1.393357E-06

Ospin factor (g) = 21175.100 lump dimension (a-bar) = 4.681220E-01

Oirmer radius = .000000E+00 cutoff correction (c) = 3.428926E-01

Othe absorber will be treated by the nordheim integral method.

Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.225527E+05

Omoderator-1 will be treated by the nordheim integral method.

Omass of moderator-2 = 237.953 sigma(per absorber atom)= 1.367306E+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
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11 1.170802E-04 .000000E+00 3.532026E-04
12 -1.263694E+00 .000000E+00 -9.304958E-01
13 6.844444E-03 .000000E+00 1.844850E-03
14 8.561260E-02 .000000E+00 -3.207809E-05
15 -1.840708E-01 .000000E+00 8.083708E-05
16 2.946890E-04 .000000E+00 -9.256679E-06
Deccess resonance integrals
0 resolved
Oabsorption 2.12560E+02
ffission .000000E+00
- elapsed time .07 min.
0 silver-109 endf/b-iv met 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 = 9.8975897E-07
Ospin factor (g) = 1441.870 lump dimension (a-bar) = 4.6812201E-01
Oirmer radius = .0000000E+00 dencoeff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Omass of moderator-1 = 15.995 sigma(per absorber atom)= 1.7252653E+05
Omoderator-1 will be treated by the norheim integral method.
Omass of moderator-2 = 257.953 sigma(per absorber atom)= 1.9848583E+05
Omoderator-2 will be treated by the norheim 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 -9.785545E-05 .000000E+00 -9.223408E-05
11 -4.345954E-03 .000000E+00 -3.223397E-03
12 -7.198846E-01 .000000E+00 -3.343606E-02
13 7.670446E-01 .000000E+00 3.380743E-02
14 -9.331539E+00 .000000E+00 -8.741142E-01
Deccess resonance integrals
0 resolved
Oabsorption 1.39101E+03
ffission .000000E+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 = 7.3108028E-06
Ospin factor (g) = 246.825 lump dimension (a-bar) = 4.6812201E-01
Oirmer radius = .0000000E+00 dencoeff correction (c) = 3.4269261E-01
Othe absorber will be treated by the norheim integral method.
Omass of moderator-1 = 15.995 sigma(per absorber atom)= 2.3357174E+04
Omoderator-1 will be treated by the norheim integral method.
Omass of moderator-2 = 257.953 sigma(per absorber atom)= 2.6059524E+04
Omoderator-2 will be treated by the norheim 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 -2.310630E-06 .000000E+00 -2.154477E-05
10 -1.586595E-04 .000000E+00 -1.347479E-04
11 -1.953774E-03 .000000E+00 -1.464922E-03
12 -3.751650E-02 .000000E+00 -3.496011E-03
13 -6.002638E+01 .000000E+00 -1.407475E+02
14 1.073748E-02 .000000E+00 1.508469E-02
Deccess resonance integrals
0 resolved
Oabsorption 7.70438E+02
ffission .000000E+00

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- elapsed time .08 min.
 0 xe-132 mt=102, 103, 104, 105, 106 updated 10/13/89 54132 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 130.771 temperature(kelvin) = 975.000
 Potential scatter sigma = 4.301 lumped nuclear density = 1.322589E-05
 Spin factor (g) = 675.899 lump dimension (a-bar) = 4.681220E-01
 Oimer radius = .000000E+00 cutoff correction (c) = 3.426926E-01
 Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.291096E+04
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 257.983 sigma(per absorber atom)= 1.440461E+04
 Moderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 9 -2.08221E-05 .00000E+00 -9.30978E-06
 10 -6.25885E-03 .00000E+00 -7.96799E-02
 11 3.34520E-08 .00000E+00 -9.29107E-07
 Oexcess resonance integrals
 0 resolved
 Oabsorption 9.7372E-01
 fission .00000E+00
 - elapsed time .08 min.
 0 xenon-135 endf/b-iv mt 1294 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 mt 1141 updated 10/13/89 55133 temperature= 975.00
 Resonance data for this nuclide
 Mass number (a) = 131.764 temperature(kelvin) = 975.000
 Potential scatter sigma = 7.100 lumped nuclear density = 1.737346E-05
 Spin factor (g) = 374.437 lump dimension (a-bar) = 4.681220E-01
 Oimer radius = .000000E+00 cutoff correction (c) = 3.426926E-01
 Othe absorber will be treated by the norheim integral method.
 Mass of moderator-1 = 15.995 sigma(per absorber atom)= 9.828766E+03
 Moderator-1 will be treated by the norheim integral method.
 Mass of moderator-2 = 258.051 sigma(per absorber atom)= 1.054264E+04
 Moderator-2 will be treated by the norheim integral method.
 Othis resonance material will be treated as a 2-dimensional object.
 Ovolum fraction of lump in cell used to account for spatial self-shielding=1.00000
 Ogroup res abs res fiss res scat
 9 -4.87167E-05 .00000E+00 -3.15250E-04
 10 -2.38255E-03 .00000E+00 -4.56783E-03
 11 -8.94866E-02 .00000E+00 -1.56615E-01
 12 -1.38606E-01 .00000E+00 -1.92929E-02
 13 -2.30472E-01 .00000E+00 -1.25436E-02
 14 -1.01302E+01 .00000E+00 -4.43611E-01
 15 5.62512E-03 .00000E+00 -4.05074E-04
 16 2.77790E-03 .00000E+00 -2.21523E-04
 17 2.35220E-03 .00000E+00 -1.83075E-04
 18 2.21509E-03 .00000E+00 -1.67954E-04
 19 1.31731E-03 .00000E+00 -9.67663E-05
 Oexcess resonance integrals
 0 resolved
 Oabsorption 3.5386E+02
 fission .00000E+00
 - elapsed time .10 min.
 0 cs-134 mt=102 updated 10/13/89 56134 temperature= 975.00
 0 cs-135 mt= 102 56135 temperature= 975.00
 0 cs-137 mt=102 updated 10/13/89 56137 temperature= 975.00
 0 ba-136 mt=102 updated 10/13/89 56136 temperature= 975.00
 Resonance data for this nuclide

O mass number (a) = 134.737 temperature(kelvin) = 975.000
 Q potential scatter sigma = 4.835 lumped nuclear density = 1.3147822E-07
 Q spin factor (g) = 1247.690 lump dimension (a-bar) = 4.6812201E-01
 Q inner radius = .0000000E+00 denoiff correction (c) = 3.4269261E-01
 O the absorber will be treated by the norheim integral method.
 Q mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.2987680E+06
 Q moderator-1 will be treated by the norheim integral method.
 Q mass of moderator-2 = 237.953 sigma(per absorber atom)= 1.4490201E+06
 Q moderator-2 will be treated by the norheim integral method.
 O this resonance material will be treated as a 2-dimensional object.
 Q volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Q group res abs res fiss res scat
 10 1.198235E-06 .000000E+00 5.099283E-07
 11 4.140539E-07 .000000E+00 7.002787E-07
 Q excess resonance integrals
 0 resolved
 Q absorption 1.39473E+00
 Q fission .000000E+00
 - elapsed time .10 min.
 0 la-139 mt=102 updated 10/13/89 57139 temperature= 975.00
 Q resonance data for this nuclide
 O mass number (a) = 137.713 temperature(kelvin) = 975.000
 Q potential scatter sigma = 4.906 lumped nuclear density = 1.6736218E-05
 Q spin factor (g) = 145.855 lump dimension (a-bar) = 4.6812201E-01
 Q inner radius = .0000000E+00 denoiff correction (c) = 3.4269261E-01
 O the absorber will be treated by the norheim integral method.
 Q mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.0208004E+04
 Q moderator-1 will be treated by the norheim integral method.
 Q mass of moderator-2 = 237.953 sigma(per absorber atom)= 1.1383371E+04
 Q moderator-2 will be treated by the norheim integral method.
 O this resonance material will be treated as a 2-dimensional object.
 Q volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Q group res abs res fiss res scat
 9 -1.465711E-07 .000000E+00 1.238383E-05
 10 -3.355732E-04 .000000E+00 -1.989544E-02
 11 .000000E+00 .000000E+00 .000000E+00
 12 -5.739985E-02 .000000E+00 -3.466246E-02
 Q excess resonance integrals
 0 resolved
 Q absorption 8.08378E+00
 Q fission .000000E+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
 Q resonance data for this nuclide
 O mass number (a) = 139.697 temperature(kelvin) = 975.000
 Q potential scatter sigma = 4.953 lumped nuclear density = 1.4313312E-05
 Q spin factor (g) = 1026.500 lump dimension (a-bar) = 4.6812201E-01
 Q inner radius = .0000000E+00 denoiff correction (c) = 3.4269261E-01
 O the absorber will be treated by the norheim integral method.
 Q mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.1930131E+04
 Q moderator-1 will be treated by the norheim integral method.
 Q mass of moderator-2 = 237.953 sigma(per absorber atom)= 1.3310307E+04
 Q moderator-2 will be treated by the norheim integral method.
 O this resonance material will be treated as a 2-dimensional object.
 Q volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Q group res abs res fiss res scat
 10 -5.609108E-03 .000000E+00 -1.904915E-01
 11 -9.225772E-02 .000000E+00 -1.226486E+00
 12 -2.091378E-03 .000000E+00 -2.041713E-04

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Deepest resonance integrals
0 resolved
Absorption 1.21355E+01
fission .00000E+00
- elapsed time .12 min.
0 pr-143 mt=102 updated 10/13/89 59143 temperature= 975.00
0 rd-143 mt=102 updated 10/13/89 60143 temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 141.682 temperature(kelvin) = 975.000
Potential scatterer sigma = 5.000 lumped nuclear density = 1.3377376E-05
Spin factor (g) = 1964.850 lump dimension (a-bar) = 4.6812201E-01
Ormer radius = .0000000E+00 denoiff correction (c) = 3.4269261E-01
Other absorber will be treated by the nordheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.2764813E+04
Moderator-1 will be treated by the nordheim integral method.
Mass of moderator-2 = 257.933 sigma(per absorber atom)= 1.4241551E+04
Moderator-2 will be treated by the nordheim integral method.
Other resonance material will be treated as a 2-dimensional object.
Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup res abs res fiss res scat
10 -1.33262E-04 .000000E+00 -6.81768E-05
11 -3.12253E-01 .000000E+00 -3.62999E+00
12 -2.05942E-01 .000000E+00 -1.01304E-01
Deepest resonance integrals
0 resolved
Absorption 5.09093E+01
fission .00000E+00
- elapsed time .12 min.
0 rd-145 mt=102 updated 10/13/89 60145 temperature= 975.00
Resonance data for this nuclide
Mass number (a) = 143.668 temperature(kelvin) = 975.000
Potential scatterer sigma = 5.047 lumped nuclear density = 9.7710117E-06
Spin factor (g) = 1007.250 lump dimension (a-bar) = 4.6812201E-01
Ormer radius = .0000000E+00 denoiff correction (c) = 3.4269261E-01
Other absorber will be treated by the nordheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.7476152E+04
Moderator-1 will be treated by the nordheim integral method.
Mass of moderator-2 = 257.933 sigma(per absorber atom)= 1.9497588E+04
Moderator-2 will be treated by the nordheim integral method.
Other resonance material will be treated as a 2-dimensional object.
Volume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup res abs res fiss res scat
10 -3.94905E-03 .000000E+00 -6.23665E-02
11 -6.00732E-02 .000000E+00 -1.81761E-01
12 -1.45976E+00 .000000E+00 -9.18807E+00
13 9.59265E-05 .000000E+00 2.04256E-04
14 -1.32292E+00 .000000E+00 -3.47825E-02
15 5.90152E-03 .000000E+00 -4.61420E-04
16 1.32667E-03 .000000E+00 -1.45129E-04
17 9.64239E-04 .000000E+00 -1.06394E-04
18 8.53975E-04 .000000E+00 -9.31438E-05
19 7.63415E-04 .000000E+00 -8.07004E-05
20 2.83914E-05 .000000E+00 -2.91986E-06
Deepest resonance integrals
0 resolved
Absorption 2.06675E+02
fission .00000E+00
- elapsed time .13 min.
0 rd-147 mt=102 updated 10/13/89 60147 temperature= 975.00
0 pr-147 mt=102 updated 10/13/89 61147 temperature= 975.00

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Resonance data for this nuclide

Mass number (a) = 145.653 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 5.093 lumped nuclear density = 3.6431304E-06
 Qspin factor (g) = 21589.500 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 4.6871695E+04

Qmoderator-1 will be treated by the nordheim integral method.

Qmass of moderator-2 = 237.933 sigma(per absorber atom)= 5.2254195E+04

Qmoderator-2 will be treated by the nordheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Qvolume fraction of lump in cell used to account for spatial self-shieldings=1.00000

Qgroup	res abs	res fiss	res scat
12	-1.823680E-01	.000000E+00	-5.851357E-02
13	-4.676967E-02	.000000E+00	-2.688727E-03
14	-8.253029E+01	.000000E+00	-3.548277E+01
15	4.128564E-02	.000000E+00	6.978664E-03
16	1.697942E-02	.000000E+00	1.746660E-03
17	1.369772E-02	.000000E+00	1.150461E-03
18	1.253757E-02	.000000E+00	9.646097E-04
19	6.998888E-04	.000000E+00	5.070170E-05

Qexcess resonance integrals

0 resolved

Qabsorption 2.01524E+03

Qfission .00000E+00

- elapsed time .13 min.

0 pm-148 mt= 102

0 sm-147 endf/b-v fission product updated 10/13/89 61148 temperature= 975.00

62147 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 145.653 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 5.093 lumped nuclear density = 1.0192899E-06
 Qspin factor (g) = .000 lump dimension (a-bar) = 4.6812201E-01
 Qirmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

Other absorber will be treated by the nordheim integral method.

Qmass of moderator-1 = 15.995 sigma(per absorber atom)= 1.6752842E+05

Qmoderator-1 will be treated by the nordheim integral method.

Qmass of moderator-2 = 237.933 sigma(per absorber atom)= 1.8690948E+05

Qmoderator-2 will be treated by the nordheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Qvolume fraction of lump in cell used to account for spatial self-shieldings=1.00000

Qgroup	res abs	res fiss	res scat
11	2.767026E-01	.000000E+00	1.058160E+00
12	9.978251E-01	.000000E+00	-1.498843E+00
13	-3.338374E+00	.000000E+00	-1.778746E+00
14	-3.342489E-01	.000000E+00	-3.189418E-03
15	3.115390E-01	.000000E+00	-1.911954E-03
16	7.287758E-03	.000000E+00	-3.738602E-04
17	4.281449E-03	.000000E+00	-2.401556E-04
18	3.510413E-03	.000000E+00	-1.997200E-04
19	2.910392E-03	.000000E+00	-1.644900E-04
20	8.434589E-04	.000000E+00	-4.626394E-05

Qexcess resonance integrals

0 resolved

Qabsorption 7.22673E+02

Qfission .00000E+00

- elapsed time .15 min.

thermal scattering matrix number 3 at a temperature of 900.05 was selected.

0 sm-149 mt=102,103,107 updated 10/13/89 62149 temperature= 975.00

Resonance data for this nuclide

Mass number (a) = 147.638 temperature(kelvin) = 975.000

Qpotential scatter sigma = 3.260
 Qspin factor (g) = 10407.900
 Qfinner radius = .000000E+00
 Qthe absorber will be treated by the nordheim integral method.
 Qmass of moderator-1 = 15.995
 Qmoderator-1 will be treated by the nordheim integral method.
 Qmass of moderator-2 = 257.953
 Qmoderator-2 will be treated by the nordheim integral method.
 Qthis resonance material will be treated as a 2-dimensional object.
 Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000
 Qgroup res abs res fiss res scat
 11 8.54660E-03 .000000E+00 3.07166E-02
 12 -5.47641E-02 .000000E+00 -1.81065E-01
 13 2.31823E-02 .000000E+00 2.84069E-03
 14 5.77777E-03 .000000E+00 -7.57222E-03

Qexcess resonance integrals

0 resolved
 Qabsorption 8.04337E+02
 Qfission .00000E+00
 - elapsed time .15 min.

0 sm-150 mt=102

updated 10/13/89

62150

temperature= 975.00

Qresonance data for this nuclide

Qmass number (a) = 148.629
 Qpotential scatter sigma = 5.162
 Qspin factor (g) = 4376.420
 Qfinner radius = .000000E+00
 Qthe absorber will be treated by the nordheim integral method.
 Qmass of moderator-1 = 15.995
 Qmoderator-1 will be treated by the nordheim integral method.
 Qmass of moderator-2 = 257.953
 Qmoderator-2 will be treated by the nordheim integral method.
 Qthis resonance material will be treated as a 2-dimensional object.
 Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000

temperature(kelvin) = 975.000

lumped nuclear density = 3.3563288E-06

lump dimension (a-bar) = 4.6812201E-01

denoiff correction (c) = 3.4269261E-01

sigma(per absorber atom)= 5.067690E+04

sigma(per absorber atom)= 5.6762789E+04

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sigma(per absorber atom)= 5.6762789E+04

Qexcess resonance integrals

0 resolved
 Qabsorption 2.88255E+02
 Qfission .00000E+00
 - elapsed time .15 min.

0 sm-151

mt=102, 103, 104, 105, 106, 107

updated 10/13/89

62151

temperature= 975.00

Qresonance data for this nuclide

Qmass number (a) = 149.623
 Qpotential scatter sigma = 5.185
 Qspin factor (g) = 75574.703
 Qfinner radius = .000000E+00
 Qthe absorber will be treated by the nordheim integral method.
 Qmass of moderator-1 = 15.995
 Qmoderator-1 will be treated by the nordheim integral method.
 Qmass of moderator-2 = 257.953
 Qmoderator-2 will be treated by the nordheim integral method.
 Qthis resonance material will be treated as a 2-dimensional object.
 Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000

temperature(kelvin) = 975.000

lumped nuclear density = 3.6885007E-07

lump dimension (a-bar) = 4.6812201E-01

denoiff correction (c) = 3.4269261E-01

sigma(per absorber atom)= 4.6258394E+05

sigma(per absorber atom)= 4.6258394E+05

sigma(per absorber atom)= 4.6258394E+05

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sigma(per absorber atom)= 4.6258394E+05

Qgroup res abs res fiss res scat

14 -2.119385E-01 .000000E+00 -2.08259E-02

15 1.48742E-01 .000000E+00 7.52793E-02

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16 -2.18070E+01 .000000E+00 -6.198250E-02
17 1.73672E+02 .000000E+00 8.278137E-01
18 -3.206240E+02 .000000E+00 -1.788263E+00
19 6.254583E+01 .000000E+00 3.867902E-01
20 1.141286E+00 .000000E+00 -1.400658E-04
21 -7.117704E-02 .000000E+00 1.244100E-02
22 6.952549E-02 .000000E+00 3.838918E-03
23 -1.091917E-02 .000000E+00 3.374044E-04

```

Deceased resonance integrals
0 resolved
Absorption 2.05634E+03
fission .000000E+00
- elapsed time .15 min.
0 sm-152 mt=102,103,104,105,106,107 updated 10/13/89 62152 temperature= 975.00

Resonance data for this nuclide
Mass number (a) = 150.615 temperature(kelvin) = 975.000
Opotential scatter sigma = 5.208 lumped nuclear density = 1.6314026E-06
Spin factor (g) = 853.594 lump dimension (a-bar) = 4.6812201E-01
Oirmer radius = .000000E+00 darcoff correction (c) = 3.4269261E-01
Other absorber will be treated by the nordheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.0467048E+05
Moderator-1 will be treated by the nordheim integral method.
Mass of moderator-2 = 237.953 sigma(per absorber atom)= 1.1677961E+05
Moderator-2 will be treated by the nordheim integral method.
Other 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 fias	res scat
9	2.402817E-06	.000000E+00	1.158716E-04
10	-1.295784E-03	.000000E+00	-2.024388E-02
11	-1.885441E-02	.000000E+00	-7.182702E-02
12	-1.270521E-01	.000000E+00	-4.032254E-01
13	4.204180E-02	.000000E+00	1.022422E-01
14	-1.129931E+02	.000000E+00	-2.182666E+02

Deceased resonance integrals
0 resolved
Absorption 2.76491E+03
fission .000000E+00
- elapsed time .17 min.
0 eu-153 mt=102,103,104,105,106,107 updated 10/13/89 63153 temperature= 975.00

Resonance data for this nuclide
Mass number (a) = 151.607 temperature(kelvin) = 975.000
Opotential scatter sigma = 9.731 lumped nuclear density = 9.0825670E-07
Spin factor (g) = 12265.900 lump dimension (a-bar) = 4.6812201E-01
Oirmer radius = .000000E+00 darcoff correction (c) = 3.4269261E-01
Other absorber will be treated by the nordheim integral method.
Mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.8904891E+05
Moderator-1 will be treated by the nordheim integral method.
Mass of moderator-2 = 237.953 sigma(per absorber atom)= 2.1091964E+05
Moderator-2 will be treated by the nordheim integral method.
Other 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 fias	res scat
12	-2.866052E-01	.000000E+00	-5.575944E-02
13	-1.361445E-01	.000000E+00	-4.143751E-03
14	-7.920873E-01	.000000E+00	-1.006343E-06
15	1.863243E+00	.000000E+00	-3.434145E-02
16	-3.297554E+00	.000000E+00	8.156692E-03
17	1.506598E-01	.000000E+00	-3.437732E-03
18	7.726870E-02	.000000E+00	-2.251252E-03
19	5.055447E-02	.000000E+00	-1.541113E-03

20 -1.253804E-01 .000000E+00 -1.275023E-03

0 excess resonance integrals
 0 resolved
 0 absorption 1.35457E+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

0 resonance data for this nuclide
 0 mass number (a) = 152.601 temperature(kelvin) = 975.000
 0 potential scatter sigma = 9.731 lumped nuclear density = 1.638788E-07
 0 spin factor (g) = 19135.801 lump dimension (a-bar) = 4.6812201E-01
 0 rimmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

0 the absorber will be treated by the nordheim integral method.
 0 mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.0419873E+06
 0 moderator-1 will be treated by the nordheim integral method.
 0 mass of moderator-2 = 237.933 sigma(per absorber atom)= 1.1625330E+06
 0 moderator-2 will be treated by the nordheim integral method.
 0 this resonance material will be treated as a 2-dimensional object.
 0 volume fraction of lump in cell used to account for spatial self-shielding=1.00000

0 group	res abs	res fis	res scat
12	-3.904129E-01	.000000E+00	-6.094527E-02
13	-3.135098E-01	.000000E+00	-2.495858E-02
14	3.300523E-01	.000000E+00	1.465073E-02
15	1.597103E-01	.000000E+00	2.097988E-02
16	7.214694E+00	.000000E+00	9.233953E-02
17	-1.440717E+02	.000000E+00	-1.866719E+00
18	1.135982E+02	.000000E+00	1.858201E+00
19	-1.014681E+02	.000000E+00	1.187304E+00

0 excess resonance integrals
 0 resolved
 0 absorption 2.13664E+03
 fission .00000E+00
 - elapsed time .18 min.

0 eu-155 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

0 resonance data for this nuclide
 0 mass number (a) = 153.592 temperature(kelvin) = 975.000
 0 potential scatter sigma = 5.277 lumped nuclear density = 1.6370191E-09
 0 spin factor (g) = 12700.100 lump dimension (a-bar) = 4.6812201E-01
 0 rimmer radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01

0 the absorber will be treated by the nordheim integral method.
 0 mass of moderator-1 = 15.995 sigma(per absorber atom)= 1.0431136E+08
 0 moderator-1 will be treated by the nordheim integral method.
 0 mass of moderator-2 = 237.933 sigma(per absorber atom)= 1.1637895E+08
 0 moderator-2 will be treated by the nordheim integral method.
 0 this resonance material will be treated as a 2-dimensional object.
 0 volume fraction of lump in cell used to account for spatial self-shielding=1.00000

0 group	res abs	res fis	res scat
12	-1.439306E+00	.000000E+00	-1.839472E-01
13	1.541165E+00	.000000E+00	1.985090E-01
14	2.190007E-01	.000000E+00	9.806014E-03
15	-3.336552E-01	.000000E+00	-7.197123E-05
16	1.477358E+00	.000000E+00	-4.148861E-03
17	1.568558E-01	.000000E+00	-1.479142E-03
18	9.605140E-02	.000000E+00	-1.078062E-03
19	6.295324E-02	.000000E+00	-8.026497E-04
20	1.670480E-02	.000000E+00	1.626478E-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 -2.127812E+03 .000000E+00 -1.622019E+00
 26 -5.205697E+03 .000000E+00 1.961483E+00
 27 -1.699984E+03 .000000E+00 7.392656E-01

0 excess resonance integrals

0 resolved

Absorption 3.97046E+04

fission .00000E+00

- elapsed time .18 min.

Or-234 1043 sigs=54 newlacs p-3 258k f-1/e-m(1.+5)

92234 temperature= 975.00

Resonance data for this nuclide

Orss number (a) = 252.029 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 10.021 lumped nuclear density = 4.656384E-06
 Qspin factor (g) = 6948.450 lump dimension (a-bar) = 4.6812201E-01
 Ormer radius = .000000E+00 darcoff correction (c) = 3.4289261E-01

Other absorber will be treated by the norheim integral method.

Orss of moderator-1 = 15.995 sigma(per absorber atom)= 3.6672168E+04

Ormoderator-1 will be treated by the norheim integral method.

Orss of moderator-2 = 257.925 sigma(per absorber atom)= 4.0902176E+04

Ormoderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fss	res scat
11	-2.226899E-02	.000000E+00	-6.494590E-02
12	-1.815901E-01	.000000E+00	-7.606152E-02
13	7.759999E-04	.000000E+00	-6.471838E-04
14	-1.782052E+01	.000000E+00	-2.918325E+00

0 excess resonance integrals

0 resolved

Absorption 5.82763E+02

fission .00000E+00

- elapsed time .20 min.

0 uranium-235 endf/b-iv mat 1261

updated 10/13/89

92235 temperature= 975.00

Resonance data for this nuclide

Orss number (a) = 253.025 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 11.500 lumped nuclear density = 4.4448349E-04
 Qspin factor (g) = 15171.100 lump dimension (a-bar) = 4.6812201E-01
 Ormer radius = .000000E+00 darcoff correction (c) = 3.4289261E-01

Other absorber will be treated by the norheim integral method.

Orss of moderator-1 = 15.995 sigma(per absorber atom)= 3.8416693E+02

Ormoderator-1 will be treated by the norheim integral method.

Orss of moderator-2 = 258.049 sigma(per absorber atom)= 4.1227542E+02

Ormoderator-2 will be treated by the norheim integral method.

Other resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fss	res scat
12	-1.865552E+00	-1.162127E+00	-4.369178E-02
13	-6.545614E+00	-3.259057E+00	-1.416060E-01
14	-5.261562E+00	-3.231855E+00	-3.592915E-02

0 excess resonance integrals

0 resolved

Absorption 2.12116E+02

fission 1.26292E+02

- elapsed time .22 min.

Or-236 1163 sigs=54 newlacs p-3 258k f-1/e-m(1.+5)

92236 temperature= 975.00

Resonance data for this nuclide

Orss number (a) = 254.017 temperature(kelvin) = 975.000
 Qpotential scatter sigma = 10.995 lumped nuclear density = 4.7894300E-05
 Qspin factor (g) = 6328.490 lump dimension (a-bar) = 4.6812201E-01
 Ormer radius = .000000E+00 darcoff correction (c) = 3.4289261E-01

Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 3.5653447E+03
 Omoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 257.954 sigma(per absorber atom)= 3.9771189E+03
 Omoderator-2 will be treated by the norheim 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	-2.32460E-01	.000000E+00	-5.852797E-01
12	-1.251467E+00	.000000E+00	-8.535315E-01
13	-6.528463E-02	.000000E+00	-3.466214E-03
14	-4.155770E+01	.000000E+00	-3.635741E+00

Oexcess resonance integrals

0 resolved
 Oabsorption 2.80006E+02
 Ofission .00000E+00
 - elapsed time .22 min.

0 uranium-238 endf/b-iv mat 1262 updated 10/13/89 92238 temperature= 975.00

Oresonance data for this nuclide
 Omass number (a) = 236.006 temperature(kelvin) = 975.000
 Opotential scatter sigma = 10.599 lumped nuclear density = 2.1873431E-02
 Ospin factor (g) = 656.527 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 denoiff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 7.8057169E+00
 Omoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 235.041 sigma(per absorber atom)= 3.3613515E-01
 Omoderator-2 will be treated by the norheim 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	-3.935817E-02	.000000E+00	-4.043145E-01
10	-1.025260E+00	-1.747810E-05	-6.478466E+00
11	-9.705285E+00	.000000E+00	-2.689441E+01
12	-4.304482E+01	.000000E+00	-4.998457E+01
13	-5.401085E+01	.000000E+00	-1.789053E+01
14	-1.044843E+02	.000000E+00	-6.059432E+00

Oexcess resonance integrals

0 resolved
 Oabsorption 1.80270E+01
 Ofission 5.04017E-04
 - elapsed time .23 min.

0 neptunium-237 endf/b-iv mat 1263 updated 10/13/89 98257 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 = 2.8175818E-06
 Ospin factor (g) = 10100.800 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .000000E+00 denoiff correction (c) = 3.4269261E-01

Othe absorber will be treated by the norheim integral method.
 Omass of moderator-1 = 15.995 sigma(per absorber atom)= 6.0605043E+04
 Omoderator-1 will be treated by the norheim integral method.
 Omass of moderator-2 = 238.051 sigma(per absorber atom)= 6.5006555E+04
 Omoderator-2 will be treated by the norheim 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	-6.355906E-02	-2.085214E-06	-7.414002E-03
12	2.491776E-02	-1.071059E-04	7.235728E-03
13	-2.751440E-02	8.779010E-06	-1.433366E-03
14	-7.346514E-02	-9.089304E-06	-1.443095E-03

Oexcess resonance integrals
 0 resolved
 Oabsorption 2.98033E+02
 Ofission 1.38557E-01
 - elapsed time .27 min.
 Opu-238 1050 sigs=5+4 newkacs p-3 295k f-1/e-m(1.45) 94238 temperature= 975.00
 Resonance data for this nuclide
 Omass number (a) = 236.167 temperature(kelvin) = 975.000
 Opotential scatter sigma = 10.890 lumped nuclear density = 3.262502E-07
 Ospin factor (g) = 13130.600 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Omass of moderator-1 = 15.995 sigs(per absorber atom)= 5.2340097E+05
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 238.051 sigs(per absorber atom)= 5.6141619E+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 -1.898366E-03 -2.820870E-04 -1.799045E-08
 12 -1.235117E-03 -1.398544E-04 -6.016181E-04
 13 4.025275E-01 7.519567E-02 -1.086164E-02
 14 -3.825064E-01 -6.992719E-02 8.539043E-03
 Oexcess resonance integrals
 0 resolved
 Oabsorption 8.25333E+01
 Ofission 9.08421E+00
 - elapsed time .27 min.
 O plutonium-239 erdf/b-iv mat 1264 updated 10/13/89 94239 temperature= 975.00
 Resonance data for this nuclide
 Omass number (a) = 236.999 temperature(kelvin) = 975.000
 Opotential scatter sigma = 10.200 lumped nuclear density = 9.662729E-05
 Ospin factor (g) = 6435.710 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Omass of moderator-1 = 15.995 sigs(per absorber atom)= 1.769300E+03
 Omoderator-1 will be treated by the nordheim integral method.
 Omass of moderator-2 = 238.051 sigs(per absorber atom)= 1.8975167E+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 -2.017084E-01 -8.120036E-02 -6.177880E-02
 12 -1.791471E+00 -6.724600E-01 -2.357042E-01
 13 -5.869735E+00 -3.453878E+00 -8.969405E-02
 14 -1.871555E+00 -9.958652E-01 -1.665454E-02
 Oexcess resonance integrals
 0 resolved
 Oabsorption 3.08014E+02
 Ofission 1.73024E+02
 - elapsed time .28 min.
 O plutonium-240 erdf/b-iv mat 1265 updated 10/13/89 94240 temperature= 975.00
 Resonance data for this nuclide
 Omass number (a) = 237.992 temperature(kelvin) = 975.000
 Opotential scatter sigma = 10.599 lumped nuclear density = 1.6238469E-05
 Ospin factor (g) = 669.244 lump dimension (a-bar) = 4.6812201E-01
 Oinner radius = .0000000E+00 darcoff correction (c) = 3.4269261E-01
 Othe absorber will be treated by the nordheim integral method.
 Omass of moderator-1 = 15.995 sigs(per absorber atom)= 1.0515730E+04
 Omoderator-1 will be treated by the nordheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 1.1279500E+04

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
9	-4.57971E-05	-1.26480E-06	-1.83871E-04
10	-3.86999E-03	-2.39260E-04	-1.76635E-02
11	-1.23789E-01	-7.15889E-04	-1.64651E-01
12	-1.71863E+00	-9.38978E-03	-1.64960E+00
13	-2.11680E-01	-1.29795E-03	-1.54289E-02
14	.000000E+00	.000000E+00	.000000E+00
15	1.73874E-02	3.31847E-06	3.42998E-03
16	2.95120E+00	5.63251E-04	3.69744E-01
17	4.60820E+02	8.78541E-02	4.11771E+01
18	-7.40129E+03	-1.41257E+00	-5.84497E+02
19	6.72597E+02	1.28637E-01	5.27531E+01
20	-9.35705E+01	-1.78583E-02	1.79807E+00

Excess resonance integrals

0 resolved

Absorption 4.96040E+03

fission 1.95989E+00

- elapsed time .30 min.

0 plutonium-241 endf/b-iv mat 1266

updated 10/13/89

94261

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 238.978	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.999	lumped nuclear density	= 8.0852651E-06
Spin factor (g)	= 16402.100	lump dimension (a-bar)	= 4.6812201E-01
Orbital radius	= .000000E+00	dercoff correction (c)	= 3.4269261E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.1109156E+04

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.2642338E+04

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
12	1.32212E-03	8.43986E-04	6.00516E-04
13	-5.46222E-01	-4.20987E-01	-1.63962E-02
14	-5.01236E-01	-3.47575E-01	-8.71850E-04
15	1.79042E-02	1.60466E-02	-4.65762E-04

Excess resonance integrals

0 resolved

Absorption 5.08054E+02

fission 4.25981E+02

- elapsed time .32 min.

0 plutonium-242 endf/b-iv mat 1161

updated 10/13/89

94262

temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 240.145	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.694	lumped nuclear density	= 7.2371870E-07
Spin factor (g)	= 6606.710	lump dimension (a-bar)	= 4.6812201E-01
Orbital radius	= .000000E+00	dercoff correction (c)	= 3.4269261E-01

The absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 2.3594758E+05

Moderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 2.5308472E+05

Moderator-2 will be treated by the norheim integral method.

This resonance material will be treated as a 2-dimensional object.

Volume fraction of lump in cell used to account for spatial self-shielding=1.00000

Ogroup	res abs	res fiss	res scat
11	-1.85413E-03	.000000E+00	-5.15009E-03

12	-4.05266E-02	.000000E+00	-7.88620E-02
13	-1.85377E-05	.000000E+00	3.53732E-06
14	8.13835E-02	.000000E+00	1.52354E-02
15	-1.42462E+01	.000000E+00	-1.17439E+00
16	4.05155E-02	.000000E+00	-3.45456E-03
17	1.55088E-02	.000000E+00	-1.84817E-03
18	1.11257E-02	.000000E+00	-1.43066E-03

Excess resonance integrals

0 resolved
 Oabsorption 1.10276E+03
 fission .00000E+00

- elapsed time .32 min.

Cam-241 1056 sigp=54 newlacs 218g p-3 295k

95241 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 238.950	temperature(kelvin)	= 975.000
Potential scatter sigma	= 9.511	lumped nuclear density	= 1.9917580E-07
Spin factor (g)	= 82058.203	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .000000E+00	deroff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 8.5731644E+05

Ormoderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 9.1958431E+05

Ormoderator-2 will be treated by the norheim 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	4.89124E-01	1.21097E-02	4.768714E-03
14	-4.46104E-01	-1.12048E-02	-4.801333E-03

Excess resonance integrals

0 resolved
 Oabsorption 1.93451E+02
 fission 1.07595E+00

- elapsed time .32 min.

Cam-243 1057 218 gp wt f-1/e-m 090876 p3 295k

95243 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 240.940	temperature(kelvin)	= 975.000
Potential scatter sigma	= 9.511	lumped nuclear density	= 5.2785381E-08
Spin factor (g)	= 82052.602	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .000000E+00	deroff correction (c)	= 3.4269261E-01

Othe absorber will be treated by the norheim integral method.

Mass of moderator-1 = 15.995 sigma(per absorber atom)= 3.251053E+06

Ormoderator-1 will be treated by the norheim integral method.

Mass of moderator-2 = 238.051 sigma(per absorber atom)= 3.4700725E+06

Ormoderator-2 will be treated by the norheim 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	-7.188834E-03	.000000E+00	4.218795E-04
14	1.949712E-02	.000000E+00	1.945697E-04

Excess resonance integrals

0 resolved
 Oabsorption 1.60148E+02
 fission .00000E+00

- elapsed time .32 min.

O curium-244 endf/b-iv met 1162

updated 10/13/89

96244 temperature= 975.00

Resonance data for this nuclide

Mass number (a)	= 242.133	temperature(kelvin)	= 975.000
Potential scatter sigma	= 10.320	lumped nuclear density	= 3.9948742E-09
Spin factor (g)	= 5251.150	lump dimension (a-bar)	= 4.6812201E-01
Ormer radius	= .000000E+00	deroff correction (c)	= 3.4269261E-01