sbwzr6.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 11/13/04 at 14:18:28

	1826.0D	1.0YR	41.0YR	42.0YR	43.0YR	44.0YR	45.0YR	46.0YR	47.0YR
TA181	5.896E-01	5.973E-01	5.973E-01	5.973E-01	5.973E-01	5.973E-01	5.973E-01	5.973E-01	5.973E-01
TA182	9.547E-03	1.056E-03	9.205E-12	9.205E-12	9.205E-12	9.205E-12	9.205E-12	9.205E-12	9.205E-12
TA183	6.272E-04	1.731E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
W182	7.216E-02	8.065E-02	8.171E-02	8.171E-02	8.171E-02	8.171E-02	8.171E-02	8.171E-02	8.171E-02
W183	8.421E-02	8.484E-02	8.484E-02	8.484E-02	8.484E-02	8.484E-02	8.484E-02	8.484E-02	8.484E-02
W184	5.126E-03	5.126E-03	5.126E-03	5.126E-03	5.126E-03	5.126E-03	5.126E-03	5.126E-03	5.126E-03
W185	2.694E-06	9.253E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
W186	8.086E-08	8.258E-08	8.258E-08	8.258E-08	8.258E-08	8.258E-08	8.258E-08	8.258E-08	8.258E-08
W188	1.394E-12	3.629E-14	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RE185	7.346E-06	9.947E-06	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05
RE187	3.365E-09	3.388E-09	3.388E-09	3.388E-09	3.388E-09	3.388E-09	3.388E-09	3.388E-09	3.388E-09
RE188	6.110E-13	3.738E-16	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
OS186	1.213E-06	1.238E-06	1.238E-06	1.238E-06	1.238E-06	1.238E-06	1.238E-06	1.238E-06	1.238E-06
OS187	2.367E-20	7.064E-20	1.949E-18	1.996E-18	2.043E-18	2.090E-18	2.137E-18	2.184E-18	2.231E-18
OS188	1.070E-10	1.090E-10	1.090E-10	1.090E-10	1.090E-10	1.090E-10	1.090E-10	1.090E-10	1.090E-10
OS189	7.571E-13	7.571E-13	7.571E-13	7.571E-13	7.571E-13	7.571E-13	7.571E-13	7.571E-13	7.571E-13
OS190	2.676E-14	2.676E-14	2.676E-14	2.676E-14	2.676E-14	2.676E-14	2.676E-14	2.676E-14	2.676E-14
OS191	1.181E-17	8.861E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
OS192	3.158E-19	5.976E-19	6.072E-19	6.072E-19	6.072E-19	6.072E-19	6.072E-19	6.072E-19	6.072E-19
OS194	6.360E-27	6.360E-27	6.360E-27	6.360E-27	6.360E-27	6.360E-27	6.360E-27	6.360E-27	6.360E-27
IR191	5.432E-17	6.647E-17	6.647E-17	6.647E-17	6.647E-17	6.647E-17	6.647E-17	6.647E-17	6.647E-17
IR192	6.094E-18	1.992E-19	4.120E-24	4.120E-24	4.120E-24	4.120E-24	4.120E-24	4.120E-24	4.120E-24
IR192M	5.491E-21	5.491E-21	4.896E-21	4.896E-21	4.896E-21	4.896E-21	4.896E-21	4.896E-21	4.896E-21
IR193	8.109E-19	8.110E-19	8.124E-19	8.124E-19	8.124E-19	8.125E-19	8.125E-19	8.125E-19	8.126E-19
IR194	4.896E-22	2.316E-30	2.316E-30	2.316E-30	2.316E-30	2.316E-30	2.316E-30	2.316E-30	2.316E-30
PT192	6.270E-18	1.188E-17	1.207E-17	1.207E-17	1.207E-17	1.207E-17	1.207E-17	1.207E-17	1.207E-17
PT193	2.562E-20	2.583E-20	2.444E-20	2.440E-20	2.437E-20	2.434E-20	2.430E-20	2.427E-20	2.423E-20
PT194	4.234E-20	4.283E-20	4.283E-20	4.283E-20	4.283E-20	4.283E-20	4.283E-20	4.283E-20	4.283E-20
PT195	2.565E-27	2.791E-26	2.791E-26	2.791E-26	2.791E-26	2.791E-26	2.791E-26	2.791E-26	2.791E-26
HE 4	1.613E-04	3.125E-04	5.466E-03	5.575E-03	5.683E-03	5.791E-03	5.898E-03	6.003E-03	6.108E-03
TL206	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29
TL207	3.787E-17	5.254E-17	2.071E-15	2.149E-15	2.224E-15	2.299E-15	2.375E-15	2.451E-15	2.529E-15
TL208	2.481E-14	4.984E-14	1.974E-13	1.961E-13	1.942E-13	1.922E-13	1.903E-13	1.884E-13	1.865E-13
TL209	1.121E-19	3.961E-20	1.401E-19	1.447E-19	1.494E-19	1.543E-19	1.592E-19	1.643E-19	1.695E-19
PB206	1.519E-15	3.824E-15	2.988E-12	3.311E-12	3.654E-12	4.024E-12	4.425E-12	4.857E-12	5.323E-12
PB207	6.465E-12	9.859E-12	2.687E-09	2.849E-09	3.016E-09	3.189E-09	3.368E-09	3.552E-09	3.743E-09
PB208	9.813E-09	2.197E-08	3.010E-06	3.075E-06	3.140E-06	3.203E-06	3.267E-06	3.329E-06	3.391E-06
PB209	4.680E-16	1.650E-16	5.838E-16	6.030E-16	6.227E-16	6.429E-16	6.635E-16	6.846E-16	7.062E-16
PB210	8.585E-14	9.107E-14	1.034E-11	1.122E-11	1.216E-11	1.315E-11	1.419E-11	1.530E-11	1.646E-11
PB211	2.930E-16	4.065E-16	1.602E-14	1.663E-14	1.720E-14	1.779E-14	1.837E-14	1.896E-14	1.956E-14
PB212	1.464E-11	2.940E-11	1.164E-10	1.157E-10	1.145E-10	1.134E-10	1.122E-10	1.111E-10	1.100E-10
PB214	6.459E-20	1.168E-19	8.842E-17	9.436E-17	1.005E-16	1.070E-16	1.137E-16	1.207E-16	1.279E-16
BI208	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18
BI209	8.310E-13	1.190E-12	2.456E-11	2.565E-11	2.678E-11	2.794E-11	2.914E-11	3.038E-11	3.166E-11
BI210M	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18
BI210	5.220E-17	5.607E-17	6.360E-15	6.908E-15	7.484E-15	8.094E-15	8.738E-15	9.418E-15	1.013E-14
BI211	1.729E-17	2.398E-17	9.452E-16	9.810E-16	1.015E-15	1.049E-15	1.084E-15	1.119E-15	1.154E-15
BI212	1.388E-12	2.788E-12	1.104E-11	1.097E-11	1.086E-11	1.075E-11	1.065E-11	1.054E-11	1.044E-11
BI213	1.097E-16	3.878E-17	1.372E-16	1.417E-16	1.463E-16	1.511E-16	1.559E-16	1.609E-16	1.659E-16
BI214	4.796E-20	8.671E-20	6.565E-17	7.006E-17	7.466E-17	7.945E-17	8.443E-17	8.961E-17	9.499E-17
PO210	9.369E-16	1.441E-15	1.757E-13	1.819E-13	1.958E-13	2.117E-13	2.287E-13	2.467E-13	2.657E-13
PO211	2.121E-22	2.943E-22	1.160E-20	1.204E-20	1.245E-20	1.287E-20	1.330E-20	1.373E-20	1.416E-20
PO212	7.345E-23	1.475E-22	5.843E-22	5.806E-22	5.748E-22	5.690E-22	5.633E-22	5.577E-22	5.521E-22
PO213	1.646E-25	5.818E-26	2.058E-25	2.126E-25	2.195E-25	2.266E-25	2.339E-25	2.413E-25	2.490E-25
PO214	6.465E-25	1.193E-26	9.032E-24	9.639E-24	1.027E-23	1.093E-23	1.162E-23	1.233E-23	1.307E-23
PO215	2.453E-22	3.404E-22	1.342E-20	1.392E-20	1.441E-20	1.489E-20	1.538E-20	1.588E-20	1.638E-20
PO216	5.840E-17	1.173E-16	4.646E-16	4.616E-16	4.570E-16	4.524E-16	4.479E-16	4.434E-16	4.390E-16
PO218	7.490E-21	1.354E-20	1.025E-17	1.094E-17	1.166E-17	1.241E-17	1.318E-17	1.399E-17	1.483E-17
AT217	1.318E-21	4.659E-22	1.648E-21	1.702E-21	1.758E-21	1.815E-21	1.873E-21	1.933E-21	1.994E-21
RN218	1.389E-22	7.190E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RN219	5.559E-19	7.713E-19	3.040E-17	3.155E-17	3.264E-17	3.375E-17	3.486E-17	3.599E-17	3.712E-17
RN220	2.205E-14	4.428E-14	1.754E-13	1.743E-13	1.725E-13	1.708E-13	1.691E-13	1.674E-13	1.657E-13
RN222	1.377E-17	2.490E-17	1.885E-14	2.012E-14	2.144E-14	2.281E-14	2.424E-14	2.573E-14	2.727E-14
FR221	1.197E-17	4.231E-18	1.496E-17	1.546E-17	1.596E-17	1.648E-17	1.701E-17	1.755E-17	1.810E-17
FR223	2.595E-18	3.574E-18	1.411E-16	1.461E-16	1.512E-16	1.563E-16	1.615E-16	1.667E-16	1.719E-16
RA222	1.535E-19	7.950E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RA223	1.412E-13	1.959E-13	7.722E-12	8.014E-12	8.292E-12	8.573E-12	8.856E-12	9.141E-12	9.429E-12
RA224	1.277E-10	2.564E-10	1.016E-09	1.009E-09	9.990E-10	9.890E-10	9.791E-10	9.694E-10	9.597E-10
RA225	5.557E-14	1.913E-14	6.766E-14	6.989E-14	7.217E-14	7.451E-14	7.690E-14	7.935E-14	8.185E-14
RA226	2.161E-12	3.873E-12	2.933E-09	3.130E-09	3.335E-09	3.549E-09	3.771E-09	4.002E-09	4.243E-09
RA228	5.379E-16	8.951E-16	4.246E-14	4.365E-14	4.485E-14	4.605E-14	4.725E-14	4.845E-14	4.965E-14
AC225	3.655E-14	1.292E-14	4.571E-14	4.721E-14	4.875E-14	5.033E-14	5.195E-14	5.360E-14	5.529E-14
AC227	1.006E-10	1.385E-10	5.467E-09	5.662E-09	5.858E-09	6.056E-09	6.256E-09	6.458E-09	6.661E-09
AC228	2.287E-14	1.089E-19	5.164E-18	5.310E-18	5.456E-18	5.601E-18	5.747E-18	5.893E-18	6.039E-18
TH226	7.650E-18	3.961E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TH227	2.321E-13	3.220E-13	1.269E-11	1.317E-11	1.363E-11	1.409E-11	1.455E-11	1.502E-11	1.549E-11

sbwzr6.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 11/13/04 at 14:18:28

	1826.0D	1.0YR	41.0YR	42.0YR	43.0YR	44.0YR	45.0YR	46.0YR	47.0YR
TH228	2.505E-08	4.974E-08	1.974E-07	1.954E-07	1.934E-07	1.915E-07	1.896E-07	1.877E-07	1.858E-07
TH229	3.489E-09	3.526E-09	1.247E-08	1.288E-08	1.330E-08	1.373E-08	1.417E-08	1.462E-08	1.508E-08
TH230	1.500E-07	2.415E-07	2.194E-05	2.289E-05	2.385E-05	2.484E-05	2.583E-05	2.685E-05	2.788E-05
TH231	1.704E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09
TH232	7.632E-06	1.062E-05	1.302E-04	1.332E-04	1.362E-04	1.392E-04	1.422E-04	1.452E-04	1.482E-04
TH234	1.246E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10
PA231	1.811E-06	2.200E-06	1.768E-05	1.807E-05	1.846E-05	1.885E-05	1.924E-05	1.963E-05	2.001E-05
PA233	2.217E-07	2.277E-07	2.276E-07	2.277E-07	2.277E-07	2.277E-07	2.277E-07	2.277E-07	2.277E-07
PA234M	4.849E-14	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15
PA234	1.528E-11	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15
U230	7.519E-15	3.891E-20	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U232	3.048E-06	4.579E-06	7.031E-06	6.961E-06	6.891E-06	6.822E-06	6.754E-06	6.686E-06	6.619E-06
U233	7.251E-06	9.607E-06	9.497E-05	9.733E-05	9.969E-05	1.021E-04	1.044E-04	1.068E-04	1.091E-04
U234	2.857E-02	3.737E-02	3.379E-01	3.442E-01	3.506E-01	3.568E-01	3.630E-01	3.692E-01	3.753E-01
U235	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02
U236	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02
U237	1.154E-01	2.582E-10	3.741E-11	3.565E-11	3.397E-11	3.236E-11	3.084E-11	2.938E-11	2.800E-11
U238	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00
U240	5.608E-11	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19
NP235	3.251E-08	1.716E-08	1.349E-19	7.118E-20	3.755E-20	1.981E-20	1.047E-20	5.535E-21	2.925E-21
NP236	3.749E-06	3.749E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06	3.747E-06
NP237	6.600E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00
NP238	9.351E-03	2.032E-12	1.669E-12	1.661E-12	1.653E-12	1.645E-12	1.637E-12	1.629E-12	1.621E-12
NP239	3.690E-04	9.917E-11	9.880E-11	9.879E-11	9.878E-11	9.877E-11	9.876E-11	9.875E-11	9.874E-11
NP240M	1.021E-10	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21
PU236	7.349E-06	5.789E-06	3.544E-10	2.797E-10	2.211E-10	1.752E-10	1.392E-10	1.110E-10	8.881E-11
PU237	7.562E-07	2.932E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PU238	1.127E+00	1.128E+00	8.222E-01	8.157E-01	8.093E-01	8.029E-01	7.966E-01	7.904E-01	7.841E-01
PU239	1.613E-01	1.617E-01	1.615E-01	1.615E-01	1.615E-01	1.615E-01	1.615E-01	1.615E-01	1.614E-01
PU240	3.359E-02	3.359E-02	3.346E-02	3.346E-02	3.345E-02	3.345E-02	3.345E-02	3.344E-02	3.344E-02
PU241	8.724E-03	8.313E-03	1.204E-03	1.147E-03	1.093E-03	1.042E-03	9.927E-04	9.459E-04	9.013E-04
PU242	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03
PU243	1.529E-07	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21
PU244	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08
PU246	4.021E-16	3.107E-26	1.521E-27	1.521E-27	1.521E-27	1.521E-27	1.521E-27	1.521E-27	1.521E-27
AM241	3.078E-04	7.183E-04	7.492E-03	7.537E-03	7.579E-03	7.618E-03	7.655E-03	7.689E-03	7.722E-03
AM242M	1.010E-05	1.005E-05	8.258E-06	8.218E-06	8.177E-06	8.137E-06	8.097E-06	8.058E-06	8.018E-06
AM242	3.143E-07	1.295E-10	1.064E-10	1.058E-10	1.053E-10	1.048E-10	1.043E-10	1.038E-10	1.033E-10
AM243	1.151E-04	1.153E-04	1.148E-04	1.148E-04	1.148E-04	1.148E-04	1.148E-04	1.148E-04	1.148E-04
AM245	2.436E-14	3.523E-23	6.369E-37	6.385E-37	6.385E-37	6.385E-37	6.385E-37	6.385E-37	6.385E-37
AM246	6.435E-19	4.979E-29	2.434E-30	2.434E-30	2.434E-30	2.434E-30	2.434E-30	2.434E-30	2.434E-30
CM241	1.081E-12	9.540E-16	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CM242	3.560E-05	7.622E-06	2.153E-08	2.145E-08	2.135E-08	2.125E-08	2.115E-08	2.104E-08	2.094E-08
CM243	5.667E-07	5.521E-07	2.087E-07	2.037E-07	1.988E-07	1.940E-07	1.894E-07	1.848E-07	1.804E-07
CM244	1.624E-05	1.564E-05	3.383E-06	3.255E-06	3.133E-06	3.016E-06	2.902E-06	2.793E-06	2.688E-06
CM245	3.670E-07	3.670E-07	3.658E-07	3.658E-07	3.657E-07	3.657E-07	3.657E-07	3.657E-07	3.656E-07
CM246	2.209E-08	2.209E-08	2.196E-08	2.196E-08	2.195E-08	2.195E-08	2.195E-08	2.194E-08	2.194E-08
CM247	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10
CM248	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12
CM249	1.877E-17	1.307E-30	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CM250	3.617E-21	3.621E-21	3.621E-21	3.621E-21	3.621E-21	3.621E-21	3.621E-21	3.621E-21	3.621E-21
BK249	2.019E-14	9.161E-15	1.656E-28	1.656E-28	1.656E-28	1.656E-28	1.656E-28	1.656E-28	1.656E-28
BK250	1.228E-17	4.440E-24	1.071E-29	1.071E-29	1.071E-29	1.071E-29	1.071E-29	1.071E-29	1.071E-29
CF249	3.877E-15	1.490E-14	2.226E-14	2.221E-14	2.217E-14	2.212E-14	2.208E-14	2.204E-14	2.199E-14
CF250	3.410E-15	3.245E-15	3.897E-16	3.696E-16	3.505E-16	3.324E-16	3.153E-16	2.990E-16	2.836E-16
CF251	1.058E-15	1.057E-15	1.025E-15	1.024E-15	1.024E-15	1.023E-15	1.022E-15	1.021E-15	1.021E-15
CF252	3.213E-16	2.471E-16	6.736E-21	5.199E-21	4.012E-21	3.096E-21	2.390E-21	1.844E-21	1.423E-21
CF253	2.544E-19	1.709E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CF254	5.630E-21	9.293E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ES253	2.406E-19	8.017E-24	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ES254	2.319E-20	9.242E-21	1.031E-36	1.031E-36	1.031E-36	1.031E-36	1.031E-36	1.031E-36	1.031E-36
SF250	2.227E-11	4.260E-11	6.590E-10	6.719E-10	6.847E-10	6.973E-10	7.099E-10	7.224E-10	7.348E-10
H 3	6.014E-04	5.685E-04	6.021E-05	5.692E-05	5.382E-05	5.088E-05	4.810E-05	4.548E-05	4.299E-05
LI 6	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06
LI 7	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07
BE 9	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07
BE 10	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06
C 14	3.795E-07	3.794E-07	3.776E-07	3.775E-07	3.775E-07	3.775E-07	3.774E-07	3.774E-07	3.773E-07
ZN 66	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10
ZN 67	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11
ZN 68	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06
GA 69	9.063E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09
ZN 70	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05
GE 70	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11
GA 71	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09
GE 72	1.046E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04

sbwzr6.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 11/13/04 at 14:18:28

	1826.0D	1.0YR	41.0YR	42.0YR	43.0YR	44.0YR	45.0YR	46.0YR	47.0YR
GE 73	3.676E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04
GE 74	9.973E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04
AS 75	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03
GE 76	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03
SE 76	4.545E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05
SE 77	1.581E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02
SE 78	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02
SE 79	8.723E-02	8.723E-02	8.719E-02	8.719E-02	8.719E-02	8.719E-02	8.719E-02	8.718E-02	8.718E-02
BR 79	2.253E-06	3.184E-06	4.040E-05	4.134E-05	4.227E-05	4.320E-05	4.413E-05	4.506E-05	4.599E-05
SE 80	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01
KR 80	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06
BR 81	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01
KR 81	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08
SE 82	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01
KR 82	9.495E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03
KR 83	7.796E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01
KR 84	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00
KR 85	4.116E-01	3.859E-01	2.906E-02	2.724E-02	2.553E-02	2.394E-02	2.244E-02	2.103E-02	1.971E-02
RB 85	1.846E+00	1.873E+00	2.229E+00	2.231E+00	2.233E+00	2.235E+00	2.236E+00	2.237E+00	2.239E+00
KR 86	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00
RB 86	1.883E-04	2.408E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 86	4.630E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03
RB 87	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00
SR 87	2.043E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05
SR 88	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00
SR 89	3.468E-01	2.306E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 89	8.536E+00	8.880E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00
SR 90	1.013E+01	9.891E+00	3.817E+00	3.727E+00	3.640E+00	3.554E+00	3.471E+00	3.389E+00	3.309E+00
Y 90	2.594E-03	2.480E-03	9.573E-04	9.347E-04	9.128E-04	8.913E-04	8.703E-04	8.499E-04	8.299E-04
ZR 90	6.404E-01	8.788E-01	6.954E+00	7.044E+00	7.131E+00	7.217E+00	7.301E+00	7.382E+00	7.462E+00
Y 91	5.021E-01	6.678E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 91	1.058E+01	1.108E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01
ZR 92	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01
NB 92	1.142E-13	1.721E-24	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 93	1.243E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01
NB 93	1.798E-06	2.829E-06	1.516E-04	1.567E-04	1.618E-04	1.669E-04	1.721E-04	1.772E-04	1.824E-04
NB 93M	1.239E-05	1.700E-05	9.356E-05	9.413E-05	9.467E-05	9.518E-05	9.567E-05	9.614E-05	9.658E-05
ZR 94	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01
NB 94	1.654E-06	1.654E-06	1.652E-06	1.652E-06	1.652E-06	1.652E-06	1.652E-06	1.652E-06	1.651E-06
ZR 95	6.298E-01	1.204E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 95	3.479E-01	1.489E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 95M	2.492E-04	5.040E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MO 95	1.132E+01	1.227E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01
ZR 96	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01
MO 96	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01
MO 97	1.185E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01
MO 98	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01
TC 98	4.572E-05	4.572E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05
TC 99	1.150E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01
RU 99	9.490E-05	1.327E-04	1.647E-03	1.684E-03	1.722E-03	1.760E-03	1.798E-03	1.836E-03	1.874E-03
MO100	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01
RU100	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00
RU101	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01
RU102	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00
RH102	5.323E-06	4.191E-06	2.953E-10	2.325E-10	1.831E-10	1.441E-10	1.135E-10	8.937E-11	7.037E-11
RU103	2.067E-01	3.286E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH103	4.659E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00
RH103M	1.847E-04	2.939E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU104	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00
PD104	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00
PD105	2.157E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00
RU106	2.595E-01	1.305E-01	1.479E-13	7.434E-14	3.737E-14	1.879E-14	9.447E-15	4.749E-15	2.388E-15
RH106	2.616E-07	1.226E-07	1.390E-19	6.987E-20	3.513E-20	1.766E-20	8.880E-21	4.464E-21	2.244E-21
PD106	7.981E-01	9.272E-01	1.058E+00	1.058E+00	1.058E+00	1.058E+00	1.058E+00	1.058E+00	1.058E+00
AG106	5.871E-15	6.813E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD107	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01
AG107	1.092E-07	1.544E-07	1.960E-06	2.006E-06	2.051E-06	2.096E-06	2.141E-06	2.186E-06	2.231E-06
PD108	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01
AG108	9.552E-13	2.960E-19	2.770E-19	2.765E-19	2.761E-19	2.756E-19	2.751E-19	2.747E-19	2.742E-19
AG108M	3.090E-10	3.085E-10	2.887E-10	2.882E-10	2.877E-10	2.872E-10	2.868E-10	2.863E-10	2.858E-10
CD108	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07
AG109	8.224E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02
AG109M	5.107E-08	1.294E-16	4.302E-26	2.493E-26	1.445E-26	8.381E-27	4.859E-27	2.818E-27	1.633E-27
CD109	2.261E-10	1.310E-10	4.355E-20	2.523E-20	1.463E-20	8.484E-21	4.920E-21	2.853E-21	1.644E-21
PD110	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02
AG110	1.878E-08	2.972E-12	7.459E-30	2.765E-30	1.004E-30	4.518E-31	2.259E-31	8.203E-32	0.000E+00
AG110M	5.402E-04	1.961E-04	4.922E-22	1.825E-22	5.962E-23	2.981E-23	1.491E-23	0.000E+00	0.000E+00

sbwzr6.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 11/13/04 at 14:18:28

	1826.0D	1.0YR	41.0YR	42.0YR	43.0YR	44.0YR	45.0YR	46.0YR	47.0YR
CD110	3.243E-02	3.277E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02
AG111	3.630E-04	6.352E-19	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD111	5.953E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02
CD112	4.625E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02
CD113	4.385E-04	4.452E-04	4.460E-04	4.460E-04	4.460E-04	4.460E-04	4.460E-04	4.460E-04	4.460E-04
CD113M	8.755E-04	8.335E-04	1.167E-04	1.111E-04	1.058E-04	1.007E-04	9.586E-05	9.126E-05	8.688E-05
IN113	9.778E-05	1.397E-04	8.559E-04	8.615E-04	8.668E-04	8.719E-04	8.767E-04	8.813E-04	8.857E-04
CD114	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02
IN114	1.811E-11	3.957E-14	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN114M	4.089E-07	2.460E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN114	6.881E-06	7.256E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06
CD115M	1.216E-04	4.164E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN115	1.111E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02
IN115M	5.122E-06	1.176E-13	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN115	1.262E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03
CD116	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02
SN116	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02
SN117	4.004E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02
SN117M	1.819E-06	2.563E-14	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN118	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02
SN119	4.269E-02	4.278E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02
SN119M	1.423E-04	5.063E-05	5.687E-23	2.847E-23	1.425E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN120	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02
SN121M	2.162E-05	2.135E-05	1.289E-05	1.273E-05	1.257E-05	1.242E-05	1.226E-05	1.211E-05	1.196E-05
SB121	4.515E-02	4.519E-02	4.520E-02	4.520E-02	4.520E-02	4.520E-02	4.520E-02	4.520E-02	4.520E-02
SN122	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02
TE122	2.238E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03
SN123	1.474E-03	2.076E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB123	5.702E-02	5.829E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02
TE123	2.198E-05	2.470E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05
TE123M	3.090E-06	3.725E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN124	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02
SB124	2.076E-04	3.096E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE124	1.566E-03	1.770E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03
SN125	3.077E-04	1.209E-15	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB125	5.871E-02	4.596E-02	2.066E-06	1.609E-06	1.252E-06	9.751E-07	7.593E-07	5.912E-07	4.603E-07
TE125	4.338E-02	5.657E-02	1.032E-01	1.032E-01	1.032E-01	1.032E-01	1.032E-01	1.032E-01	1.032E-01
TE125M	7.575E-04	6.419E-04	2.890E-08	2.250E-08	1.752E-08	1.364E-08	1.062E-08	8.269E-09	6.438E-09
SN126	1.900E-01	1.900E-01	1.899E-01	1.899E-01	1.899E-01	1.899E-01	1.899E-01	1.899E-01	1.899E-01
SB126	3.639E-05	9.078E-09	9.075E-09	9.075E-09	9.075E-09	9.075E-09	9.075E-09	9.075E-09	9.075E-09
SB126M	1.490E-08	6.917E-11	6.915E-11	6.915E-11	6.915E-11	6.915E-11	6.915E-11	6.915E-11	6.915E-11
TE126	4.547E-03	4.585E-03	4.637E-03	4.639E-03	4.640E-03	4.641E-03	4.643E-03	4.644E-03	4.645E-03
TE127	1.288E-04	1.759E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE127M	4.938E-03	5.024E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I127	3.994E-01	4.053E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01
XE127	3.721E-09	3.557E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE128	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00
XE128	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02
TE129	6.927E-05	3.569E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129M	7.102E-03	3.811E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I129	1.835E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00
XE129	6.480E-05	6.500E-05	6.826E-05	6.834E-05	6.842E-05	6.850E-05	6.858E-05	6.866E-05	6.874E-05
XE129M	1.213E-07	2.187E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE130	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00
XE130	8.569E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02
I131	4.926E-02	1.070E-15	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE131	6.011E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00
XE131M	7.973E-04	1.451E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE132	1.364E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01
CS132	9.291E-06	9.682E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA132	1.342E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05
XE133	7.367E-02	9.963E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS133	1.678E+01	1.687E+01	1.687E+01	1.687E+01	1.687E+01	1.687E-01	1.687E+01	1.687E+01	1.687E+01
XE134	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01
CS134	1.124E+00	8.031E-01	1.161E-06	8.299E-07	5.930E-07	4.237E-07	3.027E-07	2.163E-07	1.545E-07
BA134	6.001E-01	9.210E-01	1.724E+00	1.724E+00	1.724E+00	1.724E+00	1.724E+00	1.724E+00	1.724E+00
CS135	9.090E+00	9.096E+00	9.095E+00	9.095E+00	9.095E+00	9.095E+00	9.095E+00	9.095E+00	9.095E+00
BA135	2.738E-03	2.742E-03	2.851E-03	2.854E-03	2.857E-03	2.859E-03	2.862E-03	2.865E-03	2.868E-03
XE136	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01
CS136	6.042E-03	2.450E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA136	2.349E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01
BA136M	2.709E-10	1.099E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS137	1.651E+01	1.614E+01	6.404E+00	6.257E+00	6.114E+00	5.975E+00	5.838E+00	5.705E+00	5.575E+00
BA137	9.727E-01	1.350E+00	1.108E+01	1.123E+01	1.137E+01	1.151E+01	1.165E+01	1.178E+01	1.191E+01
BA137M	2.527E-06	2.469E-06	9.797E-07	9.573E-07	9.354E-07	9.141E-07	8.932E-07	8.728E-07	8.529E-07
BA138	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01
LA138	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04

sbwzr6.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 11/13/04 at 14:18:28

	1826.0D	1.0YR	41.0YR	42.0YR	43.0YR	44.0YR	45.0YR	46.0YR	47.0YR
LA139	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01
BA140	1.798E 01	4.548E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA140	2.504E 02	6.858E-11	0.000E+00	0.000E+00	0.000E+00	0.000E-00	0.000E+00	0.000E+00	0.000E+00
CE140	1.816E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01
CE141	4.339E-01	1.811E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR141	1.663E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01
CE142	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01
ND142	2.736E 01	2.741E-01	2.741E-01	2.741E-01	2.741E 01	2.741E 01	2.741E-01	2.741E-01	2.741E-01
PR143	1.798E 01	1.577E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND143	1.373E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01
CE144	3.589E+00	1.473E+00	4.968E-16	2.039E 16	8.367E 17	3.434E-17	1.409E 17	5.783E-18	2.373E-18
PR144	1.520E-04	6.218E 05	2.098E 20	8.608E-21	3.533E-21	1.450E-21	5.950E 22	2.442E-22	1.002E-22
PR144M	7.579E 07	3.109E-07	1.049E-22	4.303E-23	1.766E 23	7.248E-24	2.974E-24	1.221E-24	5.010E-25
ND144	1.638E+01	1.850E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01
ND145	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01
ND146	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00
PM146	4.960E-05	4.372E-05	2.828E-07	2.493E-07	2.198E 07	1.937E-07	1.708E-07	1.506E-07	1.327E-07
SM146	8.176E-05	8.394E-05	1.000E 04	1.000E-04	1.000E-04	1.000E-04	1.001E 04	1.001E-04	1.001E-04
ND147	6.040E-02	6.922E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM147	2.102E+00	1.661E+00	4.270E 05	3.279E 05	2.517E-05	1.933E-05	1.484E 05	1.140E-05	8.750E-06
SM147	1.853E+00	2.355E+00	4.016E+00	4.016E+00	4.016E+00	4.016E+00	4.016E+00	4.016E+00	4.016E+00
ND148	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00
PM148	1.273E-02	2.501E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM148M	1.569E-02	3.414E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM148	2.311E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00
SM149	2.812E 02	3.714E-02	3.714E-02	3.714E-02	3.714E-02	3.714E 02	3.714E 02	3.714E-02	3.714E-02
ND150	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00
SM150	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00
EU150	4.537E-09	4.451E 09	2.064E 09	2.025E-09	1.987E-09	1.949E 09	1.912E-09	1.875E-09	1.840E-09
SM151	1.636E-01	1.636E-01	1.203E-01	1.193E 01	1.184E 01	1.175E-01	1.166E-01	1.157E-01	1.148E-01
EU151	2.742E-04	1.539E-03	4.493E-02	4.585E 02	4.677E-02	4.768E-02	4.858E 02	4.947E-02	5.036E-02
SM152	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00
EU152	1.217E-03	1.157E-03	1.493E 04	1.418E-04	1.347E-04	1.280E-04	1.216E-04	1.155E-04	1.098E 04
GD152	1.111E-03	1.129E 03	1.409E-03	1.411E-03	1.413E-03	1.415E 03	1.417E-03	1.419E-03	1.420E-03
EU153	1.120E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00
GD153	4.330E 05	1.521E-05	1.022E-23	1.022E 23	1.022E-23	1.022E 23	1.022E-23	1.022E 23	1.022E-23
SM154	2.463E-01	2.463E-01	2.463E-01	2.463E 01	2.463E 01	2.463E-01	2.463E-01	2.463E-01	2.463E-01
EU154	2.588E 01	2.387E-01	9.478E-03	8.744E 03	8.066E-03	7.441E-03	6.865E-03	6.333E-03	5.842E-03
GD154	2.828E-02	4.833E-02	2.776E-01	2.783E 01	2.790E 01	2.796E-01	2.802E-01	2.807E 01	2.812E-01
EU155	7.957E-02	6.879E-02	2.031E 04	1.756E 04	1.518E 04	1.312E-04	1.134E 04	9.806E-05	8.477E-05
GD155	1.069E-03	1.185E-02	8.044E-02	8.046E 02	8.049E-02	8.051E-02	8.053E 02	8.054E-02	8.056E-02
EU156	8.576E-03	4.936E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GD156	2.689E 01	2.775E-01	2.775E-01	2.775E 01	2.775E-01	2.775E-01	2.775E-01	2.775E-01	2.775E-01
GD157	2.482E 04	2.689E-04	2.689E-04	2.689E-04	2.689E-04	2.689E 04	2.689E-04	2.689E 04	2.689E-04
GD158	4.817E-02	4.817E-02	4.817E-02	4.817E-02	4.817E 02	4.817E-02	4.817E 02	4.817E-02	4.817E-02
TB159	4.519E-03	4.524E-03	4.524E-03	4.524E 03	4.524E-03	4.524E-03	4.524E 03	4.524E-03	4.524E-03
GD160	1.757E 03	1.757E-03	1.757E 03	1.757E 03	1.757E-03	1.757E-03	1.757E 03	1.757E-03	1.757E-03
TB160	7.859E-05	2.369E 06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DY160	3.786E-04	4.548E-04	4.571E-04	4.571E-04	4.571E-04	4.571E 04	4.571E-04	4.571E 04	4.571E-04
TB161	3.523E-06	4.555E 22	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DY161	3.769E-04	3.804E-04	3.804E-04	3.804E-04	3.804E 04	3.804E-04	3.804E-04	3.804E 04	3.804E-04
DY162	3.008E-04	3.008E-04	3.008E 04	3.008E-04	3.008E-04	3.008E 04	3.008E-04	3.008E 04	3.008E 04
DY163	2.031E 04	2.031E-04	2.031E-04	2.031E 04	2.031E 04	2.031E-04	2.031E 04	2.031E 04	2.031E-04
DY164	3.788E-05	3.788E 05	3.788E-05	3.788E 05	3.788E 05	3.788E 05	3.788E-05	3.788E 05	3.788E-05
HO165	6.662E 05	6.663E-05	6.663E-05	6.663E 05	6.663E-05	6.663E-05	6.663E 05	6.663E 05	6.663E-05
HO166M	4.628E-07	4.625E-07	4.520E-07	4.517E 07	4.514E 07	4.512E-07	4.509E 07	4.507E 07	4.504E-07
ER166	1.514E 05	1.519E-05	1.521E-05	1.521E 05	1.521E 05	1.521E-05	1.521E 05	1.521E-05	1.521E 05
ER167	2.061E-06	2.061E 06	2.061E 06	2.061E 06	2.061E-06	2.061E 06	2.061E-06	2.061E 06	2.061E-06
ER168	2.843E-06	2.843E-06	2.843E 06	2.843E 06	2.843E-06	2.843E-06	2.843E-06	2.843E 06	2.843E-06
ER169	5.081E 10	1.021E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TM169	1.408E-08	1.458E-08	1.458E 08	1.458E 08	1.458E-08	1.458E-08	1.458E 08	1.458E-08	1.458E-08
ER170	2.803E 12	4.181E-12	4.405E-12	4.405E 12	4.405E 12	4.405E-12	4.405E 12	4.405E-12	4.405E 12
TM170	1.098E 09	1.532E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E-00	0.000E+00	0.000E+00
YB170	1.875E 09	2.818E-09	2.971E-09	2.971E 09	2.971E-09	2.971E-09	2.971E 09	2.971E-09	2.971E 09
TM171	5.745E 11	4.004E-11	2.143E-17	1.493E 17	1.041E 17	7.255E-18	5.056E 18	3.524E-18	2.456E 18
YB171	6.068E 11	7.809E-11	1.181E-10	1.181E 10	1.181E 10	1.181E-10	1.181E 10	1.181E-10	1.181E 10
YB172	2.427E 12	2.436E 12	2.436E 12	2.436E 12	2.436E-12	2.436E-12	2.436E 12	2.436E 12	2.436E 12

reducesb.out

Nuclide	Calculated g/L
H 2	2.501E-11
HE 3	1.886E-15
B 10	4.378E-17
B 11	1.235E-08
C 12	3.036E-05
C 13	4.150E-07
N 14	3.913E-05
N 15	1.503E-07
O 16	2.356E-03
O 17	9.451E-07
O 18	4.724E-06
F 19	2.386E-12
NE 20	2.203E-17
NE 21	1.720E-16
NE 22	2.483E-14
NA 23	1.940E-15
MG 24	7.720E-11
MG 25	2.779E-10
MG 26	1.224E-10
AL 27	3.942E-05
SI 28	3.526E-05
SI 29	1.787E-06
SI 30	1.186E-06
SI 32	5.777E-18
P 31	1.722E-06
P 32	3.481E-22
S 32	1.091E-06
S 34	4.833E-08
CL 37	3.914E-17
AR 38	3.118E-22
AR 39	4.492E-25
AR 40	4.374E-17
AR 42	4.303E-26
K 39	2.807E-26
K 41	1.403E-18
K 42	1.839E-30
CA 42	2.437E-20
CA 43	3.292E-12
CA 44	2.511E-11
CA 45	9.881E-25
CA 46	2.989E-12
SC 45	5.194E-13
SC 46	4.104E-31
TI 46	1.573E-06
TI 47	1.434E-06
TI 48	1.437E-05
TI 49	1.235E-06
TI 50	1.070E-06
V 50	1.645E-08
V 51	1.881E-06
CR 50	1.152E-04
CR 52	2.252E-03

reducesb.out (Continued)

Nuclide	Calculated g/L
CR 53	2.563E-04
CR 54	6.865E-05
MN 54	1.327E-14
MN 55	6.002E-07
FE 54	3.269E-04
FE 55	1.885E-09
FE 56	5.077E-03
FE 57	1.266E-04
FE 58	1.658E-05
CO 58	4.398E-29
CO 59	1.459E-07
CO 60	4.721E-10
NI 58	1.209E-03
NI 59	3.680E-06
NI 60	4.635E-04
NI 61	2.107E-05
NI 62	6.306E-05
NI 63	5.719E-07
NI 64	1.617E-05
CU 63	1.194E-07
CU 65	2.029E-08
ZN 64	1.119E-11
ZN 65	5.898E-23
MO 94	4.653E-09
RU 98	4.691E-21
IN113M	1.272E-25
SN112	2.938E-04
SN113	2.118E-22
YB172	1.077E-14
YB173	6.695E-15
YB174	3.067E-16
LU175	2.534E-07
LU176	6.181E-09
LU177	2.618E-25
LU177M	2.630E-23
HF174	3.409E-07
HF175	3.053E-29
HF176	1.531E-05
HF177	5.124E-06
HF178	9.142E-05
HF179	1.202E-04
HF180	1.582E-04
HF182	8.297E-09
TA181	1.884E-05
TA182	2.903E-16
W182	2.577E-06
W183	2.675E-06
W184	1.616E-07
W185	3.386E-30
W186	2.604E-12
W188	4.784E-38
RE185	3.166E-10
RE187	1.068E-13

reducesb.out (Continued)

Nuclide	Calculated g/L
RE188	4.881E-40
OS186	3.904E-11
OS187	3.508E-23
OS188	3.437E-15
OS189	2.387E-17
OS190	8.439E-19
OS192	1.914E-23
OS194	2.006E-31
IR191	2.096E-21
IR192	1.380E-28
IR192M	1.637E-25
IR193	2.560E-23
IR194	7.303E-35
PT192	3.806E-22
PT193	7.896E-25
PT194	1.351E-24
PT195	8.801E-31
HE 4	2.231E-07
TL206	7.049E-34
TL207	1.096E-19
TL208	8.411E-18
TL209	6.206E-24
PB206	5.899E-15
PB207	1.110E-13
PB208	5.953E-11
PB209	2.586E-20
PB210	1.821E-14
PB211	8.478E-19
PB212	4.961E-15
PB214	1.374E-19
BI208	3.847E-23
BI209	8.190E-16
BI210M	2.716E-22
BI210	1.121E-17
BI211	5.002E 20
BI212	4.706E-16
BI213	6.076E-21
BI214	1.020E-19
PO210	2.946E-16
PO211	6.137E-25
PO212	2.490E-26
PO213	9.116E-30
PO214	1.404E-26
PO215	7.099E-25
PO216	1.980E-20
PO218	1.593E-20
AT217	7.300E-26
RN219	1.609E-21
RN220	7.475E-18
RN222	2.929E-17
FR221	6.630E-22
FR223	7.450E-21
RA223	4.086E-16

reducesb.out (Continued)

Nuclide	Calculated g/L
RA224	4.327E-14
RA225	2.997E-18
RA226	4.557E-12
RA228	1.449E-18
AC225	2.025E-18
AC227	2.887E-13
AC228	1.513E-22
TH227	6.715E-16
TH228	8.379E-12
TH229	5.524E-13
TH230	2.725E-08
TH231	1.480E-13
TH232	4.469E-09
TH234	1.125E-13
PA231	1.136E-09
PA233	9.976E-12
PA234M	3.794E-18
PA234	1.695E-18
U232	3.165E-10
U233	4.618E-09
U234	2.756E-04
U235	3.639E-02
U236	5.253E-03
U237	3.161E-14
U238	7.751E-03
U240	1.661E-22
NP235	1.317E-17
NP236	1.640E-10
NP237	2.937E-04
NP238	8.263E-17
NP239	2.547E-14
NP240M	1.454E-24
PU236	2.011E-12
PU238	3.440E-05
PU239	1.696E-04
PU240	9.674E-06
PU241	1.021E-06
PU242	4.525E-07
PU243	2.512E-25
PU244	8.687E-12
PU246	1.271E-31
AM241	3.863E-06
AM242M	4.407E-10
AM242	5.273E-15
AM243	2.963E-08
AM245	2.764E-33
AM246	2.034E-34
CM242	1.067E-12
CM243	1.879E-11
CM244	7.982E-10
CM245	5.249E-11
CM246	1.926E-12
CM247	7.043E-15

reducesb.out (Continued)

Nuclide	Calculated g/L
CM248	1.623E-16
CM250	3.027E-25
BK249	7.182E-25
BK250	1.880E-33
CF249	9.690E-19
CF250	3.851E-20
CF251	3.900E-20
CF252	5.973E-23
ES254	2.055E-30
SF250	1.986E-14
H 3	7.697E-09
LI 6	1.887E-10
LI 7	7.282E-12
BE 9	1.468E-10
BE 10	9.634E-11
C 14	1.044E-07
ZN 66	3.422E-11
ZN 67	1.728E-14
ZN 68	1.850E-10
GA 69	2.859E-13
ZN 70	6.313E-10
GE 70	8.205E-16
GA 71	6.662E-13
GE 72	6.488E-09
GE 73	2.147E-08
GE 74	5.526E-08
AS 75	1.278E-07
GE 76	3.798E-07
SE 76	1.955E-09
SE 77	8.281E-07
SE 78	1.767E-06
SE 79	4.385E-06
BR 79	1.359E-09
SE 80	1.053E-05
KR 80	5.216E-11
BR 81	1.768E-05
KR 81	1.652E-12
SE 82	2.834E-05
KR 82	3.581E-07
KR 83	4.042E-05
KR 84	9.616E-05
KR 85	4.202E-06
RB 85	1.083E-04
KR 86	1.798E-04
SR 86	2.024E-07
RB 87	2.325E-04
SR 87	1.228E-08
SR 88	3.364E-04
Y 89	4.416E-04
SR 90	2.725E-04
Y 90	6.833E-08
ZR 90	9.930E-01
ZR 91	2.165E-01

reducesb.out (Continued)

Nuclide	Calculated g/L
ZR 92	3.320E-01
ZR 93	1.198E-03
NB 93	5.736E-04
NB 93M	7.412E-09
ZR 94	3.358E-01
NB 94	5.502E-06
ZR 95	4.359E-29
NB 95	2.508E-29
NB 95M	1.741E-32
MO 95	7.199E-04
ZR 96	5.452E-02
MO 96	1.712E-05
MO 97	7.454E-04
MO 98	5.952E-04
TC 98	2.079E-09
TC 99	5.811E-04
RU 99	5.520E-08
MO100	6.538E-04
RU100	4.160E-05
RU101	5.243E-04
RU102	4.616E-04
RH102	1.680E-12
RH103	2.690E-04
RU104	2.075E-04
PD104	6.998E-05
PD105	1.067E-04
RU106	5.070E-11
RH106	4.766E-17
PD106	5.633E-05
PD107	2.248E-05
AG107	6.957E-11
PD108	1.121E-05
AG108	3.718E-23
AG108M	1.178E-14
CD108	1.832E-11
AG109	4.970E-06
AG109M	5.464E-25
CD109	5.531E-19
PD110	4.235E-06
AG110	9.469E-24
AG110M	6.246E-16
CD110	1.390E-06
CD111	3.377E-06
CD112	2.633E-06
CD113	4.225E-07
CD113M	1.465E-08
IN113	3.065E-06
CD114	4.417E-06
SN114	1.992E-04
IN115	1.111E-06
SN115	1.032E-04
CD116	2.346E-06
SN116	4.416E-03

reducesb.out (Continued)

Nuclide	Calculated g/L
SN117	2.368E-03
SN118	7.401E-03
SN119	2.663E-03
SN119M	1.263E-13
SN120	9.983E-03
SN121M	3.631E-08
SB121	1.155E-05
SN122	1.420E-03
TE122	4.808E-07
SN123	4.480E-21
SB123	4.223E-06
TE123	5.018E-09
TE123M	1.509E-24
SN124	1.767E-03
TE124	1.002E-07
SB125	6.633E-08
TE125	1.641E-05
TE125M	9.278E-10
SN126	1.014E-05
SB126	4.817E-13
SB126M	3.662E-15
TE126	3.161E-07
TE127	6.596E-26
TE127M	1.885E-23
I127	2.162E-05
TE128	5.473E-05
XE128	6.701E-07
I129	9.482E-05
XE129	4.837E-09
TE130	2.063E-04
XE130	3.174E-06
XE131	3.235E-04
XE132	6.640E-04
BA132	4.520E-10
CS133	8.587E-04
XE134	1.073E-03
CS134	6.219E-08
BA134	6.892E-05
CS135	3.556E-04
BA135	9.014E-08
XE136	1.473E-03
BA136	8.468E-06
CS137	4.530E-04
BA137	4.181E-04
BA137M	6.930E-11
BA138	9.746E-04
LA138	6.951E-09
LA139	9.256E-04
CE140	9.189E-04
PR141	8.534E-04
CE142	8.678E-04
ND142	9.738E-06
ND143	7.347E-04

reducesb.out (Continued)

Nuclide	Calculated g/L
CE144	2.836E-11
PR144	1.198E-15
PR144M	5.988E-18
ND144	9.540E-04
ND145	5.529E-04
ND146	4.884E-04
PM146	1.508E-10
SM146	3.735E-09
PM147	4.922E-07
SM147	2.266E-04
ND148	2.612E-04
SM148	8.770E-05
SM149	9.794E-06
ND150	1.012E-04
SM150	1.796E-04
EU150	1.675E-13
SM151	9.296E-06
EU151	2.225E-06
SM152	7.335E-05
EU152	1.320E-08
GD152	4.487E-08
EU153	5.247E-05
GD153	3.001E-17
SM154	1.269E-05
EU154	1.630E-06
GD154	1.046E-05
EU155	1.638E-07
GD155	3.928E-06
GD156	1.146E-05
GD157	1.108E-07
GD158	2.428E-06
TB159	2.437E-07
GD160	9.757E-08
TB160	2.590E-29
DY160	1.936E-08
DY161	2.437E-08
DY162	1.734E-08
DY163	1.039E-08
DY164	2.534E-09
HO165	3.126E-09
HO166M	1.801E-11
ER166	8.959E-10
ER167	2.222E-10
ER168	1.405E-10
TM169	6.018E-13
ER170	1.541E-16
TM170	1.096E-27
YB170	1.041E-13
TM171	2.022E-18
YB171	4.017E-15

Recommended radionuclide concentrations based on analytical measurements (Swenson 2004)

	Weighted Average Analytical Values	
Radionuclide	mCi/L	g/L
H-3	2.03E-02	2.09E-09
Co-60	6.72E-02	5.94E-08
Ni-63	3.74E-02	6.58E-07
Sr-90	3.58E+01	2.59E-04
Zr-95	2.04E-10	9.51E-18
Ru-106	3.46E-03	1.05E-09
Sb-125	5.69E-02	5.49E-08
Cs-134	9.80E-02	7.59E-08
Cs-137	3.94E+01	4.53E-04
Ce-144	1.85E-03	5.81E-10
Eu-154	1.55E-01	5.73E-07
Eu-155	1.05E-01	2.16E-07
U-234	9.33E-04	1.50E-04
U-235	2.26E-05	1.04E-02
U-236	5.25E-05	8.14E-04
U-238	2.33E-05	6.92E-02
Np-237	6.01E-04	8.54E-04
Pu-238	6.59E-01	3.85E-05
Pu-239	6.34E-02	1.02E-03
Pu-240	1.73E-02	7.61E-05
Pu-241	4.92E-01	4.76E-06
Pu-242	1.26E-05	3.19E-06
Am-241	6.29E-02	1.83E-05

reducesb.mod

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
H 2	2.501E-11			
HE 3	1.886E-15			
B 10	4.378E-17			
B 11	1.235E-08			
C 12	3.036E-05			
C 13	4.150E-07			
N 14	3.913E-05			
N 15	1.503E-07			
O 16	2.356E-03			
O 17	9.451E-07			
O 18	4.724E-06			
F 19	2.386E-12			
NE 20	2.203E-17			
NE 21	1.720E-16			
NE 22	2.483E-14			
NA 23	1.940E-15			
MG 24	7.720E-11			
MG 25	2.779E-10			
MG 26	1.224E-10			
AL 27	3.942E-05			
SI 28	3.526E-05			
SI 29	1.787E-06			
SI 30	1.186E-06			
SI 32	5.777E-18			
P 31	1.722E-06			
P 32	3.481E-22			
S 32	1.091E-06			
S 34	4.833E-08			
CL 37	3.914E-17			
AR 38	3.118E-22			
AR 39	4.492E-25			
AR 40	4.374E-17			
AR 42	4.303E-26			
K 39	2.807E-26			
K 41	1.403E-18			
K 42	1.839E-30			
CA 42	2.437E-20			
CA 43	3.292E-12			
CA 44	2.511E-11			
CA 45	9.881E-25			
CA 46	2.989E-12			
SC 45	5.194E-13			
SC 46	4.104E-31			
TI 46	1.573E-06			
TI 47	1.434E-06			
TI 48	1.437E-05			
TI 49	1.235E-06			
TI 50	1.070E-06			
V 50	1.645E-08			
V 51	1.881E-06			
CR 50	1.152E-04			
CR 52	2.252E-03			
CR 53	2.563E-04			

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
CR 54	6.865E-05			
MN 54	1.327E-14			
MN 55	6.002E-07			
FE 54	3.269E-04		4.114E-02	(Fe-54/Fe-55) * Fe-55 corrected
FE 55	1.885E-09		2.372E-07	(Fe-55/Co-60) * Co-60 analytical
FE 56	5.077E-03		6.390E-01	(Fe-56/Fe-55) * Fe-55 corrected
FE 57	1.266E-04		1.593E-02	(Fe-57/Fe-55) * Fe-55 corrected
FE 58	1.658E-05		2.087E-03	(Fe-58/Fe-55) * Fe-55 corrected
CO 58	4.398E-29		5.535E-27	(Co-58/Co-60) * Co-60 analytical
CO 59	1.459E-07		1.836E-05	(Co-59/Co-60) * Co-60 analytical
CO 60	4.721E-10	5.942E-08		analytical measurement
NI 58	1.209E-03		1.391E-03	(Ni-58/Ni-63) * Ni-63 analytical
NI 59	3.680E-06		4.235E-06	(Ni-59/Ni-63) * Ni-63 analytical
NI 60	4.635E-04		5.335E-04	(Ni-60/Ni-63) * Ni-63 analytical
NI 61	2.107E-05		2.425E-05	(Ni-61/Ni-63) * Ni-63 analytical
NI 62	6.306E-05		7.258E-05	(Ni-63/Ni-63) * Ni-63 analytical
NI 63	5.719E-07	6.582E-07		analytical measurement
NI 64	1.617E-05		1.861E-05	(Ni-58/Ni-63) * Ni-63 analytical
CU 63	1.194E-07			
CU 65	2.029E-08			
ZN 64	1.119E-11			
ZN 65	5.898E-23			
MO 94	4.653E-09			
RU 98	4.691E-21			
IN113M	1.272E-25			
SN112	2.938E-04			
SN113	2.118E-22			
YB172	1.077E-14			
YB173	6.695E-15			
YB174	3.067E-16			
LU175	2.534E-07			
LU176	6.181E-09			
LU177	2.618E-25			
LU177M	2.630E-23			
HF174	3.409E-07			
HF175	3.053E-29			
HF176	1.531E-05			
HF177	5.124E-06			
HF178	9.142E-05			
HF179	1.202E-04			
HF180	1.582E-04			
HF182	8.297E-09			
TA181	1.884E-05			
TA182	2.903E-16			
W182	2.577E-06			
W183	2.675E-06			
W184	1.616E-07			
W185	3.386E-30			
W186	2.604E-12			
W188	4.784E-38			
RE185	3.166E-10			
RE187	1.068E-13			
RE188	4.881E-40			

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
OS186	3.904E-11			
OS187	3.508E-23			
OS188	3.437E-15			
OS189	2.387E-17			
OS190	8.439E-19			
OS192	1.914E-23			
OS194	2.006E-31			
IR191	2.096E-21			
IR192	1.380E-28			
IR192M	1.637E-25			
IR193	2.560E-23			
IR194	7.303E 35			
PT192	3.806E-22			
PT193	7.896E-25			
PT194	1.351E-24			
PT195	8.801E-31			
HE 4	2.231E-07			
TL206	7.049E-34			
TL207	1.096E-19			
TL208	8.411E-18			
TL209	6.206E-24			
PB206	5.899E-15			
PB207	1.110E-13			
PB208	5.953E-11			
PB209	2.586E-20			
PB210	1.821E-14			
PB211	8.478E-19			
PB212	4.961E-15			
PB214	1.374E-19			
BI208	3.847E-23			
BI209	8.190E-16			
BI210M	2.716E-22			
BI210	1.121E-17			
BI211	5.002E-20			
BI212	4.706E-16			
BI213	6.076E-21			
BI214	1.020E-19			
PO210	2.946E-16			
PO211	6.137E-25			
PO212	2.490E-26			
PO213	9.116E-30			
PO214	1.404E-26			
PO215	7.099E-25			
PO216	1.980E-20			
PO218	1.593E-20			
AT217	7.300E-26			
RN219	1.609E-21			
RN220	7.475E-18			
RN222	2.929E-17			
FR221	6.630E-22			
FR223	7.450E-21			
RA223	4.086E-16			
RA224	4.327E-14			

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
RA225	2.997E-18			
RA226	4.557E-12			
RA228	1.449E-18			
AC225	2.025E-18			
AC227	2.887E-13			
AC228	1.513E-22			
TH227	6.715E-16			
TH228	8.379E-12			
TH229	5.524E-13			
TH230	2.725E-08			
TH231	1.480E-13			
TH232	4.469E-09			
TH234	1.125E-13			
PA231	1.136E-09			
PA233	9.976E-12			
PA234M	3.794E-18			
PA234	1.695E-18			
U232	3.165E-10		9.079E-11	(U-232/U-235) * U-235 analytical
U233	4.618E-09		1.325E-09	(U-233/U-235) * U-235 analytical
U234	2.756E-04	1.502E-04		analytical measurement
U235	3.639E-02	1.044E-02		analytical measurement
U236	5.253E-03	8.137E-04		analytical measurement
U237	3.161E-14		9.068E-15	(U-237/U-235) * U-235 analytical
U238	7.751E-03	6.920E-02		analytical measurement
U240	1.661E-22		4.765E-23	(U-240/U-235) * U-235 analytical
NP235	1.317E-17		3.827E-17	(Np-235/Np-237) * Np-237 analytical
NP236	1.640E-10		4.766E-10	(Np-236/Np-237) * Np-237 analytical
NP237	2.937E-04	8.535E-04		analytical measurement
NP238	8.263E-17		2.401E-16	(Np-238/Np-237) * Np-237 analytical
NP239	2.547E-14		7.401E-14	(Np-239/Np-237) * Np-237 analytical
NP240M	1.454E-24		4.225E-24	(Np-240m/Np-237) * Np-237 analytical
PU236	2.011E-12		1.069E-11	(Pu-236/total Pu) * total Pu analytical
PU238	3.440E-05	3.849E-05		analytical measurement
PU239	1.696E-04	1.021E-03		analytical measurement
PU240	9.674E-06	7.611E-05		analytical measurement
PU241	1.021E-06	4.758E-06		analytical measurement
PU242	4.525E-07	3.187E-06		analytical measurement
PU243	2.512E-25		1.335E-24	(Pu-243/total Pu) * total Pu analytical
PU244	8.687E-12		4.616E-11	(Pu-244/total Pu) * total Pu analytical
PU246	1.271E-31		6.754E-31	(Pu-245/total Pu) * total Pu analytical
AM241	3.863E-06	1.831E-05		analytical measurement
AM242M	4.407E-10		2.088E-09	(Am-242m/Am-241) * am-241 analytical
AM242	5.273E-15		2.499E-14	(Am-242/Am-241) * am-241 analytical
AM243	2.963E-08		1.404E-07	(Am-243/Am-241) * am-241 analytical
AM245	2.764E-33		1.310E-32	(Am-242/Am-241) * am-241 analytical
AM246	2.034E-34		9.639E-34	(Am-242/Am-241) * am-241 analytical
CM242	1.067E-12		5.670E-12	(Cm-242/total Pu) * total Pu analytical
CM243	1.879E-11		9.985E-11	(Cm-243/total Pu) * total Pu analytical
CM244	7.982E-10		4.242E-09	(Cm-244/total Pu) * total Pu analytical
CM245	5.249E-11		2.789E-10	(Cm-245/total Pu) * total Pu analytical
CM246	1.926E-12		1.023E-11	(Cm-246/total Pu) * total Pu analytical
CM247	7.043E-15		3.743E-14	(Cm-247/total Pu) * total Pu analytical
CM248	1.623E-16		8.625E-16	(Cm-248/total Pu) * total Pu analytical

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
CM250	3.027E-25		1.609E-24	(Cm-250/total Pu) * total Pu analytical
BK249	7.182E-25		3.817E-24	(Bk-249/total Pu) * total Pu analytical
BK250	1.880E-33		9.991E-33	(Bk-250/total Pu) * total Pu analytical
CF249	9.690E-19		5.149E-18	(Cf-249/total Pu) * total Pu analytical
CF250	3.851E-20		2.046E-19	(Cf-250/total Pu) * total Pu analytical
CF251	3.900E-20		2.073E-19	(Cf-251/total Pu) * total Pu analytical
CF252	5.973E-23		3.174E-22	(Cf-252/total Pu) * total Pu analytical
ES254	2.055E-30		1.092E-29	(Es-254/total Pu) * total Pu analytical
H 3	7.697E-09	2.091E-09		analytical measurement
LI 6	1.887E-10			
LI 7	7.282E-12			
BE 9	1.468E-10			
BE 10	9.634E-11			
C 14	1.044E-07			
ZN 66	3.422E-11			
ZN 67	1.728E-14			
ZN 68	1.850E-10			
GA 69	2.859E-13			
ZN 70	6.313E-10			
GE 70	8.205E-16			
GA 71	6.662E-13			
GE 72	6.488E-09			
GE 73	2.147E-08			
GE 74	5.526E-08			
AS 75	1.278E-07			
GE 76	3.798E-07			
SE 76	1.955E-09			
SE 77	8.281E-07			
SE 78	1.767E-06			
SE 79	4.385E-06			
BR 79	1.359E-09			
SE 80	1.053E-05			
KR 80	5.216E-11			
BR 81	1.768E-05			
KR 81	1.652E-12			
SE 82	2.834E-05			
KR 82	3.581E-07			
KR 83	4.042E-05			
KR 84	9.616E-05			
KR 85	4.202E-06			
RB 85	1.083E-04			
KR 86	1.798E-04			
SR 86	2.024E-07			
RB 87	2.325E-04			
SR 87	1.228E-08			
SR 88	3.364E-04			
Y 89	4.416E-04			
SR 90	2.725E-04	2.592E-04		analytical measurement
Y 90	6.833E-08			
ZR 90	9.930E-01			
ZR 91	2.165E-01			
ZR 92	3.320E-01			
ZR 93	1.198E-03			

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
NB 93	5.736E-04			
NB 93M	7.412E-09			
ZR 94	3.358E-01			
NB 94	5.502E-06			
ZR 95	4.359E-29	9.506E-18		analytical measurement
NB 95	2.508E-29			
NB 95M	1.741E-32			
MO 95	7.199E-04			
ZR 96	5.452E-02			
MO 96	1.712E-05			
MO 97	7.454E-04			
MO 98	5.952E-04			
TC 98	2.079E-09			
TC 99	5.811E-04			
RU 99	5.520E-08			
MO100	6.538E-04			
RU100	4.160E-05			
RU101	5.243E-04			
RU102	4.616E-04			
RH102	1.680E-12			
RH103	2.690E-04			
RU104	2.075E-04			
PD104	6.998E-05			
PD105	1.067E-04			
RU106	5.070E-11	1.048E-09		analytical measurement
RH106	4.766E-17			
PD106	5.633E-05			
PD107	2.248E-05			
AG107	6.957E-11			
PD108	1.121E-05			
AG108	3.718E-23			
AG108M	1.178E-14			
CD108	1.832E-11			
AG109	4.970E-06			
AG109M	5.464E-25			
CD109	5.531E-19			
PD110	4.235E-06			
AG110	9.469E-24			
AG110M	6.246E-16			
CD110	1.390E-06			
CD111	3.377E-06			
CD112	2.633E-06			
CD113	4.225E-07			
CD113M	1.465E-08			
IN113	3.065E-06			
CD114	4.417E-06			
SN114	1.992E-04			
IN115	1.111E-06			
SN115	1.032E-04			
CD116	2.346E-06			
SN116	4.416E-03			
SN117	2.368E-03			
SN118	7.401E-03			

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
SN119	2.663E-03			
SN119M	1.263E-13			
SN120	9.983E-03			
SN121M	3.631E-08			
SB121	1.155E-05			
SN122	1.420E-03			
TE122	4.808E-07			
SN123	4.480E-21			
SB123	4.223E-06			
TE123	5.018E-09			
TE123M	1.509E-24			
SN124	1.767E-03			
TE124	1.002E-07			
SB125	6.633E-08	5.487E-08		analytical measurement
TE125	1.641E-05			
TE125M	9.278E-10			
SN126	1.014E-05			
SB126	4.817E-13			
SB126M	3.662E-15			
TE126	3.161E-07			
TE127	6.596E-26			
TE127M	1.885E-23			
I127	2.162E-05			
TE128	5.473E-05			
XE128	6.701E-07			
I129	9.482E-05			
XE129	4.837E-09			
TE130	2.063E-04			
XE130	3.174E-06			
XE131	3.235E-04			
XE132	6.640E-04			
BA132	4.520E-10			
CS133	8.587E-04			
XE134	1.073E-03			
CS134	6.219E-08	7.585E-08		analytical measurement
BA134	6.892E-05			
CS135	3.556E-04			
BA135	9.014E-08			
XE136	1.473E-03			
BA136	8.468E-06			
CS137	4.530E-04	4.531E-04		analytical measurement
BA137	4.181E-04			
BA137M	6.930E-11			
BA138	9.746E-04			
LA138	6.951E-09			
LA139	9.256E-04			
CE140	9.189E-04			
PR141	8.534E-04			
CE142	8.678E-04			
ND142	9.738E-06			
ND143	7.347E-04			
CE144	2.836E-11	5.808E 10		analytical measurement
PR144	1.198E-15			

reducesb.mod (Continued)

Nuclide	calculate g/L	analytical g/L	estimated g/L	basis for change
PR144M	5.988E-18			
ND144	9.540E-04			
ND145	5.529E-04			
ND146	4.884E-04			
PM146	1.508E-10			
SM146	3.735E-09			
PM147	4.922E-07			
SM147	2.266E-04			
ND148	2.612E-04			
SM148	8.770E-05			
SM149	9.794E-06			
ND150	1.012E-04			
SM150	1.796E-04			
EU150	1.675E-13			
SM151	9.296E-06			
EU151	2.225E-06			
SM152	7.335E-05			
EU152	1.320E-08			
GD152	4.487E-08			
EU153	5.247E-05			
GD153	3.001E-17			
SM154	1.269E-05			
EU154	1.630E-06	5.734E-07		analytical measurement
GD154	1.046E-05			
EU155	1.638E-07	2.163E-07		analytical measurement
GD155	3.928E-06			
GD156	1.146E-05			
GD157	1.108E-07			
GD158	2.428E-06			
TB159	2.437E-07			
GD160	9.757E-08			
TB160	2.590E-29			
DY160	1.936E-08			
DY161	2.437E-08			
DY162	1.734E-08			
DY163	1.039E-08			
DY164	2.534E-09			
HO165	3.126E-09			
HO166M	1.801E-11			
ER166	8.959E-10			
ER167	2.222E-10			
ER168	1.405E-10			
TM169	6.018E-13			
ER170	1.541E-16			
TM170	1.096E-27			
YB170	1.041E-13			
TM171	2.022E-18			
YB171	4.017E-15			

Source Listing of Program SEXTRACT

```
        PROGRAM SEXTRACT

!-------- WRITTEN BY D.R. WENZEL

!            This program:
!               -Reads summarized ORIGEN2 output file REDUCESB.MOD
!               -Sums multiple activities for the same radionuclde.
!               -Outputs the results with 4 places of accuracy.

       CHARACTER (LEN=6) :: NUM, NUMBER(600)
       CHARACTER (LEN=7) :: DESC, NAME, NUCLIDE(600)

       REAL :: DATA(600,2), VALUE(3)

!-------- OPEN OUTPUT FILE

       OPEN(1,FILE ='MASTER_E', STATUS='OLD',FORM='FORMATTED', ERR = 900)

       OPEN(2,FILE ='REDUCESB.MOD', STATUS='OLD',FORM='FORMATTED', ERR = 900)

       OPEN(6,FILE ='sextract.out', STATUS='UNKNOWN', ERR = 900)

       WRITE(6,600)
  600  FORMAT(1x,'sextract.out')

!-------- READ MASTER LIST OF RADIONUCLIDES TO BE INCLUDED ON THE
!         FINAL REPORT

       LAST = 0
   10  READ(1,1000,END=20) NAME, NUM
 1000  FORMAT(A7, 5X, A6)
       LAST = LAST + 1
       NUCLIDE(LAST) = NAME
       NUMBER(LAST) = NUM
       GO TO 10

!-------- ZERO MEMORY

   20  DO  l=1,LAST
          DO K=1,2
             DATA(l,K) = 0.
          END DO

       END DO

!-------- READ RADIONUCLIDE INVENTORIES

!-------- READ PAST FIRST 4 LINES

   35  DO I=1,4
          READ(2,120) DUMMY
120       FORMAT(A1)
       END DO

       WRITE(6,605)
```

Source Listing of Program SEXTRACT (Continued)

```
  605  FORMAT(/,6X,'NUCL     NORMALIZED    NUCLIDE')

!-------- READ RADIONUCLIDE INVENTORIES

   50  READ(2,400,END=80) DESC, VALUE
  400  FORMAT(A7,3(2x,E10.4))
       DO  J=1,LAST
          IF(DESC == NUCLIDE(J)) THEN
             IF(VALUE(2) > 0.) VALUE(1) = VALUE(2)
             IF(VALUE(3) > 0.) VALUE(1) = VALUE(3)
             DATA(J,1) = DATA(J,1) + VALUE(1)
          END IF

       END DO

       GO TO 50

   80  DO  J=1,LAST
          WRITE(6,620) NUMBER(J), DATA(J,1), NUCLIDE(J)
  620     FORMAT(6X,A6,2X,1PE10.3,4x,A7)

       END DO

       GO TO 999

!-------- ERROR STATEMENTS

  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE ')

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM SEXTRACT
```

See pages 4-11 of Appendix B-4 for a listing of file MASTER_E

sextract.out

NUCL	NORMALIZED	NUCLIDE
10011	0.000E+00	H 1
10012	2.501E-11	H 2
20030	1.886E-15	HE 3
50100	4.378E-17	B 10
50110	1.235E-08	B 11
60120	3.036E-05	C 12
60130	4.150E-07	C 13
70140	3.913E-05	N 14
70150	1.503E-07	N 15
80160	2.356E-03	O 16
80170	9.451E-07	O 17
80180	4.724E-06	O 18
90190	2.386E-12	F 19
100200	2.203E-17	NE 20
100210	1.720E-16	NE 21
100220	2.483E-14	NE 22
110230	1.940E-15	NA 23
120240	7.720E-11	MG 24
120250	2.779E-10	MG 25
120260	1.224E-10	MG 26
130270	3.942E-05	AL 27
140280	3.526E-05	SI 28
140290	1.787E-06	SI 29
140300	1.186E-06	SI 30
140320	5.777E-18	SI 32
150310	1.722E-06	P 31
150320	3.481E-22	P 32
160340	4.833E-08	S 34
170370	3.914E-17	CL 37
180380	3.118E-22	AR 38
180390	4.492E-25	AR 39
180400	4.374E-17	AR 40
180420	4.303E-26	AR 42
190410	1.403E-18	K 41
190420	1.839E-30	K 42
200420	2.437E-20	CA 42
200430	3.292E-12	CA 43
200440	2.511E-11	CA 44
200450	9.881E-25	CA 45
200460	2.989E-12	CA 46
210450	5.194E-13	SC 45
210460	4.104E-31	SC 46
220460	1.573E-06	TI 46
220470	1.434E-06	TI 47
220480	1.437E-05	TI 48
220490	1.235E-06	TI 49
220500	1.070E-06	TI 50
230500	1.645E-08	V 50
230510	1.881E-06	V 51
240500	1.152E-04	CR 50
240510	0.000E+00	CR 51
240520	2.252E-03	CR 52
240530	2.563E-04	CR 53
240540	6.865E-05	CR 54

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
250540	1.327E-14	MN 54
250550	6.002E-07	MN 55
260540	4.114E-02	FE 54
260550	2.372E-07	FE 55
260560	6.390E-01	FE 56
260570	1.593E-02	FE 57
260580	2.087E-03	FE 58
270580	5.535E-27	CO 58
270590	1.836E-05	CO 59
270600	5.942E-08	CO 60
280580	1.391E-03	NI 58
280590	4.235E-06	NI 59
280600	5.335E-04	NI 60
280610	2.425E-05	NI 61
280620	7.258E-05	NI 62
280630	6.582E-07	NI 63
280640	1.861E-05	NI 64
290630	1.194E-07	CU 63
290650	2.029E-08	CU 65
300640	1.119E-11	ZN 64
300650	5.898E-23	ZN 65
420940	4.653E-09	MO 94
440980	4.691E-21	RU 98
491131	1.272E-25	IN113M
491141	0.000E+00	IN114M
501120	2.938E-04	SN112
501130	2.118E-22	SN113
701730	6.695E-15	YB173
701740	3.067E-16	YB174
711750	2.534E-07	LU175
711760	6.181E-09	LU176
711770	2.618E-25	LU177
711771	2.630E-23	LU177M
721740	3.409E-07	HF174
721750	3.053E-29	HF175
721760	1.531E-05	HF176
721770	5.124E-06	HF177
721780	9.142E-05	HF178
721790	1.202E-04	HF179
721800	1.582E-04	HF180
721810	0.000E+00	HF181
721820	8.297E-09	HF182
731810	1.884E-05	TA181
731820	2.903E-16	TA182
741820	2.577E-06	W182
741830	2.675E-06	W183
741840	1.616E-07	W184
741850	3.386E-30	W185
741860	2.604E-12	W186
741880	4.784E-38	W188
751850	3.166E-10	RE185
751870	1.068E-13	RE187
751880	4.881E-40	RE188
761860	3.904E-11	OS186

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
761880	3.437E-15	OS188
761890	2.387E-17	OS189
761900	8.439E-19	OS190
20040	2.231E-07	HE 4
812060	7.049E-34	TL206
812070	1.096E-19	TL207
812080	8.411E-18	TL208
812090	6.206E-24	TL209
822060	5.899E-15	PB206
822070	1.110E-13	PB207
822080	5.953E-11	PB208
822090	2.586E-20	PB209
822100	1.821E-14	PB210
822110	8.478E-19	PB211
822120	4.961E-15	PB212
822140	1.374E-19	PB214
832080	3.847E-23	BI208
832090	8.190E-16	BI209
832101	2.716E-22	BI210M
832100	1.121E-17	BI210
832110	5.002E-20	BI211
832120	4.706E-16	BI212
832130	6.076E-21	BI213
832140	1.020E-19	BI214
842100	2.946E-16	PO210
842110	6.137E-25	PO211
842120	2.490E-26	PO212
842130	9.116E-30	PO213
842140	1.404E-26	PO214
842150	7.099E-25	PO215
842160	1.980E-20	PO216
842180	1.593E-20	PO218
852170	7.300E-26	AT217
862190	1.609E-21	RN219
862200	7.475E-18	RN220
862220	2.929E-17	RN222
872210	6.630E-22	FR221
872230	7.450E-21	FR223
882230	4.086E-16	RA223
882240	4.327E-14	RA224
882250	2.997E-18	RA225
882260	4.557E-12	RA226
882280	1.449E-18	RA228
892250	2.025E-18	AC225
892270	2.887E-13	AC227
892280	1.513E-22	AC228
902270	6.715E-16	TH227
902280	8.379E-12	TH228
902290	5.524E-13	TH229
902300	2.725E-08	TH230
902310	1.480E-13	TH231
902320	4.469E-09	TH232
902340	1.125E-13	TH234
912310	1.136E-09	PA231

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
912330	9.976E-12	PA233
912341	3.794E-18	PA234M
912340	1.695E-18	PA234
922320	9.079E-11	U232
922330	1.325E-09	U233
922340	1.502E-04	U234
922350	1.044E-02	U235
922360	8.137E-04	U236
922370	9.068E-15	U237
922380	6.920E-02	U238
922400	4.765E-23	U240
932350	3.827E-17	NP235
932360	4.766E-10	NP236
932370	8.535E-04	NP237
932380	2.401E-16	NP238
932390	7.401E-14	NP239
932401	4.225E-24	NP240M
942360	1.069E-11	PU236
942380	3.849E-05	PU238
942390	1.021E-03	PU239
942400	7.611E-05	PU240
942410	4.758E-06	PU241
942420	3.187E-06	PU242
942430	1.335E-24	PU243
942440	4.616E-11	PU244
952410	1.831E-05	AM241
952421	2.088E-09	AM242M
952420	2.499E-14	AM242
952430	1.404E-07	AM243
952450	1.310E-32	AM245
962420	5.670E-12	CM242
962430	9.985E-11	CM243
962440	4.242E-09	CM244
962450	2.789E-10	CM245
962460	1.023E-11	CM246
962470	3.743E-14	CM247
962480	8.625E-16	CM248
962500	1.609E-24	CM250
972490	3.817E-24	BK249
982490	5.149E-18	CF249
982500	2.046E-19	CF250
982510	2.073E-19	CF251
982520	3.174E-22	CF252
10030	2.091E-09	H 3
30060	1.887E-10	LI 6
30070	7.282E-12	LI 7
40090	1.468E-10	BE 9
40100	9.634E-11	BE 10
60140	1.044E-07	C 14
300660	3.422E-11	ZN 66
300670	1.728E-14	ZN 67
300680	1.850E-10	ZN 68
310690	2.859E-13	GA 69
300700	6.313E-10	ZN 70

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
320700	8.205E-16	GE 70
310710	6.662E-13	GA 71
320720	6.488E-09	GE 72
320730	2.147E-08	GE 73
320740	5.526E-08	GE 74
330750	1.278E-07	AS 75
320760	3.798E-07	GE 76
340760	1.955E-09	SE 76
340770	8.281E-07	SE 77
340780	1.767E-06	SE 78
340790	4.385E-06	SE 79
350790	1.359E-09	BR 79
340800	1.053E-05	SE 80
360800	5.216E-11	KR 80
350810	1.768E-05	BR 81
360810	1.652E-12	KR 81
340820	2.834E-05	SE 82
360820	3.581E-07	KR 82
360830	4.042E-05	KR 83
360840	9.616E-05	KR 84
360850	4.202E-06	KR 85
370850	1.083E-04	RB 85
360860	1.798E-04	KR 86
380860	2.024E-07	SR 86
370870	2.325E-04	RB 87
380870	1.228E-08	SR 87
380880	3.364E-04	SR 88
380890	0.000E+00	SR 89
390890	4.416E-04	Y 89
380900	2.592E-04	SR 90
390900	6.833E-08	Y 90
400900	9.930E-01	ZR 90
390910	0.000E+00	Y 91
400910	2.165E-01	ZR 91
400920	3.320E-01	ZR 92
400930	1.198E-03	ZR 93
410930	5.736E-04	NB 93
410931	7.412E-09	NB 93M
400940	3.358E-01	ZR 94
410940	5.502E-06	NB 94
400950	9.506E-18	ZR 95
410950	2.508E-29	NB 95
410951	1.741E-32	NB 95M
420950	7.199E-04	MO 95
400960	5.452E-02	ZR 96
420960	1.712E-05	MO 96
420970	7.454E-04	MO 97
420980	5.952E-04	MO 98
430980	2.079E-09	TC 98
430990	5.811E-04	TC 99
440990	5.520E-08	RU 99
421000	6.538E-04	MO100
441000	4.160E-05	RU100
441010	5.243E-04	RU101

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
441020	4.616E-04	RU102
451020	1.680E-12	RH102
441030	0.000E+00	RU103
451030	2.690E-04	RH103
451031	0.000E+00	RH103M
441040	2.075E-04	RU104
461040	6.998E-05	PD104
461050	1.067E-04	PD105
441060	1.048E-09	RU106
451060	4.766E-17	RH106
461060	5.633E-05	PD106
461070	2.248E-05	PD107
471070	6.957E-11	AG107
461080	1.121E-05	PD108
471080	3.718E-23	AG108
471081	1.178E-14	AG108M
481080	1.832E-11	CD108
471090	4.970E-06	AG109
471091	5.464E-25	AG109M
481090	5.531E-19	CD109
461100	4.235E-06	PD110
471100	9.469E-24	AG110
471101	6.246E-16	AG110M
481100	1.390E-06	CD110
481110	3.377E-06	CD111
481120	2.633E-06	CD112
481130	4.225E-07	CD113
481131	1.465E-08	CD113M
491130	3.065E-06	IN113
481140	4.417E-06	CD114
491140	0.000E+00	IN114
501140	1.992E-04	SN114
491150	1.111E-06	IN115
491151	0.000E+00	IN115M
501150	1.032E-04	SN115
481160	2.346E-06	CD116
501160	4.416E-03	SN116
501170	2.368E-03	SN117
501180	7.401E-03	SN118
501190	2.663E-03	SN119
501191	1.263E-13	SN119M
501200	9.983E-03	SN120
501211	3.631E-08	SN121M
511210	1.155E-05	SB121
501220	1.420E-03	SN122
521220	4.808E-07	TE122
501230	4.480E-21	SN123
511230	4.223E-06	SB123
521230	5.018E-09	TE123
521231	1.509E-24	TE123M
501240	1.767E-03	SN124
511240	0.000E+00	SB124
521240	1.002E-07	TE124
511250	5.487E-08	SB125

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
521250	1.641E-05	TE125
521251	9.278E-10	TE125M
501260	1.014E-05	SN126
511260	4.817E-13	SB126
511261	3.662E-15	SB126M
521260	3.161E-07	TE126
521270	6.596E-26	TE127
521271	1.885E-23	TE127M
531270	2.162E-05	I127
541270	0.000E+00	XE127
521280	5.473E-05	TE128
541280	6.701E-07	XE128
521290	0.000E+00	TE129
521291	0.000E+00	TE129M
531290	9.482E-05	I129
541290	4.837E-09	XE129
521300	2.063E-04	TE130
541300	3.174E-06	XE130
541310	3.235E-04	XE131
541320	6.640E-04	XE132
561320	4.520E-10	BA132
551330	8.587E-04	CS133
541340	1.073E-03	XE134
551340	7.585E-08	CS134
561340	6.892E-05	BA134
551350	3.556E-04	CS135
561350	9.014E-08	BA135
541360	1.473E-03	XE136
561360	8.468E-06	BA136
551370	4.531E-04	CS137
561370	4.181E-04	BA137
561371	6.930E-11	BA137M
561380	9.746E-04	BA138
571380	6.951E-09	LA138
571390	9.256E-04	LA139
581400	9.189E-04	CE140
581410	0.000E+00	CE141
591410	8.534E-04	PR141
581420	8.678E-04	CE142
601420	9.738E-06	ND142
601430	7.347E-04	ND143
581440	5.808E-10	CE144
591440	1.198E-15	PR144
591441	5.988E-18	PR144M
601440	9.540E-04	ND144
601450	5.529E-04	ND145
601460	4.884E-04	ND146
611460	1.508E-10	PM146
621460	3.735E-09	SM146
611470	4.922E-07	PM147
621470	2.266E-04	SM147
601480	2.612E-04	ND148
611480	0.000E+00	PM148
611481	0.000E+00	PM148M

sextract.out (Continued)

NUCL	NORMALIZED	NUCLIDE
621480	8.770E-05	SM148
621490	9.794E-06	SM149
601500	1.012E-04	ND150
621500	1.796E-04	SM150
631500	1.675E-13	EU150
621510	9.296E-06	SM151
631510	2.225E-06	EU151
621520	7.335E-05	SM152
631520	1.320E-08	EU152
641520	4.487E-08	GD152
631530	5.247E-05	EU153
641530	3.001E-17	GD153
621540	1.269E-05	SM154
631540	5.734E-07	EU154
641540	1.046E-05	GD154
631550	2.163E-07	EU155
641550	3.928E-06	GD155
641560	1.146E-05	GD156
641570	1.108E-07	GD157
641580	2.428E-06	GD158
651590	2.437E-07	TB159
641600	9.757E-08	GD160
651600	2.590E-29	TB160
661600	1.936E-08	DY160
661610	2.437E-08	DY161
661620	1.734E-08	DY162
661630	1.039E-08	DY163
661640	2.534E-09	DY164
671650	3.126E-09	HO165
671661	1.801E-11	HO166M
681660	8.959E-10	ER166
681670	2.222E-10	ER167
681680	1.405E-10	ER168
691690	6.018E-13	TM169
681700	1.541E-16	ER170
691700	1.096E-27	TM170
701700	1.041E-13	YB170
691710	2.022E-18	TM171
701710	4.017E-15	YB171
701720	1.077E-14	YB172

File SBW_RUN1.INP

```
-1
-1
-1
  RDA     ORIGEN2, VERSION 2.1 (8-1-91)
  BAS     Sodium Bearing Waste (SBW)
  CUT     -1
  LIP     0 0 0
  LIB     0  1 2 3  204  908  909   9   50  0  4  0
  PHO     101  102  103  10
  INP     -1   1  -1  -1  1  1
  MOV     -1   1   0   1.0
  HED      1                                                    Ci/L
  OPTL    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTA    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTF    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  DEC       1.58  1   2   5   0
  DEC       4.08  2   3   5   0
  DEC       5.08  3   4   5   0
  DEC      12.08  4   5   5   0
  DEC      14.08  5   6   5   0
  DEC      18.08  6   7   5   0
  DEC      24.08  7   8   5   0
  OUT      -8    1     -1    0
  OUT       8    1     -1    0
  END
  1   10011 0.000E+00  10012 2.501E-11  20030 1.886E-15 0 0.
  1   50100 4.378E-17  50110 1.235E-08  60120 3.036E-05 0 0.
  1   60130 4.150E-07  70140 3.913E-05  70150 1.503E-07 0 0.
  1   80160 2.356E-03  80170 9.451E-07  80180 4.724E-06 0 0.
  1   90190 2.386E-12 100200 2.203E-17 100210 1.720E-16 0 0.
  1  100220 2.483E-14 110230 1.940E-15 120240 7.720E-11 0 0.
  1  120250 2.779E-10 120260 1.224E-10 130270 3.942E-05 0 0.
  1  140280 3.526E-05 140290 1.787E-06 140300 1.186E-06 0 0.
  1  140320 5.777E-18 150310 1.722E-06 150320 3.481E-22 0 0.
  1  160340 4.833E-08 170370 3.914E-17 180380 3.118E-22 0 0.
  1  180390 4.492E-25 180400 4.374E-17 180420 4.303E-26 0 0.
  1  190410 1.403E-18 190420 1.839E-30 200420 2.437E-20 0 0.
  1  200430 3.292E-12 200440 2.511E-11 200450 9.881E-25 0 0.
  1  200460 2.989E-12 210450 5.194E-13 210460 4.104E-31 0 0.
  1  220460 1.573E-06 220470 1.434E-06 220480 1.437E-05 0 0.
  1  220490 1.235E-06 220500 1.070E-06 230500 1.645E-08 0 0.
  1  230510 1.881E-06 240500 1.152E-04 240510 0.000E+00 0 0.
  1  240520 2.252E-03 240530 2.563E-04 240540 6.865E-05 0 0.
  1  250540 1.327E-14 250550 6.002E-07 260540 4.114E-02 0 0.
  1  260550 2.372E-07 260560 6.390E-01 260570 1.593E-02 0 0.
  1  260580 2.087E-03 270580 5.535E-27 270590 1.836E-05 0 0.
  1  270600 5.942E-08 280580 1.391E-03 280590 4.235E-06 0 0.
  1  280600 5.335E-04 280610 2.425E-05 280620 7.258E-05 0 0.
  1  280630 6.582E-07 280640 1.861E-05 290630 1.194E-07 0 0.
  1  290650 2.029E-08 300640 1.119E-11 300650 5.898E-23 0 0.
  1  420940 4.653E-09 440980 4.691E-21 491131 1.272E-25 0 0.
  1  491141 0.000E+00 501120 2.938E-04 501130 2.118E-22 0 0.
  1  701730 6.695E-15 701740 3.067E-16 711750 2.534E-07 0 0.
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File SBW_RUN1.INP (Continued)

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 1  711760 6.181E-09 711770 2.618E-25 711771 2.630E-23 0 0.
 1  721740 3.409E-07 721750 3.053E-29 721760 1.531E-05 0 0.
 1  721770 5.124E-06 721780 9.142E-05 721790 1.202E-04 0 0.
 1  721800 1.582E-04 721810 0.000E+00 721820 8.297E-09 0 0.
 1  731810 1.884E-05 731820 2.903E-16 741820 2.577E-06 0 0.
 1  741830 2.675E-06 741840 1.616E-07 741850 3.386E-30 0 0.
 1  741860 2.604E-12 741880 4.784E-38 751850 3.166E-10 0 0.
 1  751870 1.068E-13 751880 4.881E-40 761860 3.904E-11 0 0.
 1  761880 3.437E-15 761890 2.387E-17 761900 8.439E-19 0 0.
 2   20040 2.231E-07 812060 7.049E-34 812070 1.096E-19 0 0.
 2  812080 8.411E-18 812090 6.206E-24 822060 5.899E-15 0 0.
 2  822070 1.110E-13 822080 5.953E-11 822090 2.586E-20 0 0.
 2  822100 1.821E-14 822110 8.478E-19 822120 4.961E-15 0 0.
 2  822140 1.374E-19 832080 3.847E-23 832090 8.190E-16 0 0.
 2  832101 2.716E-22 832100 1.121E-17 832110 5.002E-20 0 0.
 2  832120 4.706E-16 832130 6.076E-21 832140 1.020E-19 0 0.
 2  842100 2.946E-16 842110 6.137E-25 842120 2.490E-26 0 0.
 2  842130 9.116E-30 842140 1.404E-26 842150 7.099E-25 0 0.
 2  842160 1.980E-20 842180 1.593E-20 852170 7.300E-26 0 0.
 2  862190 1.609E-21 862200 7.475E-18 862220 2.929E-17 0 0.
 2  872210 6.630E-22 872230 7.450E-21 882230 4.086E-16 0 0.
 2  882240 4.327E-14 882250 2.997E-18 882260 4.557E-12 0 0.
 2  882280 1.449E-18 892250 2.025E-18 892270 2.887E-13 0 0.
 2  892280 1.513E-22 902270 6.715E-16 902280 8.379E-12 0 0.
 2  902290 5.524E-13 902300 2.725E-08 902310 1.480E-13 0 0.
 2  902320 4.469E-09 902340 1.125E-13 912310 1.136E-09 0 0.
 2  912330 9.976E-12 912341 3.794E-18 912340 1.695E-18 0 0.
 2  922320 9.079E-11 922330 1.325E-09 922340 1.502E-04 0 0.
 2  922350 1.044E-02 922360 8.137E-04 922370 9.068E-15 0 0.
 2  922380 6.920E-02 922400 4.765E-23 932350 3.827E-17 0 0.
 2  932360 4.766E-10 932370 8.535E-04 932380 2.401E-16 0 0.
 2  932390 7.401E-14 932401 4.225E-24 942360 1.069E-11 0 0.
 2  942380 3.849E-05 942390 1.021E-03 942400 7.611E-05 0 0.
 2  942410 4.758E-06 942420 3.187E-06 942430 1.335E-24 0 0.
 2  942440 4.616E-11 952410 1.831E-05 952421 2.088E-09 0 0.
 2  952420 2.499E-14 952430 1.404E-07 952450 1.310E-32 0 0.
 2  962420 5.670E-12 962430 9.985E-11 962440 4.242E-09 0 0.
 2  962450 2.789E-10 962460 1.023E-11 962470 3.743E-14 0 0.
 2  962480 8.625E-16 962500 1.609E-24 972490 3.817E-24 0 0.
 2  982490 5.149E-18 982500 2.046E-19 982510 2.073E-19 0 0.
 2  982520 3.174E-22       0 0.              0 0.         0 0.
 3   10030 2.091E-09   30060 1.887E-10   30070 7.282E-12 0 0.
 3   40090 1.468E-10   40100 9.634E-11   60140 1.044E-07 0 0.
 3  300660 3.422E-11 300670 1.728E-14 300680 1.850E-10 0 0.
 3  310690 2.859E-13 300700 6.313E-10 320700 8.205E-16 0 0.
 3  310710 6.662E-13 320720 6.488E-09 320730 2.147E-08 0 0.
 3  320740 5.526E-08 330750 1.278E-07 320760 3.798E-07 0 0.
 3  340760 1.955E-09 340770 8.281E-07 340780 1.767E-06 0 0.
 3  340790 4.385E-06 350790 1.359E-09 340800 1.053E-05 0 0.
 3  360800 5.216E-11 350810 1.768E-05 360810 1.652E-12 0 0.
 3  340820 2.834E-05 360820 3.581E-07 360830 4.042E-05 0 0.
 3  360840 9.616E-05 360850 4.202E-06 370850 1.083E-04 0 0.
 3  360860 1.798E-04 380860 2.024E-07 370870 2.325E-04 0 0.
 3  380870 1.228E-08 380880 3.364E-04 380890 0.000E+00 0 0.
 3  390890 4.416E-04 380900 2.592E-04 390900 6.833E-08 0 0.
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File SBW_RUN1.INP (Continued)

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3  400900 9.930E-01 390910 0.000E+00 400910 2.165E-01 0 0.
3  400920 3.320E-01 400930 1.198E-03 410930 5.736E-04 0 0.
3  410931 7.412E-09 400940 3.358E-01 410940 5.502E-06 0 0.
3  400950 9.506E-18 410950 2.508E-29 410951 1.741E-32 0 0.
3  420950 7.199E-04 400960 5.452E-02 420960 1.712E-05 0 0.
3  420970 7.454E-04 420980 5.952E-04 430980 2.079E-09 0 0.
3  430990 5.811E-04 440990 5.520E-08 421000 6.538E-04 0 0.
3  441000 4.160E-05 441010 5.243E-04 441020 4.616E-04 0 0.
3  451020 1.680E-12 441030 0.000E+00 451030 2.690E-04 0 0.
3  451031 0.000E+00 441040 2.075E-04 461040 6.998E-05 0 0.
3  461050 1.067E-04 441060 1.048E-09 451060 4.766E-17 0 0.
3  461060 5.633E-05 461070 2.248E-05 471070 6.957E-11 0 0.
3  461080 1.121E-05 471080 3.718E-23 471081 1.178E-14 0 0.
3  481080 1.832E-11 471090 4.970E-06 471091 5.464E-25 0 0.
3  481090 5.531E-19 461100 4.235E-06 471100 9.469E-24 0 0.
3  471101 6.246E-16 481100 1.390E-06 481110 3.377E-06 0 0.
3  481120 2.633E-06 481130 4.225E-07 481131 1.465E-08 0 0.
3  491130 3.065E-06 481140 4.417E-06 491140 0.000E+00 0 0.
3  501140 1.992E-04 491150 1.111E-06 491151 0.000E+00 0 0.
3  501150 1.032E-04 481160 2.346E-06 501160 4.416E-03 0 0.
3  501170 2.368E-03 501180 7.401E-03 501190 2.663E-03 0 0.
3  501191 1.263E-13 501200 9.983E-03 501211 3.631E-08 0 0.
3  511210 1.155E-05 501220 1.420E-03 521220 4.808E-07 0 0.
3  501230 4.480E-21 511230 4.223E-06 521230 5.018E-09 0 0.
3  521231 1.509E-24 501240 1.767E-03 511240 0.000E+00 0 0.
3  521240 1.002E-07 511250 5.487E-08 521250 1.641E-05 0 0.
3  521251 9.278E-10 501260 1.014E-05 511260 4.817E-13 0 0.
3  511261 3.662E-15 521260 3.161E-07 521270 6.596E-26 0 0.
3  521271 1.885E-23 531270 2.162E-05 541270 0.000E+00 0 0.
3  521280 5.473E-05 541280 6.701E-07 521290 0.000E+00 0 0.
3  521291 0.000E+00 531290 9.482E-05 541290 4.837E-09 0 0.
3  521300 2.063E-04 541300 3.174E-06 541310 3.235E-04 0 0.
3  541320 6.640E-04 561320 4.520E-10 551330 8.587E-04 0 0.
3  541340 1.073E-03 551340 7.585E-08 561340 6.892E-05 0 0.
3  551350 3.556E-04 561350 9.014E-08 541360 1.473E-03 0 0.
3  561360 8.468E-06 551370 4.531E-04 561370 4.181E-04 0 0.
3  561371 6.930E-11 561380 9.746E-04 571380 6.951E-09 0 0.
3  571390 9.256E-04 581400 9.189E-04 581410 0.000E+00 0 0.
3  591410 8.534E-04 581420 8.678E-04 601420 9.738E-06 0 0.
3  601430 7.347E-04 581440 5.808E-10 591440 1.198E-15 0 0.
3  591441 5.988E-18 601440 9.540E-04 601450 5.529E-04 0 0.
3  601460 4.884E-04 611460 1.508E-10 621460 3.735E-09 0 0.
3  611470 4.922E-07 621470 2.266E-04 601480 2.612E-04 0 0.
3  611480 0.000E+00 611481 0.000E+00 621480 8.770E-05 0 0.
3  621490 9.794E-06 601500 1.012E-04 621500 1.796E-04 0 0.
3  631500 1.675E-13 621510 9.296E-06 631510 2.225E-06 0 0.
3  621520 7.335E-05 631520 1.320E-08 641520 4.487E-08 0 0.
3  631530 5.247E-05 641530 3.001E-17 621540 1.269E-05 0 0.
3  631540 5.734E-07 641540 1.046E-05 631550 2.163E-07 0 0.
3  641550 3.928E-06 641560 1.146E-05 641570 1.108E 07 0 0.
3  641580 2.428E-06 651590 2.437E-07 641600 9.757E-08 0 0.
3  651600 2.590E-29 661600 1.936E-08 661610 2.437E-08 0 0.
3  661620 1.734E-08 661630 1.039E-08 661640 2.534E-09 0 0.
3  671650 3.126E-09 671661 1.801E-11 681660 8.959E-10 0 0.
3  681670 2.222E-10 681680 1.405E-10 691690 6.018E-13 0 0.
```

File SBW_RUN1.INP (Continued)

```
3  681700 1.541E-16 691700 1.096E-27 701700 1.041E-13 0 0.
3  691710 2.022E-18 701710 4.017E-15 701720 1.077E-14 0 0.
0
```

File SBW_RUN1.BAT

```
echo off
echo **                                                                  **
echo **                          O R I G E N 2                           **
echo **                                                                  **
copy sbw_run1.INP tape5.inp >nul
REM  (NOT USED IN THIS CASE) copy sbw_run1.u3 tape3.inp >nul
copy \origen2\libs\decaymod.lib+\origen2\libs\atr.lib tape9.inp >nul
copy \origen2\libs\gxuo2brm.lib tape10.inp >nul
\origen2\code\origen2
rem  combine and save files from run
copy tape12.out+tape6.out sbw_run1.u6 >nul
copy tape13.out+tape11.out sbw_run1.u11 >nul
ren tape7.out sbw_run1.pch
ren tape15.out sbw_run1.dbg
ren tape16.out sbw_run1.vxs
ren tape50.out sbw_run1.ech
rem  cleanup files
del tape*.inp
del tape*.out
del sbw_run1.pch
del sbw_run1.dbg
del sbw_run1.vxs
del sbw_run1.ech
del sbw_run1.u11
echo ***********************************************************************
echo ******************* O R I G E N 2 - Version 2.1 **********************
echo ********************** Execution Completed **************************
echo ***********************************************************************
echo on
```

sbw_run1.ci
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	Ci/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
SI 32	9.933E-17	9.917E-17	9.890E-17	9.880E-17	9.806E-17	9.785E-17	9.744E-17	9.682E-17
P 32	9.937E-17	9.917E-17	9.891E-17	9.880E-17	9.807E-17	9.786E-17	9.744E-17	9.682E-17
AR 39	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23
CA 45	1.760E-20	1.760E-20	1.760E-20	1.760E-20	3.332E-25	3.332E-25	3.332E-25	2.982E-29
V 50	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21
MN 54	1.027E-10	2.856E-11	3.768E-12	1.676E-12	5.774E-15	1.142E-15	4.474E-17	3.337E-19
FE 55	5.932E-04	3.893E-04	1.999E-04	1.531E-04	2.369E-05	1.390E-05	4.785E-06	9.666E-07
CO 60	6.721E-05	5.460E-05	3.930E-05	3.446E-05	1.372E-05	1.055E-05	6.232E-06	2.831E-06
NI 59	3.209E-07	3.209E-07	3.209E-07	3.209E-07	3.209E-07	3.209E-07	3.208E-07	3.208E-07
NI 63	4.061E-05	4.013E-05	3.939E-05	3.909E-05	3.708E-05	3.653E-05	3.544E-05	3.388E-05
ZN 65	4.861E-19	1.318E-19	2.537E-20	2.537E-20	1.771E-23	1.771E-23	1.771E-23	1.771E-23
IN113M	2.128E-18	1.026E-19	4.984E-20	4.985E-20	1.026E-26	1.026E-26	1.550E-30	2.650E-36
SN113	2.127E-18	1.026E-19	4.984E-20	4.984E-20	1.026E-26	1.026E-26	1.549E-30	2.875E-36
LU176	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16
LU177	2.880E-20	2.180E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HF182	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12
TA182	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12
RE187	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21
TL206	0.000E+00	1.536E-25	1.536E-25	1.536E-25	1.536E-25	1.536E-25	1.536E-25	1.536E-25
TL207	2.088E-11	2.250E-11	2.499E-11	2.596E-11	3.230E-11	3.402E-11	3.728E-11	4.187E 11
TL208	2.478E-09	1.722E-09	1.144E-09	1.027E-09	7.552E-10	7.351E-10	7.019E-10	6.604E-10
TL209	2.539E-15	2.587E-15	2.691E-15	2.743E-15	3.255E-15	3.450E-15	3.905E-15	4.747E-15
PB209	1.176E-13	1.198E-13	1.246E-13	1.270E-13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
PB210	1.391E-12	1.549E-12	1.821E-12	1.938E-12	2.869E-12	3.173E-12	3.828E-12	4.931E-12
PB211	2.094E-11	2.256E-11	2.506E-11	2.603E-11	3.239E-11	3.411E-11	3.738E-11	4.199E-11
PB212	6.896E-09	4.793E-09	3.184E-09	2.857E-09	2.102E-09	2.046E-09	1.953E-09	1.838E-09
PB214	4.507E-12	4.884E-12	5.501E-12	5.753E-12	7.622E-12	8.189E-12	9.365E-12	1.124E-11
BI208	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25
BI210M	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25
BI210	1.391E-12	1.550E-12	1.822E-12	1.939E-12	2.870E-12	3.174E-12	3.830E-12	4.933E-12
BI211	2.094E-11	2.256E-11	2.506E-11	2.603E-11	3.239E-11	3.411E-11	3.738E-11	4.199E-11
BI212	6.896E-09	4.793E-09	3.184E-09	2.857E-09	2.102E-09	2.046E-09	1.953E-09	1.838E-09
BI213	1.175E-13	1.198E-13	1.246E-13	1.270E 13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
BI214	4.505E-12	4.884E-12	5.501E-12	5.753E-12	7.622E-12	8.189E-12	9.365E-12	1.124E-11
PO210	1.324E-12	1.479E-12	1.748E-12	1.853E-12	2.870E-12	3.065E-12	3.832E-12	4.933E-12
PO211	5.862E-14	6.318E-14	7.015E-14	7.288E-14	9.069E-14	9.551E-14	1.047E-13	1.176E-13
PO212	0.000E+00	3.071E-09	2.040E-09	1.831E-09	1.347E-09	1.311E-09	1.252E-09	1.178E-09
PO213	0.000E+00	1.172E-13	1.219E-13	1.242E-13	1.474E-13	1.563E-13	1.769E-13	2.150E-13
PO214	0.000E+00	4.883E-12	5.499E-12	5.752E-12	7.621E-12	8.187E-12	9.363E-12	1.124E-11
PO215	2.094E-11	2.256E-11	2.506E-11	2.603E-11	3.239E-11	3.411E-11	3.738E-11	4.199E-11
PO216	6.897E-09	4.793E-09	3.184E-09	2.857E-09	2.102E-09	2.046E-09	1.953E-09	1.838E-09
PO218	4.507E-12	4.885E-12	5.502E-12	5.754E-12	7.624E-12	8.190E-12	9.367E-12	1.124E-11
AT217	0.000E+00	1.198E-13	1.246E-13	1.270E-13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
RN219	2.094E-11	2.256E-11	2.506E-11	2.603E-11	3.239E-11	3.411E-11	3.738E-11	4.199E-11
RN220	6.897E-09	4.793E-09	3.184E-09	2.857E-09	2.102E-09	2.046E-09	1.953E-09	1.838E-09
RN222	4.507E-12	4.885E-12	5.502E-12	5.754E-12	7.624E-12	8.190E 12	9.367E-12	1.124E-11
FR221	1.176E-13	1.198E-13	1.246E-13	1.270E-13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
FR223	2.883E-13	3.108E-13	3.451E-13	3.584E-13	4.463E-13	4.698E-13	5.149E-13	5.784E-13
RA223	2.093E-11	2.256E-11	2.506E-11	2.603E-11	3.239E-11	3.411E-11	3.738E-11	4.199E-11
RA224	6.895E-09	4.793E-09	3.184E-09	2.857E-09	2.102E-09	2.046E-09	1.953E-09	1.838E-09
RA225	1.175E-13	1.198E-13	1.246E-13	1.270E-13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
RA226	4.507E-12	4.885E-12	5.502E-12	5.754E-12	7.624E-12	8.190E-12	9.367E-12	1.124E-11
RA228	3.953E-16	4.121E-16	4.344E-16	4.421E-16	4.830E-16	4.919E-16	5.074E-16	5.273E-16
AC225	1.176E-13	1.198E-13	1.246E-13	1.270E-13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
AC227	2.089E-11	2.252E-11	2.501E-11	2.597E-11	3.234E-11	3.404E-11	3.731E-11	4.191E-11
AC228	3.394E-16	4.122E-16	4.345E-16	4.422E-16	4.830E-16	4.919E-16	5.075E-16	5.273E-16
TH227	2.065E-11	2.225E-11	2.471E-11	2.567E-11	3.194E-11	3.364E-11	3.687E-11	4.141E-11
TH228	6.871E-09	4.773E-09	3.174E-09	2.846E-09	2.101E-09	2.040E-09	1.951E-09	1.837E-09
TH229	1.176E-13	1.198E-13	1.246E-13	1.270E-13	1.507E-13	1.597E-13	1.808E-13	2.198E-13
TH230	5.503E-10	5.636E-10	5.848E-10	5.932E-10	6.531E-10	6.703E-10	7.050E-10	7.574E-10
TH231	7.871E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08
TH232	4.903E 16	4.944E-16	5.009E-16	5.035E-16	5.217E-16	5.269E 16	5.373E-16	5.529E-16
TH234	2.606E-09	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E 08	2.326E-08	2.326E-08
PA231	5.368E-11	5.444E-11	5.563E-11	5.611E-11	5.945E-11	6.040E 11	6.231E-11	6.517E-11
PA233	2.071E-07	6.008E-07	6.008E-07	6.009E-07	6.010E-07	6.010E-07	6.011E-07	6.013E-07
PA234M	2.607E-09	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E 08	2.326E-08	2.326E-08

sbw_run1.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	Ci/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
PA234	3.390E-12	3.023E-11	3.023E-11	3.024E-11	3.023E-11	3.023E-11	3.023E-11	3.023E-11
U232	2.032E-09	2.074E-09	2.094E-09	2.092E-09	2.003E-09	1.968E-09	1.895E-09	1.786E-09
U233	1.278E-11	1.700E-11	2.382E-11	2.672E-11	4.503E-11	5.054E-11	6.101E-11	7.672E-11
U234	9.351E-07	9.381E-07	9.426E-07	9.444E-07	9.566E-07	9.599E-07	9.665E-07	9.759E-07
U235	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.258E-08
U236	5.265E-08	5.265E-08	5.265E-08	5.265E-08	5.266E-08	5.266E-08	5.266E-08	5.266E-08
U237	7.405E-10	1.118E-08	9.911E-09	9.444E-09	6.735E-09	6.114E-09	5.040E-09	3.772E-09
U238	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08
U240	4.415E-17	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16
NP235	5.371E-14	1.956E-14	3.958E-15	2.088E-15	2.379E-17	6.648E-18	4.978E-19	3.559E-20
NP236	6.281E-12	6.281E-12	6.281E-12	6.281E-12	6.280E-12	6.280E-12	6.280E-12	6.280E-12
NP237	6.007E-07	6.008E-07	6.008E-07	6.008E-07	6.010E-07	6.010E-07	6.011E-07	6.013E-07
NP238	6.225E-11	1.086E-10	1.072E-10	1.067E-10	1.031E-10	1.021E-10	1.001E-10	9.721E-11
NP239	1.717E-08	2.803E-08	2.802E-08	2.802E-08	2.800E-08	2.800E-08	2.799E-08	2.797E-08
NP240M	4.475E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16
PU236	5.682E-09	3.870E-09	2.108E-09	1.653E-09	3.019E-10	1.858E-10	7.062E-11	1.686E-11
PU238	6.594E-04	6.512E-04	6.385E-04	6.335E-04	5.994E-04	5.900E-04	5.716E-04	5.452E-04
PU239	6.337E-05	6.336E-05	6.336E-05	6.336E-05	6.334E-05	6.334E-05	6.333E-05	6.332E-05
PU240	1.728E-05	1.728E-05	1.728E-05	1.727E-05	1.726E-05	1.726E-05	1.725E-05	1.724E-05
PU241	4.920E-04	4.559E-04	4.040E-04	3.850E-04	2.745E-04	2.492E-04	2.055E-04	1.538E-04
PU242	1.262E-08	1.262E-08	1.262E-08	1.262E-08	1.262E-08	1.262E-08	1.262E-08	1.262E-08
PU243	3.476E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18
PU244	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16
PU246	0.000E+00	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26
AM241	6.287E-05	6.391E-05	6.537E-05	6.590E-05	6.880E-05	6.942E-05	7.043E-05	7.146E-05
AM242M	2.188E-08	2.171E-08	2.145E-08	2.134E-08	2.062E-08	2.042E-08	2.002E-08	1.944E-08
AM242	2.023E-08	2.161E-08	2.134E-08	2.124E-08	2.052E-08	2.032E-08	1.992E-08	1.934E-08
AM243	2.804E-08	2.803E-08	2.802E-08	2.802E-08	2.800E-08	2.800E-08	2.799E-08	2.797E-08
AM245	0.000E+00	9.074E-26	9.073E-26	9.074E-26	9.073E-26	9.074E-26	9.073E-26	9.073E-26
AM246	0.000E+00	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26
CM242	1.875E-08	1.796E-08	1.769E-08	1.759E-08	1.697E-08	1.684E-08	1.652E-08	1.600E-08
CM243	5.156E-09	4.962E-09	4.669E-09	4.557E-09	3.844E-09	3.661E-09	3.322E-09	2.871E-09
CM244	3.433E-07	3.232E-07	2.937E-07	2.827E-07	2.162E-07	2.003E-07	1.719E-07	1.366E-07
CM245	4.791E-11	4.790E-11	4.789E-11	4.789E-11	4.786E-11	4.785E-11	4.783E-11	4.781E-11
CM246	3.144E-12	3.143E-12	3.142E-12	3.141E-12	3.138E-12	3.137E-12	3.135E-12	3.133E-12
CM247	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18
CM248	3.668E-18	3.668E-18	3.668E-18	3.668E-18	3.668E-18	3.668E-18	3.668E-18	3.668E-18
CM250	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25
BK249	6.257E-21	6.257E-21	6.257E-21	6.257E-21	6.257E-21	6.257E-21	6.257E-21	6.257E-21
BK250	0.000E+00	1.852E-26	1.852E-26	1.852E-26	1.852E-26	1.852E-26	1.852E-26	1.852E-26
CF249	2.110E-17	2.104E-17	2.093E-17	2.089E-17	2.060E-17	2.052E-17	2.036E-17	2.012E-17
CF250	2.238E-17	2.058E-17	1.803E-17	1.710E-17	1.180E-17	1.062E-17	8.587E-18	6.249E-18
CF251	3.289E-19	3.285E-19	3.279E-19	3.276E-19	3.259E-19	3.254E-19	3.244E-19	3.228E-19
CF252	1.708E-19	1.146E-19	6.404E-20	4.721E-20	1.379E-20	1.379E-20	0.000E+00	0.000E+00
H 3	2.019E-05	1.847E-05	1.605E-05	1.518E-05	1.025E-05	9.159E-06	7.317E-06	5.225E-06
BE 10	2.154E-12	2.154E-12	2.154E-12	2.154E-12	2.154E-12	2.154E-12	2.154E-12	2.154E-12
C 14	4.655E-07	4.654E-07	4.653E-07	4.652E-07	4.648E-07	4.647E-07	4.645E-07	4.642E-07
SE 79	3.056E-07	3.056E-07	3.056E-07	3.056E-07	3.056E-07	3.056E-07	3.055E-07	3.055E-07
KR 81	3.476E-14	3.476E-14	3.476E-14	3.476E-14	3.475E-14	3.475E-14	3.475E-14	3.475E-14
KR 85	1.649E-03	1.489E-03	1.267E-03	1.188E-03	7.552E-04	6.636E-04	5.124E-04	3.476E-04
RB 87	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11
SR 90	3.537E-02	3.406E-02	3.210E-02	3.134E-02	2.653E-02	2.530E-02	2.300E-02	1.994E-02
Y 90	3.719E-02	3.407E-02	3.210E-02	3.135E-02	2.654E-02	2.530E-02	2.301E-02	1.994E-02
ZR 93	3.011E-06	3.011E-06	3.011E-06	3.011E-06	3.011E-06	3.011E-06	3.011E-06	3.011E-06
NB 93M	2.096E-06	2.155E-06	2.239E-06	2.270E-06	2.447E-06	2.488E-06	2.556E-06	2.637E-06
NB 94	1.031E-06	1.031E-06	1.031E-06	1.031E-06	1.031E-06	1.031E-06	1.031E-06	1.030E-06
ZR 95	2.043E-13	3.935E-16	1.990E-20	1.990E-20	1.859E-32	6.798E-36	0.000E+00	0.000E+00
NB 95	0.000E+00	8.703E-16	4.417E-20	2.039E-20	4.228E-32	1.509E-35	0.000E+00	0.000E+00
NB 95M	0.000E+00	2.920E-18	1.476E-22	1.394E-22	1.379E-34	5.072E-38	0.000E+00	0.000E+00
TC 98	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12
TC 99	9.944E-06	9.944E-06	9.944E-06	9.944E-06	9.944E-06	9.944E-06	9.944E-06	9.943E-06
RH102	2.031E-09	1.392E-09	7.660E-10	6.032E-10	1.132E-10	7.018E-11	2.698E-11	6.430E-12
RU106	3.508E-06	1.184E-06	2.121E-07	1.066E-07	8.659E-10	2.189E-10	1.398E-11	2.258E-13
RH106	1.697E-07	1.184E-06	2.121E-07	1.066E-07	8.659E-10	2.189E-10	1.398E-11	2.258E-13
PD107	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08
AG108	2.732E-14	8.285E-15	8.251E-15	8.237E-15	8.142E-15	8.115E-15	8.061E-15	7.981E-15
AG108M	9.333E-14	9.309E-14	9.270E-14	9.255E-14	9.148E-14	9.118E-14	9.058E-14	8.968E-14

sbw_run1.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	Ci/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
AG109M	1.429E-15	6.033E-16	1.542E-16	8.937E-17	1.961E-18	6.773E-19	7.637E-20	2.629E-21
CD109	1.429E-15	6.032E-16	1.542E-16	8.937E-17	1.954E-18	6.773E-19	6.944E-20	0.000E+00
AG110	3.949E-14	7.964E-15	6.326E-16	2.297E-16	1.910E-19	2.543E-20	6.929E-22	2.202E-22
AG110M	2.968E-12	5.988E-13	4.756E-14	1.727E-14	1.436E-17	1.912E-18	5.210E-20	1.656E-20
CD113M	3.288E-06	3.042E-06	2.691E-06	2.562E-06	1.816E-06	1.646E-06	1.352E-06	1.007E-06
IN115	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18
SN119M	5.658E-10	1.106E-10	8.353E-12	2.972E-12	2.148E-15	2.719E-16	4.379E-18	3.997E-20
SN121M	1.951E-06	1.913E-06	1.853E-06	1.830E-06	1.676E-06	1.634E-06	1.554E-06	1.440E-06
SN123	3.684E-17	1.616E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE123	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18
TE123M	1.339E-20	1.339E-20	1.339E-20	1.339E-20	4.962E-27	4.962E-27	1.049E-30	3.223E-36
SB125	5.668E-05	3.817E-05	2.042E-05	1.590E-05	2.758E-06	1.672E-06	6.144E-07	1.369E-07
TE125M	1.672E-05	9.316E-06	4.982E-06	3.879E-06	6.729E-07	4.080E-07	1.499E-07	3.340E-08
SN126	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07
SB126	4.006E-08	4.029E-08	4.029E-08	4.029E-08	4.029E-08	4.029E-08	4.029E-08	4.029E-08
SB126M	2.855E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07	2.878E-07
TE127	0.000E+00	4.638E-20	4.475E-20	4.476E-20	3.904E-27	3.890E-27	3.604E-31	4.699E-37
TE127M	1.779E-19	4.750E-20	4.585E-20	4.585E-20	3.986E-27	3.986E-27	3.679E-31	3.258E-37
I129	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08
CS134	9.818E-05	5.772E-05	2.491E-05	1.780E-05	1.692E-06	8.639E-07	2.251E-07	2.996E-08
CS135	4.096E-07	4.096E-07	4.096E-07	4.096E-07	4.096E-07	4.096E-07	4.096E-07	4.096E-07
CS137	3.943E-02	3.802E-02	3.588E-02	3.506E-02	2.983E-02	2.848E-02	2.597E-02	2.260E-02
BA137M	3.729E-02	3.596E-02	3.394E-02	3.317E-02	2.822E-02	2.694E-02	2.456E-02	2.138E-02
LA138	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16
CE142	2.083E-11	2.083E-11	2.083E-11	2.083E-11	2.083E-11	2.083E 11	2.083E-11	2.083E-11
CE144	1.854E-06	4.538E-07	4.896E-08	2.009E-08	3.934E-11	6.626E-12	1.880E-13	8.980E-16
PR144	9.055E-08	4.538E-07	4.896E-08	2.009E-08	3.940E-11	6.626E-12	1.880E-13	8.980E-16
PR144M	1.086E-09	5.446E-09	5.875E-10	2.411E-10	4.728E-13	7.951E-14	2.256E-15	1.078E-17
ND144	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15
PM146	6.716E-08	5.504E-08	4.016E-08	3.541E-08	1.465E-08	1.139E-08	6.880E-09	3.230E-09
SM146	1.307E-13	1.311E-13	1.315E-13	1.316E-13	1.322E-13	1.323E-13	1.325E-13	1.326E-13
PM147	4.565E-04	3.007E-04	1.553E-04	1.193E-04	1.876E-05	1.106E-05	3.844E-06	7.877E-07
SM147	5.152E-12	5.156E-12	5.159E-12	5.160E-12	5.163E-12	5.163E-12	5.163E-12	5.163E-12
SM148	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17
SM149	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18
EU150	1.107E-11	1.074E-11	1.023E-11	1.004E-11	8.775E-12	8.444E-12	7.820E-12	6.968E-12
SM151	2.447E-04	2.417E-04	2.371E-04	2.353E-04	2.229E-04	2.195E-04	2.129E-04	2.032E-04
EU152	2.294E-06	2.116E-06	1.861E-06	1.769E-06	1.236E-06	1.116E-06	9.091E-07	6.687E-07
GD152	9.776E-19	9.839E-19	9.927E-19	9.960E-19	1.015E-18	1.019E-18	1.026E-18	1.034E-18
GD153	1.059E-13	2.027E-14	1.483E-15	5.210E-16	3.440E-19	1.183E-20	1.183E-20	3.059E-20
EU154	1.550E-04	1.364E-04	1.115E-04	1.029E-04	5.849E-05	4.977E-05	3.605E-05	2.222E-05
EU155	1.049E-04	8.331E-05	5.788E-05	5.004E-05	1.805E-05	1.349E-05	7.535E-06	3.145E-06
HO166M	3.233E-11	3.231E-11	3.226E-11	3.224E-11	3.211E-11	3.207E-11	3.200E-11	3.189E-11
TM171	2.203E-15	1.245E-15	5.049E-16	3.519E-16	2.812E-17	1.366E-17	3.217E-18	3.764E-19

Source Listing of Program ROUNDSB1

```
      PROGRAM ROUNDSB1

!-------- WRITTEN BY D.R. WENZEL

!            To round output from file sbw_2095.ci to 2 places
!            Add half-lives for better radionuclide identification

      CHARACTER (LEN=1) :: BUFFER1(111), BUFFER3(96)
      CHARACTER (LEN=10) :: BLANK, ZERO(7)
      CHARACTER (LEN=12) :: DESC, NAME, NUCLIDE(175)
      CHARACTER (LEN=24) :: NAME2, NUCLIDE2(175)
      CHARACTER (LEN=96) :: BUFFER2
      CHARACTER (LEN=111) :: BUFFER, ORGLINE

      COMMON /AMT/ AMOUNT(9)
      EQUIVALENCE (ORGLINE, BUFFER1(1))
      EQUIVALENCE (BUFFER2, BUFFER3(1))
      EQUIVALENCE (ZERO(1), BUFFER3(27))

      REAL :: DATA(175,7), VALUE(7)

      DATA BLANK /'          '/

!-------- OPEN OUTPUT FILE

      OPEN(1,FILE ='MASTER', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(2,FILE ='SBW_RUN1.CI', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(6,FILE ='ROUNDSB1.OUT', STATUS='UNKNOWN', ERR = 900)

      WRITE(6,600)
  600 FORMAT(1x,'ROUNDSB1.OUT (Ci/L)')

!-------- READ MASTER LIST OF RADIONUCLIDES TO BE INCLUDED ON THE
!         FINAL REPORT

      LAST = 0
   10 READ(1,1000,END=20) NAME, NAME2
 1000 FORMAT(A12, 5X, A24)
      LAST = LAST + 1
      NUCLIDE(LAST) = NAME
      NUCLIDE2(LAST) = NAME2
      GO TO 10

!-------- ZERO MEMORY

   20 DO  l=1,175
         DO K=1,7
            DATA(l,K) = 0.
         END DO

      END DO

!-------- READ RADIONUCLIDE INVENTORIES
```

Source Listing of Program ROUNDSB1 (Continued)

```
!-------- READ FIRST 3 LINES OF FILE AND ECHO line 2

   35  DO  J=1,3
          READ(2,120) ORGLINE
  120     FORMAT(A111)

          IF(J == 2) THEN
             WRITE(6,120) ORGLINE
          END IF

       END DO

       WRITE(6,605)
  605  FORMAT(/,3X,'Nuclide',5X,'Half-Life',6X,'1999Jul   2002Jan   ', &
              '2003Jan   2010Jan   2012Jan   2016Jan   2022Jan')

!-------- READ RADIONUCLIDE INVENTORIES

   50  READ(2,120,END=80) ORGLINE
       WRITE(BUFFER,120) ORGLINE
       READ(BUFFER,400) DESC, VALUE
  400  FORMAT(A12,9X,7(E10.4))
       DO  J=1,175
          IF(DESC == NUCLIDE(J)) THEN
             DO 60 K=1,7
                DATA(J,K) = VALUE(K)
   60        CONTINUE

          END IF

       END DO

       GO TO 50

   80  DO  J=1,LAST
          WRITE(BUFFER2,620) NUCLIDE2(J), (DATA(J,K),K=1,7)
  620     FORMAT(2X,A24,7(1PE10.1))
          DO K=1,7
             IF(DATA(J,K) == 0.) THEN
                ZERO(K) = BLANK
             ENDIF

          END DO

          WRITE(6,625) BUFFER2
  625     FORMAT(A96)

       END DO

       GO TO 999

!-------- ERROR STATEMENTS

  900  WRITE(6,9000)
```

Source Listing of Program ROUNDSB1 (Continued)

```
 9000  FORMAT(2X,'ERROR IN OPENING FILE ')

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM ROUNDSB1
```

See Appendix A-2, pages 4-6, for a listing of file MASTER.

ROUNDSB1.OUT (Ci/L)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

Nuclide	Half-Life		1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
H-3	1.233E+01	yr	1.8E-05	1.6E-05	1.5E-05	1.0E-05	9.2E-06	7.3E-06	5.2E-06
Be-10	1.510E+06	yr	2.2E-12	2.2E-12	2.2E-12	2.2E-12	2.2E-12	2.2E-12	2.2E-12
C-14	5.729E+03	yr	4.7E-07	4.7E-07	4.7E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07
Ca-45	1.630E+02	d	1.8E-20	1.8E-20	1.8E-20	3.3E-25	3.3E-25	3.3E-25	3.0E-29
V-50	4.000E+16	yr	2.9E-21	2.9E-21	2.9E-21	2.9E-21	2.9E-21	2.9E-21	2.9E-21
Mn-54	3.125E+02	d	2.9E-11	3.8E-12	1.7E-12	5.8E-15	1.1E-15	4.5E-17	3.3E-19
Fe-55	2.600E+00	yr	3.9E-04	2.0E-04	1.5E-04	2.4E-05	1.4E-05	4.8E-06	9.7E-07
Ni-59	8.000E+04	yr	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07
Co-60	5.270E+00	yr	5.5E-05	3.9E-05	3.4E-05	1.4E-05	1.1E-05	6.2E-06	2.8E-06
Ni-63	9.200E+01	yr	4.0E-05	3.9E-05	3.9E-05	3.7E-05	3.7E-05	3.5E-05	3.4E-05
Se-79	1.130E+06	yr	3.1E-07	3.1E-07	3.1E-07	3.1E-07	3.1E-07	3.1E-07	3.1E-07
Rb-87	4.750E+10	yr	2.0E-11	2.0E-11	2.0E-11	2.0E-11	2.0E-11	2.0E-11	2.0E-11
Sr-90	2.878E+01	yr	3.4E-02	3.2E-02	3.1E-02	2.7E-02	2.5E-02	2.3E-02	2.0E-02
Y-90	6.400E+01	h	3.4E-02	3.2E-02	3.1E-02	2.7E-02	2.5E-02	2.3E-02	2.0E-02
Zr-93	1.530E+06	yr	3.0E-06	3.0E-06	3.0E-06	3.0E-06	3.0E-06	3.0E-06	3.0E-06
Nb-93m	1.360E+01	yr	2.2E-06	2.2E-06	2.3E-06	2.4E-06	2.5E-06	2.6E-06	2.6E-06
Nb-94	2.030E+04	yr	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06
Tc-98	4.199E+06	yr	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12
Tc-99	2.111E+05	yr	9.9E-06	9.9E-06	9.9E-06	9.9E-06	9.9E-06	9.9E-06	9.9E-06
Rh-102	2.070E+02	d	1.4E-09	7.7E-10	6.0E-10	1.1E-10	7.0E-11	2.7E-11	6.4E-12
Ru-106	3.682E+02	d	1.2E-06	2.1E-07	1.1E-07	8.7E-10	2.2E-10	1.4E-11	2.3E-13
Rh-106	2.990E+01	s	1.2E-06	2.1E-07	1.1E-07	8.7E-10	2.2E-10	1.4E-11	2.3E-13
Pd-107	6.500E+06	yr	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08
Ag-108	2.370E+00	m	8.3E-15	8.3E-15	8.2E-15	8.1E-15	8.1E-15	8.1E-15	8.0E-15
Ag-108m	4.180E+02	yr	9.3E-14	9.3E-14	9.3E-14	9.1E-14	9.1E-14	9.1E-14	9.0E-14
Ag-109m	3.960E+01	s	6.0E-16	1.5E-16	8.9E-17	2.0E-18	6.8E-19	7.6E-20	2.6E-21
Cd-109	4.640E+02	d	6.0E-16	1.5E-16	8.9E-17	2.0E-18	6.8E-19	6.9E-20	
Ag-110	2.460E+01	s	8.0E-15	6.3E-16	2.3E-16	1.9E-19	2.5E-20	6.9E-22	2.2E-22
Ag-110m	2.499E+02	d	6.0E-13	4.8E-14	1.7E-14	1.4E-17	1.9E-18	5.2E-20	1.7E-20
Cd-113m	1.410E+01	yr	3.0E-06	2.7E-06	2.6E-06	1.8E-06	1.6E-06	1.4E-06	1.0E-06
In-115	4.410E+14	yr	7.8E-18	7.8E-18	7.8E-18	7.8E-18	7.8E-18	7.8E-18	7.8E-18
Sn-119m	2.450E+02	d	1.1E-10	8.4E-12	3.0E-12	2.1E-15	2.7E-16	4.4E-18	4.0E-20
Sn-121m	5.500E+01	yr	1.9E-06	1.9E-06	1.8E-06	1.7E-06	1.6E-06	1.6E-06	1.4E-06
Te-123	1.000E+13	yr	1.5E-18	1.5E-18	1.5E-18	1.5E-18	1.5E-18	1.5E-18	1.5E-18
Sb-125	2.758E+00	yr	3.8E-05	2.0E-05	1.6E-05	2.8E-06	1.7E-06	6.1E-07	1.4E-07
Te-125m	5.740E+01	d	9.3E-06	5.0E-06	3.9E-06	6.7E-07	4.1E-07	1.5E-07	3.3E-08
Sn-126	1.000E+05	yr	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07
Sb-126	1.246E+01	d	4.0E-08	4.0E-08	4.0E-08	4.0E-08	4.0E-08	4.0E-08	4.0E-08
Sb-126m	1.915E+01	m	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07
I-129	1.570E+07	yr	1.7E-08	1.7E-08	1.7E-08	1.7E-08	1.7E-08	1.7E-08	1.7E-08
Cs-134	2.065E+00	yr	5.8E-05	2.5E-05	1.8E-05	1.7E-06	8.6E-07	2.3E-07	3.0E-08
Cs-135	2.300E+06	yr	4.1E-07	4.1E-07	4.1E-07	4.1E-07	4.1E-07	4.1E-07	4.1E-07
Cs-137	3.007E+01	yr	3.8E-02	3.6E-02	3.5E-02	3.0E-02	2.8E-02	2.6E-02	2.3E-02
Ba-137m	2.552E+00	m	3.6E-02	3.4E-02	3.3E-02	2.8E-02	2.7E-02	2.5E-02	2.1E-02
La-138	1.050E+11	yr	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16
Ce-142	5.000E+16	yr	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11
Ce-144	2.843E+02	d	4.5E-07	4.9E-08	2.0E-08	3.9E-11	6.6E-12	1.9E-13	9.0E-16
Pr-144	1.728E+01	m	4.5E-07	4.9E-08	2.0E-08	3.9E-11	6.6E-12	1.9E-13	9.0E-16
Pr-144m	7.200E+00	m	5.4E-09	5.9E-10	2.4E-10	4.7E-13	8.0E-14	2.3E-15	1.1E-17
Nd-144	2.290E+15	yr	1.1E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15
Pm-146	5.500E+00	yr	5.5E-08	4.0E-08	3.5E-08	1.5E-08	1.1E-08	6.9E-09	3.2E-09
Sm-146	7.000E+07	yr	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13
Pm-147	2.623E+00	yr	3.0E-04	1.6E-04	1.2E-04	1.9E-05	1.1E-05	3.8E-06	7.9E-07
Sm-147	1.070E+11	yr	5.2E-12	5.2E-12	5.2E-12	5.2E-12	5.2E-12	5.2E-12	5.2E-12
Sm-148	7.000E+15	yr	2.6E-17	2.6E-17	2.6E-17	2.6E-17	2.6E-17	2.6E-17	2.6E-17
Sm-149	2.000E+15	yr	2.4E-18	2.4E-18	2.4E-18	2.4E-18	2.4E-18	2.4E-18	2.4E-18
Eu-150	3.690E+01	yr	1.1E-11	1.0E-11	1.0E-11	8.8E-12	8.4E-12	7.8E-12	7.0E-12
Sm-151	8.999E+01	yr	2.4E-04	2.4E-04	2.4E-04	2.2E-04	2.2E-04	2.1E-04	2.0E-04
Eu-152	1.354E+01	yr	2.1E-06	1.9E-06	1.8E-06	1.2E-06	1.1E-06	9.1E-07	6.7E-07
Gd-152	1.080E+14	yr	9.8E-19	9.9E-19	1.0E-18	1.0E-18	1.0E-18	1.0E-18	1.0E-18
Gd-153	2.420E+02	d	2.0E-14	1.5E-15	5.2E-16	3.4E-19	1.2E-20	1.2E-20	3.1E-20
Eu-154	8.593E+00	yr	1.4E-04	1.1E-04	1.0E-04	5.8E-05	5.0E-05	3.6E-05	2.2E-05
Eu-155	4.761E+00	yr	8.3E-05	5.8E-05	5.0E-05	1.8E-05	1.3E-05	7.5E-06	3.1E-06
Ho-166m	1.200E+03	yr	3.2E-11	3.2E-11	3.2E-11	3.2E-11	3.2E-11	3.2E-11	3.2E-11
Tm-171	1.920E+00	yr	1.2E-15	5.0E-16	3.5E-16	2.8E-17	1.4E-17	3.2E-18	3.8E-19

ROUNDSB1.OUT (Ci/L) (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

Nuclide	Half-Life		1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
Lu-176	3.000E+10	yr	4.2E-16	4.2E-16	4.2E-16	4.2E-16	4.2E-16	4.2E-16	4.2E-16
Lu-177	6.709E+00	d	2.2E-21						
Hf-182	9.000E+06	yr	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12
Ta-182	1.150E+02	d	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12
Re-187	5.000E+10	yr	4.1E-21	4.1E-21	4.1E-21	4.1E-21	4.1E-21	4.1E-21	4.1E-21
Tl-207	4.770E+00	m	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Tl-208	3.070E+00	m	1.7E-09	1.1E-09	1.0E-09	7.6E-10	7.4E-10	7.0E-10	6.6E-10
Tl-209	2.200E+00	m	2.6E-15	2.7E-15	2.7E-15	3.3E-15	3.4E-15	3.9E-15	4.7E-15
Pb-209	3.300E+00	h	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Pb-210	2.230E+01	yr	1.5E-12	1.8E-12	1.9E-12	2.9E-12	3.2E-12	3.8E-12	4.9E-12
Pb-211	3.610E+01	m	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Pb-212	1.064E+01	h	4.8E-09	3.2E-09	2.9E-09	2.1E-09	2.0E-09	2.0E-09	1.8E-09
Pb-214	2.680E+01	m	4.9E-12	5.5E-12	5.8E-12	7.6E-12	8.2E-12	9.4E-12	1.1E-11
Bi-210m	3.000E+06	yr	1.5E-25	1.5E-25	1.5E-25	1.5E-25	1.5E-25	1.5E-25	1.5E-25
Bi-210	5.012E+00	d	1.6E-12	1.8E-12	1.9E-12	2.9E-12	3.2E-12	3.8E-12	4.9E-12
Bi-211	2.130E+00	m	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Bi-212	6.055E+01	m	4.8E-09	3.2E-09	2.9E-09	2.1E-09	2.0E-09	2.0E-09	1.8E-09
Bi-213	4.565E+01	m	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Bi-214	1.990E+01	m	4.9E-12	5.5E-12	5.8E-12	7.6E-12	8.2E-12	9.4E-12	1.1E-11
Po-210	1.384E+02	d	1.5E-12	1.7E-12	1.9E-12	2.9E-12	3.1E-12	3.8E-12	4.9E-12
Po-211	5.600E-01	s	6.3E-14	7.0E-14	7.3E-14	9.1E-14	9.6E-14	1.0E-13	1.2E-13
Po-212	3.000E-07	s	3.1E-09	2.0E-09	1.8E-09	1.3E-09	1.3E-09	1.3E-09	1.2E-09
Po-213	4.200E-06	s	1.2E-13	1.2E-13	1.2E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Po-214	1.643E-04	s	4.9E-12	5.5E-12	5.8E-12	7.6E-12	8.2E-12	9.4E-12	1.1E-11
Po-215	1.780E-03	s	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Po-216	1.500E-01	s	4.8E-09	3.2E-09	2.9E-09	2.1E-09	2.0E-09	2.0E-09	1.8E-09
Po-218	3.050E+00	m	4.9E-12	5.5E-12	5.8E-12	7.6E-12	8.2E-12	9.4E-12	1.1E-11
At-217	3.230E-02	s	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Rn-219	3.960E+00	s	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Rn-220	5.560E+01	s	4.8E-09	3.2E-09	2.9E-09	2.1E-09	2.0E-09	2.0E-09	1.8E-09
Rn-222	3.824E+00	d	4.9E-12	5.5E-12	5.8E-12	7.6E-12	8.2E-12	9.4E-12	1.1E-11
Fr-221	4.800E+00	m	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Fr-223	2.180E+01	m	3.1E-13	3.5E-13	3.6E-13	4.5E-13	4.7E-13	5.1E-13	5.8E-13
Ra-223	1.143E+01	d	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Ra-224	3.660E+00	d	4.8E-09	3.2E-09	2.9E-09	2.1E-09	2.0E-09	2.0E-09	1.8E-09
Ra-225	1.480E+01	d	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Ra-226	1.600E+03	yr	4.9E-12	5.5E-12	5.8E-12	7.6E-12	8.2E-12	9.4E-12	1.1E-11
Ra-228	5.750E+00	yr	4.1E-16	4.3E-16	4.4E-16	4.8E-16	4.9E-16	5.1E-16	5.3E-16
Ac-225	1.000E+01	d	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Ac-227	2.177E+01	yr	2.3E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.2E-11
Ac-228	6.131E+00	h	4.1E-16	4.3E-16	4.4E-16	4.8E-16	4.9E-16	5.1E-16	5.3E-16
Th-227	1.872E+01	d	2.2E-11	2.5E-11	2.6E-11	3.2E-11	3.4E-11	3.7E-11	4.1E-11
Th-228	1.913E+00	yr	4.8E-09	3.2E-09	2.8E-09	2.1E-09	2.0E-09	2.0E-09	1.8E-09
Th-229	7.339E+03	yr	1.2E-13	1.2E-13	1.3E-13	1.5E-13	1.6E-13	1.8E-13	2.2E-13
Th-230	7.700E+04	yr	5.6E-10	5.8E-10	5.9E-10	6.5E-10	6.7E-10	7.1E-10	7.6E-10
Th-231	2.552E+01	h	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Th-232	1.405E+10	yr	4.9E-16	5.0E-16	5.0E-16	5.2E-16	5.3E-16	5.4E-16	5.5E-16
Th-234	2.410E+01	d	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Pa-231	3.277E+04	yr	5.4E-11	5.6E-11	5.6E-11	5.9E-11	6.0E-11	6.2E-11	6.5E-11
Pa-233	2.700E+01	d	6.0E-07	6.0E-07	6.0E-07	6.0E-07	6.0E-07	6.0E-07	6.0E-07
Pa-234m	1.170E+00	m	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Pa-234	6.700E+00	h	3.0E-11	3.0E-11	3.0E-11	3.0E-11	3.0E-11	3.0E-11	3.0E-11
U-232	6.890E+01	yr	2.1E-09	2.1E-09	2.1E-09	2.0E-09	2.0E-09	1.9E-09	1.8E-09
U-233	1.592E+05	yr	1.7E-11	2.4E-11	2.7E-11	4.5E-11	5.1E-11	6.1E-11	7.7E-11
U-234	2.455E+05	yr	9.4E-07	9.4E-07	9.4E-07	9.6E-07	9.6E-07	9.7E-07	9.8E-07
U-235	7.038E+08	yr	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
U-236	2.342E+07	yr	5.3E-08	5.3E-08	5.3E-08	5.3E-08	5.3E-08	5.3E-08	5.3E-08
U-237	6.750E+00	d	1.1E-08	9.9E-09	9.4E-09	6.7E-09	6.1E-09	5.0E-09	3.8E-09
U-238	4.470E+09	yr	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
U-240	1.410E+01	h	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16
Np-236	1.150E+05	yr	6.3E-12	6.3E-12	6.3E-12	6.3E-12	6.3E-12	6.3E-12	6.3E-12
Np-237	2.140E+06	yr	6.0E-07	6.0E-07	6.0E-07	6.0E-07	6.0E-07	6.0E-07	6.0E-07
Np-238	2.117E+00	d	1.1E-10	1.1E-10	1.1E-10	1.0E-10	1.0E-10	1.0E-10	9.7E-11
Np-239	2.355E+00	d	2.8E-08	2.8E-08	2.8E-08	2.8E-08	2.8E-08	2.8E-08	2.8E-08
Np-240m	7.400E+00	m	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16
Pu-236	2.851E+00	yr	3.9E-09	2.1E-09	1.7E-09	3.0E-10	1.9E-10	7.1E-11	1.7E-11
Pu-238	8.770E+01	yr	6.5E-04	6.4E-04	6.3E-04	6.0E-04	5.9E-04	5.7E-04	5.5E-04

ROUNDSB1.OUT (Ci/L) (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

Nuclide	Half-Life		1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
Pu-239	2.411E+04	yr	6.3E-05	6.3E-05	6.3E-05	6.3E-05	6.3E-05	6.3E-05	6.3E-05
Pu-240	6.537E+03	yr	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05
Pu-241	1.440E+01	yr	4.6E-04	4.0E-04	3.8E-04	2.7E-04	2.5E-04	2.1E-04	1.5E-04
Pu-242	3.733E+05	yr	1.3E-08	1.3E-08	1.3E-08	1.3E-08	1.3E-08	1.3E-08	1.3E-08
Pu-243	4.956E+00	h	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18
Pu-244	8.080E+07	yr	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16
Am-241	4.322E+02	yr	6.4E-05	6.5E-05	6.6E-05	6.9E-05	6.9E-05	7.0E-05	7.1E-05
Am-242m	1.410E+02	yr	2.2E-08	2.1E-08	2.1E-08	2.1E-08	2.0E-08	2.0E-08	1.9E-08
Am-242	1.602E+01	h	2.2E-08	2.1E-08	2.1E-08	2.1E-08	2.0E-08	2.0E-08	1.9E-08
Am-243	7.370E+03	yr	2.8E-08	2.8E-08	2.8E-08	2.8E-08	2.8E-08	2.8E-08	2.8E-08
Cm-242	1.632E+02	d	1.8E-08	1.8E-08	1.8E-08	1.7E-08	1.7E-08	1.7E-08	1.6E-08
Cm-243	2.850E+01	yr	5.0E-09	4.7E-09	4.6E-09	3.8E-09	3.7E-09	3.3E-09	2.9E-09
Cm-244	1.811E+01	yr	3.2E-07	2.9E-07	2.8E-07	2.2E-07	2.0E-07	1.7E-07	1.4E-07
Cm-245	8.499E+03	yr	4.8E-11	4.8E-11	4.8E-11	4.8E-11	4.8E-11	4.8E-11	4.8E-11
Cm-246	4.731E+03	yr	3.1E-12	3.1E-12	3.1E-12	3.1E-12	3.1E-12	3.1E-12	3.1E-12
Cm-247	1.560E+07	yr	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18
Cm-248	3.391E+05	yr	3.7E-18	3.7E-18	3.7E-18	3.7E-18	3.7E-18	3.7E-18	3.7E-18
Cf-249	3.505E+02	yr	2.1E-17	2.1E-17	2.1E-17	2.1E-17	2.1E-17	2.0E-17	2.0E-17
Cf-250	1.308E+01	yr	2.1E-17	1.8E-17	1.7E-17	1.2E-17	1.1E-17	8.6E-18	6.2E-18
Cf-251	8.980E+02	yr	3.3E-19	3.3E-19	3.3E-19	3.3E-19	3.3E-19	3.2E-19	3.2E-19
Cf-252	2.638E+00	yr	1.1E-19	6.4E-20	4.7E-20	1.4E-20	1.4E-20		

sbw_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	g/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
HE 3	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15
B 10	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17
B 11	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08
C 12	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05
C 13	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07
N 14	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05
N 15	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07
O 16	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03
O 17	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07
O 18	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06
F 19	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12
NE 20	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17
NE 21	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16
NE 22	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14
NA 23	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15
MG 24	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11
MG 25	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10
MG 26	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10
AL 27	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05
SI 28	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05
SI 29	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06
SI 30	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06
SI 32	5.777E-18	5.767E-18	5.752E-18	5.746E-18	5.703E-18	5.691E-18	5.667E-18	5.631E-18
P 31	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06
P 32	3.481E-22	3.474E-22	3.465E-22	3.461E-22	3.435E-22	3.428E-22	3.413E-22	3.392E-22
S 32	0.000E+00	9.726E-21	2.508E-20	3.122E-20	7.395E-20	8.610E-20	1.103E-19	1.465E-19
S 34	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08
CL 37	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17
AR 38	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22
AR 39	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25
AR 40	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17
K 41	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18
CA 42	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20
CA 43	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12
CA 44	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11
CA 45	9.881E-25	9.881E-25	9.881E-25	9.881E-25	1.870E-29	1.870E-29	1.870E-29	1.674E-33
CA 46	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12
SC 45	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13
TI 46	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06
TI 47	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06
TI 48	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05
TI 49	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06
TI 50	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06
V 50	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08
V 51	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06
CR 50	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04
CR 52	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03
CR 53	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04
CR 54	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05
MN 54	1.327E-14	3.689E-15	4.868E-16	2.165E-16	7.459E-19	1.476E-19	5.780E-21	4.311E-23
MN 55	6.002E-07	6.817E-07	7.575E-07	7.762E-07	8.279E-07	8.318E-07	8.355E-07	8.370E-07
FE 54	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02
FE 55	2.372E-07	1.557E-07	7.993E-08	6.123E-08	9.473E-09	5.558E-09	1.913E-09	3.865E-10
FE 56	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01
FE 57	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02
FE 58	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03
CO 59	1.836E-05	1.836E-05	1.836E-05	1.836E-05	1.836E-05	1.836E-05	1.836E-05	1.836E-05
CO 60	5.942E-08	4.827E-08	3.474E-08	3.046E-08	1.213E-08	9.324E-09	5.510E-09	2.503E-09
NI 58	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03
NI 59	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.234E-06	4.234E-06	4.234E-06
NI 60	5.335E-04	5.335E-04	5.335E-04	5.335E-04	5.335E-04	5.336E-04	5.336E-04	5.336E-04
NI 61	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05
NI 62	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05
NI 63	6.582E-07	6.504E-07	6.383E-07	6.335E-07	6.009E-07	5.920E-07	5.744E-07	5.490E-07
NI 64	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05
CU 63	1.194E-07	1.272E-07	1.393E-07	1.441E-07	1.767E-07	1.856E-07	2.032E-07	2.286E-07
CU 65	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08

sbw_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	g/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
ZN 64	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11
ZN 65	5.898E-23	1.599E-23	3.079E-24	3.079E-24	2.150E-27	2.150E-27	2.150E-27	2.150E-27
MO 94	4.653E-09	4.653E-09	4.653E-09	4.653E-09	4.653E-09	4.653E-09	4.653E-09	4.653E-09
RU 98	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21
IN113	0.000E+00	2.017E-22	2.070E-22	2.070E-22	2.119E-22	2.119E-22	2.119E-22	2.119E-22
IN113M	1.272E-25	6.133E-27	2.979E-27	2.979E-27	6.133E-34	6.129E-34	9.263E-38	1.583E-43
SN112	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04
SN113	2.118E-22	1.021E-23	4.963E-24	4.963E-24	1.021E-30	1.021E-30	1.542E-34	2.863E-40
YB173	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15
YB174	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16
LU175	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07
LU176	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09
LU177	2.618E-25	1.982E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HF174	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07
HF176	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05
HF177	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06
HF178	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05
HF179	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04
HF180	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04
HF182	8.297E-09	8.297E-09	8.297E-09	8.297E-09	8.297E-09	8.297E-09	8.297E-09	8.297E-09
TA181	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05
TA182	2.903E-16	2.903E-16	2.903E-16	2.903E-16	2.903E-16	2.903E-16	2.903E-16	2.903E-16
W182	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06
W183	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06
W184	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07
W186	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12
RE185	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10
RE187	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13
OS186	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11
OS188	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15
OS189	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17
OS190	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19
HE 4	2.231E-07	2.329E-07	2.483E-07	2.543E-07	2.959E-07	3.075E-07	3.302E-07	3.634E-07
TL206	0.000E+00	7.047E-34	7.047E-34	7.047E-34	7.047E-34	7.047E-34	7.047E-34	7.047E-34
TL207	1.096E-19	1.181E-19	1.311E-19	1.363E-19	1.695E-19	1.786E-19	1.957E-19	2.198E-19
TL208	8.411E-18	5.846E-18	3.884E-18	3.485E-18	2.564E-18	2.495E-18	2.383E-18	2.242E-18
TL209	6.206E-24	6.323E-24	6.578E-24	6.704E-24	7.956E-24	8.433E-24	9.545E-24	1.160E-23
PB206	5.899E-15	6.793E-15	8.415E-15	9.143E-15	1.574E-14	1.811E-14	2.364E-14	3.406E-14
PB207	1.110E-13	1.247E-13	1.486E-13	1.588E-13	2.408E-13	2.675E-13	3.248E-13	4.202E-13
PB208	5.953E-11	6.319E-11	6.709E-11	6.830E-11	7.495E-11	7.662E-11	7.984E-11	8.443E-11
PB209	2.586E-20	2.635E-20	2.741E-20	2.793E-20	3.315E-20	3.514E-20	3.977E-20	4.835E-20
PB210	1.821E-14	2.028E-14	2.385E-14	2.537E-14	3.757E-14	4.154E-14	5.012E-14	6.457E-14
PB211	8.478E-19	9.137E-19	1.015E-18	1.054E-18	1.312E-18	1.381E-18	1.514E-18	1.700E-18
PB212	4.961E-15	3.448E-15	2.291E-15	2.055E-15	1.512E-15	1.472E-15	1.405E-15	1.322E-15
PB214	1.374E-19	1.489E-19	1.677E-19	1.754E-19	2.324E-19	2.497E-19	2.855E-19	3.426E-19
BI208	3.847E-23	3.847E-23	3.847E-23	3.847E-23	3.847E-23	3.847E-23	3.847E-23	3.847E-23
BI209	8.190E-16	8.949E-16	1.018E-15	1.069E-15	1.460E-15	1.585E-15	1.860E-15	2.344E-15
BI210M	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22
BI210	1.121E-17	1.249E-17	1.468E-17	1.562E-17	2.312E-17	2.557E-17	3.085E-17	3.975E-17
BI211	5.002E-20	5.391E-20	5.986E-20	6.219E-20	7.738E-20	8.150E-20	8.931E-20	1.003E-19
BI212	4.706E-16	3.271E-16	2.173E-16	1.950E-16	1.434E-16	1.396E-16	1.333E-16	1.254E-16
BI213	6.076E-21	6.191E-21	6.440E-21	6.564E-21	7.790E-21	8.256E-21	9.345E-21	1.136E-20
BI214	1.020E-19	1.106E-19	1.245E-19	1.302E-19	1.726E-19	1.854E-19	2.120E-19	2.544E-19
PO210	2.946E-16	3.291E-16	3.889E-16	4.123E-16	6.387E-16	6.822E-16	8.527E-16	1.098E-15
PO211	6.137E-25	6.614E-25	7.345E-25	7.630E-25	9.494E-25	1.000E-24	1.096E-24	1.231E-24
PO212	0.000E+00	1.730E-26	1.150E-26	1.032E-26	7.589E-27	7.386E-27	7.052E-27	6.636E-27
PO213	0.000E+00	9.288E-30	9.662E-30	9.847E-30	1.169E-29	1.239E-29	1.402E-29	1.704E-29
PO214	0.000E+00	1.521E-26	1.713E-26	1.792E-26	2.374E-26	2.550E-26	2.917E-26	3.500E-26
PO215	7.099E-25	7.651E-25	8.496E-25	8.826E-25	1.098E-24	1.157E-24	1.267E-24	1.424E-24
PO216	1.980E-20	1.376E-20	9.141E-21	8.202E-21	6.034E-21	5.873E-21	5.608E-21	5.276E-21
PO218	1.593E-20	1.727E-20	1.945E-20	2.034E-20	2.695E-20	2.895E-20	3.311E-20	3.973E-20
AT217	0.000E+00	7.438E-26	7.737E-26	7.886E-26	9.359E-26	9.919E-26	1.123E-25	1.365E-25
RN219	1.609E-21	1.734E-21	1.925E-21	2.000E-21	2.489E-21	2.621E-21	2.872E-21	3.226E-21
RN220	7.475E-18	5.195E-18	3.451E-18	3.097E-18	2.278E-18	2.217E-18	2.117E-18	1.992E-18
RN222	2.929E-17	3.175E-17	3.575E-17	3.740E-17	4.955E-17	5.323E-17	6.087E-17	7.305E-17
FR221	6.630E-22	6.754E-22	7.026E-22	7.161E-22	8.498E-22	9.007E-22	1.019E-21	1.239E-21
FR223	7.450E-21	8.031E-21	8.918E-21	9.263E-21	1.153E-20	1.214E-20	1.331E-20	1.495E-20

sbw_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	g/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
RA223	4.086E-16	4.404E-16	4.891E-16	5.081E-16	6.322E-16	6.658E-16	7.296E-16	8.195E-16
RA224	4.327E-14	3.008E-14	1.998E-14	1.793E-14	1.319E-14	1.284E-14	1.226E-14	1.153E-14
RA225	2.997E-18	3.054E-18	3.177E-18	3.238E-18	3.842E-18	4.072E-18	4.609E-18	5.604E-18
RA226	4.557E-12	4.939E-12	5.562E-12	5.818E-12	7.708E-12	8.280E-12	9.470E-12	1.136E-11
RA228	1.449E-18	1.511E-18	1.593E-18	1.621E-18	1.771E-18	1.803E-18	1.860E-18	1.933E-18
AC225	2.025E-18	2.063E-18	2.146E-18	2.187E-18	2.596E-18	2.751E-18	3.114E-18	3.785E-18
AC227	2.887E-13	3.112E-13	3.456E-13	3.589E-13	4.469E-13	4.704E-13	5.156E-13	5.792E-13
AC228	1.513E-22	1.838E-22	1.937E-22	1.971E-22	2.154E-22	2.193E-22	2.262E-22	2.351E-22
TH227	6.715E-16	7.237E-16	8.036E-16	8.349E-16	1.039E-15	1.094E-15	1.199E-15	1.347E-15
TH228	8.379E-12	5.820E-12	3.871E-12	3.470E-12	2.562E-12	2.488E-12	2.379E-12	2.240E-12
TH229	5.524E-13	5.628E-13	5.855E-13	5.967E-13	7.081E-13	7.505E-13	8.495E-13	1.033E-12
TH230	2.725E-08	2.791E-08	2.896E-08	2.938E-08	3.234E-08	3.319E-08	3.491E-08	3.751E-08
TH231	1.480E-13	4.245E-14	4.245E-14	4.245E-14	4.245E-14	4.245E-14	4.245E-14	4.245E-14
TH232	4.469E-09	4.506E-09	4.566E-09	4.589E-09	4.755E-09	4.802E-09	4.897E-09	5.039E-09
TH234	1.125E-13	1.004E-12	1.004E-12	1.004E-12	1.004E-12	1.004E-12	1.004E-12	1.004E-12
PA231	1.136E-09	1.152E-09	1.177E-09	1.187E-09	1.258E-09	1.278E-09	1.319E-09	1.379E-09
PA233	9.976E-12	2.893E-11	2.894E-11	2.894E-11	2.895E-11	2.895E-11	2.895E-11	2.896E-11
PA234M	3.794E-18	3.385E-17	3.385E-17	3.385E-17	3.385E-17	3.385E-17	3.385E-17	3.385E-17
PA234	1.695E-18	1.512E-17	1.512E-17	1.512E-17	1.512E-17	1.512E-17	1.512E-17	1.512E-17
U232	9.079E-11	9.268E-11	9.359E-11	9.349E-11	8.953E-11	8.796E-11	8.470E-11	7.983E-11
U233	1.325E-09	1.764E-09	2.471E-09	2.771E-09	4.670E-09	5.242E-09	6.328E-09	7.957E-09
U234	1.502E-04	1.507E-04	1.514E-04	1.517E-04	1.536E-04	1.542E-04	1.552E-04	1.567E-04
U235	1.044E-02	1.044E-02	1.044E-02	1.044E-02	1.044E-02	1.044E-02	1.044E-02	1.044E-02
U236	8.137E-04	8.137E-04	8.137E-04	8.137E-04	8.138E-04	8.138E-04	8.138E-04	8.139E-04
U237	9.068E-15	1.369E-13	1.214E-13	1.156E-13	8.247E-14	7.488E-14	6.172E-14	4.620E-14
U238	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E-02
U240	4.765E-23	9.026E-22	9.026E-22	9.026E-22	9.026E-22	9.026E-22	9.026E-22	9.026E-22
NP235	3.827E-17	1.394E-17	2.820E-18	1.488E-18	1.695E-20	4.737E-21	3.547E-22	2.536E-23
NP236	4.766E-10	4.766E-10	4.766E-10	4.766E-10	4.766E-10	4.766E-10	4.765E-10	4.765E-10
NP237	8.535E-04	8.535E-04	8.536E-04	8.536E-04	8.539E-04	8.539E-04	8.541E-04	8.542E-04
NP238	2.401E-16	4.188E-16	4.136E-16	4.116E-16	3.977E-16	3.938E-16	3.861E-16	3.749E-16
NP239	7.401E-14	1.208E-13	1.208E-13	1.208E-13	1.207E-13	1.207E-13	1.206E-13	1.205E-13
NP240M	4.225E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24
PU236	1.069E-11	7.281E-12	3.965E-12	3.110E-12	5.679E-13	3.496E-13	1.329E-13	3.171E-14
PU238	3.849E-05	3.801E-05	3.727E-05	3.698E-05	3.499E-05	3.444E-05	3.337E-05	3.182E-05
PU239	1.021E-03	1.021E-03	1.021E-03	1.021E-03	1.021E-03	1.021E-03	1.020E-03	1.020E-03
PU240	7.611E-05	7.610E-05	7.608E-05	7.607E-05	7.601E-05	7.600E-05	7.597E-05	7.592E-05
PU241	4.758E-06	4.408E-06	3.907E-06	3.723E-06	2.655E-06	2.410E-06	1.987E-06	1.487E-06
PU242	3.187E-06	3.187E-06	3.187E-06	3.187E-06	3.187E-06	3.187E-06	3.187E-06	3.187E-06
PU243	1.335E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24
PU244	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11
PU246	0.000E+00	6.757E-31	6.757E-31	6.757E-31	6.757E-31	6.757E-31	6.757E-31	6.757E-31
AM241	1.831E-05	1.861E-05	1.904E-05	1.919E-05	2.004E-05	2.022E-05	2.051E-05	2.081E-05
AM242M	2.088E-09	2.072E-09	2.047E-09	2.037E-09	1.968E-09	1.948E-09	1.910E-09	1.855E-09
AM242	2.499E-14	2.668E-14	2.636E-14	2.623E-14	2.534E-14	2.509E-14	2.461E-14	2.389E-14
AM243	1.404E-07	1.404E-07	1.403E-07	1.403E-07	1.402E-07	1.402E-07	1.402E-07	1.401E-07
AM245	0.000E+00	1.468E-32	1.468E-32	1.468E-32	1.468E-32	1.468E-32	1.468E-32	1.468E-32
AM246	0.000E+00	1.081E-33	1.081E-33	1.081E-33	1.081E-33	1.081E-33	1.081E-33	1.081E-33
CM242	5.670E-12	5.431E-12	5.348E-12	5.319E-12	5.130E-12	5.090E-12	4.994E-12	4.837E-12
CM243	9.985E-11	9.609E-11	9.042E-11	8.825E-11	7.443E-11	7.090E-11	6.433E-11	5.559E-11
CM244	4.242E-09	3.993E-09	3.629E-09	3.492E-09	2.672E-09	2.475E-09	2.123E-09	1.688E-09
CM245	2.789E-10	2.789E-10	2.788E-10	2.788E-10	2.786E-10	2.786E-10	2.785E-10	2.784E-10
CM246	1.023E-11	1.023E-11	1.022E-11	1.022E-11	1.021E-11	1.021E-11	1.020E-11	1.019E-11
CM247	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14
CM248	8.625E-16	8.625E-16	8.625E-16	8.625E-16	8.625E-16	8.625E-16	8.625E-16	8.625E-16
CM250	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24
BK249	3.817E-24	3.817E-24	3.817E-24	3.817E-24	3.817E-24	3.817E-24	3.817E-24	3.817E-24
BK250	0.000E+00	4.759E-33	4.759E-33	4.759E-33	4.759E-33	4.759E-33	4.759E-33	4.759E-33
CF249	5.149E-18	5.133E-18	5.108E-18	5.098E-18	5.027E-18	5.008E-18	4.968E-18	4.910E-18
CF250	2.046E-19	1.882E-19	1.648E-19	1.563E-19	1.079E-19	9.706E-20	7.852E-20	5.713E-20
CF251	2.073E-19	2.070E-19	2.066E-19	2.065E-19	2.054E-19	2.051E-19	2.044E-19	2.035E-19
CF252	3.174E-22	2.130E-22	1.190E-22	8.775E-23	2.562E-23	2.562E-23	0.000E+00	0.000E+00
SF250	0.000E+00	1.993E-15	5.081E-15	6.296E-15	1.449E-14	1.674E-14	2.113E-14	2.746E-14
H 3	2.091E-09	1.914E-09	1.663E-09	1.572E-09	1.061E-09	9.487E-10	7.579E-10	5.412E-10
LI 6	1.887E-10	1.887E-10	1.887E-10	1.887E-10	1.387E-10	1.887E-10	1.887E-10	1.887E-10
LI 7	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12
BE 9	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E-10

sbw_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	g/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
BE 10	9.634E-11	9.634E-11	9.634E-11	9.634E-11	9.634E-11	9.634E-11	9.634E-11	9.634E-11
C 14	1.044E-07	1.044E-07	1.043E-07	1.043E-07	1.042E-07	1.042E-07	1.042E-07	1.041E-07
ZN 66	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11
ZN 67	1.728E-14	1.728E-14	1.728E-14	1.728E-14	1.728E-14	1.728E-14	1.728E-14	1.728E-14
ZN 68	1.850E-10	1.850E-10	1.850E-10	1.850E-10	1.850E-10	1.850E-10	1.850E-10	1.850E-10
GA 69	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13
ZN 70	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10
GE 70	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16
GA 71	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13
GE 72	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09
GE 73	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08
GE 74	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08
AS 75	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07
GE 76	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07
SE 76	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09
SE 77	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07
SE 78	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06
SE 79	4.385E-06	4.385E-06	4.385E-06	4.385E-06	4.384E-06	4.384E-06	4.384E-06	4.384E-06
BR 79	1.359E-09	1.433E-09	1.550E-09	1.597E-09	1.924E-09	2.018E-09	2.205E-09	2.486E-09
SE 80	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05
KR 80	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11
BR 81	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05
KR 81	1.652E-12	1.652E-12	1.652E-12	1.652E-12	1.652E-12	1.652E-12	1.652E-12	1.652E-12
SE 82	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05
KR 82	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07
KR 83	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05
KR 84	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05
KR 85	4.202E-06	3.794E-06	3.228E-06	3.026E-06	1.924E-06	1.691E-06	1.305E-06	8.857E-07
RB 85	1.083E-04	1.087E-04	1.093E-04	1.095E-04	1.106E-04	1.108E-04	1.112E-04	1.116E-04
KR 86	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04
SR 86	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07
RB 87	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04
SR 87	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08
SR 88	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04
Y 89	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04
SR 90	2.592E-04	2.496E-04	2.352E-04	2.297E-04	1.944E-04	1.854E-04	1.686E-04	1.461E-04
Y 90	6.833E-08	6.260E-08	5.898E-08	5.760E-08	4.876E-08	4.649E-08	4.227E-08	3.664E-08
ZR 90	9.930E-01	9.930E-01	9.930E-01	9.930E-01	9.931E-01	9.931E-01	9.931E-01	9.931E-01
ZR 91	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01
ZR 92	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01
ZR 93	1.198E-03	1.198E-03	1.198E-03	1.198E-03	1.198E-03	1.198E-03	1.198E-03	1.198E-03
NB 93	5.736E-04	5.736E-04	5.736E-04	5.736E-04	5.736E-04	5.736E-04	5.736E-04	5.736E-04
NB 93M	7.412E-09	7.621E-09	7.920E-09	8.029E-09	8.656E-09	8.797E-09	9.041E-09	9.324E-09
ZR 94	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01
NB 94	5.502E-06	5.502E-06	5.501E-06	5.501E-06	5.500E-06	5.499E-06	5.499E-06	5.497E-06
ZR 95	9.506E-18	1.831E-20	9.257E-25	9.257E-25	8.651E-37	3.163E-40	0.000E+00	0.000E+00
NB 95	0.000E+00	2.225E-20	1.129E-24	5.212E-25	1.055E-36	3.857E-40	0.000E+00	0.000E+00
NB 95M	0.000E+00	7.663E-24	3.874E-28	3.659E-28	3.620E-40	1.331E-43	0.000E+00	0.000E+00
MO 95	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04
ZR 96	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02
MO 96	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05
MO 97	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04
MO 98	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04
TC 98	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09
TC 99	5.811E-04	5.811E-04	5.811E-04	5.811E-04	5.811E-04	5.811E-04	5.811E-04	5.811E-04
RU 99	5.520E-08	5.821E-08	6.298E-08	6.489E-08	7.825E-08	8.206E-08	8.970E-08	1.011E-07
MO100	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04
RU100	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05
RU101	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04
RU102	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04
RH102	1.680E-12	1.152E-12	6.336E-13	4.989E-13	9.362E-14	5.804E-14	2.231E-14	5.318E-15
RH103	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04
RU104	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04
PD104	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05
PD105	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04
RU106	1.048E-09	3.536E-10	6.337E-11	3.186E-11	2.587E-13	6.539E-14	4.178E-15	6.746E-17
RH106	4.766E-17	3.324E-16	5.957E-17	2.995E-17	2.432E-19	6.146E-20	3.927E-21	6.342E-23
PD106	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05

sbw_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	g/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
PD107	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05
AG107	6.957E-11	7.336E-11	7.935E-11	8.175E-11	9.853E-11	1.033E-10	1.129E-10	1.273E 10
PD108	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05
AG108	3.718E-23	1.127E-23	1.123E-23	1.121E-23	1.108E-23	1.104E-23	1.097E-23	1.086E-23
AG108M	1.178E-14	1.175E-14	1.170E 14	1.168E-14	1.155E-14	1.151E-14	1.143E-14	1.132E 14
CD108	1.832E-11	1.832E-11	1.832E 11	1.832E-11	1.832E-11	1.832E-11	1.832E-11	1.832E 11
AG109	4.970E-06	4.970E-06	4.970E-06	4.970E-06	4.970E-06	4.970E 06	4.970E-06	4.970E 06
AG109M	5.464E-25	2.307E-25	5.898E-26	3.418E-26	7.499E-28	2.590E-28	2.921E-29	1.006E-30
CD109	5.531E-19	2.336E-19	5.971E-20	3.460E-20	7.564E 22	2.622E-22	2.689E-23	0.000E+00
PD110	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06
AG110	9.469E-24	1.910E-24	1.517E-25	5.507E-26	4.580E-29	6.097E-30	1.661E-31	5.280E-32
AG110M	6.246E-16	1.260E-16	1.001E-17	3.634E-18	3.022E-21	4.023E-22	1.096E-23	3.484E-24
CD110	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06
CD111	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06
CD112	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06
CD113	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07
CD113M	1.465E-08	1.356E-08	1.199E-08	1.141E-08	8.090E-09	7.333E-09	6.024E-09	4.485E-09
IN113	3.065E-06	3.066E-06	3.068E-06	3.068E-06	3.072E-06	3.072E-06	3.074E-06	3.075E-06
CD114	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06
SN114	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04
IN115	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06
SN115	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E 04
CD116	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06
SN116	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E 03
SN117	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E 03
SN118	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03
SN119	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03
SN119M	1.263E-13	2.468E-14	1.864E-15	6.635E-16	4.793E-19	6.069E-20	9.773E-22	8.921E 24
SN120	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03
SN121M	3.631E-08	3.559E-08	3.449E-08	3.406E-08	3.118E-08	3.041E 08	2.891E 08	2.681E-08
SB121	1.155E-05	1.155E-05	1.155E-05	1.155E-05	1.156E-05	1.156E-05	1.156E-05	1.156E 05
SN122	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03
TE122	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E 07
SN123	4.480E-21	1.966E-22	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB123	4.223E-06	4.223E 06	4.223E-06	4.223E-06	4.223E-06	4.223E-06	4.223E-06	4.223E 06
TE123	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09
TE123M	1.509E-24	1.509E-24	1.509E-24	1.509E-24	5.591E-31	5.591E-31	1.182E-34	3.632E 40
SN124	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03
TE124	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07
SB125	5.487E-08	3.695E-08	1.977E-08	1.539E-08	2.570E-09	1.618E-09	5.948E-10	1.325E 10
TE125	1.641E-05	1.643E-05	1.645E-05	1.645E-05	1.646E-05	1.646E-05	1.647E-05	1.647E-05
TE125M	9.278E-10	5.170E-10	2.765E-10	2.153E-10	3.734E-11	2.264E-11	8.320E-12	1.854E 12
SN126	1.014E-05	1.014E-05	1.014E-05	1.014E-05	1.014E-05	1.014E-05	1.014E-05	1.014E-05
SB126	4.817E-13	4.844E-13	4.844E-13	4.844E-13	4.844E-13	4.844E-13	4.844E-13	4.844E-13
SB126M	3.662E-15	3.692E-15	3.692E-15	3.692E-15	3.691E-15	3.691E-15	3.691E-15	3.691E-15
TE126	3.161E-07	3.162E-07	3.164E-07	3.165E-07	3.169E-07	3.171E-07	3.174E-07	3.178E-07
TE127	0.000E+00	1.757E-26	1.695E-26	1.695E-26	1.479E-33	1.473E-33	1.365E-37	1.780E 43
TE127M	1.885E-23	5.034E-24	4.858E-24	4.858E-24	4.224E-31	4.224E-31	3.899E-35	3.453E-41
I127	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E 05
TE128	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05
XE128	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07
I129	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E 05
XE129	4.837E-09	4.844E-09	4.854E-09	4.858E-09	4.888E-09	4.896E-09	4.913E-09	4.938E-09
TE130	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04
XE130	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06
XE131	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04
XE132	6.640E-04	6.640E 04	6.640E-04	6.640E-04	6.640E-04	6.640E-04	6.640E-04	6.640E 04
BA132	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10
CS133	8.587E-04	8.587E 04	8.587E-04	8.587E-04	8.587E-04	8.587E-04	8.587E-04	8.587E 04
XE134	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03
CS134	7.585E-08	4.460E-08	1.924E-08	1.375E-08	1.307E-09	6.674E-10	1.739E-10	2.314E-11
BA134	6.892E-05	6.895E-05	6.898E-05	6.898E-05	6.899E-05	6.900E-05	6.900E-05	6.900E 05
CS135	3.556E-04	3.556E-04	3.556E-04	3.556E-04	3.556E-04	3.556E-04	3.556E-04	3.556E 04
BA135	9.014E-08	9.031E-08	9.058E-08	9.068E-08	9.143E-08	9.165E-08	9.208E-08	9.272E 08
XE136	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03
BA136	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06
CS137	4.531E-04	4.369E-04	4.123E-04	4.029E-04	3.427E-04	3.273E-04	2.984E-04	2.598E-04
BA137	4.181E-04	4.343E-04	4.589E-04	4.683E-04	5.285E-04	5.439E-04	5.728E-04	6.114E-04

sbw_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

	g/L	1.6YR	4.1YR	5.1YR	12.1YR	14.1YR	18.1YR	24.1YR
BA137M	6.930E-11	6.683E-11	6.308E-11	6.164E-11	5.244E-11	5.007E-11	4.565E-11	3.974E-11
BA138	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04
LA138	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09
LA139	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04
CE140	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04
PR141	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04
CE142	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04
ND142	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06
ND143	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04
CE144	5.808E-10	1.422E-10	1.534E-11	6.296E-12	1.233E-14	2.076E-15	5.890E-17	2.814E-19
PR144	1.198E-15	6.004E-15	6.478E-16	2.659E-16	5.213E-19	8.767E-20	2.487E-21	1.188E-23
PR144M	5.988E-18	3.001E-17	3.238E-18	1.329E-18	2.606E-21	4.383E-22	1.243E-23	5.939E-26
ND144	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04
ND145	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04
ND146	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04
PM146	1.508E-10	1.236E-10	9.018E-11	7.950E-11	3.290E-11	2.557E-11	1.545E-11	7.252E-12
SM146	3.735E-09	3.745E-09	3.757E-09	3.761E-09	3.779E-09	3.781E-09	3.785E-09	3.788E-09
PM147	4.922E-07	3.242E-07	1.675E-07	1.286E-07	2.023E-08	1.193E-08	4.145E-09	8.493E-10
SM147	2.266E-04	2.268E-04	2.269E-04	2.270E-04	2.271E-04	2.271E-04	2.271E-04	2.271E-04
ND148	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04
SM148	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05
SM149	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06
ND150	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04
SM150	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04
EU150	1.675E-13	1.625E-13	1.549E-13	1.519E-13	1.328E-13	1.278E-13	1.184E-13	1.055E-13
SM151	9.296E-06	9.184E-06	9.008E-06	8.939E-06	8.470E-06	8.341E-06	8.088E-06	7.722E-06
EU151	2.225E-06	2.337E-06	2.513E-06	2.582E-06	3.051E-06	3.180E-06	3.433E-06	3.799E-06
SM152	7.335E-05	7.335E-05	7.335E-05	7.335E-05	7.335E-05	7.335E-05	7.336E-05	7.336E-05
EU152	1.320E-08	1.217E-08	1.071E-08	1.018E-08	7.112E-09	6.420E-09	5.231E-09	3.848E-09
GD152	4.487E-08	4.516E-08	4.556E-08	4.571E-08	4.657E-08	4.676E-08	4.709E-08	4.748E-08
EU153	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05
GD153	3.001E-17	5.747E-18	4.204E-19	1.477E-19	9.752E-23	3.353E-24	3.353E-24	8.670E-24
SM154	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05
EU154	5.734E-07	5.048E-07	4.126E-07	3.806E-07	2.164E-07	1.842E-07	1.334E-07	8.222E-08
GD154	1.046E-05	1.053E-05	1.062E-05	1.065E-05	1.082E-05	1.085E-05	1.090E-05	1.095E-05
EU155	2.163E-07	1.718E-07	1.194E-07	1.032E-07	3.724E-08	2.783E-08	1.554E-08	6.487E-09
GD155	3.928E-06	3.972E-06	4.025E-06	4.041E-06	4.107E-06	4.116E-06	4.129E-06	4.138E-06
GD156	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05
GD157	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07
GD158	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06
TB159	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07
GD160	9.757E-08	9.757E-08	9.757E-08	9.757E-08	9.757E-08	9.757E-08	9.757E-08	9.757E-08
DY160	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08
DY161	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08
DY162	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08
DY163	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08
DY164	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09
HO165	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09
HO166M	1.801E-11	1.799E-11	1.797E-11	1.796E-11	1.788E-11	1.786E-11	1.782E-11	1.776E-11
ER166	8.959E-10	8.959E-10	8.959E-10	8.960E-10	8.960E-10	8.960E-10	8.961E-10	8.961E-10
ER167	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10
ER168	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10
TM169	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13
ER170	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16
YB170	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13
TM171	2.022E-18	1.143E-18	4.635E-19	3.231E-19	2.582E-20	1.254E-20	2.953E-21	3.455E-22
YB171	4.017E-15	4.018E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15
YB172	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14

Source Listing of Program ELESBW1

```
      PROGRAM ELESBW1

!-------- WRITTEN BY D.R. WENZEL

!            To sum the mg/mL of SBW, convert to g/L and round
!            the output to 2 places of accuracy

      CHARACTER (LEN=2) :: BLANK, ELE, SMBCAP, SMBLC
      CHARACTER (LEN=6) :: NAME, NUCLIDE(29)
      CHARACTER (LEN=85) :: TITLE
      EQUIVALENCE (ELE, NAME)
      LOGICAL :: FIRST, FOUND
      REAL *4 OLD(7), SIGMA(7), TOTAL(7)

      OPEN(3,FILE ='SBW_RUN1.G', STATUS='OLD',FORM='FORMATTED', ERR = 900)
      OPEN(4,FILE ='SYMBOL', STATUS='OLD',FORM='FORMATTED', ERR = 910)
      OPEN(6,FILE ='SBW_RUN1.ELE', STATUS='UNKNOWN', ERR = 920)

      DATA BLANK /'  '/

      DATA NUCLIDE /'AL 27 ','CR 50 ','CR 52 ','CR 53 ','CR 54 ',      &
                    'FE 54 ','FE 56 ','FE 57 ','FE 58 ','NI 58 ',      &
                    'NI 60 ','NI 61 ','NI 62 ','NI 64 ','ZR 90 ',      &
                    'ZR 91 ','ZR 92 ','ZR 94 ','ZR 96 ','SN112 ',      &
                    'SN114 ','SN115 ','SN116 ','SN117 ','SN118 ',      &
                    'SN120 ','SN119 ','SN122 ','SN124 '/


      FIRST = .TRUE.
      SIGMA = 0.

!        Read symbol of element to be summed

   10 READ(4,400) SMBCAP, SMBLC
  400 FORMAT(A2,3X,A2)
      FOUND = .FALSE.
      IF(SMBCAP == BLANK) GO TO 100

!--------- Zero out summary

      TOTAL = 0.

!--------- On the first pass only, modify the name on the first
!          line of data

      READ(3,300) TITLE
  300 FORMAT(A85)
      IF(FIRST) WRITE(6,600)
  600 FORMAT(1X,'SBW_RUN1.ELE    g/L')

!--------- On the first pass only, echo the next line of data

      READ(3,300) TITLE
      IF(FIRST) WRITE(6,610) TITLE
```

Source Listing of Program ELESBW1 (Continued)

```
  610  FORMAT(A85,/,'Element',5X,'1999Jul   2002Jan   2003Jan   2010' &
             'Jan   2012Jan   2016Jan   2022Jan')

!--------- Skip the next 2 lines of data

       READ(3,300) TITLE
       READ(3,300) TITLE
       FIRST = .FALSE.

!--------- Read individual nuclide mass and search for the
!          element to be summed

   60  READ(3,310,END=80) NAME, (OLD(J),J=1,7)
  310  FORMAT(1X,A6,14X,7(1PE10.3))
       IF(ELE /= SMBCAP) GO TO 60

!--------- Bypass sum when nuclide is stable and element measured
!          by analytical analysis

       DO K=1,29
          IF(NAME == NUCLIDE(K)) GO TO 60
       END DO

       FOUND = .TRUE.
       DO J=1,7

!--------- Multiply by .001 to convert from mg to g

          TOTAL(J) = TOTAL(J) + OLD(J) * .001
       END DO

       GO TO 60

!--------- Write element total when element found

   80  REWIND(3)
       IF(.NOT. FOUND) GO TO 10

!--------- Write results with 2 places of accuracy

       IF(TOTAL(1) > 0.) THEN
          WRITE(6,620) SMBLC, (TOTAL(J),J=1,7)
  620     FORMAT(1X,a2,6X,7(1PE10.1))
       ENDIF

!--------- Keep a sum of the total for all elements

       DO J=1,7
          SIGMA(J) = SIGMA(J) + TOTAL(J)
       END DO

       GO TO 10
  100  WRITE(6,630) (SIGMA(J),J=1,7)
  630  FORMAT(1X,/,1X,'Total ',2X,7(1PE10.1))
       GO TO 999
```

Source Listing of Program ELESBW1 (Continued)

```
!-------- ERROR STATEMENTS

  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE 3')
       GO TO 999

  910  WRITE(6,9010)
 9010  FORMAT(2X,'ERROR IN OPENING FILE 4')
       GO TO 999

  920  WRITE(6,9020)
 9020  FORMAT(2X,'ERROR IN OPENING FILE 6')
       GO TO 999

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM ELESBW1
```

See Appendix A-4, pages 4 of 9, for a listing of file SYMBOL.

SBW_RUN1.ELE g/L
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

Element	1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
H	1.9E-09	1.7E-09	1.6E-09	1.1E-09	9.5E-10	7.6E-10	5.4E-10
He	2.3E-07	2.5E-07	2.5E-07	3.0E-07	3.1E-07	3.3E-07	3.6E-07
Li	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10
Be	2.4E-10	2.4E-10	2.4E-10	2.4E-10	2.4E-10	2.4E-10	2.4E-10
B	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08
C	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05
N	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05
O	2.4E-03	2.4E-03	2.4E-03	2.4E-03	2.4E-03	2.4E-03	2.4E-03
F	2.4E-12	2.4E-12	2.4E-12	2.4E-12	2.4E-12	2.4E-12	2.4E-12
Ne	2.5E-14	2.5E-14	2.5E-14	2.5E-14	2.5E-14	2.5E-14	2.5E-14
Na	1.9E-15	1.9E-15	1.9E-15	1.9E-15	1.9E-15	1.9E-15	1.9E-15
Mg	4.8E-10	4.8E-10	4.8E-10	4.8E-10	4.8E-10	4.8E-10	4.8E-10
Si	3.8E-05	3.8E-05	3.8E-05	3.8E-05	3.8E-05	3.8E-05	3.8E-05
P	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
S	4.8E-08	4.8E-08	4.8E-08	4.8E-08	4.8E-08	4.8E-08	4.8E-08
Cl	3.9E-17	3.9E-17	3.9E-17	3.9E-17	3.9E-17	3.9E-17	3.9E-17
Ar	4.4E-17	4.4E-17	4.4E-17	4.4E-17	4.4E-17	4.4E-17	4.4E-17
K	1.4E-18	1.4E-18	1.4E-18	1.4E-18	1.4E-18	1.4E-18	1.4E-18
Ca	3.1E-11	3.1E-11	3.1E-11	3.1E-11	3.1E-11	3.1E-11	3.1E-11
Sc	5.2E-13	5.2E-13	5.2E-13	5.2E-13	5.2E-13	5.2E-13	5.2E-13
Ti	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05
V	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06
Mn	6.8E-07	7.6E-07	7.8E-07	8.3E-07	8.3E-07	8.4E-07	8.4E-07
Co	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05
Cu	1.5E-07	1.6E-07	1.6E-07	2.0E-07	2.1E-07	2.2E-07	2.5E-07
Zn	8.6E-10	8.6E-10	8.6E-10	8.6E-10	8.6E-10	8.6E-10	8.6E-10
Ga	9.5E-13	9.5E-13	9.5E-13	9.5E-13	9.5E-13	9.5E-13	9.5E-13
Ge	4.6E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07
As	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07
Se	4.6E-05	4.6E-05	4.6E-05	4.6E-05	4.6E-05	4.6E-05	4.6E-05
Br	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05
Kr	3.2E-04	3.2E-04	3.2E-04	3.2E-04	3.2E-04	3.2E-04	3.2E-04
Rb	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04
Sr	5.9E-04	5.7E-04	5.7E-04	5.3E-04	5.2E-04	5.1E-04	4.8E-04
Y	4.4E-04	4.4E-04	4.4E-04	4.4E-04	4.4E-04	4.4E-04	4.4E-04
Nb	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04
Mo	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03
Tc	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04
Ru	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03
Rh	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Pd	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Ag	5.0E-06	5.0E-06	5.0E-06	5.0E-06	5.0E-06	5.0E-06	5.0E-06
Cd	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05
In	4.2E-06	4.2E-06	4.2E-06	4.2E-06	4.2E-06	4.2E-06	4.2E-06
Sb	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05
Te	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04
I	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04
Xe	3.5E-03	3.5E-03	3.5E-03	3.5E-03	3.5E-03	3.5E-03	3.5E-03
Cs	1.7E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03
Ba	1.5E-03	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03
La	9.3E-04	9.3E-04	9.3E-04	9.3E-04	9.3E-04	9.3E-04	9.3E-04
Ce	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03
Pr	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04

SBW_RUN1.ELE (Continued) g/L
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:25

Element	1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
Nd	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03
Pm	3.2E-07	1.7E-07	1.3E-07	2.0E-08	1.2E-08	4.2E-09	8.6E-10
Sm	6.0E-04	6.0E-04	6.0E-04	6.0E-04	6.0E-04	6.0E-04	6.0E-04
Eu	5.5E-05	5.6E-05	5.6E-05	5.6E-05	5.6E-05	5.6E-05	5.6E-05
Gd	2.9E-05	2.9E-05	2.9E-05	2.9E-05	2.9E-05	2.9E-05	2.9E-05
Tb	2.4E-07	2.4E-07	2.4E-07	2.4E-07	2.4E-07	2.4E-07	2.4E-07
Dy	7.4E-08	7.4E-08	7.4E-08	7.4E-08	7.4E-08	7.4E-08	7.4E-08
Ho	3.1E-09	3.1E-09	3.1E-09	3.1E-09	3.1E-09	3.1E-09	3.1E-09
Er	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09
Tm	6.0E-13	6.0E-13	6.0E-13	6.0E-13	6.0E-13	6.0E-13	6.0E-13
Yb	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13
Lu	2.6E-07	2.6E-07	2.6E-07	2.6E-07	2.6E-07	2.6E-07	2.6E-07
Hf	3.9E-04	3.9E-04	3.9E-04	3.9E-04	3.9E-04	3.9E-04	3.9E-04
Ta	1.9E-05	1.9E-05	1.9E-05	1.9E-05	1.9E-05	1.9E-05	1.9E-05
W	5.4E-06	5.4E-06	5.4E-06	5.4E-06	5.4E-06	5.4E-06	5.4E-06
Re	3.2E-10	3.2E-10	3.2E-10	3.2E-10	3.2E-10	3.2E-10	3.2E-10
Os	3.9E-11	3.9E-11	3.9E-11	3.9E-11	3.9E-11	3.9E-11	3.9E-11
Tl	6.0E-18	4.0E-18	3.6E-18	2.7E-18	2.7E-18	2.6E-18	2.5E-18
Pb	6.3E-11	6.7E-11	6.8E-11	7.5E-11	7.7E-11	8.0E-11	8.5E-11
Bi	1.2E-15	1.3E-15	1.3E-15	1.6E-15	1.8E-15	2.0E-15	2.5E-15
Po	3.3E-16	3.9E-16	4.1E-16	6.4E-16	6.8E-16	8.5E-16	1.1E-15
At	7.4E-26	7.7E-26	7.9E-26	9.4E-26	9.9E-26	1.1E-25	1.4E-25
Rn	3.7E-17	3.9E-17	4.0E-17	5.2E-17	5.5E-17	6.3E-17	7.5E-17
Fr	8.7E-21	9.6E-21	1.0E-20	1.2E-20	1.3E-20	1.4E-20	1.6E-20
Ra	5.0E-12	5.6E-12	5.8E-12	7.7E-12	8.3E-12	9.5E-12	1.1E-11
Ac	3.1E-13	3.5E-13	3.6E-13	4.5E-13	4.7E-13	5.2E-13	5.8E-13
Th	3.2E-08	3.4E-08	3.4E-08	3.7E-08	3.8E-08	4.0E-08	4.3E-08
Pa	1.2E-09	1.2E-09	1.2E-09	1.3E-09	1.3E-09	1.3E-09	1.4E-09
U	8.1E-02	8.1E-02	8.1E-02	8.1E-02	8.1E-02	8.1E-02	8.1E-02
Np	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04
Pu	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03
Am	1.9E-05	1.9E-05	1.9E-05	2.0E-05	2.0E-05	2.1E-05	2.1E-05
Cm	4.4E-09	4.0E-09	3.9E-09	3.0E-09	2.8E-09	2.5E-09	2.0E-09
Bk	3.8E-24	3.8E-24	3.8E-24	3.8E-24	3.8E-24	3.8E-24	3.8E-24
Cf	5.5E-18	5.5E-18	5.5E-18	5.3E-18	5.3E-18	5.3E-18	5.2E-18
Total	1.1E-01	1.1E-01	1.1E-01	1.1E-01	1.1E-01	1.1E-01	1.1E-01

File SBW_RUN2.INP

```
-1
-1
-1
  RDA      ORIGEN2, VERSION 2.1 (8-1-91)
  BAS      Sodium Bearing Waste (SBW)
  CUT      -1
  LIP      0 0 0
  LIB      0  1 2 3  204  908  909   9   50  0  4  0
  PHO      101  102  103  10
  INP      -1   1  -1  -1  1  1
  MOV      -1   1   0   1.0
  HED       1                                                  Ci/L
  OPTL     8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTA     8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTF     8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  DEC       34.08  1   2   5   0
  DEC       44.08  2   3   5   0
  DEC      118.08  3   4   5   0
  DEC      402.08  4   5   5   0
  DEC     1018.08  5   6   5   0
  DEC     1112.08  6   7   5   0
  DEC    10002.08  7   8   5   0
  OUT       -8    1     -1    0
  OUT        8    1     -1    0
  END
  1   10011 0.000E+00  10012 2.501E-11  20030 1.886E-15 0 0.
  1   50100 4.378E-17  50110 1.235E-08  60120 3.036E-05 0 0.
  1   60130 4.150E-07  70140 3.913E-05  70150 1.503E-07 0 0.
  1   80160 2.356E-03  80170 9.451E-07  80180 4.724E-06 0 0.
  1   90190 2.386E 12 100200 2.203E-17 100210 1.720E-16 0 0.
  1  100220 2.483E-14 110230 1.940E-15 120240 7.720E-11 0 0.
  1  120250 2.779E-10 120260 1.224E-10 130270 3.942E-05 0 0.
  1  140280 3.526E-05 140290 1.787E-06 140300 1.186E-06 0 0.
  1  140320 5.777E-18 150310 1.722E-06 150320 3.481E-22 0 0.
  1  160340 4.833E-08 170370 3.914E-17 180380 3.118E-22 0 0.
  1  180390 4.492E-25 180400 4.374E-17 180420 4.303E-26 0 0.
  1  190410 1.403E-18 190420 1.839E-30 200420 2.437E-20 0 0.
  1  200430 3.292E-12 200440 2.511E-11 200450 9.881E-25 0 0.
  1  200460 2.989E-12 210450 5.194E-13 210460 4.104E-31 0 0.
  1  220460 1.573E-06 220470 1.434E-06 220480 1.437E-05 0 0.
  1  220490 1.235E-06 220500 1.070E-06 230500 1.645E-08 0 0.
  1  230510 1.881E-06 240500 1.152E-04 240510 0.000E+00 0 0.
  1  240520 2.252E-03 240530 2.563E-04 240540 6.865E-05 0 0.
  1  250540 1.327E-14 250550 6.002E-07 260540 4.114E-02 0 0.
  1  260550 2.372E-07 260560 6.390E-01 260570 1.593E-02 0 0.
  1  260580 2.087E-03 270580 5.535E-27 270590 1.836E-05 0 0.
  1  270600 5.942E-08 280580 1.391E-03 280590 4.235E-06 0 0.
  1  280600 5.335E-04 280610 2.425E-05 280620 7.258E-05 0 0.
  1  280630 6.582E-07 280640 1.861E-05 290630 1.194E-07 0 0.
  1  290650 2.029E-08 300640 1.119E-11 300650 5.898E-23 0 0.
  1  420940 4.653E-09 440980 4.691E-21 491131 1.272E-25 0 0.
  1  491141 0.000E+00 501120 2.938E-04 501130 2.118E-22 0 0.
  1  701730 6.695E-15 701740 3.067E-16 711750 2.534E-07 0 0.
  1  711760 6.181E-09 711770 2.618E-25 711771 2.630E-23 0 0.
```

File SBW_RUN2.INP (Continued)

```
1  721740 3.409E-07 721750 3.053E-29 721760 1.531E-05 0 0.
1  721770 5.124E-06 721780 9.142E-05 721790 1.202E-04 0 0.
1  721800 1.582E-04 721810 0.000E+00 721820 8.297E-09 0 0.
1  731810 1.884E-05 731820 2.903E-16 741820 2.577E-06 0 0.
1  741830 2.675E-06 741840 1.616E-07 741850 3.386E-30 0 0.
1  741860 2.604E-12 741880 4.784E-38 751850 3.166E-10 0 0.
1  751870 1.068E-13 751880 4.881E-40 761860 3.904E-11 0 0.
1  761880 3.437E-15 761890 2.387E-17 761900 8.439E-19 0 0.
2   20040 2.231E-07 812060 7.049E-34 812070 1.096E-19 0 0.
2  812080 8.411E-18 812090 6.206E-24 822060 5.899E-15 0 0.
2  822070 1.110E-13 822080 5.953E-11 822090 2.586E-20 0 0.
2  822100 1.821E-14 822110 8.478E-19 822120 4.961E-15 0 0.
2  822140 1.374E-19 832080 3.847E-23 832090 8.190E-16 0 0.
2  832101 2.716E-22 832100 1.121E-17 832110 5.002E-20 0 0.
2  832120 4.706E-16 832130 6.076E-21 832140 1.020E-19 0 0.
2  842100 2.946E-16 842110 6.137E-25 842120 2.490E-26 0 0.
2  842130 9.116E-30 842140 1.404E-26 842150 7.099E-25 0 0.
2  842160 1.980E-20 842180 1.593E-20 852170 7.300E-26 0 0.
2  862190 1.609E-21 862200 7.475E-18 862220 2.929E-17 0 0.
2  872210 6.630E-22 872230 7.450E-21 882230 4.086E-16 0 0.
2  882240 4.327E-14 882250 2.997E-18 882260 4.557E-12 0 0.
2  882280 1.449E-18 892250 2.025E-18 892270 2.887E-13 0 0.
2  892280 1.513E-22 902270 6.715E-16 902280 8.379E-12 0 0.
2  902290 5.524E-13 902300 2.725E-08 902310 1.480E-13 0 0.
2  902320 4.469E-09 902340 1.125E-13 912310 1.136E-09 0 0.
2  912330 9.976E-12 912341 3.794E-18 912340 1.695E-18 0 0.
2  922320 9.079E-11 922330 1.325E-09 922340 1.502E-04 0 0.
2  922350 1.044E-02 922360 8.137E-04 922370 9.068E-15 0 0.
2  922380 6.920E-02 922400 4.765E-23 932350 3.827E-17 0 0.
2  932360 4.766E-10 932370 8.535E-04 932380 2.401E-16 0 0.
2  932390 7.401E-14 932401 4.225E-24 942360 1.069E-11 0 0.
2  942380 3.849E-05 942390 1.021E-03 942400 7.611E-05 0 0.
2  942410 4.758E-06 942420 3.187E-06 942430 1.335E-24 0 0.
2  942440 4.616E-11 952410 1.831E-05 952421 2.088E-09 0 0.
2  952420 2.499E-14 952430 1.404E-07 952450 1.310E-32 0 0.
2  962420 5.670E-12 962430 9.985E-11 962440 4.242E-09 0 0.
2  962450 2.789E-10 962460 1.023E-11 962470 3.743E-14 0 0.
2  962480 8.625E-16 962500 1.609E-24 972490 3.817E-24 0 0.
2  982490 5.149E-18 982500 2.046E-19 982510 2.073E-19 0 0.
2  982520 3.174E-22       0 0.              0 0.         0 0.
3   10030 2.091E-09   30060 1.887E-10   30070 7.282E-12 0 0.
3   40090 1.468E-10   40100 9.634E-11   60140 1.044E-07 0 0.
3  300660 3.422E-11 300670 1.728E-14 300680 1.850E-10 0 0.
3  310690 2.859E-13 300700 6.313E-10 320700 8.205E-16 0 0.
3  310710 6.662E-13 320720 6.488E-09 320730 2.147E-08 0 0.
3  320740 5.526E-08 330750 1.278E-07 320760 3.798E-07 0 0.
3  340760 1.955E-09 340770 8.281E-07 340780 1.767E-06 0 0.
3  340790 4.385E-06 350790 1.359E-09 340800 1.053E-05 0 0.
3  360800 5.216E-11 350810 1.768E-05 360810 1.652E-12 0 0.
3  340820 2.834E-05 360820 3.581E-07 360830 4.042E-05 0 0.
3  360840 9.616E-05 360850 4.202E-06 370850 1.083E-04 0 0.
3  360860 1.798E-04 380860 2.024E-07 370870 2.325E-04 0 0.
3  380870 1.228E-08 380880 3.364E-04 380890 0.000E+00 0 0.
3  390890 4.416E-04 380900 2.592E-04 390900 6.833E-08 0 0.
3  400900 9.930E-01 390910 0.000E+00 400910 2.165E-01 0 0.
```

File SBW_RUN2.INP (Continued)

```
3  400920 3.320E-01 400930 1.198E-03 410930 5.736E-04 0 0.
3  410931 7.412E-09 400940 3.358E-01 410940 5.502E-06 0 0.
3  400950 9.506E-18 410950 2.508E-29 410951 1.741E-32 0 0.
3  420950 7.199E-04 400960 5.452E-02 420960 1.712E-05 0 0.
3  420970 7.454E-04 420980 5.952E-04 430980 2.079E-09 0 0.
3  430990 5.811E-04 440990 5.520E-08 421000 6.538E-04 0 0.
3  441000 4.160E-05 441010 5.243E-04 441020 4.616E-04 0 0.
3  451020 1.680E-12 441030 0.000E+00 451030 2.690E-04 0 0.
3  451031 0.000E+00 441040 2.075E-04 461040 6.998E-05 0 0.
3  461050 1.067E-04 441060 1.048E-09 451060 4.766E-17 0 0.
3  461060 5.633E-05 461070 2.248E-05 471070 6.957E-11 0 0.
3  461080 1.121E-05 471080 3.718E-23 471081 1.178E-14 0 0.
3  481080 1.832E-11 471090 4.970E-06 471091 5.464E-25 0 0.
3  481090 5.531E-19 461100 4.235E-06 471100 9.469E-24 0 0.
3  471101 6.246E-16 481100 1.390E-06 481110 3.377E-06 0 0.
3  481120 2.633E-06 481130 4.225E-07 481131 1.465E-08 0 0.
3  491130 3.065E-06 481140 4.417E-06 491140 0.000E+00 0 0.
3  501140 1.992E-04 491150 1.111E-06 491151 0.000E+00 0 0.
3  501150 1.032E-04 481160 2.346E-06 501160 4.416E-03 0 0.
3  501170 2.368E-03 501180 7.401E-03 501190 2.663E-03 0 0.
3  501191 1.263E-13 501200 9.983E-03 501211 3.631E-08 0 0.
3  511210 1.155E-05 501220 1.420E-03 521220 4.808E-07 0 0.
3  501230 4.480E-21 511230 4.223E-06 521230 5.018E-09 0 0.
3  521231 1.509E-24 501240 1.767E-03 511240 0.000E+00 0 0.
3  521240 1.002E-07 511250 5.487E-08 521250 1.641E-05 0 0.
3  521251 9.278E-10 501260 1.014E-05 511260 4.817E-13 0 0.
3  511261 3.662E-15 521260 3.161E-07 521270 6.596E-26 0 0.
3  521271 1.885E-23 531270 2.162E-05 541270 0.000E+00 0 0.
3  521280 5.473E-05 541280 6.701E-07 521290 0.000E+00 0 0.
3  521291 0.000E+00 531290 9.482E-05 541290 4.837E-09 0 0.
3  521300 2.063E-04 541300 3.174E-06 541310 3.235E-04 0 0.
3  541320 6.640E-04 561320 4.520E-10 551330 8.587E-04 0 0.
3  541340 1.073E-03 551340 7.585E-08 561340 6.892E-05 0 0.
3  551350 3.556E-04 561350 9.014E-08 541360 1.473E-03 0 0.
3  561360 8.468E-06 551370 4.531E-04 561370 4.181E-04 0 0.
3  561371 6.930E-11 561380 9.746E-04 571380 6.951E-09 0 0.
3  571390 9.256E-04 581400 9.189E-04 581410 0.000E+00 0 0.
3  591410 8.534E-04 581420 8.678E-04 601420 9.738E-06 0 0.
3  601430 7.347E-04 581440 5.808E-10 591440 1.198E-15 0 0.
3  591441 5.988E-18 601440 9.540E-04 601450 5.529E-04 0 0.
3  601460 4.884E-04 611460 1.508E-10 621460 3.735E-09 0 0.
3  611470 4.922E-07 621470 2.266E-04 601480 2.612E-04 0 0.
3  611480 0.000E+00 611481 0.000E+00 621480 8.770E-05 0 0.
3  621490 9.794E-06 601500 1.012E-04 621500 1.796E-04 0 0.
3  631500 1.675E-13 621510 9.296E-06 631510 2.225E-06 0 0.
3  621520 7.335E-05 631520 1.320E-08 641520 4.487E-08 0 0.
3  631530 5.247E-05 641530 3.001E-17 621540 1.269E-05 0 0.
3  631540 5.734E-07 641540 1.046E-05 631550 2.163E-07 0 0.
3  641550 3.928E-06 641560 1.146E-05 641570 1.108E-07 0 0.
3  641580 2.428E-06 651590 2.437E-07 641600 9.757E-08 0 0.
3  651600 2.590E-29 661600 1.936E-08 661610 2.437E-08 0 0.
3  661620 1.734E-08 661630 1.039E-08 661640 2.534E-09 0 0.
3  671650 3.126E-09 671661 1.801E-11 681660 8.959E-10 0 0.
3  681670 2.222E-10 681680 1.405E-10 691690 6.018E-13 0 0.
3  681700 1.541E-16 691700 1.096E-27 701700 1.041E-13 0 0.
```

File SBW_RUN2.INP (Continued)

```
3  691710 2.022E-18 701710 4.017E-15 701720 1.077E-14 0 0.
0
```

File SBW_RUN2.BAT

```
echo off
echo **                                                                  **
echo **                          O R I G E N 2                           **
echo **                                                                  **
copy sbw_run2.INP tape5.inp >nul
REM  (NOT USED IN THIS CASE) copy sbw_run2.u3 tape3.inp >nul
copy \origen2\libs\decaymod.lib+\origen2\libs\atr.lib tape9.inp >nul
copy \origen2\libs\gxuo2brm.lib tape10.inp >nul
\origen2\code\origen2
rem  combine and save files from run
copy tape12.out+tape6.out sbw_run2.u6 >nul
copy tape13.out+tape11.out sbw_run2.u11 >nul
ren tape7.out sbw_run2.pch
ren tape15.out sbw_run2.dbg
ren tape16.out sbw_run2.vxs
ren tape50.out sbw_run2.ech
rem  cleanup files
del tape*.inp
del tape*.out
del sbw_run2.pch
del sbw_run2.dbg
del sbw_run2.vxs
del sbw_run2.ech
del sbw_run2.u11
echo ************************************************************************
echo ******************* O R I G E N 2 - Version 2.1 ************************
echo ********************** Execution Completed ****************************
echo ************************************************************************
echo on
```

sbw_run2.ci
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	Ci/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
SI 32	9.933E-17	9.579E-17	9.477E-17	8.758E-17	6.470E-17	3.354E-17	3.034E-17	2.317E-21
P 32	9.937E-17	9.579E-17	9.478E-17	8.759E-17	6.470E-17	3.354E-17	3.035E-17	2.317E-21
AR 39	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.531E-23	1.724E-33
V 50	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21	2.942E-21
MN 54	1.027E-10	1.049E-22	3.180E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE 55	5.932E-04	6.721E-08	4.673E-09	1.264E-17	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO 60	6.721E-05	7.597E-07	2.039E-07	1.208E-11	7.226E-28	0.000E+00	0.000E+00	0.000E+00
NI 59	3.209E-07	3.208E-07	3.208E-07	3.206E-07	3.198E-07	3.181E-07	3.178E-07	2.943E-07
NI 63	4.061E-05	3.142E-05	2.914E-05	1.668E-05	1.964E-06	1.894E-08	9.330E-09	0.000E+00
ZN 65	4.861E-19	2.095E-34	6.756E-39	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LU176	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16	4.187E-16
HF182	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.811E-12	1.811E-12	1.810E-12
TA182	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.812E-12	1.811E-12	1.811E-12	1.810E-12
RE187	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21	4.085E-21
TL206	0.000E+00	1.536E-25	1.536E-25	1.536E-25	1.536E-25	1.536E-25	1.536E-25	1.536E-25
TL207	2.088E-11	4.881E-11	5.527E-11	9.428E-11	2.440E-10	5.329E-10	5.627E-10	4.393E-09
TL208	2.478E-09	5.972E-10	5.402E-10	2.566E-10	1.492E-11	2.317E-13	2.145E-13	2.011E-13
TL209	2.539E-15	6.511E-15	8.850E-15	4.267E-14	4.404E-13	2.729E-12	3.245E-12	2.011E-10
PB209	1.176E-13	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
PB210	1.391E-12	7.087E-12	9.630E-12	4.033E-11	4.090E-10	2.157E-09	2.405E-09	7.775E-08
PB211	2.094E-11	4.895E-11	5.542E-11	9.454E-11	2.446E-10	5.344E-10	5.643E-10	4.405E-09
PB212	6.896E-09	1.662E-09	1.503E-09	7.142E-10	4.153E-11	6.448E-13	5.969E-13	5.596E-13
PB214	4.507E-12	1.465E-11	1.844E-11	5.826E-11	4.091E-10	2.158E-09	2.528E-09	7.777E-08
BI208	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25	1.797E-25
BI210M	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25	1.542E-25
BI210	1.391E-12	7.087E-12	9.633E-12	4.033E-11	4.090E-10	2.157E-09	2.405E-09	7.775E-08
BI211	2.094E-11	4.895E-11	5.542E-11	9.454E-11	2.446E-10	5.344E-10	5.643E-10	4.405E-09
BI212	6.896E-09	1.662E-09	1.503E-09	7.142E-10	4.153E-11	6.448E-13	5.969E-13	5.596E-13
BI213	1.175E-13	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
BI214	4.505E-12	1.465E-11	1.844E-11	5.826E-11	4.091E-10	2.158E-09	2.528E-09	7.777E-08
PO210	1.324E-12	7.087E-12	9.633E-12	4.033E-11	4.090E-10	2.157E-09	2.405E-09	7.775E-08
PO211	5.862E-14	1.371E-13	1.552E-13	2.647E-13	6.850E-13	1.496E-12	1.580E-12	1.233E-11
PO212	0.000E+00	1.065E-09	9.633E-10	4.576E-10	2.661E-11	4.131E-13	3.825E-13	3.585E-13
PO213	0.000E+00	2.949E-13	4.009E-13	1.933E-12	1.995E-11	1.236E-10	1.470E-10	9.109E-09
PO214	0.000E+00	1.465E-11	1.844E-11	5.825E-11	4.090E-10	2.157E-09	2.527E-09	7.775E-08
PO215	2.094E-11	4.895E-11	5.542E-11	9.454E-11	2.446E-10	5.344E-10	5.643E-10	4.405E-09
PO216	6.897E-09	1.662E-09	1.503E-09	7.142E-10	4.153E-11	6.448E-13	5.969E-13	5.596E-13
PO218	4.507E-12	1.466E-11	1.844E-11	5.828E-11	4.092E-10	2.158E-09	2.528E-09	7.778E-08
AT217	0.000E+00	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
RN219	2.094E-11	4.895E-11	5.542E-11	9.454E-11	2.446E-10	5.344E-10	5.643E-10	4.405E-09
RN220	6.897E-09	1.662E-09	1.503E-09	7.142E-10	4.153E-11	6.448E-13	5.969E-13	5.596E-13
RN222	4.507E-12	1.466E-11	1.844E-11	5.828E-11	4.092E-10	2.158E-09	2.528E-09	7.778E-08
FR221	1.176E-13	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
FR223	2.883E-13	6.753E-13	7.637E-13	1.305E-12	3.376E-12	7.375E-12	7.787E-12	6.079E-11
RA223	2.093E-11	4.895E-11	5.542E-11	9.454E-11	2.446E-10	5.344E-10	5.643E-10	4.405E-09
RA224	6.895E-09	1.662E-09	1.503E-09	7.142E-10	4.153E-11	6.448E-13	5.969E-13	5.596E-13
RA225	1.175E-13	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
RA226	4.507E-12	1.466E-11	1.844E-11	5.828E-11	4.092E-10	2.158E-09	2.528E-09	7.778E-08
RA228	3.953E-16	5.561E-16	5.829E-16	7.973E-16	1.537E-15	3.147E-15	3.394E-15	2.738E-14
AC225	1.176E-13	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
AC227	2.089E-11	4.893E-11	5.534E-11	9.453E-11	2.446E-10	5.344E-10	5.642E-10	4.405E-09
AC228	3.394E-16	5.561E-16	5.830E-16	7.973E-16	1.537E-15	3.147E-15	3.394E-15	2.738E-14
TH227	2.065E-11	4.827E-11	5.466E-11	9.324E-11	2.413E-10	5.270E-10	5.565E-10	4.344E-09
TH228	6.871E-09	1.662E-09	1.503E-09	7.142E-10	4.153E-11	6.448E-13	5.969E-13	5.596E-13
TH229	1.176E-13	3.014E-13	4.097E-13	1.975E-12	2.039E-11	1.263E-10	1.502E-10	9.310E-09
TH230	5.503E-10	8.459E-10	9.356E-10	1.631E-09	4.519E-09	1.095E-08	1.192E-08	9.967E-08
TH231	7.871E-08	2.258E-08	2.258E-08	2.258E-08	2.260E-08	2.264E-08	2.264E-08	2.312E-08
TH232	4.903E-16	5.789E-16	6.048E-16	7.972E-16	1.537E-15	3.147E-15	3.394E-15	2.738E-14
TH234	2.606E-09	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08
PA231	5.368E-11	6.992E-11	7.468E-11	1.099E-10	2.446E-10	5.342E-10	5.782E-10	4.405E-09
PA233	2.071E-07	6.015E-07	6.017E-07	6.034E-07	6.082E-07	6.134E-07	6.138E-07	6.147E-07
PA234M	2.607E-09	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08
PA234	3.390E-12	3.023E-11	3.023E-11	3.023E-11	3.023E-11	3.023E-11	3.023E-11	3.023E-11
U232	2.032E-09	1.616E-09	1.461E-09	6.944E-10	4.039E-11	6.393E-13	5.862E-13	5.322E-13
U233	1.278E-11	1.018E-10	1.280E-10	3.220E-10	1.070E-09	2.705E-09	2.955E-09	2.621E-08
U234	9.351E-07	9.907E-07	1.004E-06	1.078E-06	1.160E-06	1.167E-06	1.167E-06	1.139E-06

sbw_run2.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	Ci/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
U235	2.258E-08	2.258E-08	2.258E-08	2.258E-08	2.260E-08	2.264E-08	2.264E-08	2.312E-08
U236	5.265E-08	5.267E-08	5.267E-08	5.271E-08	5.285E-08	5.314E-08	5.319E-08	5.579E-08
U237	7.405E-10	2.327E-09	1.436E-09	4.026E-11	1.182E-15	1.082E-15	1.074E-15	5.200E-16
U238	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08	2.326E-08
U240	4.415E-17	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16
NP235	5.371E-14	1.858E-23	1.858E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	6.281E-12	6.280E-12	6.279E-12	6.276E-12	6.266E-12	6.242E-12	6.239E-12	5.913E-12
NP237	6.007E-07	6.015E-07	6.017E-07	6.034E-07	6.082E-07	6.134E-07	6.138E-07	6.147E-07
NP238	6.225E-11	9.254E-11	8.811E-11	6.124E-11	1.516E-11	7.340E-13	4.624E-13	4.862E-32
NP239	1.717E-08	2.795E-08	2.792E-08	2.773E-08	2.700E-08	2.548E-08	2.525E-08	1.094E-08
NP240M	4.475E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16	8.362E-16
PU236	5.682E-09	1.998E-12	6.911E-13	5.649E-13	5.639E-13	5.618E-13	5.615E-13	5.322E-13
PU238	6.594E-04	5.037E-04	4.655E-04	2.594E-04	2.750E-05	2.117E-07	1.008E-07	2.137E-29
PU239	6.337E-05	6.330E-05	6.329E-05	6.315E-05	6.264E-05	6.154E-05	6.137E-05	4.754E-05
PU240	1.728E-05	1.722E-05	1.720E-05	1.707E-05	1.656E-05	1.552E-05	1.537E-05	6.009E-06
PU241	4.920E-04	9.487E-05	5.853E-05	1.641E-06	4.825E-11	4.416E-11	4.383E-11	2.122E-11
PU242	1.262E-08	1.262E-08	1.262E-08	1.262E-08	1.261E-08	1.260E-08	1.259E-08	1.239E-08
PU243	3.476E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.473E-18
PU244	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16	8.373E-16
PU246	0.000E+00	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26
AM241	6.287E-05	7.226E-05	7.231E-05	6.595E-05	4.186E-05	1.559E-05	1.341E-05	2.985E-11
AM242M	2.188E-08	1.851E-08	1.762E-08	1.225E-08	3.032E-09	1.468E-10	9.248E-11	9.724E-30
AM242	2.023E-08	1.842E-08	1.753E-08	1.219E-08	3.017E-09	1.461E-10	9.202E-11	9.675E-30
AM243	2.804E-08	2.795E-08	2.792E-08	2.773E-08	2.700E-08	2.548E-08	2.525E-08	1.094E-08
AM246	0.000E+00	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26	3.307E-26
CM242	1.875E-08	1.523E-08	1.450E-08	1.008E-08	2.495E-09	1.208E-10	7.610E-11	8.027E-30
CM243	5.156E-09	2.251E-09	1.765E-09	2.918E-10	2.910E-13	9.066E-20	9.562E-21	0.000E+00
CM244	3.433E-07	9.316E-08	6.353E-08	3.741E-09	7.114E-14	4.099E-24	4.099E-24	0.000E+00
CM245	4.791E-11	4.777E-11	4.773E-11	4.745E-11	4.536E-11	4.409E-11	4.375E-11	2.119E-11
CM246	3.144E-12	3.128E-12	3.123E-12	3.090E-12	2.964E-12	2.708E-12	2.671E-12	7.261E-13
CM247	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.474E-18	3.473E-18
CM248	3.668E-18	3.668E-18	3.668E-18	3.668E-18	3.665E-18	3.661E-18	3.660E-18	3.594E-18
CM250	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25	1.323E-25
BK249	6.257E-21	1.223E-32	4.484E-36	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BK250	0.000E+00	1.852E-26	1.852E-26	1.852E-26	1.852E-26	1.852E-26	1.852E-26	1.852E-26
CF249	2.110E-17	1.973E-17	1.934E-17	1.671E-17	9.527E-18	2.818E-18	2.340E-18	5.410E-26
CF250	2.238E-17	3.675E-18	2.165E-18	4.395E-20	3.132E-26	1.852E-26	1.852E-26	1.852E-26
CF251	3.289E-19	3.204E-19	3.179E-19	3.003E-19	2.411E-19	1.499E-19	1.394E-19	1.253E-22
CF252	1.708E-19	2.205E-23	2.205E-23	7.929E-32	0.000E+00	0.000E+00	0.000E+00	0.000E+00
H 3	2.019E-05	2.980E-06	1.700E-06	2.671E-08	3.188E-15	3.070E-30	3.070E-30	0.000E+00
BE 10	2.154E-12	2.154E-12	2.154E-12	2.153E-12	2.153E-12	2.153E-12	2.153E-12	2.144E-12
C 14	4.655E-07	4.636E-07	4.630E-07	4.589E-07	4.434E-07	4.116E-07	4.069E-07	1.388E-07
SE 79	3.056E-07	3.055E-07	3.055E-07	3.052E-07	3.043E-07	3.023E-07	3.020E-07	2.747E-07
KR 81	3.476E-14	3.475E-14	3.475E-14	3.474E-14	3.471E-14	3.464E-14	3.463E-14	3.363E-14
KR 85	1.649E-03	1.821E-04	9.539E-05	7.972E-07	8.445E-15	4.253E-32	4.253E-32	0.000E+00
RB 87	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11	2.035E-11
SR 90	3.537E-02	1.572E-02	1.239E-02	2.128E-03	2.471E-06	1.060E-12	1.131E-13	0.000E+00
Y 90	3.719E-02	1.572E-02	1.239E-02	2.129E-03	2.472E-06	1.060E-12	1.132E-13	0.000E+00
ZR 93	3.011E-06	3.011E-06	3.011E-06	3.011E-06	3.011E-06	3.010E-06	3.010E-06	2.998E-06
NB 93M	2.096E-06	2.726E-06	2.780E-06	2.859E-06	2.860E-06	2.860E-06	2.859E-06	2.848E-06
NB 94	1.031E-06	1.030E-06	1.030E-06	1.027E-06	1.017E-06	9.960E-07	9.928E-07	7.329E-07
TC 98	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.807E-12	1.804E-12
TC 99	9.944E-06	9.943E-06	9.943E-06	9.940E-06	9.931E-06	9.911E-06	9.908E-06	9.623E-06
RH102	2.031E-09	5.890E-13	5.396E-14	1.124E-21	0.000E+00	0.000E+00	0.000E-00	0.000E+00
RU106	3.508E-06	2.330E-16	2.498E-19	0.000E+00	0.000E+00	0.000E+00	0.000E-00	0.000E+00
RH106	1.697E-07	2.330E-16	2.498E-19	0.000E+00	0.000E+00	0.000E+00	0.000E-00	0.000E+00
PD107	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.156E-08	1.155E-08
AG108	2.732E-14	7.850E-15	7.721E-15	6.829E-15	4.264E-15	1.535E-15	1.314E-15	5.196E-22
AG108M	9.333E-14	8.820E-14	8.675E-14	7.673E-14	4.791E-14	1.725E-14	1.476E-14	5.838E-21
AG109M	1.429E-15	1.200E-23	1.200E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD109	1.429E-15	1.200E-23	1.200E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110	3.949E-14	3.989E-29	1.286E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110M	2.968E-12	2.999E-27	1.194E-31	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD113M	3.288E-06	6.158E-07	3.767E-07	9.913E-09	8.579E-15	6.070E-28	6.070E-28	0.000E+00
IN115	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18	7.833E-18
SN119M	5.658E-10	2.882E-25	9.383E-30	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN121M	1.951E-06	1.270E-06	1.120E-06	4.406E-07	1.230E-08	5.237E-12	1.602E-12	0.000E+00

sbw_run2.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	Ci/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
TE123	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18	1.459E-18
SB125	5.668E-05	1.121E-08	9.179E-10	8.325E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE125M	1.672E-05	2.735E-09	2.239E-10	2.031E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN126	2.878E-07	2.877E-07	2.877E-07	2.876E-07	2.870E-07	2.858E-07	2.856E-07	2.685E-07
SB126	4.006E-08	4.028E-08	4.028E-08	4.026E-08	4.018E-08	4.001E-08	3.998E-08	3.759E-08
SB126M	2.855E-07	2.877E-07	2.877E-07	2.876E-07	2.870E-07	2.858E-07	2.856E-07	2.685E-07
I129	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.675E-08	1.674E-08
CS134	9.818E-05	1.039E-09	3.603E-11	5.664E-22	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS135	4.096E-07	4.096E-07	4.096E-07	4.096E-07	4.096E-07	4.095E-07	4.095E-07	4.084E-07
CS137	3.943E-02	1.794E-02	1.424E-02	2.576E-03	3.635E-06	2.394E-12	2.729E-13	0.000E+00
BA137M	3.729E-02	1.697E-02	1.347E-02	2.437E-03	3.443E-06	2.265E-12	2.581E-13	0.000E+00
LA138	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16	1.334E-16
CE142	2.083E-11	2.083E-11	2.083E-11	2.083E-11	2.083E-11	2.083E-11	2.083E-11	2.083E-11
CE144	1.854E-06	1.219E-19	1.652E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144	9.055E-08	1.219E-19	1.652E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144M	1.086E-09	1.462E-21	1.982E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND144	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15	1.129E-15
PM146	6.716E-08	9.159E-10	2.597E-10	2.314E-14	6.610E-30	0.000E+00	0.000E+00	0.000E+00
SM146	1.307E-13	1.326E-13	1.327E-13	1.327E-13	1.327E-13	1.327E-13	1.327E-13	1.326E-13
PM147	4.565E-04	5.609E-08	3.994E-09	1.289E-17	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM147	5.152E-12	5.163E-12	5.163E-12	5.163E-12	5.163E-12	5.163E-12	5.163E-12	5.163E-12
SM148	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17	2.649E-17
SM149	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18	2.352E-18
EU150	1.107E-11	5.751E-12	4.746E-12	1.146E-12	4.902E-15	3.567E-20	6.223E-21	0.000E+00
SM151	2.447E-04	1.882E-04	1.742E-04	9.853E-05	1.106E-05	9.618E-08	4.663E-08	0.000E+00
EU152	2.294E-06	4.008E-07	2.402E-07	5.437E-09	2.639E-15	5.327E-29	5.327E-29	0.000E+00
GD152	9.776E-19	1.044E-18	1.049E-18	1.058E-18	1.058E-18	1.058E-18	1.058E-18	1.058E-18
GD153	1.059E-13	3.480E-29	9.964E-34	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU154	1.550E-04	9.918E-06	4.427E-06	1.132E-08	1.276E-18	3.499E-40	0.000E+00	0.000E+00
EU155	1.049E-04	7.330E-07	1.709E-07	3.567E-12	3.890E-30	0.000E+00	0.000E+00	0.000E+00
HO166M	3.233E-11	3.170E-11	3.152E-11	3.020E-11	2.563E-11	1.796E-11	1.701E-11	1.001E-13
TM171	2.203E-15	9.991E-21	1.106E-20	2.763E-32	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Source Listing of Program ROUNDSB2

```
      PROGRAM ROUNDSB2

!-------- WRITTEN BY D.R. WENZEL

!            To round output from file sbw_2095.ci to 2 places
!            Add half-lives for better radionuclide identification

      CHARACTER (LEN=1) :: BUFFER1(111), BUFFER3(96)
      CHARACTER (LEN=10) :: BLANK, ZERO(7)
      CHARACTER (LEN=12) :: DESC, NAME, NUCLIDE(175)
      CHARACTER (LEN=24) :: NAME2, NUCLIDE2(175)
      CHARACTER (LEN=96) :: BUFFER2
      CHARACTER (LEN=111) :: BUFFER, ORGLINE

      COMMON /AMT/ AMOUNT(9)
      EQUIVALENCE (ORGLINE, BUFFER1(1))
      EQUIVALENCE (BUFFER2, BUFFER3(1))
      EQUIVALENCE (ZERO(1), BUFFER3(27))

      REAL :: DATA(175,7), VALUE(7)

      DATA BLANK /'          '/

!-------- OPEN OUTPUT FILE

      OPEN(1,FILE ='MASTER', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(2,FILE ='SBW_RUN2.CI', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(6,FILE ='ROUNDSB2.OUT', STATUS='UNKNOWN', ERR = 900)

      WRITE(6,600)
  600 FORMAT(1x,'ROUNDSB2.OUT (Ci/L)')

!-------- READ MASTER LIST OF RADIONUCLIDES TO BE INCLUDED ON THE
!         FINAL REPORT

      LAST = 0
   10 READ(1,1000,END=20) NAME, NAME2
 1000 FORMAT(A12, 5X, A24)
      LAST = LAST + 1
      NUCLIDE(LAST) = NAME
      NUCLIDE2(LAST) = NAME2
      GO TO 10

!-------- ZERO MEMORY

   20 DO  l=1,175
         DO K=1,7
            DATA(l,K) = 0.
         END DO

      END DO
```

Source Listing of Program ROUNDSB2 (Continued)

```
!-------- READ RADIONUCLIDE INVENTORIES

!-------- READ FIRST 3 LINES OF FILE AND ECHO line 2

   35  DO  J=1,3
          READ(2,120) ORGLINE
  120     FORMAT(A111)

          IF(J == 2) THEN
             WRITE(6,120) ORGLINE
          END IF

       END DO

       WRITE(6,605)
  605  FORMAT(/,3X,'Nuclide',5X,'Half-Life',6X,'2032Jan   2042Jan   ', &
              '2116Jan   2400Jan   3016Jan   3110Jan   12000Jan')

!-------- READ RADIONUCLIDE INVENTORIES

   50  READ(2,120,END=80) ORGLINE
       WRITE(BUFFER,120) ORGLINE
       READ(BUFFER,400) DESC, VALUE
  400  FORMAT(A12,9X,7(E10.4))
       DO  J=1,175
          IF(DESC == NUCLIDE(J)) THEN
             DO 60 K=1,7
                DATA(J,K) = VALUE(K)
   60        CONTINUE

          END IF

       END DO

       GO TO 50

   80  DO  J=1,LAST
          WRITE(BUFFER2,620) NUCLIDE2(J), (DATA(J,K),K=1,7)
  620     FORMAT(2X,A24,7(1PE10.1))
          DO K=1,7
             IF(DATA(J,K) == 0.) THEN
                ZERO(K) = BLANK
             ENDIF

          END DO

          WRITE(6,625) BUFFER2
  625     FORMAT(A96)

       END DO

       GO TO 999

!-------- ERROR STATEMENTS
```

Source Listing of Program ROUNDSB2 (Continued)

```
  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE ')

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM ROUNDSB2
```

See Appendix A-2, pages 4-6, for a listing of file MASTER.

ROUNDSB2.OUT (Ci/L)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

Nuclide	Half-Life		2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
H-3	1.233E+01	yr	3.0E-06	1.7E-06	2.7E-08	3.2E-15	3.1E-30	3.1E-30	
Be-10	1.510E+06	yr	2.2E-12	2.2E-12	2.2E-12	2.2E-12	2.2E-12	2.2E-12	2.1E-12
C-14	5.729E+03	yr	4.6E-07	4.6E-07	4.6E-07	4.4E-07	4.1E-07	4.1E-07	1.4E-07
Ca-45	1.630E+02	d							
V-50	4.000E+16	yr	2.9E-21	2.9E-21	2.9E-21	2.9E-21	2.9E-21	2.9E-21	2.9E-21
Mn-54	3.125E+02	d	1.0E-22	3.2E-26					
Fe-55	2.600E+00	yr	6.7E-08	4.7E-09	1.3E-17				
Ni-59	8.000E+04	yr	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07	2.9E-07
Co-60	5.270E+00	yr	7.6E-07	2.0E-07	1.2E-11	7.2E-28			
Ni-63	9.200E+01	yr	3.1E-05	2.9E-05	1.7E-05	2.0E-06	1.9E-08	9.3E-09	
Se-79	1.130E+06	yr	3.1E-07	3.1E-07	3.1E-07	3.0E-07	3.0E-07	3.0E-07	2.7E-07
Rb-87	4.750E+10	yr	2.0E-11	2.0E-11	2.0E-11	2.0E-11	2.0E-11	2.0E-11	2.0E-11
Sr-90	2.878E+01	yr	1.6E-02	1.2E-02	2.1E-03	2.5E-06	1.1E-12	1.1E-13	
Y-90	6.400E+01	h	1.6E-02	1.2E-02	2.1E-03	2.5E-06	1.1E-12	1.1E-13	
Zr-93	1.530E+06	yr	3.0E-06	3.0E-06	3.0E-06	3.0E-06	3.0E-06	3.0E-06	3.0E-06
Nb-93m	1.360E+01	yr	2.7E-06	2.8E-06	2.9E-06	2.9E-06	2.9E-06	2.9E-06	2.8E-06
Nb-94	2.030E+04	yr	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	9.9E-07	7.3E-07
Tc-98	4.199E+06	yr	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12
Tc-99	2.111E+05	yr	9.9E-06	9.9E-06	9.9E-06	9.9E-06	9.9E-06	9.9E-06	9.6E-06
Rh-102	2.070E+02	d	5.9E-13	5.4E-14	1.1E-21				
Ru-106	3.682E+02	d	2.3E-16	2.5E-19					
Rh-106	2.990E+01	s	2.3E-16	2.5E-19					
Pd-107	6.500E+06	yr	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08
Ag-108	2.370E+00	m	7.8E-15	7.7E-15	6.8E-15	4.3E-15	1.5E-15	1.3E-15	5.2E-22
Ag-108m	4.180E+02	yr	8.8E-14	8.7E-14	7.7E 14	4.8E-14	1.7E-14	1.5E-14	5.8E-21
Ag-109m	3.960E+01	s	1.2E-23	1.2E-23					
Cd-109	4.640E+02	d	1.2E-23	1.2E-23					
Ag-110	2.460E+01	s	4.0E-29	1.3E-33					
Ag-110m	2.499E+02	d	3.0E-27	1.2E-31					
Cd-113m	1.410E+01	yr	6.2E-07	3.8E-07	9.9E-09	8.6E-15	6.1E-28	6.1E-28	
In-115	4.410E+14	yr	7.8E-18	7.8E-18	7.8E-18	7.8E-18	7.8E-18	7.8E-18	7.8E-18
Sn-119m	2.450E+02	d	2.9E-25	9.4E-30					
Sn-121m	5.500E+01	yr	1.3E-06	1.1E-06	4.4E-07	1.2E-08	5.2E-12	1.6E-12	
Te-123	1.000E+13	yr	1.5E-18	1.5E-18	1.5E-18	1.5E-18	1.5E-18	1.5E-18	1.5E-18
Sb-125	2.758E+00	yr	1.1E-08	9.2E-10	8.3E-18				
Te-125m	5.740E+01	d	2.7E-09	2.2E-10	2.0E-18				
Sn-126	1.000E+05	yr	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.7E-07
Sb-126	1.246E+01	d	4.0E-08	4.0E-08	4.0E-08	4.0E-08	4.0E-08	4.0E-08	3.8E-08
Sb-126m	1.915E+01	m	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.9E-07	2.7E-07
I-129	1.570E+07	yr	1.7E-08	1.7E-08	1.7E-08	1.7E-08	1.7E-08	1.7E-08	1.7E-08
Cs-134	2.065E+00	yr	1.0E-09	3.6E-11	5.7E-22				
Cs-135	2.300E+06	yr	4.1E-07	4.1E-07	4.1E-07	4.1E-07	4.1E-07	4.1E-07	4.1E-07
Cs-137	3.007E+01	yr	1.8E-02	1.4E-02	2.6E-03	3.6E-06	2.4E-12	2.7E-13	
Ba-137m	2.552E+00	m	1.7E-02	1.3E-02	2.4E-03	3.4E-06	2.3E-12	2.6E-13	
La-138	1.050E+11	yr	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16
Ce-142	5.000E+16	yr	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11
Ce-144	2.843E+02	d	1.2E-19	1.7E-23					
Pr-144	1.728E+01	m	1.2E-19	1.7E-23					
Pr-144m	7.200E+00	m	1.5E-21	2.0E-25					
Nd-144	2.290E+15	yr	1.1E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15
Pm-146	5.500E+00	yr	9.2E-10	2.6E-10	2.3E-14	6.6E-30			
Sm-146	7.000E+07	yr	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E 13	1.3E-13	1.3E-13
Pm-147	2.623E+00	yr	5.6E-08	4.0E-09	1.3E-17				
Sm-147	1.070E+11	yr	5.2E-12	5.2E-12	5.2E-12	5.2E-12	5.2E 12	5.2E-12	5.2E-12
Sm-148	7.000E+15	yr	2.6E-17	2.6E-17	2.6E-17	2.6E-17	2.6E-17	2.6E-17	2.6E-17
Sm-149	2.000E+15	yr	2.4E-18	2.4E-18	2.4E-18	2.4E-18	2.4E-18	2.4E-18	2.4E-18
Eu-150	3.690E+01	yr	5.8E-12	4.7E-12	1.1E-12	4.9E-15	3.6E-20	6.2E-21	
Sm-151	8.999E+01	yr	1.9E-04	1.7E-04	9.9E-05	1.1E-05	9.6E-08	4.7E-08	
Eu 152	1.354E+01	yr	4.0E-07	2.4E-07	5.4E-09	2.6E-15	5.3E-29	5.3E-29	
Gd-152	1.080E+14	yr	1.0E-18	1.0E-18	1.1E-18	1.1E-18	1.1E-18	1.1E-18	1.1E-18
Gd-153	2.420E+02	d	3.5E-29	1.0E-33					
Eu-154	8.593E+00	yr	9.9E-06	4.4E-06	1.1E-08	1.3E-18	3.5E-40		
Eu-155	4.761E+00	yr	7.3E-07	1.7E-07	3.6E-12	3.9E-30			
Ho-166m	1.200E+03	yr	3.2E-11	3.2E-11	3.0E-11	2.6E-11	1.8E-11	1.7E-11	1.0E-13
Tm-171	1.920E+00	yr	1.0E-20	1.1E-20	2.8E-32				
Lu-176	3.000E+10	yr	4.2E-16	4.2E-16	4.2E-16	4.2E-16	4.2E-16	4.2E-16	4.2E-16

ROUNDSB2.OUT (Ci/L)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

Nuclide	Half-Life		2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
Lu-177	6.709E+00	d							
Hf-182	9.000E+06	yr	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12
Ta-182	1.150E+02	d	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12
Re-187	5.000E+10	yr	4.1E-21	4.1E-21	4.1E-21	4.1E-21	4.1E-21	4.1E-21	4.1E-21
Tl-207	4.770E+00	m	4.9E-11	5.5E-11	9.4E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Tl-208	3.070E+00	m	6.0E-10	5.4E-10	2.6E-10	1.5E-11	2.3E-13	2.1E-13	2.0E-13
Tl-209	2.200E+00	m	6.5E-15	8.9E-15	4.3E-14	4.4E-13	2.7E-12	3.2E-12	2.0E-10
Pb-209	3.300E+00	h	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Pb-210	2.230E+01	yr	7.1E-12	9.6E-12	4.0E-11	4.1E-10	2.2E-09	2.4E-09	7.8E-08
Pb-211	3.610E+01	m	4.9E-11	5.5E-11	9.5E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Pb-212	1.064E+01	h	1.7E-09	1.5E-09	7.1E-10	4.2E-11	6.4E-13	6.0E-13	5.6E-13
Pb-214	2.680E+01	m	1.5E-11	1.8E-11	5.8E-11	4.1E-10	2.2E-09	2.5E-09	7.8E-08
Bi-210m	3.000E+06	yr	1.5E-25	1.5E-25	1.5E-25	1.5E-25	1.5E-25	1.5E-25	1.5E-25
Bi-210	5.012E+00	d	7.1E-12	9.6E-12	4.0E-11	4.1E-10	2.2E-09	2.4E-09	7.8E-08
Bi-211	2.130E+00	m	4.9E-11	5.5E-11	9.5E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Bi-212	6.055E+01	m	1.7E-09	1.5E-09	7.1E-10	4.2E-11	6.4E-13	6.0E-13	5.6E-13
Bi-213	4.565E+01	m	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Bi-214	1.990E+01	m	1.5E-11	1.8E-11	5.8E-11	4.1E-10	2.2E-09	2.5E-09	7.8E-08
Po-210	1.384E+02	d	7.1E-12	9.6E-12	4.0E-11	4.1E-10	2.2E-09	2.4E-09	7.8E-08
Po-211	5.600E-01	s	1.4E-13	1.6E-13	2.6E-13	6.9E-13	1.5E-12	1.6E-12	1.2E-11
Po-212	3.000E-07	s	1.1E-09	9.6E-10	4.6E-10	2.7E-11	4.1E-13	3.8E-13	3.6E-13
Po-213	4.200E-06	s	2.9E-13	4.0E-13	1.9E-12	2.0E-11	1.2E-10	1.5E-10	9.1E-09
Po-214	1.643E-04	s	1.5E-11	1.8E-11	5.8E-11	4.1E-10	2.2E-09	2.5E-09	7.8E-08
Po-215	1.780E-03	s	4.9E-11	5.5E-11	9.5E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Po-216	1.500E-01	s	1.7E-09	1.5E-09	7.1E-10	4.2E-11	6.4E-13	6.0E-13	5.6E-13
Po-218	3.050E+00	m	1.5E-11	1.8E-11	5.8E-11	4.1E-10	2.2E-09	2.5E-09	7.8E-08
At-217	3.230E-02	s	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Rn-219	3.960E+00	s	4.9E-11	5.5E-11	9.5E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Rn-220	5.560E+01	s	1.7E-09	1.5E-09	7.1E-10	4.2E-11	6.4E-13	6.0E-13	5.6E-13
Rn-222	3.824E+00	d	1.5E-11	1.8E-11	5.8E-11	4.1E-10	2.2E-09	2.5E-09	7.8E-08
Fr-221	4.800E+00	m	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Fr-223	2.180E+01	m	6.8E-13	7.6E-13	1.3E-12	3.4E-12	7.4E-12	7.8E-12	6.1E-11
Ra-223	1.143E+01	d	4.9E-11	5.5E-11	9.5E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Ra-224	3.660E+00	d	1.7E-09	1.5E-09	7.1E-10	4.2E-11	6.4E-13	6.0E-13	5.6E-13
Ra-225	1.480E+01	d	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Ra-226	1.600E+03	yr	1.5E-11	1.8E-11	5.8E-11	4.1E-10	2.2E-09	2.5E-09	7.8E-08
Ra-228	5.750E+00	yr	5.6E-16	5.8E-16	8.0E-16	1.5E-15	3.1E-15	3.4E-15	2.7E-14
Ac-225	1.000E+01	d	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Ac-227	2.177E+01	yr	4.9E-11	5.5E-11	9.5E-11	2.4E-10	5.3E-10	5.6E-10	4.4E-09
Ac-228	6.131E+00	h	5.6E-16	5.8E-16	8.0E-16	1.5E-15	3.1E-15	3.4E-15	2.7E-14
Th-227	1.872E+01	d	4.8E-11	5.5E-11	9.3E-11	2.4E-10	5.3E-10	5.6E-10	4.3E-09
Th-228	1.913E+00	yr	1.7E-09	1.5E-09	7.1E-10	4.2E-11	6.4E-13	6.0E-13	5.6E-13
Th-229	7.339E+03	yr	3.0E-13	4.1E-13	2.0E-12	2.0E-11	1.3E-10	1.5E-10	9.3E-09
Th-230	7.700E+04	yr	8.5E-10	9.4E-10	1.6E-09	4.5E-09	1.1E-08	1.2E-08	1.0E-07
Th-231	2.552E+01	h	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Th-232	1.405E+10	yr	5.8E-16	6.0E-16	8.0E-16	1.5E-15	3.1E-15	3.4E-15	2.7E-14
Th-234	2.410E+01	d	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Pa-231	3.277E+04	yr	7.0E-11	7.5E-11	1.1E-10	2.4E-10	5.3E-10	5.8E-10	4.4E-09
Pa-233	2.700E+01	d	6.0E-07	6.0E-07	6.0E-07	6.1E-07	6.1E-07	6.1E-07	6.1E-07
Pa-234m	1.170E+00	m	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Pa-234	6.700E+00	h	3.0E-11	3.0E-11	3.0E-11	3.0E-11	3.0E-11	3.0E-11	3.0E-11
U-232	6.890E+01	yr	1.6E-09	1.5E-09	6.9E-10	4.0E-11	6.4E-13	5.9E-13	5.3E-13
U-233	1.592E+05	yr	1.0E-10	1.3E-10	3.2E-10	1.1E-09	2.7E-09	3.0E-09	2.6E-08
U-234	2.455E+05	yr	9.9E-07	1.0E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.1E-06
U-235	7.038E+08	yr	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
U-236	2.342E+07	yr	5.3E-08	5.3E-08	5.3E-08	5.3E-08	5.3E-08	5.3E-08	5.6E-08
U-237	6.750E+00	d	2.3E-09	1.4E-09	4.0E-11	1.2E-15	1.1E-15	1.1E-15	5.2E-16
U-238	4.470E+09	yr	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
U-240	1.410E+01	h	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16
Np-236	1.150E+05	yr	6.3E-12	6.3E-12	6.3E-12	6.3E-12	6.2E-12	6.2E-12	5.9E-12
Np-237	2.140E+06	yr	6.0E-07	6.0E-07	6.0E-07	6.1E-07	6.1E-07	6.1E-07	6.1E-07
Np-238	2.117E+00	d	9.3E-11	8.8E-11	6.1E-11	1.5E-11	7.3E-13	4.6E-13	4.9E-32
Np-239	2.355E+00	d	2.8E-08	2.8E-08	2.8E-08	2.7E-08	2.5E-08	2.5E-08	1.1E-08
Np-240m	7.400E+00	m	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16
Pu-236	2.851E+00	yr	2.0E-12	6.9E-13	5.6E-13	5.6E-13	5.6E-13	5.6E-13	5.3E-13
Pu-238	8.770E+01	yr	5.0E-04	4.7E-04	2.6E-04	2.8E-05	2.1E-07	1.0E-07	2.1E-29
Pu-239	2.411E+04	yr	6.3E-05	6.3E-05	6.3E-05	6.3E-05	6.2E-05	6.1E-05	4.8E-05

ROUNDSB2.OUT (Ci/L)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

Nuclide	Half-Life		2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
Pu-240	6.537E+03	yr	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.6E-05	1.5E-05	6.0E-06
Pu-241	1.440E+01	yr	9.5E-05	5.9E-05	1.6E-06	4.8E-11	4.4E-11	4.4E-11	2.1E-11
Pu-242	3.733E+05	yr	1.3E-08	1.3E-08	1.3E-08	1.3E-08	1.3E-08	1.3E-08	1.2E-08
Pu-243	4.956E+00	h	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18
Pu-244	8.080E+07	yr	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16	8.4E-16
Am-241	4.322E+02	yr	7.2E-05	7.2E-05	6.6E-05	4.2E-05	1.6E-05	1.3E-05	3.0E-11
Am-242m	1.410E+02	yr	1.9E-08	1.8E-08	1.2E-08	3.0E-09	1.5E-10	9.2E-11	9.7E-30
Am-242	1.602E+01	h	1.8E-08	1.8E-08	1.2E-08	3.0E-09	1.5E-10	9.2E-11	9.7E-30
Am-243	7.370E+03	yr	2.8E-08	2.8E-08	2.8E-08	2.7E-08	2.5E-08	2.5E-08	1.1E-08
Cm-242	1.632E+02	d	1.5E-08	1.5E-08	1.0E-08	2.5E-09	1.2E-10	7.6E-11	8.0E-30
Cm-243	2.850E+01	yr	2.3E-09	1.8E-09	2.9E-10	2.9E-13	9.1E-20	9.6E-21	
Cm-244	1.811E+01	yr	9.3E-08	6.4E-08	3.7E-09	7.1E-14	4.1E-24	4.1E-24	
Cm-245	8.499E+03	yr	4.8E-11	4.8E-11	4.7E-11	4.6E-11	4.4E-11	4.4E-11	2.1E-11
Cm-246	4.731E+03	yr	3.1E-12	3.1E-12	3.1E-12	3.0E-12	2.7E-12	2.7E-12	7.3E-13
Cm-247	1.560E+07	yr	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18	3.5E-18
Cm-248	3.391E+05	yr	3.7E-18	3.7E-18	3.7E-18	3.7E-18	3.7E-18	3.7E-18	3.6E-18
Cf 249	3.505E+02	yr	2.0E-17	1.9E-17	1.7E-17	9.5E-18	2.8E-18	2.3E-18	5.4E-26
Cf-250	1.308E+01	yr	3.7E-18	2.2E-18	4.4E-20	3.1E-26	1.9E-26	1.9E-26	1.9E-26
Cf-251	8.980E+02	yr	3.2E-19	3.2E-19	3.0E-19	2.4E-19	1.5E-19	1.4E-19	1.3E-22
Cf-252	2.638E+00	yr	2.2E-23	2.2E-23	7.9E-32				

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ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	g/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
HE 3	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15	1.886E-15
B 10	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17	4.378E-17
B 11	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08	1.235E-08
C 12	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05	3.036E-05
C 13	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07	4.150E-07
N 14	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05	3.913E-05
N 15	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07	1.503E-07
O 16	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03	2.356E-03
O 17	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07	9.451E-07
O 18	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06	4.724E-06
F 19	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12	2.386E-12
NE 20	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17	2.203E-17
NE 21	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16	1.720E-16
NE 22	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14	2.483E-14
NA 23	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15	1.940E-15
MG 24	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11	7.720E-11
MG 25	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10	2.779E-10
MG 26	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10	1.224E-10
AL 27	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05	3.942E-05
SI 28	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05	3.526E-05
SI 29	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06	1.787E-06
SI 30	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06
SI 32	5.777E-18	5.571E-18	5.512E-18	5.094E-18	3.763E-18	1.951E-18	1.765E-18	1.347E-22
P 31	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06	1.722E-06
P 32	3.481E-22	3.356E-22	3.320E-22	3.068E-22	2.266E-22	1.175E-22	1.063E-22	8.116E-27
S 32	0.000E+00	2.062E-19	2.653E-19	6.835E-19	2.015E-18	3.826E-18	4.013E-18	5.777E-18
S 34	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08	4.833E-08
CL 37	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17	3.914E-17
AR 38	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22	3.118E-22
AR 39	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25	4.492E-25	5.057E-35
AR 40	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17	4.374E-17
K 41	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18	1.403E-18
CA 42	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20	2.437E-20
CA 43	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12	3.292E-12
CA 44	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11	2.511E-11
CA 46	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12	2.989E-12
SC 45	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13	5.194E-13
TI 46	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06	1.573E-06
TI 47	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06	1.434E-06
TI 48	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05	1.437E-05
TI 49	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06	1.235E-06
TI 50	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06	1.070E-06
V 50	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08	1.645E-08
V 51	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06	1.881E-06
CR 50	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04	1.152E-04
CR 52	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03	2.252E-03
CR 53	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04	2.563E-04
CR 54	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05	6.865E-05
MN 54	1.327E-14	1.355E-26	4.108E-30	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MN 55	6.002E-07	8.374E-07	8.374E-07	8.374E-07	8.374E-07	8.374E-07	8.374E-07	8.374E-07
FE 54	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02	4.114E-02
FE 55	2.372E-07	2.687E-11	1.869E-12	5.055E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE 56	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01	6.390E-01
FE 57	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02	1.593E-02
FE 58	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03	2.087E-03
CO 59	1.836E-05	1.836E-05	1.836E-05	1.836E-05	1.837E-05	1.840E-05	1.840E-05	1.871E-05
CO 60	5.942E-08	6.717E-10	1.803E-10	1.068E-14	6.388E-31	0.000E+00	0.000E-00	0.000E+00
NI 58	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03	1.391E-03
NI 59	4.235E-06	4.234E-06	4.233E-06	4.231E-06	4.220E-06	4.198E-06	4.194E-06	3.883E-06
NI 60	5.335E-04	5.336E-04	5.336E-04	5.336E-04	5.336E-04	5.336E-04	5.336E-04	5.336E-04
NI 61	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05	2.425E-05
NI 62	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05	7.258E-05
NI 63	6.582E-07	5.092E-07	4.722E-07	2.704E-07	3.182E-08	3.070E-10	1.512E-10	0.000E+00
NI 64	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05	1.861E-05
CU 63	1.194E-07	2.684E-07	3.054E-07	5.072E-07	7.458E-07	7.773E-07	7.774E-07	7.776E-07
CU 65	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08	2.029E-08
ZN 64	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11	1.119E-11
ZN 65	5.898E-23	2.542E-38	8.198E-43	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

sbw_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	g/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
MO 94	4.653E-09	4.653E 09	4.653E-09	4.653E-09	4.653E-09	4.653E-09	4.653E-09	4.653E-09
RU 98	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21	4.691E-21
IN113	0.000E+00	2.119E-22	2.119E-22	2.119E-22	2.119E-22	2.119E-22	2.119E-22	2.119E-22
SN112	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04	2.938E-04
YB173	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15	6.695E-15
YB174	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16	3.067E-16
LU175	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07	2.534E-07
LU176	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09	6.181E-09
HF174	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E-07	3.409E 07
HF176	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05	1.531E-05
HF177	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06	5.124E-06
HF178	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05	9.142E-05
HF179	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04	1.202E-04
HF180	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04	1.582E-04
HF182	8.297E-09	8.297E-09	8.297E-09	8.297E-09	8.297E-09	8.296E-09	8.296E-09	8.291E-09
TA181	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05	1.884E-05
TA182	2.903E-16	2.903E-16	2.903E-16	2.903E-16	2.903E-16	2.902E-16	2.902E-16	2.900E-16
W182	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06	2.577E-06
W183	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06	2.675E-06
W184	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07	1.616E-07
W186	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12	2.604E-12
RE185	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10	3.166E-10
RE187	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13	1.068E-13
OS186	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11	3.904E-11
OS187	0.000E+00	5.046E-23	5.046E-23	1.600E-22	5.805E-22	1.493E-21	1.632E-21	1.479E-20
OS188	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15	3.437E-15
OS189	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17	2.387E-17
OS190	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19	8.439E-19
HE 4	2.231E-07	4.160E-07	4.655E-07	7.547E-07	1.279E-06	1.815E-06	1.883E-06	6.518E-06
TL206	0.000E+00	7.047E-34	7.047E-34	7.047E-34	7.047E-34	7.047E-34	7.047E-34	7.047E-34
TL207	1.096E-19	2.562E-19	2.901E-19	4.949E-19	1.281E-18	2.797E-18	2.954E-18	2.306E-17
TL208	8.411E-18	2.027E-18	1.834E-18	8.712E-19	5.066E-20	7.864E-22	7.281E-22	6.825E-22
TL209	6.206E-24	1.592E-23	2.163E-23	1.043E-22	1.076E-21	6.670E-21	7.932E-21	4.916E-19
PB206	5.899E-15	5.806E-14	9.129E-14	7.787E-13	2.225E-11	3.040E-10	3.890E-10	1.318E-07
PB207	1.110E-13	6.027E-13	8.122E-13	3.060E-12	2.222E-11	1.167E-10	1.373E-10	9.188E-09
PB208	5.953E-11	9.184E-11	9.823E-11	1.299E-10	1.569E-10	1.587E-10	1.587E-10	1.607E-10
PB209	2.586E-20	6.631E-20	9.014E-20	4.346E-19	4.485E-18	2.779E-17	3.305E-17	2.048E-15
PB210	1.821E-14	9.279E-14	1.261E-13	5.281E-13	5.355E-12	2.824E-11	3.149E-11	1.018E-09
PB211	8.478E-19	1.982E-18	2.244E-18	3.828E-18	9.906E-18	2.164E-17	2.285E-17	1.784E-16
PB212	4.961E-15	1.196E-15	1.082E-15	5.138E-16	2.988E-17	4.638E-19	4.294E-19	4.026E-19
PB214	1.374E-19	4.468E-19	5.622E-19	1.776E-18	1.247E-17	6.578E-17	7.707E-17	2.371E-15
BI208	3.847E-23	3.847E-23	3.847E-23	3.847E 23	3.847E-23	3.847E-23	3.847E-23	3.847E-23
BI209	8.190E-16	3.380E-15	4.810E-15	3.717E-14	1.135E-12	1.759E-11	2.285E-11	1.355E-08
BI210M	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22	2.716E-22
BI210	1.121E-17	5.710E-17	7.761E-17	3.250E-16	3.295E-15	1.738E-14	1.938E-14	6.264E-13
BI211	5.002E-20	1.169E-19	1.324E-19	2.259E-19	5.845E-19	1.277E-18	1.348E-18	1.052E-17
BI212	4.706E-16	1.134E-16	1.026E-16	4.874E-17	2.834E-18	4.400E-20	4.073E-20	3.819E-20
BI213	6.076E-21	1.558E-20	2.118E-20	1.021E-19	1.054E-18	6.530E-18	7.765E-18	4.812E-16
BI214	1.020E-19	3.318E-19	4.175E-19	1.319E-18	9.261E-18	4.885E-17	5.723E-17	1.761E-15
PO210	2.946E-16	1.577E-15	2.144E-15	8.976E-15	9.102E-14	4.800E-13	5.353E-13	1.730E-11
PO211	6.137E-25	1.435E-24	1.625E-24	2.771E-24	7.171E-24	1.567E-23	1.654E-23	1.291E-22
PO212	0.000E+00	6.001E-27	5.428E-27	2.579E-27	1.499E-28	2.328E-30	2.155E-30	2.020E-30
PO213	0.000E+00	2.338E-29	3.178E-29	1.532E-28	1.581E-27	9.797E-27	1.165E-26	7.220E-25
PO214	0.000E+00	4.564E-26	5.743E-26	1.815E-25	1.274E-24	6.720E-24	7.873E-24	2.422E-22
PO215	7.099E-25	1.660E-24	1.879E-24	3.206E-24	8.295E-24	1.812E-23	1.913E-23	1.494E-22
PO216	1.980E-20	4.772E-21	4.316E-21	2.050E-21	1.192E-22	1.851E-24	1.714E-24	1.606E-24
PO218	1.593E-20	5.181E-20	6.519E-20	2.060E-19	1.446E-18	7.628E-18	8.937E-18	2.749E-16
AT217	0.000E+00	1.872E-25	2.545E-25	1.227E-24	1.266E-23	7.845E-23	9.329E-23	5.782E-21
RN219	1.609E-21	3.761E-21	4.258E-21	7.265E-21	1.880E-20	4.106E-20	4.336E-20	3.385E-19
RN220	7.475E-18	1.802E-18	1.629E-18	7.741E-19	4.501E-20	6.988E-22	6.469E-22	6.065E-22
RN222	2.929E-17	9.525E-17	1.199E-16	3.787E-16	2.659E-15	1.402E-14	1.643E-14	5.055E-13
FR221	6.630E-22	1.700E-21	2.311E-21	1.114E-20	1.150E-19	7.124E-19	8.472E-19	5.250E-17
FR223	7.450E-21	1.745E 20	1.974E-20	3.371E-20	8.725E-20	1.906E-19	2.012E-19	1.571E-18
RA223	4.086E-16	9.554E-16	1.082E-15	1.845E-15	4.775E-15	1.043E-14	1.101E-14	8.598E-14
RA224	4.327E-14	1.043E-14	9.435E-15	4.482E-15	2.606E-16	4.046E-18	3.746E-18	3.512E-18
RA225	2.997E-18	7.686E-18	1.045E-17	5.037E-17	5.198E-16	3.221E-15	3.830E-15	2.374E-13
RA226	4.557E-12	1.482E-11	1.865E-11	5.892E-11	4.137E-10	2.182E-09	2.556E-09	7.864E-08

sbw_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	g/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
RA228	1.449E-18	2.038E-18	2.137E-18	2.923E-18	5.633E-18	1.154E-17	1.244E-17	1.004E-16
AC225	2.025E-18	5.192E-18	7.057E-18	3.402E-17	3.512E-16	2.176E-15	2.588E-15	1.604E-13
AC227	2.887E-13	6.762E-13	7.647E-13	1.306E-12	3.381E-12	7.385E-12	7.797E-12	6.088E-11
AC228	1.513E-22	2.479E 22	2.599E-22	3.555E-22	6.851E-22	1.403E-21	1.513E-21	1.221E-20
TH227	6.715E-16	1.570E-15	1.778E-15	3.032E-15	7.846E-15	1.714E-14	1.810E-14	1.413E-13
TH228	8.379E-12	2.027E-12	1.833E-12	8.710E-13	5.065E-14	7.863E-16	7.280E 16	6.824E-16
TH229	5.524E-13	1.417E-12	1.925E-12	9.283E-12	9.580E-11	5.936E-10	7.059E 10	4.375E-08
TH230	2.725E-08	4.189E-08	4.633E-08	8.074E-08	2.238E-07	5.420E-07	5.904E-07	4.935E-06
TH231	1.480E-13	4.245E-14	4.245E-14	4.246E-14	4.250E-14	4.257E-14	4.258E 14	4.347E-14
TH232	4.469E-09	5.276E-09	5.513E-09	7.266E-09	1.401E-08	2.869E-08	3.093E-08	2.496E 07
TH234	1.125E-13	1.004E-12	1.004E-12	1.004E-12	1.004E-12	1.004E-12	1.004E-12	1.004E-12
PA231	1.136E 09	1.480E-09	1.580E-09	2.326E-09	5.176E-09	1.131E-08	1.224E-08	9.322E-08
PA233	9.976E-12	2.897E-11	2.898E-11	2.906E-11	2.929E-11	2.954E-11	2.956E-11	2.961E-11
PA234M	3.794E-18	3.385E-17	3.385E-17	3.385E-17	3.385E-17	3.385E-17	3.385E-17	3.385E-17
PA234	1.695E-18	1.512E-17	1.512E-17	1.512E-17	1.512E-17	1.512E-17	1.512E-17	1.512E 17
U232	9.079E-11	7.222E-11	6.531E-11	3.103E-11	1.805E-12	2.857E-14	2.619E 14	2.378E-14
U233	1.325E-09	1.056E-08	1.327E 08	3.340E-08	1.110E-07	2.805E-07	3.064E-07	2.719E-06
U234	1.502E-04	1.591E-04	1.613E-04	1.731E-04	1.863E-04	1.875E-04	1.875E-04	1.829E-04
U235	1.044E-02	1.044E-02	1.044E-02	1.044E-02	1.045E-02	1.047E-02	1.047E 02	1.069E-02
U236	8.137E-04	8.140E-04	8.140E-04	8.146E-04	8.168E-04	8.213E-04	8.220E-04	8.623E-04
U237	9.068E-15	2.850E-14	1.758E-14	4.931E-16	1.448E-20	1.325E-20	1.315E-20	6.368E-21
U238	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E-02	6.920E 02	6.920E-02
U240	4.765E-23	9.026E-22	9.026E-22	9.026E-22	9.026E-22	9.026E-22	9.026E-22	9.025E-22
NP235	3.827E-17	1.324E-26	1.324E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	4.766E-10	4.765E-10	4.765E-10	4.763E-10	4.754E-10	4.737E-10	4.734E-10	4.487E-10
NP237	8.535E-04	8.546E-04	8.549E-04	8.572E-04	8.641E-04	8.714E-04	8.720E-04	8.734E-04
NP238	2.401E-16	3.569E-16	3.398E-16	2.362E-16	5.848E-17	2.831E-18	1.784E-18	1.875E-37
NP239	7.401E-14	1.204E-13	1.203E-13	1.195E-13	1.163E-13	1.098E-13	1.088E-13	4.716E 14
NP240M	4.225E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24	7.895E-24
PU236	1.069E-11	3.758E-15	1.300E-15	1.063E-15	1.061E-15	1.057E-15	1.056E-15	1.001E-15
PU238	3.849E-05	2.940E-05	2.717E-05	1.514E-05	1.605E-06	1.236E-08	5.881E-09	1.247E-30
PU239	1.021E-03	1.020E-03	1.020E-03	1.018E-03	1.009E-03	9.916E-04	9.889E-04	7.659E-04
PU240	7.611E-05	7.584E-05	7.576E-05	7.517E-05	7.295E-05	6.835E-05	6.768E-05	2.646E-05
PU241	4.758E-06	9.174E-07	5.660E-07	1.587E-08	4.666E-13	4.271E-13	4.238E-13	2.053E-13
PU242	3.187E-06	3.187E-06	3.187E-06	3.186E-06	3.185E-06	3.181E-06	3.181E 06	3.129E-06
PU243	1.335E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24	1.334E-24
PU244	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11	4.616E-11
PU246	0.000E+00	6.757E-31	6.757E-31	6.757E-31	6.757E-31	6.757E-31	6.757E-31	6.757E-31
AM241	1.831E-05	2.105E-05	2.106E-05	1.921E-05	1.219E-05	4.540E-06	3.904E-06	8.693E-12
AM242M	2.088E-09	1.766E-09	1.681E-09	1.169E-09	2.893E-10	1.401E-11	8.824E-12	9.278E-31
AM242	2.499E-14	2.274E-14	2.165E-14	1.505E-14	3.726E-15	1.804E-16	1.137E-16	1.195E-35
AM243	1.404E-07	1.400E-07	1.398E-07	1.388E-07	1.352E-07	1.276E-07	1.265E-07	5.481E-08
AM246	0.000E+00	1.081E-33	1.081E-33	1.081E-33	1.081E-33	1.081E-33	1.081E-33	1.081E-33
CM242	5.670E-12	4.604E-12	4.384E-12	3.047E-12	7.543E-13	3.652E-14	2.301E-14	2.427E-33
CM243	9.985E-11	4.359E-11	3.418E-11	5.651E-12	5.634E-15	1.756E-21	1.852E-22	0.000E+00
CM244	4.242E-09	1.151E-09	7.850E-10	4.621E-11	8.790E-16	5.064E-26	5.064E-26	0.000E+00
CM245	2.789E-10	2.781E-10	2.779E-10	2.762E-10	2.699E-10	2.567E-10	2.547E-10	1.234E-10
CM246	1.023E-11	1.018E-11	1.016E-11	1.005E-11	9.645E-12	8.812E-12	8.692E 12	2.363E-12
CM247	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.743E-14	3.741E-14
CM248	8.625E-16	8.624E-16	8.624E-16	8.623E-16	8.518E-16	8.607E-16	8.605E-16	8.450E-16
CM250	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24	1.609E-24
BK249	3.817E-24	7.460E-36	2.736E-39	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BK250	0.000E+00	4.759E-33	4.759E-33	4.759E-33	4.759E-33	4.759E-33	4.759E-33	4.759E-33
CF249	5.149E-18	4.813E-18	4.719E-18	4.077E-18	2.325E-18	6.875E-19	5.709E-19	1.320E-26
CF250	2.046E-19	3.360E-20	1.979E-20	4.019E-22	2.864E-28	1.693E-28	1.693E-28	1.693E-28
CF251	2.073E-19	2.019E-19	2.004E-19	1.892E-19	1.520E-19	9.447E-20	8.786E-20	7.894E-23
CF252	3.174E-22	4.099E-26	4.099E-26	1.474E-34	0.000E+00	0.000E+00	0.000E-00	0.000E+00
SF250	0.000E+00	3.745E-14	4.685E-14	1.048E-13	2.582E-13	5.254E-13	5.644E-13	3.064E-12
H 3	2.091E-09	3.087E-10	1.761E-10	2.766E-12	3.302E-19	3.180E-34	3.180E-34	0.000E+00
LI 6	1.887E-10	1.887E-10	1.887E-10	1.887E-10	1.887E-10	1.887E-10	1.887E-10	1.887E-10
LI 7	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12	7.282E-12
BE 9	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E-10	1.468E 10	1.468E-10
BE 10	9.634E-11	9.634E-11	9.634E-11	9.634E-11	9.632E-11	9.630E-11	9.629E-11	9.592E-11
C 14	1.044E-07	1.040E-07	1.038E-07	1.029E-07	9.944E-08	9.230E-08	9.126E-08	3.113E-08
ZN 66	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11	3.422E-11
ZN 67	1.728E 14	1.728E-14	1.728E-14	1.728E-14	1.728E-14	1.728E-14	1.728E 14	1.728E-14
ZN 68	1.850E-10	1.850E-10	1.850E-10	1.850E 10	1.850E-10	1.850E-10	1.850E-10	1.850E 10

sbw_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	g/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
GA 69	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13	2.859E-13
ZN 70	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10	6.313E-10
GE 70	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16	8.205E-16
GA 71	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13	6.662E-13
GE 72	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09	6.488E-09
GE 73	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08	2.147E-08
GE 74	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08	5.526E-08
AS 75	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07	1.278E-07
GE 76	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07	3.798E-07
SE 76	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09	1.955E-09
SE 77	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07	8.281E-07
SE 78	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06	1.767E-06
SE 79	4.385E-06	4.383E-06	4.383E-06	4.379E-06	4.366E-06	4.338E-06	4.333E-06	3.941E-06
BR 79	1.359E-09	2.953E-09	3.421E-09	6.880E-09	2.013E-08	4.874E-08	5.308E-08	4.452E-07
SE 80	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05	1.053E-05
KR 80	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11	5.216E-11
BR 81	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05	1.768E-05
KR 81	1.652E-12	1.652E-12	1.652E-12	1.651E-12	1.650E-12	1.646E-12	1.646E-12	1.598E-12
SE 82	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05	2.834E-05
KR 82	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07	3.581E-07
KR 83	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05	4.042E-05
KR 84	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05	9.616E-05
KR 85	4.202E-06	4.639E-07	2.430E-07	2.031E-09	2.152E-17	1.084E-34	1.084E-34	0.000E+00
RB 85	1.083E-04	1.120E-04	1.123E-04	1.125E-04	1.125E-04	1.125E-04	1.125E-04	1.125E-04
KR 86	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04	1.798E-04
SR 86	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07	2.024E-07
RB 87	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04	2.325E-04
SR 87	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.228E-08	1.231E-08
SR 88	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04	3.364E-04
Y 89	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04	4.416E-04
SR 90	2.592E-04	1.152E-04	9.078E-05	1.560E-05	1.811E-08	7.767E-15	8.290E-16	0.000E+00
Y 90	6.833E-08	2.888E-08	2.276E-08	3.911E-09	4.541E-12	1.948E-18	2.079E-19	0.000E+00
ZR 90	9.930E-01	9.931E-01	9.932E-01	9.932E-01	9.933E-01	9.933E-01	9.933E-01	9.933E-01
ZR 91	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01
ZR 92	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01	3.320E-01
ZR 93	1.198E-03	1.198E-03	1.198E-03	1.198E-03	1.198E-03	1.197E-03	1.197E-03	1.193E-03
NB 93	5.736E-04	5.736E-04	5.736E-04	5.737E-04	5.738E-04	5.741E-04	5.742E-04	5.790E-04
NB 93M	7.412E-09	9.641E-09	9.831E-09	1.011E-08	1.012E-08	1.011E-08	1.011E-08	1.007E-08
ZR 94	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01	3.358E-01
NB 94	5.502E-06	5.496E-06	5.494E-06	5.480E-06	5.427E-06	5.314E-06	5.297E-06	3.910E-06
MO 95	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04	7.199E-04
ZR 96	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02	5.452E-02
MO 96	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05	1.712E-05
MO 97	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04	7.454E-04
MO 98	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04	5.952E-04
TC 98	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.079E-09	2.076E-09
TC 99	5.811E-04	5.810E-04	5.810E-04	5.809E-04	5.803E-04	5.792E-04	5.790E-04	5.623E-04
RU 99	5.520E-08	1.202E-07	1.393E-07	2.805E-07	8.219E-07	1.994E-06	2.173E-06	1.883E-05
MO100	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04	6.538E-04
RU100	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05	4.160E-05
RU101	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04	5.243E-04
RU102	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04	4.616E-04
RH102	1.680E-12	4.872E-16	4.463E-17	9.294E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH103	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04	2.690E-04
RU104	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04	2.075E-04
PD104	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05	6.998E-05
PD105	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04	1.067E-04
RU106	1.048E-09	6.961E-20	7.462E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH106	4.766E-17	6.543E-26	7.014E-29	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD106	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05	5.633E-05
PD107	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.248E-05	2.246E-05
AG107	6.957E-11	1.513E-10	1.753E-10	3.527E-10	1.034E-09	2.510E-09	2.736E-09	2.404E-08
PD108	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05	1.121E-05
AG108	3.718E-23	1.068E-23	1.051E-23	9.293E-24	5.802E-24	2.089E-24	1.787E-24	7.070E-31
AG108M	1.178E-14	1.113E-14	1.095E-14	9.685E-15	6.047E-15	2.177E-15	1.863E-15	7.369E-22
CD108	1.832E-11	1.832E-11	1.832E-11	1.832E-11	1.832E-11	1.832E-11	1.832E-11	1.832E-11
AG109	4.970E-06	4.970E-06	4.970E-06	4.970E-06	4.970E-06	4.970E-06	4.970E-06	4.970E-06
AG109M	5.464E-25	4.590E-33	4.590E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

sbw_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	g/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
CD109	5.531E-19	4.647E-27	4.647E-27	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD110	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06	4.235E-06
AG110	9.469E-24	9.564E-39	3.083E-43	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110M	6.246E-16	6.311E-31	2.512E-35	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD110	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06	1.390E-06
CD111	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06	3.377E-06
CD112	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06	2.633E-06
CD113	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07	4.225E-07
CD113M	1.465E-08	2.743E-09	1.678E-09	4.417E-11	3.822E-17	2.704E-30	2.704E 30	0.000E+00
IN113	3.065E-06	3.077E-06	3.078E-06	3.080E-06	3.080E-06	3.080E-06	3.080E-06	3.080E-06
CD114	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06	4.417E-06
SN114	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04	1.992E-04
IN115	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06	1.111E-06
SN115	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04	1.032E-04
CD116	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06	2.346E-06
SN116	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03
SN117	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03	2.368E-03
SN118	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03	7.401E-03
SN119	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03	2.663E-03
SN119M	1.263E-13	6.433E-29	2.094E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN120	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03	9.983E-03
SN121M	3.631E-08	2.363E-08	2.084E-08	8.201E-09	2.290E-10	9.747E-14	2.982E-14	0.000E+00
SB121	1.155E-05	1.156E-05	1.157E-05	1.158E-05	1.159E-05	1.159E-05	1.159E-05	1.159E-05
SN122	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03	1.420E-03
TE122	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07	4.808E-07
SB123	4.223E-06	4.223E-06	4.223E-06	4.223E-06	4.223E-06	4.223E-06	4.223E-06	4.223E-06
TE123	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09	5.018E-09
SN124	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03	1.767E-03
TE124	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07	1.002E-07
SB125	5.487E-08	1.085E-11	8.886E-13	8.060E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE125	1.641E-05	1.647E-05	1.647E-05	1.647E-05	1.647E-05	1.647E-05	1.647E-05	1.647E-05
TE125M	9.278E-10	1.518E-13	1.243E-14	1.127E-22	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN126	1.014E-05	1.014E-05	1.014E-05	1.013E-05	1.011E-05	1.007E-05	1.006E-05	9.461E-06
SB126	4.817E-13	4.843E-13	4.843E-13	4.840E-13	4.831E-13	4.810E-13	4.807E-13	4.520E-13
SB126M	3.662E-15	3.691E-15	3.691E-15	3.689E-15	3.681E-15	3.666E-15	3.663E-15	3.444E-15
TE126	3.161E-07	3.185E-07	3.192E-07	3.244E-07	3.443E-07	3.874E-07	3.940E-07	9.952E-07
I127	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05	2.162E-05
TE128	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05
XE128	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07	6.701E-07
I129	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.482E-05	9.478E-05
XE129	4.837E-09	4.980E-09	5.022E-09	5.331E-09	6.520E-09	9.099E-09	9.493E-09	4.670E-08
TE130	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04	2.063E-04
XE130	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06	3.174E-06
XE131	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04	3.235E-04
XE132	6.640E-04	6.640E-04	6.640E-04	6.640E-04	6.640E-04	6.640E-04	6.640E-04	6.640E-04
BA132	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10	4.520E-10
CS133	8.587E-04	8.587E-04	8.587E-04	8.587E-04	8.587E-04	8.587E-04	8.587E-04	8.587E-04
XE134	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03	1.073E-03
CS134	7.585E-08	8.026E-13	2.783E-14	4.376E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA134	6.892E-05	6.900E-05	6.900E-05	6.900E-05	6.900E-05	6.900E-05	6.900E-05	6.900E-05
CS135	3.556E-04	3.556E-04	3.556E-04	3.556E-04	3.556E-04	3.555E-04	3.555E-04	3.545E-04
BA135	9.014E-08	9.379E-08	9.486E-08	1.028E-07	1.332E-07	1.992E-07	2.093E-07	1.160E-06
XE136	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03	1.473E-03
BA136	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06	8.468E-06
CS137	4.531E-04	2.062E-04	1.636E-04	2.960E-05	4.177E-08	2.752E-14	3.136E-15	0.000E+00
BA137	4.181E-04	6.650E-04	7.076E-04	8.416E-04	8.712E-04	8.712E-04	8.712E-04	8.712E-04
BA137M	6.930E-11	3.154E-11	2.503E-11	4.529E-12	6.399E-15	4.210E-21	4.797E-22	0.000E+00
BA138	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04	9.746E-04
LA138	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09	6.951E-09
LA139	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04	9.256E-04
CE140	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04	9.189E-04
PR141	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04	8.534E-04
CE142	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04	8.678E-04
ND142	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06	9.738E-06
ND143	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04	7.347E-04
CE144	5.808E-10	3.819E-23	5.175E-27	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144	1.198E-15	1.612E-27	2.185E-31	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144M	5.988E-18	8.060E-30	1.092E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

sbw_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

	g/L	34.1YR	44.1YR	118.1YR	402.1YR	1018.1YR	1112.1YR	1.0E+04YR
ND144	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04	9.540E-04
ND145	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04	5.529E-04
ND146	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04
PM146	1.508E-10	2.056E-12	5.832E-13	5.195E-17	1.484E-32	0.000E+00	0.000E+00	0.000E+00
SM146	3.735E-09	3.790E-09	3.791E-09	3.791E-09	3.791E-09	3.791E-09	3.791E-09	3.790E-09
PM147	4.922E-07	6.048E-11	4.307E-12	1.390E-20	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM147	2.266E-04	2.271E-04	2.271E-04	2.271E-04	2.271E-04	2.271E-04	2.271E-04	2.271E-04
ND148	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04	2.612E-04
SM148	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05	8.770E-05
SM149	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06	9.794E-06
ND150	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04	1.012E-04
SM150	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04	1.796E-04
EU150	1.675E-13	8.705E-14	7.184E-14	1.734E-14	7.420E-17	5.398E-22	9.420E-23	0.000E+00
SM151	9.296E-06	7.150E-06	6.620E-06	3.744E-06	4.201E-07	3.654E-09	1.772E-09	0.000E+00
EU151	2.225E-06	4.371E-06	4.901E-06	7.777E-06	1.110E-05	1.152E-05	1.152E-05	1.152E-05
SM152	7.335E-05	7.336E-05	7.336E-05	7.336E-05	7.336E-05	7.336E-05	7.336E-05	7.336E-05
EU152	1.320E-08	2.306E-09	1.382E-09	3.129E-11	1.519E-17	3.065E-31	3.065E 31	0.000E+00
GD152	4.487E-08	4.791E-08	4.816E-08	4.854E-08	4.855E-08	4.855E-08	4.855E-08	4.855E-08
EU153	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05	5.247E-05
GD153	3.001E-17	9.865E-33	2.824E-37	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM154	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05	1.269E-05
EU154	5.734E-07	3.670E-08	1.638E-08	4.190E-11	4.722E-21	1.295E-42	0.000E+00	0.000E+00
GD154	1.046E-05	1.100E-05	1.102E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05
EU155	2.163E-07	1.512E-09	3.524E-10	7.358E-15	8.025E-33	0.000E+00	0.000E+00	0.000E+00
GD155	3.928E-06	4.143E-06	4.144E-06	4.144E-06	4.144E-06	4.144E-06	4.144E-06	4.144E-06
GD156	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05	1.146E-05
GD157	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07	1.108E-07
GD158	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06	2.428E-06
TB159	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07	2.437E-07
GD160	9.757E-08	9.757E-08	9.757E-08	9.757E-08	9.757E 08	9.757E-08	9.757E-08	9.757E-08
DY160	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08	1.936E-08
DY161	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08	2.437E-08
DY162	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08
DY163	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08	1.039E-08
DY164	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09	2.534E-09
HO165	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09	3.126E-09
HO166M	1.801E-11	1.766E-11	1.756E-11	1.682E-11	1.428E-11	1.000E-11	9.474E-12	5.578E-14
ER166	8.959E-10	8.963E-10	8.964E-10	8.971E-10	8.996E-10	9.039E-10	9.044E-10	9.139E-10
ER167	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10	2.222E-10
ER168	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10	1.405E-10
TM169	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13	6.018E-13
ER170	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16	1.541E-16
YB170	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13	1.041E-13
TM171	2.022E-18	9.172E-24	1.015E-23	2.536E-35	0.000E+00	0.000E+00	0.000E+00	0.000E+00
YB171	4.017E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15	4.019E-15
YB172	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14	1.077E-14

Source Listing of Program ELESBW2

```
      PROGRAM ELESBW2

!-------- WRITTEN BY D.R. WENZEL

!            To sum the mg/mL of SBW, convert to g/L and round
!            the output to 2 places of accuracy

      CHARACTER (LEN=2) :: BLANK, ELE, SMBCAP, SMBLC
      CHARACTER (LEN=6) :: NAME, NUCLIDE(29)
      CHARACTER (LEN=85) :: TITLE
      EQUIVALENCE (ELE, NAME)
      LOGICAL :: FIRST, FOUND
      REAL *4 OLD(7), SIGMA(7), TOTAL(7)

      OPEN(3,FILE ='SBW_RUN2.G', STATUS='OLD',FORM='FORMATTED', ERR = 900)
      OPEN(4,FILE ='SYMBOL', STATUS='OLD',FORM='FORMATTED', ERR = 910)
      OPEN(6,FILE ='SBW_RUN2.ELE', STATUS='UNKNOWN', ERR = 920)

      DATA BLANK /'  '/

      DATA NUCLIDE /'AL 27 ','CR 50 ','CR 52 ','CR 53 ','CR 54 ',      &
                    'FE 54 ','FE 56 ','FE 57 ','FE 58 ','NI 58 ',      &
                    'NI 60 ','NI 61 ','NI 62 ','NI 64 ','ZR 90 ',      &
                    'ZR 91 ','ZR 92 ','ZR 94 ','ZR 96 ','SN112 ',      &
                    'SN114 ','SN115 ','SN116 ','SN117 ','SN118 ',      &
                    'SN120 ','SN119 ','SN122 ','SN124 '/


      FIRST = .TRUE.
      SIGMA = 0.

!        Read symbol of element to be summed

   10 READ(4,400) SMBCAP, SMBLC
  400 FORMAT(A2,3X,A2)
      FOUND = .FALSE.
      IF(SMBCAP == BLANK) GO TO 100

!--------- Zero out summary

      TOTAL = 0.

!--------- On the first pass only, modify the name on the first
!          line of data

      READ(3,300) TITLE
  300 FORMAT(A85)
      IF(FIRST) WRITE(6,600)
  600 FORMAT(1X,'SBW_RUN2.ELE    g/L')

!--------- On the first pass only, echo the next line of data

      READ(3,300) TITLE
      IF(FIRST) WRITE(6,610) TITLE
  610 FORMAT(A85,/,'Element',5X,'2032Jan   2042Jan   2116Jan   2400' &
```

Source Listing of Program ELESBW2 (Continued)

```
              'Jan   3016Jan   3110Jan   12000Jan')

!--------- Skip the next 2 lines of data

       READ(3,300) TITLE
       READ(3,300) TITLE
       FIRST = .FALSE.

!--------- Read individual nuclide mass and search for the
!          element to be summed

   60  READ(3,310,END=80) NAME, (OLD(J),J=1,7)
  310  FORMAT(1X,A6,14X,7(1PE10.3))
       IF(ELE /= SMBCAP) GO TO 60

!--------- Bypass sum when nuclide is stable and element measured
!          by analytical analysis

       DO K=1,29
          IF(NAME == NUCLIDE(K)) GO TO 60
       END DO

       FOUND = .TRUE.
       DO J=1,7

!--------- Multiply by .001 to convert from mg to g

          TOTAL(J) = TOTAL(J) + OLD(J)
       END DO

       GO TO 60

!--------- Write element total when element found

   80  REWIND(3)
       IF(.NOT. FOUND) GO TO 10

!--------- Write results with 2 places of accuracy

       IF(TOTAL(1) > 0.) THEN
          WRITE(6,620) SMBLC, (TOTAL(J),J=1,7)
  620     FORMAT(1X,a2,6X,7(1PE10.1))
       ENDIF

!--------- Keep a sum of the total for all elements

       DO J=1,7
          SIGMA(J) = SIGMA(J) + TOTAL(J)
       END DO

       GO TO 10
  100  WRITE(6,630) (SIGMA(J),J=1,7)
  630  FORMAT(1X,/,1X,'Total ',2X,7(1PE10.1))
       GO TO 999
```

Source Listing of Program ELESBW2 (Continued)

```
!-------- ERROR STATEMENTS

  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE 3')
       GO TO 999

  910  WRITE(6,9010)
 9010  FORMAT(2X,'ERROR IN OPENING FILE 4')
       GO TO 999

  920  WRITE(6,9020)
 9020  FORMAT(2X,'ERROR IN OPENING FILE 6')
       GO TO 999

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM ELESBW2
```

See Appendix A-4, Pages 4-5, for a listing of file SYMBOL.

SBW_RUN2.ELE g/L
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

Element	2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
H	3.1E-10	1.8E-10	2.8E-12	3.3E-19	3.2E-34	3.2E-34	0.0E+00
He	4.2E-07	4.7E-07	7.5E-07	1.3E-06	1.8E-06	1.9E-06	6.5E-06
Li	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10
Be	2.4E-10	2.4E-10	2.4E-10	2.4E-10	2.4E-10	2.4E-10	2.4E-10
B	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08
C	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05
N	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05
O	2.4E-03	2.4E-03	2.4E-03	2.4E-03	2.4E-03	2.4E-03	2.4E-03
F	2.4E-12	2.4E-12	2.4E-12	2.4E-12	2.4E-12	2.4E-12	2.4E-12
Ne	2.5E-14	2.5E-14	2.5E-14	2.5E-14	2.5E-14	2.5E-14	2.5E-14
Na	1.9E-15	1.9E-15	1.9E-15	1.9E-15	1.9E-15	1.9E-15	1.9E-15
Mg	4.8E-10	4.8E-10	4.8E-10	4.8E-10	4.8E-10	4.8E-10	4.8E-10
Si	3.8E-05	3.8E-05	3.8E-05	3.8E-05	3.8E-05	3.8E-05	3.8E-05
P	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
S	4.8E-08	4.8E-08	4.8E-08	4.8E-08	4.8E-08	4.8E-08	4.8E-08
Cl	3.9E-17	3.9E-17	3.9E-17	3.9E-17	3.9E-17	3.9E-17	3.9E-17
Ar	4.4E-17	4.4E-17	4.4E-17	4.4E-17	4.4E-17	4.4E-17	4.4E-17
K	1.4E-18	1.4E-18	1.4E-18	1.4E-18	1.4E-18	1.4E-18	1.4E-18
Ca	3.1E-11	3.1E-11	3.1E-11	3.1E-11	3.1E-11	3.1E-11	3.1E-11
Sc	5.2E-13	5.2E-13	5.2E-13	5.2E-13	5.2E-13	5.2E-13	5.2E-13
Ti	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05
V	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06
Mn	8.4E-07	8.4E-07	8.4E-07	8.4E-07	8.4E-07	8.4E-07	8.4E-07
Co	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.9E-05
Cu	2.9E-07	3.3E-07	5.3E-07	7.7E-07	8.0E-07	8.0E-07	8.0E-07
Zn	8.6E-10	8.6E-10	8.6E-10	8.6E-10	8.6E-10	8.6E-10	8.6E-10
Ga	9.5E-13	9.5E-13	9.5E-13	9.5E-13	9.5E-13	9.5E-13	9.5E-13
Ge	4.6E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07	4.6E-07
As	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07
Se	4.6E-05	4.6E-05	4.6E-05	4.6E-05	4.6E-05	4.6E-05	4.5E-05
Br	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05
Kr	3.2E-04	3.2E-04	3.2E-04	3.2E-04	3.2E-04	3.2E-04	3.2E-04
Rb	3.4E-04	3.4E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04
Sr	4.5E-04	4.3E-04	3.5E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04
Y	4.4E-04	4.4E-04	4.4E-04	4.4E-04	4.4E-04	4.4E-04	4.4E-04
Nb	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04
Mo	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03
Tc	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.8E-04	5.6E-04
Ru	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.3E-03
Rh	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Pd	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Ag	5.0E-06	5.0E-06	5.0E-06	5.0E-06	5.0E-06	5.0E-06	5.0E-06
Cd	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05
In	4.2E-06	4.2E-06	4.2E-06	4.2E-06	4.2E-06	4.2E-06	4.2E-06
Sb	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05
Te	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04
I	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04
Xe	3.5E-03	3.5E-03	3.5E-03	3.5E-03	3.5E-03	3.5E-03	3.5E-03
Cs	1.4E-03	1.4E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03
Ba	1.7E-03	1.8E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03
La	9.3E-04	9.3E-04	9.3E-04	9.3E-04	9.3E-04	9.3E-04	9.3E-04
Ce	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03
Pr	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04

SBW_RUN2.ELE (Continued) g/L
ORIGEN2 V2.1 (8-1-91), Run on 02/21/05 at 14:21:32

Element	2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
Nd	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03
Pm	6.3E-11	4.9E-12	5.2E-17	1.5E-32	0.0E+00	0.0E+00	0.0E+00
Sm	6.0E-04	6.0E-04	5.9E-04	5.9E-04	5.9E-04	5.9E-04	5.9E-04
Eu	5.7E-05	5.7E-05	6.0E-05	6.4E-05	6.4E-05	6.4E-05	6.4E-05
Gd	2.9E-05	2.9E-05	2.9E-05	2.9E-05	2.9E-05	2.9E-05	2.9E-05
Tb	2.4E-07	2.4E-07	2.4E-07	2.4E-07	2.4E-07	2.4E-07	2.4E-07
Dy	7.4E-08	7.4E-08	7.4E-08	7.4E-08	7.4E-08	7.4E-08	7.4E-08
Ho	3.1E-09	3.1E-09	3.1E-09	3.1E-09	3.1E-09	3.1E-09	3.1E-09
Er	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09
Tm	6.0E-13	6.0E-13	6.0E-13	6.0E-13	6.0E-13	6.0E-13	6.0E-13
Yb	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13	1.3E-13
Lu	2.6E-07	2.6E-07	2.6E-07	2.6E-07	2.6E-07	2.6E-07	2.6E-07
Hf	3.9E-04	3.9E-04	3.9E-04	3.9E-04	3.9E-04	3.9E-04	3.9E-04
Ta	1.9E-05	1.9E-05	1.9E-05	1.9E-05	1.9E-05	1.9E-05	1.9E-05
W	5.4E-06	5.4E-06	5.4E-06	5.4E-06	5.4E-06	5.4E-06	5.4E-06
Re	3.2E-10	3.2E-10	3.2E-10	3.2E-10	3.2E-10	3.2E-10	3.2E-10
Os	3.9E-11	3.9E-11	3.9E-11	3.9E-11	3.9E-11	3.9E-11	3.9E-11
Tl	2.3E-18	2.1E-18	1.4E-18	1.3E-18	2.8E-18	3.0E-18	2.4E-17
Pb	9.3E-11	9.9E-11	1.3E-10	2.1E-10	6.1E-10	7.2E-10	1.4E-07
Bi	3.6E-15	5.0E-15	3.8E-14	1.1E-12	1.8E-11	2.3E-11	1.4E-08
Po	1.6E-15	2.1E-15	9.0E-15	9.1E-14	4.8E-13	5.4E-13	1.7E-11
At	1.9E-25	2.5E-25	1.2E-24	1.3E-23	7.8E-23	9.3E-23	5.8E-21
Rn	9.7E-17	1.2E-16	3.8E-16	2.7E-15	1.4E-14	1.6E-14	5.1E-13
Fr	1.9E-20	2.2E-20	4.5E-20	2.0E-19	9.0E-19	1.0E-18	5.4E-17
Ra	1.5E-11	1.9E-11	5.9E-11	4.1E-10	2.2E-09	2.6E-09	7.9E-08
Ac	6.8E-13	7.6E-13	1.3E-12	3.4E-12	7.4E-12	7.8E-12	6.1E-11
Th	4.7E-08	5.2E-08	8.8E-08	2.4E-07	5.7E-07	6.2E-07	5.2E-06
Pa	1.5E-09	1.6E-09	2.4E-09	5.2E-09	1.1E-08	1.2E-08	9.3E-08
U	8.1E-02	8.1E-02	8.1E-02	8.1E-02	8.1E-02	8.1E-02	8.1E-02
Np	8.5E-04	8.5E-04	8.6E-04	8.6E-04	8.7E-04	8.7E-04	8.7E-04
Pu	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	8.0E-04
Am	2.1E-05	2.1E-05	1.9E-05	1.2E-05	4.7E-06	4.0E-06	5.5E-08
Cm	1.5E-09	1.1E-09	3.4E-10	2.8E-10	2.7E-10	2.6E-10	1.3E-10
Bk	4.8E-33	4.8E-33	4.8E-33	4.8E-33	4.8E-33	4.8E-33	4.8E-33
Cf	5.0E-18	4.9E-18	4.3E-18	2.5E-18	7.8E-19	6.6E-19	7.9E-23
Total	1.1E-01	1.1E-01	1.1E-01	1.1E-01	1.1E-01	1.1E-01	1.1E-01

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Results of Radiochemical Analysis of Retrieved Zirconia Calcine (Staples 1979)

Sample Nuclide	7T µg/g Calcine	7M µg/g Calcine	7B µ g/g Calcine	Specific Nuclide Activity Ci/g	7T Ci/g Calcine	7M Ci/g Calcine	7B Ci/g Calcine	Average g/g Calcine	Average Ci/g Calcine
Co-60	0.002	0.003	0.001	1131	2.26E-06	3.39E-06	1.13E-06	2.000E-09	2.26E-06
Cs-134	0.027	0.04	0.003	1.29E+03	3.49E-05	5.18E-05	3.88E-06	2.333E-08	3.02E-05
Cs-137	21.7	22.5	22.4	86.98	1.89E-03	1.96E-03	1.95E-03	2.220E-05	1.93E-03
Eu-154	0.137	0.185	0.064	269.9	3.70E-05	4.99E-05	1.73E-05	1.287E-07	3.47E-05
Eu-155	0.0006	0.0009	0.001	465.1	2.79E-07	4.19E-07	4.65E-07	8.333E-10	3.88E-07
U-234	1.74	8.98	1.11	6.25E-03	1.09E-08	5.61E-08	6.94E-09	3.943E-06	2.46E-08
U-235	35.2	7.89	17.8	2.16E-06	7.61E-11	1.71E-11	3.85E-11	2.030E-05	4.39E-11
U-236	3.07	0.884	1.84	6.47E-05	1.99E-10	5.72E-11	1.19E-10	1.931E-06	1.25E-10
U-238	11.1	3.52	7.54	3.36E-07	3.73E-12	1.18E-12	2.53E-12	7.387E-06	2.48E-12
Np-237[a]	1.3	1.1	0.93	7.05E-04	9.16E-10	7.75E-10	6.56E-10	1.110E-06	7.82E-10
Pu-238	1.11	0.86	1	17.12	1.90E-05	1.47E-05	1.71E-05	9.900E-07	1.69E-05
Pu-239	3.89	3.38	3.26	6.22E-02	2.42E-07	2.10E-07	2.03E-07	3.510E-06	2.18E-07
Pu-240	0.98	0.96	0.87	0.2279	2.23E-07	2.19E-07	1.98E-07	9.367E-07	2.13E-07
Pu-241	0.26	0.29	0.25	103	2.68E-05	2.99E-05	2.58E-05	2.667E-07	2.75E-05
Pu-242	0.13	0.17	0.13	3.81E-03	4.95E-10	6.48E-10	4.95E-10	1.433E-07	5.46E-10
Am-241	0.32	0.24	0.18	3.432	1.10E-06	8.24E-07	6.18E-07	2.467E-07	8.47E-07

[a]Np-237 data was revised by B. A. Staples subsequent to issuing of the report and is questionable as being representative of the majority of the zirconium-clad fuel waste because of a Np recovery process that was operated.

ORIGEN2 Input for Run ZR1 from Wenzel 1977c

ORIGEN2 RUN ZR1.INP

```
-1
-1
-1
  RDA     ORIGEN2, VERSION 2.1 (8-1-91) GENERIC FUEL
  BAS     PWRU FUEL
  RDA     -1 = 1 KG FUEL
  RDA     WARNING:  VECTORS ARE OFTEN CHANGED WITH RESPECT TO THEIR CONTENT.
  RDA               THESE CHANGES WILL BE NOTED ON RDA CARDS.
  CUT     -1
  LIP     0 0 0
  LIB     0  1 2 3  601  602  603   9   3   0  1   38
  TIT     INITIAL COMPOSITIONS OF UNIT AMOUNTS OF FUEL AND STRUCT MAT'LS
  RDA     READ FUEL COMPOSITION INCLUDING IMPURITIES
  INP     -1   1  -1  -1  1  1
  TIT     IRRADIATION OF GENERIC FUEL
  MOV     -1   1   0   1.0
  HED      1                                                  CHARGE
  BUP
  IRP     100.0   .2577   1   2   4 2
  IRP     200.0   .2577   2   3   4 0
  IRP     400.0   .2577   3   4   4 0
  IRP     600.0   .2577   4   5   4 0
  IRP     800.0   .2577   5   6   4 0
  IRP    1000.0   .2577   6   7   4 0
  IRP    1200.0   .2577   7   8   4 0
  IRP    1400.0   .2577   8   9   4 0
  IRP    1600.0   .2577   9  10   4 0
  IRP    1800.0   .2577  10  11   4 0
  IRP    1826.0   .2577  11  12   4 0
  BUP
  OPTL    8 8 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTA    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTF    8 8 8 8 8   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  MOV       12    1   0  1.0
  DEC      1.0    1   2   5   4
  DEC      3.0    2   3   5   0
  DEC      4.0    3   4   5   0
  DEC      5.0    4   5   5   0
  DEC      6.0    5   6   5   0
  DEC      7.0    6   7   5   0
  DEC      8.0    7   8   5   0
  DEC      9.0    8   9   5   0
  OUT      -9    1     -1    0
  OUT       9    1     -1    0
  END
  2   922350  1000.0 922360  .4366  922380  8.6636       0    0.0   FUEL 97%
  0
```

ORIGEN2 RUN ZR1.BAT

```
echo off
echo **                                                                **
echo **                          O R I G E N 2                         **
echo **                                                                **
copy zirc1.INP tape5.inp >nul
copy \origen2\libs\decaymod.lib+\origen2\libs\pwrus.lib tape9.inp >nul
copy \origen2\libs\gxuo2brm.lib tape10.inp >nul
\origen2\code\origen2
echo finished with origen2 calculation
rem  combine and save files from run
copy tape12.out+tape6.out zirc1.u6 >nul
copy tape13.out+tape11.out zirc1.u11 >nul
ren tape7.out zirc1.pch
ren tape15.out zirc1.dbg
ren tape16.out zirc1.vxs
ren tape50.out zirc1.ech
rem  cleanup files
del tape*.inp
del tape*.out
del zirc1.dbg
del zirc1.pch
del zirc1.vxs
del zirc1.ech
del zirc1.u11
echo ************************************************************************
echo ******************* O R I G E N 2 - Version 2.1 ************************
echo ************************ Execution Completed ***************************
echo ************************************************************************
echo on
```

ORIGEN2 RUN ZIRC1.INP

```
-1
-1
-1
  RDA     ORIGEN2, VERSION 2.1 (8-1-91) GENERIC FUEL
  BAS     PWRU FUEL
  RDA     -1 = 1 KG FUEL
  RDA     WARNING:  VECTORS ARE OFTEN CHANGED WITH RESPECT TO THEIR CONTENT.
  RDA               THESE CHANGES WILL BE NOTED ON RDA CARDS.
  CUT     -1
  LIP     0 0 0
  LIB     0  1 2 3  601  602  603   9   3   0  1   38
  TIT     INITIAL COMPOSITIONS OF UNIT AMOUNTS OF FUEL AND STRUCT MAT'LS
  RDA     READ FUEL COMPOSITION (1.0 KG U-235)
  INP     -1   1  -1  -1  1  1
  RDA     READ STRUCTRIAL MATERIALS
  INP     -2   1  -1  -1  1  1
  RDA     ADJUST AND ADD STRUCTRUAL MATERIALS TO VECTOR 1 COMPOSITION
  ADD     -2   1   0   0.14437
  TIT     IRRADIATION OF GENERIC FUEL
  MOV     -1   1   0   1.0
  HED      1                                          1 KG FUEL
  BUP
  IRP     100.0   .2577   1   2   4 2
  IRP     200.0   .2577   2   3   4 0
  IRP     400.0   .2577   3   4   4 0
  IRP     600.0   .2577   4   5   4 0
  IRP     800.0   .2577   5   6   4 0
  IRP    1000.0   .2577   6   7   4 0
  IRP    1200.0   .2577   7   8   4 0
  IRP    1400.0   .2577   8   9   4 0
  IRP    1600.0   .2577   9  10   4 0
  IRP    1800.0   .2577  10  11   4 0
  IRP    1826.0   .2577  11  12   4 0
  BUP
  OPTL    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTA    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTF    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  MOV       12    1   0  1.0
  DEC     13.1    1   2   5   4
  DEC     13.2    2   3   5   0
  DEC     13.3    3   4   5   0
  DEC     13.4    4   5   5   0
  DEC     13.5    5   6   5   0
  DEC     13.6    6   7   5   0
  DEC     13.7    7   8   5   0
  OUT     8    1    0   1.0
  END
  2   922350  1000.0 922360  .4366  922380  8.6636       0     0.0   FUEL 97%
  0
  1    60120  .92669  60130 .01031       0 .0           0      .0    C
  1    70140  1.2454  70150 .00463       0 .0           0      .0    N
  1    80160  74.720  80170 .02996   80180 0.1498       0      .0    O
  1   130270  1.2500      0 .0           0 .0           0      .0    Al
  1   220460  .04992 220470 .04555  220480 .46051  220490 .03432     Ti
  1   220500  .03370      0 .0           0 .0           0      .0
```

ORIGEN2 RUN ZIRC1.INP (Continued)

```
 1   240500  2.7113 240520 52.285  240530 5.9280  240540 1.4758    Cr
 1   260540  5.5283 260560 85.942  260570 1.9677  260580 .26236    Fe
 1   280580  21.300 280600 8.1432  280610 .35256  280620 1.1201    Ni
 1   280640  .28392      0 .0           0 .0           0     .0
 1   400900  31494. 400910 6866.6  400920 10496.  400940 10637.    Zr
 1   400960  1713.6      0 .0           0 .0           0     .0
 1   410930  6.2400      0 .0           0 .0           0     .0    Nb
 1   501120  9.4187 501140 6.3115  501150 3.4956  501160 141.09    Sn
 1   501170  74.573 501180 235.18  501190 83.312  501200 316.45
 1   501220  44.957 501240 56.221       0 .0           0 .0
 1   721740  .02025 721760 .65075  721770 2.3258  721780 3.4121    Hf
 1   721790  1.7036 721800 4.3875       0 .0           0 .0
 1   731801  .00007 731810 .62393       0 .0           0 .0        Ta
 0
```

ORIGEN2 RUN ZIRC1.BAT

```
echo off
echo **                                                              **
echo **                          O R I G E N 2                       **
echo **                                                              **
copy zirc1.INP tape5.inp >nul
copy \origen2\libs\decaymod.lib+\origen2\libs\pwrus.lib tape9.inp >nul
copy \origen2\libs\gxuo2brm.lib tape10.inp >nul
\origen2\code\origen2
echo finished with origen2 calculation
rem  combine and save files from run
copy tape12.out+tape6.out zirc1.u6 >nul
copy tape13.out+tape11.out zirc1.u11 >nul
ren tape7.out zirc1.pch
ren tape15.out zirc1.dbg
ren tape16.out zirc1.vxs
ren tape50.out zirc1.ech
rem  cleanup files
del tape*.inp
del tape*.out
del zirc1.dbg
del zirc1.pch
del zirc1.vxs
del zirc1.ech
del zirc1.u11
echo ************************************************************************
echo ******************* O R I G E N 2 - Version 2.1 ***********************
echo ********************** Execution Completed ****************************
echo ************************************************************************
echo on
```

zirc1.ci
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
H 3	4.685E-07	2.243E-07	2.231E-07	2.218E-07	2.206E-07	2.193E-07	2.181E-07	2.169E-07
BE 10	1.459E-09	1.459E-09	1.459E-09	1.459E-09	1.459E-09	1.459E-09	1.459E-09	1.459E-09
C 14	8.861E-03	8.847E-03	8.847E-03	8.847E-03	8.847E-03	8.847E-03	8.847E-03	8.846E-03
SI 32	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23
P 32	2.044E-16	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23	8.711E-23
AR 39	3.079E-19	2.977E-19	2.977E-19	2.977E-19	2.977E-19	2.977E-19	2.977E-19	2.977E-19
AR 42	3.408E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19
K 42	4.018E-12	2.588E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19	2.587E-19
CA 45	3.241E-05	4.699E-14	4.023E-14	3.444E-14	2.949E-14	2.524E-14	2.161E-14	1.850E-14
SC 46	4.306E-03	2.788E-20	2.788E-20	2.788E-20	2.788E-20	2.788E-20	2.788E-20	2.788E-20
V 50	2.346E-17	2.346E-17	2.346E-17	2.346E-17	2.346E-17	2.346E-17	2.346E-17	2.346E-17
MN 54	1.757E+00	4.321E-05	3.985E-05	3.675E-05	3.389E-05	3.125E-05	2.882E-05	2.658E-05
FE 55	1.619E+01	4.926E-01	4.796E-01	4.670E-01	4.547E-01	4.428E-01	4.311E-01	4.198E-01
CO 58	8.150E+00	3.631E-20	3.631E-20	3.631E-20	3.631E-20	3.631E-20	3.631E-20	3.631E-20
CO 60	8.561E 02	1.528E-02	1.508E-02	1.489E-02	1.469E-02	1.450E-02	1.431E-02	1.412E-02
NI 59	5.140E-03	5.140E-03	5.140E-03	5.140E-03	5.140E-03	5.140E-03	5.140E-03	5.140E-03
NI 63	7.769E-01	7.039E-01	7.034E-01	7.028E-01	7.023E-01	7.018E-01	7.012E-01	7.007E-01
ZN 65	3.749E-07	4.650E-13	4.192E-13	3.778E-13	3.406E-13	3.070E-13	2.767E-13	2.494E-13
SR 90	1.276E-04	9.310E-05	9.288E-05	9.265E-05	9.243E-05	9.221E-05	9.199E-05	9.176E-05
Y 90	1.071E+02	9.312E-05	9.291E-05	9.268E-05	9.246E-05	9.224E-05	9.202E-05	9.179E-05
ZR 93	2.759E-02	2.759E-02	2.759E-02	2.759E-02	2.759E-02	2.759E-02	2.759E-02	2.759E-02
NB 93M	2.642E 03	1.412E-02	1.418E-02	1.425E-02	1.431E-02	1.437E-02	1.443E-02	1.449E-02
NB 94	4.418E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03	4.416E-03
TC 98	1.962E-14	1.962E-14	1.962E-14	1.962E-14	1.962E-14	1.962E-14	1.962E-14	1.962E-14
TC 99	2.266E-07	2.291E-07	2.291E-07	2.291E-07	2.291E-07	2.291E-07	2.291E-07	2.291E-07
RU106	2.824E-26	3.457E-30	3.457E-30	3.457E-30	3.457E-30	3.457E-30	3.457E-30	3.457E-30
RH102	1.055E-19	1.097E-20	1.097E-20	1.097E-20	1.097E-20	1.097E-20	1.097E-20	1.097E-20
RH106	1.511E-18	3.457E-30	3.446E-30	3.446E-30	3.446E-30	3.446E-30	3.446E-30	3.446E-30
PD107	4.551E-36	1.026E-35	1.026E-35	1.026E-35	1.026E-35	1.026E-35	1.026E-35	1.026E-35
IN113M	5.667E+01	1.737E-11	1.394E-11	1.119E-11	8.980E-12	7.207E-12	5.784E-12	4.642E-12
IN115	4.677E-18	4.735E-18	4.735E-18	4.735E-18	4.735E-18	4.735E-18	4.735E-18	4.735E-18
SN113	5.664E+01	1.736E-11	1.393E-11	1.118E-11	8.975E-12	7.203E-12	5.781E-12	4.639E-12
SN119M	4.045E+02	5.351E-04	4.825E-04	4.352E-04	3.924E-04	3.539E-04	3.192E-04	2.878E-04
SN121M	5.474E-02	4.564E-02	4.558E-02	4.552E-02	4.545E-02	4.539E-02	4.533E-02	4.526E-02
SN123	2.131E+01	1.505E-10	1.237E-10	1.017E-10	8.357E-11	6.870E-11	5.647E-11	4.642E-11
SB125	1.311E+02	5.090E+00	4.965E+00	4.843E+00	4.724E+00	4.608E+00	4.494E+00	4.384E+00
TE123	1.975E-14	2.260E-14	2.260E-14	2.260E-14	2.260E-14	2.260E-14	2.260E-14	2.260E-14
TE123M	8.690E-02	8.007E-14	6.481E-14	5.245E-14	4.245E-14	3.436E-14	2.781E-14	2.250E-14
TE125M	2.856E+01	1.241E+00	1.210E+00	1.180E+00	1.151E+00	1.123E+00	1.096E+00	1.069E+00
TE127	1.228E-02	4.547E-17	3.613E-17	2.871E-17	2.282E-17	1.814E-17	1.441E-17	1.145E-17
TE127M	7.594E-04	4.642E-17	3.689E-17	2.932E-17	2.330E-17	1.852E-17	1.471E-17	1.169E-17
I129	2.790E-16	2.805E-16	2.805E-16	2.805E-16	2.805E-16	2.805E-16	2.805E-16	2.805E-16
CS134	7.448E-19	2.525E-21	2.525E-21	2.525E-21	2.525E-21	2.525E-21	2.525E-21	2.525E-21
CS135	2.374E-33	1.116E-32	1.116E-32	1.116E-32	1.116E-32	1.116E-32	1.116E-32	1.116E-32
CS137	3.592E-38	2.956E-37	2.956E-37	2.956E-37	2.956E-37	2.956E-37	2.956E-37	2.956E-37
BA133	3.062E-32	6.003E-32	6.003E-32	6.003E-32	6.003E-32	6.003E-32	6.003E-32	6.003E-32
TM170	1.020E-15	6.415E-27	6.415E-27	6.415E-27	6.415E-27	6.415E-27	6.415E-27	6.415E-27
TM171	3.871E-17	3.357E-19	3.357E-19	3.357E-19	3.357E-19	3.357E-19	3.357E-19	3.357E-19
LU176	7.951E-12	7.951E-12	7.951E-12	7.951E-12	7.951E-12	7.951E-12	7.951E-12	7.951E-12
LU177	3.181E-01	8.897E-14	7.556E-14	6.418E-14	5.450E-14	4.629E-14	3.932E-14	3.339E-14
LU177M	7.590E-04	3.869E-13	3.286E-13	2.791E-13	2.370E-13	2.013E-13	1.710E-13	1.452E-13
HF175	3.777E+00	1.001E-20	1.001E-20	1.001E-20	1.001E-20	1.001E-20	1.001E-20	1.001E-20
HF182	3.440E-08	3.440E-08	3.440E-08	3.440E-08	3.440E-08	3.440E-08	3.440E-08	3.440E-08
TA182	3.568E+01	3.441E-08	3.441E-08	3.441E-08	3.441E-08	3.441E-08	3.441E-08	3.440E-08
W185	1.516E-02	1.004E-21	1.004E-21	1.004E-21	1.004E-21	1.004E-21	1.004E-21	1.004E-21
W188	8.355E-09	1.469E-29	1.469E-29	1.469E-29	1.469E-29	1.469E-29	1.469E-29	1.469E-29
RE187	7.707E-17	7.760E-17	7.760E-17	7.760E-17	7.760E-17	7.760E-17	7.760E-17	7.760E-17
RE188	3.593E-07	1.484E-29	1.479E-29	1.479E-29	1.479E-29	1.479E-29	1.479E-29	1.479E-29

zirc1.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
OS194	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24
IR192	3.354E-14	2.425E-20	2.425E-20	2.425E-20	2.425E-20	2.425E-20	2.425E-20	2.425E-20
IR192M	2.516E-20	2.421E-20	2.421E-20	2.421E-20	2.421E-20	2.421E-20	2.421E-20	2.421E-20
IR194	2.474E-16	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24	1.170E-24
PT193	5.691E-20	5.635E-20	5.635E-20	5.635E-20	5.635E-20	5.635E-20	5.635E-20	5.635E-20
TL206	5.056E-21	5.056E-21	5.056E-21	5.056E-21	5.056E-21	5.056E-21	5.056E-21	5.056E-21
TL207	7.215E-09	7.750E-08	7.767E-08	7.823E-08	7.895E-08	7.973E-08	8.052E-08	8.132E-08
TL208	7.310E-06	7.025E-05	7.076E-05	7.083E-05	7.090E-05	7.096E-05	7.102E-05	7.108E-05
TL209	4.584E-11	2.151E-11	2.153E-11	2.159E-11	2.166E-11	2.173E-11	2.180E-11	2.187E-11
PB209	2.127E-09	9.961E-10	9.970E-10	9.995E-10	1.003E-09	1.006E-09	1.009E-09	1.012E-09
PB210	6.557E-12	2.316E-11	2.358E-11	2.401E-11	2.444E-11	2.488E-11	2.533E-11	2.579E-11
PB211	7.235E-09	7.772E-08	7.789E-08	7.845E-08	7.917E-08	7.995E-08	8.074E-08	8.155E-08
PB212	2.034E-05	1.955E-04	1.969E-04	1.971E-04	1.973E-04	1.975E-04	1.977E-04	1.978E-04
PB214	2.118E-12	1.568E-10	1.592E-10	1.621E-10	1.650E-10	1.679E-10	1.709E-10	1.739E-10
BI208	5.870E-21	5.870E-21	5.870E-21	5.870E-21	5.870E-21	5.870E-21	5.870E-21	5.870E-21
BI210M	5.076E-21	5.076E-21	5.076E-21	5.076E-21	5.076E-21	5.076E-21	5.076E-21	5.076E-21
BI210	6.479E-12	2.317E-11	2.350E-11	2.392E-11	2.435E-11	2.479E-11	2.524E-11	2.570E-11
BI211	7.235E-09	7.772E-08	7.789E-08	7.845E-08	7.917E-08	7.995E-08	8.074E-08	8.155E-08
BI212	2.034E-05	1.955E-04	1.969E-04	1.971E-04	1.973E-04	1.975E-04	1.977E-04	1.978E-04
BI213	2.122E-09	9.961E-10	9.970E-10	9.995E-10	1.003E-09	1.006E-09	1.009E-09	1.012E-09
BI214	2.118E-12	1.568E-10	1.592E-10	1.621E-10	1.650E-10	1.679E-10	1.709E-10	1.739E-10
PO210	4.210E-12	2.317E-11	2.319E-11	2.328E-11	2.342E-11	2.362E-11	2.385E-11	2.412E-11
PO211	2.026E-11	2.176E-10	2.181E-10	2.196E-10	2.217E-10	2.239E-10	2.261E-10	2.283E-10
PO212	1.303E-05	1.253E-04	1.262E-04	1.263E-04	1.264E-04	1.265E-04	1.266E-04	1.268E-04
PO213	2.076E-09	9.745E-10	9.754E-10	9.779E-10	9.810E-10	9.841E-10	9.873E-10	9.905E-10
PO214	2.075E-10	1.568E-10	1.592E-10	1.621E-10	1.650E-10	1.679E-10	1.708E-10	1.738E-10
PO215	7.235E-09	7.772E-08	7.789E-08	7.845E-08	7.917E-08	7.995E-08	8.074E-08	8.155E-08
PO216	2.034E-05	1.955E-04	1.969E-04	1.971E-04	1.973E-04	1.975E-04	1.976E-04	1.978E-04
PO218	2.119E-12	1.569E-10	1.593E-10	1.621E-10	1.650E-10	1.679E-10	1.709E-10	1.739E-10
AT217	2.122E-09	9.961E-10	9.970E-10	9.995E-10	1.003E-09	1.006E-09	1.009E-09	1.012E-09
RN219	7.235E-09	7.772E-08	7.789E-08	7.845E-08	7.917E-08	7.995E-08	8.074E-08	8.155E-08
RN220	2.034E-05	1.955E-04	1.969E-04	1.971E-04	1.973E-04	1.975E-04	1.976E-04	1.978E-04
RN222	2.119E-12	1.569E-10	1.593E-10	1.621E-10	1.650E-10	1.679E-10	1.709E-10	1.739E-10
FR221	2.122E-09	9.961E-10	9.970E-10	9.995E-10	1.003E-09	1.006E-09	1.009E-09	1.012E-09
FR223	1.004E-10	1.072E-09	1.083E-09	1.094E-09	1.105E-09	1.116E-09	1.127E-09	1.138E-09
RA223	7.235E-09	7.772E-08	7.789E-08	7.845E-08	7.917E-08	7.995E-08	8.074E-08	8.155E-08
RA224	2.034E-05	1.955E-04	1.969E-04	1.971E-04	1.973E-04	1.975E-04	1.976E-04	1.978E-04
RA225	2.179E-09	9.961E-10	9.977E-10	1.001E-09	1.004E-09	1.007E-09	1.010E-09	1.014E-09
RA226	2.137E-12	1.569E-10	1.597E-10	1.626E-10	1.655E-10	1.684E-10	1.714E-10	1.744E-10
RA228	1.468E-13	2.833E-12	2.860E-12	2.888E-12	2.916E-12	2.944E-12	2.972E-12	3.000E-12
AC225	2.122E-09	9.961E-10	9.969E-10	9.995E-10	1.003E-09	1.006E-09	1.009E-09	1.012E-09
AC227	7.277E-09	7.770E-08	7.850E-08	7.929E-08	8.009E-08	8.089E-08	8.169E-08	8.250E-08
AC228	5.130E-08	2.833E-12	2.861E-12	2.888E-12	2.916E-12	2.944E-12	2.972E-12	3.001E-12
TH227	7.136E-09	7.664E-08	7.699E-08	7.766E-08	7.841E-08	7.919E-08	7.998E-08	8.077E-08
TH228	2.054E-05	1.955E-04	1.957E-04	1.959E-04	1.961E-04	1.963E-04	1.965E-04	1.966E-04
TH229	7.425E-10	9.960E-10	9.993E-10	1.002E-09	1.006E-09	1.009E-09	1.012E-09	1.016E-09
TH230	3.029E-09	6.505E-08	6.582E-08	6.661E-08	6.739E-08	6.819E-08	6.898E-08	6.978E-08
TH231	9.063E-04	8.650E-04	8.650E-04	8.650E 04	8.650E-04	8.650E-04	8.650E-04	8.650E-04
TH232	8.373E-13	5.136E-12	5.168E-12	5.201E-12	5.234E-12	5.267E-12	5.300E-12	5.333E-12
TH234	2.887E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06
PA231	8.558E-08	3.253E-07	3.272E-07	3.291E-07	3.310E-07	3.330E-07	3.349E-07	3.368E-07
PA233	4.604E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03
PA234M	3.331E-05	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06
PA234	3.055E-05	3.741E-09	3.741E-09	3.741E-09	3.741E-09	3.741E-09	3.741E-09	3.741E-09
U232	6.821E-05	2.013E-04	2.013E-04	2.012E-04	2.012E-04	2.011E-04	2.011E 04	2.010E-04
U233	6.991E-08	3.394E-07	3.415E-07	3.435E-07	3.456E-07	3.476E-07	3.497E-07	3.518E-07
U234	1.779E-04	8.622E-04	8.672E-04	8.721E-04	8.771E-04	8.820E-04	8.870E-04	8.919E-04
U235	8.650E-04	8.650E-04	8.650E-04	8.650E-04	8.650E-04	8.650E-04	8.650E-04	8.650E-04

zirc1.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
U236	6.651E-03	6.651E-03	6.651E-03	6.651E-03	6.651E-03	6.651E-03	6.651E-03	6.651E-03
U237	9.421E+03	1.175E-05	1.170E-05	1.164E-05	1.159E-05	1.153E-05	1.147E-05	1.142E-05
U238	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06	2.878E-06
U240	5.196E-05	2.294E-13	2.294E-13	2.294E-13	2.294E-13	2.294E-13	2.294E-13	2.294E-13
NP235	4.563E-05	1.053E-08	9.880E-09	9.269E-09	8.695E-09	8.156E-09	7.651E-09	7.177E-09
NP236	4.940E-08	4.940E-08	4.940E-08	4.940E-08	4.940E-08	4.940E-08	4.940E-08	4.940E-08
NP237	4.645E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03	4.726E-03
NP238	2.425E+03	4.964E-07	4.961E-07	4.959E-07	4.957E-07	4.954E-07	4.952E-07	4.949E-07
NP239	8.563E+01	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05
NP240M	1.081E-02	2.294E-13	2.294E-13	2.294E-13	2.294E-13	2.294E-13	2.294E-13	2.294E-13
PU236	3.906E-03	1.624E-04	1.585E-04	1.547E-04	1.510E-04	1.473E-04	1.438E-04	1.403E-04
PU238	1.932E+01	1.756E+01	1.755E+01	1.753E+01	1.752E+01	1.751E+01	1.749E+01	1.748E+01
PU239	1.001E-02	1.003E-02	1.003E-02	1.003E-02	1.003E-02	1.003E-02	1.003E-02	1.003E-02
PU240	7.628E-03	7.619E-03	7.619E-03	7.619E-03	7.619E-03	7.619E-03	7.619E-03	7.619E-03
PU241	9.021E-01	4.792E-01	4.769E-01	4.746E-01	4.723E-01	4.700E-01	4.677E-01	4.655E-01
PU242	4.810E-06	4.811E-06	4.811E-06	4.811E-06	4.811E-06	4.811E-06	4.811E-06	4.811E-06
PU243	3.980E-01	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14
PU244	2.297E-13	2.297E-13	2.297E-13	2.297E-13	2.297E-13	2.297E-13	2.297E-13	2.297E-13
PU246	1.968E-11	7.470E-23	7.470E-23	7.470E-23	7.470E-23	7.470E-23	7.470E-23	7.470E-23
AM241	1.057E-03	1.492E-02	1.499E-02	1.506E-02	1.514E-02	1.521E-02	1.528E-02	1.536E-02
AM242M	1.059E-04	9.927E-05	9.922E-05	9.918E-05	9.913E-05	9.908E-05	9.903E-05	9.898E-05
AM242	2.545E-01	9.878E-05	9.873E-05	9.868E-05	9.863E-05	9.858E-05	9.854E-05	9.849E-05
AM243	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05	2.299E-05
AM245	1.506E-07	1.517E-20	1.401E-20	1.295E-20	1.196E-20	1.105E-20	1.021E-20	9.434E-21
AM246	1.968E-11	7.470E-23	7.472E-23	7.472E-23	7.472E-23	7.472E-23	7.472E-23	7.472E-23
CM242	1.178E-01	8.169E-05	8.166E-05	8.164E-05	8.161E-05	8.158E-05	8.155E-05	8.151E-05
CM243	2.922E-05	2.124E-05	2.119E-05	2.114E-05	2.109E-05	2.104E-05	2.099E-05	2.094E-05
CM244	1.315E-03	7.965E-04	7.934E-04	7.904E-04	7.874E-04	7.844E-04	7.814E-04	7.784E-04
CM245	6.304E-08	6.298E-08	6.297E-08	6.297E-08	6.297E-08	6.297E-08	6.297E-08	6.297E-08
CM246	6.789E-09	6.776E-09	6.776E-09	6.776E-09	6.776E-09	6.776E-09	6.776E-09	6.776E-09
CM247	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14	1.067E-14
CM248	1.464E-14	1.464E-14	1.464E-14	1.464E-14	1.464E-14	1.464E-14	1.464E-14	1.464E-14
CM250	2.974E-22	2.988E-22	2.988E-22	2.988E-22	2.988E-22	2.988E-22	2.988E-22	2.988E-22
BK249	3.310E-11	1.046E-15	9.661E-16	8.926E-16	8.247E-16	7.620E-16	7.040E-16	6.505E-16
BK250	4.778E-11	3.000E-22	3.000E-22	3.000E-22	3.000E-22	3.000E-22	3.000E-22	3.000E-22
CF249	1.589E-14	9.638E-14	9.636E-14	9.634E-14	9.632E-14	9.631E-14	9.629E-14	9.627E-14
CF250	3.729E-13	1.869E-13	1.859E-13	1.850E-13	1.840E-13	1.830E-13	1.820E-13	1.811E-13
CF251	1.679E-15	1.662E-15	1.662E-15	1.662E-15	1.662E-15	1.662E-15	1.662E-15	1.661E-15
CF252	1.729E-13	5.532E-15	5.389E-15	5.249E-15	5.113E-15	4.980E-15	4.851E-15	4.725E-15
ES254	4.326E-17	2.581E-22	2.581E-22	2.581E-22	2.581E-22	2.581E-22	2.581E-22	2.581E-22
H 3	5.806E+00	2.783E+00	2.767E+00	2.752E+00	2.736E+00	2.721E+00	2.706E+00	2.691E+00
BE 10	4.196E-08	4.196E-08	4.196E-08	4.196E-08	4.196E-08	4.196E-08	4.196E-08	4.196E-08
C 14	1.692E-06	1.689E-06	1.689E-06	1.689E-06	1.689E-06	1.689E-06	1.689E-06	1.689E-06
SE 79	6.079E-03	6.078E-03	6.078E-03	6.078E-03	6.078E-03	6.078E-03	6.078E-03	6.078E-03
KR 81	8.776E-10	8.776E-10	8.776E-10	8.776E-10	8.776E-10	8.776E-10	8.776E-10	8.776E-10
KR 85	1.616E+02	6.927E+01	6.883E+01	6.838E+01	6.794E+01	6.751E+01	6.707E+01	6.664E+01
RB 87	4.092E-07	4.092E-07	4.092E-07	4.092E-07	4.092E-07	4.092E-07	4.092E-07	4.092E-07
SR 90	1.382E+03	1.012E+03	1.010E+03	1.007E+03	1.005E+03	1.002E+03	1.000E+03	9.976E+02
Y 90	1.412E+03	1.012E+03	1.010E+03	1.007E+03	1.005E+03	1.003E+03	1.000E+03	9.979E+02
ZR 93	3.125E-02	3.126E-02	3.126E-02	3.126E-02	3.126E-02	3.126E-02	3.126E-02	3.126E-02
NB 93M	3.505E-03	1.626E-02	1.633E-02	1.640E-02	1.647E-02	1.653E-02	1.660E-02	1.667E-02
NB 94	3.100E-07	3.099E-07	3.099E-07	3.099E-07	3.099E-07	3.099E-07	3.099E-07	3.099E-07
TC 98	3.974E-08	3.974E-08	3.974E-08	3.974E-08	3.974E-08	3.974E-08	3.974E-08	3.974E-08
TC 99	1.967E-01	1.972E-01	1.972E-01	1.972E-01	1.972E-01	1.972E-01	1.972E-01	1.972E-01
RH102	6.436E-03	2.811E-04	2.744E-04	2.679E-04	2.616E-04	2.554E-04	2.494E-04	2.435E-04
RU106	8.686E+02	1.063E-01	9.926E-02	9.266E-02	8.650E-02	8.076E-02	7.539E-02	7.038E-02
RH106	9.317E+02	1.063E-01	9.926E-02	9.266E-02	8.650E-02	8.076E-02	7.539E-02	7.038E-02
PD107	2.177E-04	2.177E-04	2.177E-04	2.177E-04	2.177E-04	2.177E-04	2.177E-04	2.177E-04

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ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
AG108	7.020E-04	2.132E-10	2.132E-10	2.131E-10	2.131E-10	2.130E-10	2.130E-10	2.130E-10
AG108M	2.448E-09	2.395E-09	2.395E-09	2.395E-09	2.394E-09	2.394E-09	2.393E-09	2.393E-09
AG109M	1.335E+02	4.595E-10	4.351E-10	4.120E-10	3.901E-10	3.694E-10	3.498E-10	3.312E-10
CD109	5.841E-07	4.595E-10	4.351E-10	4.120E-10	3.901E-10	3.694E-10	3.498E-10	3.312E-10
AG110	7.834E+01	5.877E-08	5.311E-08	4.799E-08	4.337E-08	3.919E-08	3.541E-08	3.200E-08
AG110M	2.567E+00	4.419E-06	3.993E-06	3.608E-06	3.261E-06	2.947E-06	2.663E-06	2.406E-06
CD113M	1.965E-01	1.032E-01	1.027E-01	1.022E-01	1.017E-01	1.012E-01	1.007E-01	1.002E-01
IN115	7.834E-14	7.966E-14	7.966E-14	7.966E-14	7.966E-14	7.966E-14	7.966E-14	7.966E-14
SN119M	6.374E-01	8.433E-07	7.605E-07	6.859E-07	6.185E-07	5.578E-07	5.030E-07	4.537E-07
SN121M	1.161E-03	9.847E-04	9.835E-04	9.823E-04	9.810E-04	9.798E-04	9.785E-04	9.773E-04
SN123	1.212E+01	8.557E-11	7.034E-11	5.782E-11	4.753E-11	3.907E-11	3.211E-11	2.640E-11
TE123	6.391E-15	7.289E-15	7.289E-15	7.289E-15	7.289E-15	7.289E-15	7.289E-15	7.289E-15
TE123M	2.742E-02	2.527E-14	2.045E-14	1.655E-14	1.339E-14	1.084E-14	8.773E-15	7.101E-15
SB125	6.065E+01	2.298E+00	2.241E+00	2.186E+00	2.132E+00	2.079E+00	2.028E+00	1.978E+00
TE125M	1.365E+01	5.607E-01	5.469E-01	5.334E-01	5.202E-01	5.073E-01	4.948E-01	4.826E-01
SN126	5.393E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03
SB126	3.027E+00	7.549E-04	7.550E-04	7.550E-04	7.550E-04	7.550E-04	7.550E-04	7.550E-04
SB126M	1.161E+00	5.392E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03	5.392E-03
TE127	3.401E+02	2.896E-12	2.296E-12	1.820E-12	1.443E-12	1.144E-12	9.066E-13	7.187E-13
TE127M	4.660E+01	2.956E-12	2.344E-12	1.858E-12	1.473E-12	1.168E-12	9.256E-13	7.337E-13
I129	3.241E-04	3.254E-04	3.254E-04	3.254E-04	3.254E-04	3.254E-04	3.254E-04	3.254E-04
CS134	1.455E+03	1.780E+01	1.721E+01	1.664E+01	1.609E+01	1.556E+01	1.504E+01	1.455E+01
CS135	1.047E-02	1.048E-02	1.048E-02	1.048E-02	1.048E-02	1.048E-02	1.048E-02	1.048E-02
CS137	1.437E+03	1.062E+03	1.059E+03	1.057E+03	1.054E+03	1.052E+03	1.050E+03	1.047E+03
BA137M	1.360E+03	1.004E+03	1.002E+03	9.998E+02	9.975E+02	9.952E+02	9.929E+02	9.906E+02
LA138	2.631E-12	2.631E-12	2.631E-12	2.631E-12	2.631E-12	2.631E-12	2.631E-12	2.631E-12
CE142	4.183E-07	4.183E-07	4.183E-07	4.183E-07	4.183E-07	4.183E-07	4.183E-07	4.183E-07
CE144	1.145E+04	9.813E-02	8.977E-02	8.212E-02	7.512E-02	6.872E-02	6.287E-02	5.751E-02
PR144	1.149E+04	9.814E-02	8.977E-02	8.212E-02	7.513E-02	6.872E-02	6.287E-02	5.751E-02
PR144M	1.375E+02	1.178E-03	1.077E-03	9.855E-04	9.015E-04	8.247E-04	7.544E-04	6.901E-04
ND144	1.939E-11	2.363E-11	2.363E-11	2.363E-11	2.363E-11	2.363E-11	2.363E-11	2.363E-11
PM146	2.209E-02	4.238E-03	4.185E-03	4.133E-03	4.081E-03	4.030E-03	3.980E-03	3.930E-03
SM146	2.861E-09	3.380E-09	3.382E-09	3.383E-09	3.385E-09	3.386E-09	3.388E-09	3.389E-09
PM147	1.949E+03	6.297E+01	6.133E+01	5.973E+01	5.817E+01	5.665E+01	5.518E+01	5.374E+01
SM147	4.213E-08	8.976E-08	8.980E-08	8.984E-08	8.988E-08	8.991E-08	8.995E-08	8.999E-08
SM148	6.979E-13	7.065E-13	7.065E-13	7.065E-13	7.065E-13	7.065E-13	7.065E-13	7.065E-13
SM149	6.754E-15	8.921E-15	8.921E-15	8.921E-15	8.921E-15	8.921E-15	8.921E-15	8.921E-15
EU150	2.997E-07	2.331E-07	2.326E-07	2.322E-07	2.317E-07	2.313E-07	2.308E-07	2.304E-07
SM151	4.307E+00	3.924E+00	3.921E+00	3.918E+00	3.915E+00	3.912E+00	3.909E+00	3.906E+00
EU152	2.116E-01	1.082E-01	1.076E-01	1.071E-01	1.065E-01	1.060E-01	1.055E-01	1.049E-01
GD152	2.421E-14	2.783E-14	2.785E-14	2.787E-14	2.789E-14	2.791E-14	2.793E-14	2.795E-14
GD153	1.528E-01	1.708E-07	1.538E-07	1.386E-07	1.248E-07	1.124E-07	1.012E-07	9.118E-08
EU154	6.993E+01	2.431E+01	2.411E+01	2.392E+01	2.373E+01	2.354E+01	2.335E+01	2.316E+01
EU155	3.857E+01	5.725E+00	5.642E+00	5.561E+00	5.480E+00	5.401E+00	5.323E+00	5.246E+00
TB160	8.874E-01	1.064E-20	1.064E-20	1.064E-20	1.064E-20	1.064E-20	1.064E-20	1.064E-20
HO166M	8.309E-07	8.246E-07	8.246E-07	8.245E-07	8.245E-07	8.244E-07	8.244E-07	8.243E-07
TM170	6.559E-06	4.126E-17	3.393E-17	2.791E-17	2.296E-17	1.888E-17	1.553E-17	1.277E-17
TM171	6.258E-08	5.527E-10	5.331E-10	5.142E-10	4.960E-10	4.784E-10	4.615E-10	4.451E-10

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ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
H 1	1.057E-03	1.057E-03	1.057E-03	1.057E-03	1.057E-03	1.057E-03	1.057E-03	1.057E-03
H 2	4.717E-07	4.717E-07	4.717E-07	4.717E-07	4.717E-07	4.717E-07	4.717E-07	4.717E-07
H 3	4.845E-11	2.320E-11	2.307E-11	2.294E-11	2.281E-11	2.268E-11	2.256E-11	2.243E-11
HE 3	8.305E-13	2.608E-11	2.621E-11	2.634E-11	2.647E-11	2.660E-11	2.673E-11	2.685E-11
HE 4	1.623E-03	1.623E-03	1.623E-03	1.623E-03	1.623E-03	1.623E-03	1.623E-03	1.623E-03
LI 6	2.233E-10	2.233E-10	2.233E-10	2.233E-10	2.233E-10	2.233E-10	2.233E-10	2.233E-10
LI 7	4.751E-13	4.751E-13	4.751E-13	4.751E-13	4.751E-13	4.751E-13	4.751E-13	4.751E-13
BE 9	2.278E-06	2.278E-06	2.278E-06	2.278E-06	2.278E-06	2.278E-06	2.278E-06	2.278E-06
BE 10	4.695E-08	4.695E-08	4.695E-08	4.695E-08	4.695E-08	4.695E-08	4.695E-08	4.695E-08
B 10	3.034E-13	6.737E-13	6.766E-13	6.794E-13	6.822E-13	6.851E-13	6.879E-13	6.907E-13
B 11	2.345E-04	2.345E-04	2.345E-04	2.345E-04	2.345E-04	2.345E-04	2.345E-04	2.345E-04
C 12	5.549E-01	5.549E-01	5.549E-01	5.549E-01	5.549E-01	5.549E-01	5.549E-01	5.549E-01
C 13	7.641E-03	7.641E-03	7.641E-03	7.641E-03	7.641E-03	7.641E-03	7.641E-03	7.641E-03
C 14	1.987E-03	1.984E-03	1.984E-03	1.984E-03	1.984E-03	1.984E-03	1.984E-03	1.984E-03
N 14	7.433E-01	7.433E-01	7.433E-01	7.433E-01	7.433E-01	7.433E-01	7.433E-01	7.433E-01
N 15	2.853E-03	2.853E-03	2.853E-03	2.853E-03	2.853E-03	2.853E-03	2.853E-03	2.853E-03
O 16	4.474E+01	4.474E+01	4.474E+01	4.474E+01	4.474E+01	4.474E+01	4.474E+01	4.474E+01
O 17	1.794E-02	1.794E-02	1.794E-02	1.794E-02	1.794E-02	1.794E-02	1.794E-02	1.794E-02
O 18	8.969E-02	8.969E-02	8.969E-02	8.969E-02	8.969E-02	8.969E-02	8.969E-02	8.969E-02
F 19	4.531E-08	4.531E-08	4.531E-08	4.531E-08	4.531E-08	4.531E-08	4.531E-08	4.531E-08
NE 20	4.182E-13	4.182E-13	4.182E-13	4.182E-13	4.182E-13	4.182E-13	4.182E-13	4.182E-13
NE 21	3.266E-12	3.266E-12	3.266E-12	3.266E-12	3.266E-12	3.266E-12	3.266E-12	3.266E-12
NE 22	6.905E-15	6.905E-15	6.905E-15	6.905E-15	6.905E-15	6.905E-15	6.905E-15	6.905E-15
NA 23	6.329E-19	6.329E-19	6.329E-19	6.329E-19	6.329E-19	6.329E-19	6.329E-19	6.329E-19
MG 24	1.465E-06	1.466E-06	1.466E-06	1.466E-06	1.466E-06	1.466E-06	1.466E-06	1.466E-06
MG 25	3.449E-10	3.449E-10	3.449E-10	3.449E-10	3.449E-10	3.449E-10	3.449E-10	3.449E-10
MG 26	2.292E-13	2.292E-13	2.292E-13	2.292E-13	2.292E-13	2.292E-13	2.292E-13	2.292E-13
AL 27	7.482E-01	7.482E-01	7.482E-01	7.482E-01	7.482E-01	7.482E-01	7.482E-01	7.482E-01
SI 28	2.584E-04	2.584E-04	2.584E-04	2.584E-04	2.584E-04	2.584E-04	2.584E-04	2.584E-04
SI 29	3.064E-08	3.064E-08	3.064E-08	3.064E-08	3.064E-08	3.064E-08	3.064E-08	3.064E-08
SI 30	3.977E-12	3.977E-12	3.977E-12	3.977E-12	3.977E-12	3.977E-12	3.977E-12	3.977E-12
SI 32	5.066E-24	5.066E-24	5.066E-24	5.066E-24	5.066E-24	5.066E-24	5.066E-24	5.066E-24
P 31	1.690E-16	1.691E-16	1.691E-16	1.691E-16	1.691E-16	1.691E-16	1.691E-16	1.691E-16
P 32	7.161E-22	3.051E-28	3.051E-28	3.051E-28	3.051E-28	3.051E-28	3.051E-28	3.051E-28
S 32	8.024E-21	8.740E-21	8.740E-21	8.740E-21	8.740E-21	8.740E-21	8.740E-21	8.740E-21
S 34	1.865E-22	1.865E-22	1.865E-22	1.865E-22	1.865E-22	1.865E-22	1.865E-22	1.865E-22
CL 37	2.171E-16	2.171E-16	2.171E-16	2.171E-16	2.171E-16	2.171E-16	2.171E-16	2.171E-16
AR 38	3.441E-20	3.442E-20	3.442E-20	3.442E-20	3.442E-20	3.442E-20	3.442E-20	3.442E-20
AR 39	9.032E-21	8.733E-21	8.733E-21	8.733E-21	8.733E-21	8.733E-21	8.733E-21	8.733E-21
AR 40	8.305E-13	8.305E-13	8.305E-13	8.305E-13	8.305E-13	8.305E-13	8.305E-13	8.305E-13
AR 42	1.321E-21	1.003E-21	1.003E-21	1.003E-21	1.003E-21	1.003E-21	1.003E-21	1.003E-21
K 39	6.756E-24	3.065E-22	3.065E-22	3.065E-22	3.065E-22	3.065E-22	3.065E-22	3.065E-22
K 41	2.662E-14	2.663E-14	2.663E-14	2.663E-14	2.663E-14	2.663E-14	2.663E-14	2.663E-14
K 42	6.653E-19	4.286E-26	4.285E-26	4.285E-26	4.285E-26	4.285E-26	4.285E-26	4.285E-26
CA 42	4.620E-16	4.627E-16	4.627E-16	4.627E-16	4.627E-16	4.627E-16	4.627E-16	4.627E-16
CA 43	6.249E-08	6.249E-08	6.249E-08	6.249E-08	6.249E-08	6.249E-08	6.249E-08	6.249E-08
CA 44	4.767E-07	4.767E-07	4.767E-07	4.767E-07	4.767E-07	4.767E-07	4.767E-07	4.767E-07
CA 45	1.819E-09	2.638E-18	2.259E-18	1.934E-18	1.655E-18	1.417E-18	1.213E-18	1.039E-18
CA 46	5.671E-08	5.671E-08	5.671E-08	5.671E-08	5.671E-08	5.671E-08	5.671E-08	5.671E-08
SC 45	8.041E-09	9.860E-09	9.860E-09	9.860E-09	9.860E-09	9.860E-09	9.860E-09	9.860E-09
SC 46	1.271E-07	8.225E-25	8.225E-25	8.225E-25	8.225E-25	8.225E-25	8.225E-25	8.225E-25
TI 46	2.986E-02	2.986E-02	2.986E-02	2.986E-02	2.986E-02	2.986E-02	2.986E-02	2.986E-02
TI 47	2.723E-02	2.723E-02	2.723E-02	2.723E-02	2.723E-02	2.723E-02	2.723E-02	2.723E-02
TI 48	2.729E-01	2.729E-01	2.729E-01	2.729E-01	2.729E-01	2.729E-01	2.729E-01	2.729E-01
TI 49	2.345E-02	2.345E-02	2.345E-02	2.345E-02	2.345E-02	2.345E-02	2.345E-02	2.345E-02
TI 50	2.028E-02	2.028E-02	2.028E-02	2.028E-02	2.028E-02	2.028E-02	2.028E-02	2.028E-02
V 50	1.312E-04	1.312E-04	1.312E-04	1.312E-04	1.312E-04	1.312E-04	1.312E-04	1.312E-04
V 51	3.403E-02	3.521E-02	3.521E-02	3.521E-02	3.521E-02	3.521E-02	3.521E-02	3.521E-02

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ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
CR 50	1.589E+00	1.589E+00	1.589E+00	1.589E+00	1.589E+00	1.589E+00	1.589E+00	1.589E+00
CR 52	3.121E+01	3.121E+01	3.121E+01	3.121E+01	3.121E+01	3.121E+01	3.121E+01	3.121E+01
CR 53	3.555E+00	3.555E+00	3.555E+00	3.555E+00	3.555E+00	3.555E+00	3.555E+00	3.555E+00
CR 54	9.731E-01	9.733E-01	9.733E-01	9.733E-01	9.733E-01	9.733E-01	9.733E-01	9.733E-01
MN 54	2.270E-04	5.582E-09	5.148E-09	4.747E-09	4.378E-09	4.037E-09	3.723E-09	3.433E-09
MN 55	4.610E-03	1.089E-02	1.089E-02	1.090E-02	1.090E-02	1.091E-02	1.091E-02	1.091E-02
FE 54	3.299E+00	3.299E+00	3.299E+00	3.299E+00	3.299E+00	3.299E+00	3.299E+00	3.299E+00
FE 55	6.473E-03	1.970E-04	1.918E-04	1.867E-04	1.818E-04	1.770E-04	1.724E-04	1.678E-04
FE 56	5.127E+01	5.127E+01	5.127E+01	5.127E+01	5.127E+01	5.127E+01	5.127E+01	5.127E+01
FE 57	1.362E+00	1.362E+00	1.362E+00	1.362E+00	1.362E+00	1.362E+00	1.362E+00	1.362E+00
FE 58	1.643E-01	1.646E-01	1.646E-01	1.646E-01	1.646E-01	1.646E-01	1.646E-01	1.646E-01
CO 58	2.561E-04	1.141E-24	1.141E-24	1.141E-24	1.141E-24	1.141E-24	1.141E-24	1.141E-24
CO 59	1.104E-03	1.128E-03	1.128E-03	1.128E-03	1.128E-03	1.128E-03	1.128E-03	1.128E-03
CO 60	7.569E-05	1.351E-05	1.333E-05	1.316E-05	1.299E-05	1.282E-05	1.265E-05	1.249E-05
NI 58	1.268E+01	1.268E+01	1.268E+01	1.268E+01	1.268E+01	1.268E+01	1.268E+01	1.268E+01
NI 59	6.784E-02	6.783E-02	6.783E-02	6.783E-02	6.783E-02	6.783E-02	6.783E-02	6.783E-02
NI 60	4.863E+00	4.863E+00	4.863E+00	4.863E+00	4.863E+00	4.863E+00	4.863E+00	4.863E+00
NI 61	2.294E-01	2.294E-01	2.294E-01	2.294E-01	2.294E-01	2.294E-01	2.294E-01	2.294E-01
NI 62	6.587E-01	6.587E-01	6.587E-01	6.587E-01	6.587E-01	6.587E-01	6.587E-01	6.587E-01
NI 63	1.259E-02	1.141E-02	1.140E-02	1.139E-02	1.138E-02	1.137E-02	1.136E-02	1.136E-02
NI 64	1.698E-01	1.698E-01	1.698E-01	1.698E-01	1.698E-01	1.698E-01	1.698E-01	1.698E-01
CU 63	2.043E-04	1.388E-03	1.396E-03	1.405E-03	1.413E-03	1.422E-03	1.430E-03	1.439E-03
CU 65	3.714E-04	3.715E-04	3.715E-04	3.715E-04	3.715E-04	3.715E-04	3.715E-04	3.715E-04
ZN 64	2.120E-07	2.124E-07	2.124E-07	2.124E-07	2.124E-07	2.124E-07	2.124E-07	2.124E-07
ZN 65	4.549E-11	5.643E-17	5.087E-17	4.585E-17	4.133E-17	3.725E-17	3.358E-17	3.027E-17
ZN 66	6.473E-07	6.473E-07	6.473E-07	6.473E-07	6.473E-07	6.473E-07	6.473E-07	6.473E-07
ZN 67	2.822E-10	2.822E-10	2.822E-10	2.822E-10	2.822E-10	2.822E-10	2.822E-10	2.822E-10
ZN 68	1.097E-12	1.097E-12	1.097E-12	1.097E-12	1.097E-12	1.097E-12	1.097E-12	1.097E-12
GA 69	5.448E-16	5.450E-16	5.450E-16	5.450E-16	5.450E-16	5.450E-16	5.450E-16	5.450E-16
GA 71	4.468E-22	4.886E-22	4.886E-22	4.886E-22	4.886E-22	4.886E-22	4.886E-22	4.886E-22
GE 70	6.968E-19	6.968E-19	6.968E-19	6.968E-19	6.968E-19	6.968E-19	6.968E-19	6.968E-19
GE 72	5.726E-27	1.148E-26	1.148E-26	1.148E-26	1.148E-26	1.148E-26	1.148E-26	1.148E-26
SR 87	2.167E-04	2.167E-04	2.167E-04	2.167E-04	2.167E-04	2.167E-04	2.167E-04	2.167E-04
SR 88	2.025E-02	2.025E-02	2.025E-02	2.025E-02	2.025E-02	2.025E-02	2.025E-02	2.025E-02
SR 90	9.244E-07	6.742E-07	6.726E-07	6.710E-07	6.694E-07	6.678E-07	6.662E-07	6.646E-07
Y 89	1.435E-03	1.527E-03	1.527E-03	1.527E-03	1.527E-03	1.527E-03	1.527E-03	1.527E-03
Y 90	1.967E-04	1.711E-10	1.707E-10	1.703E-10	1.699E-10	1.695E-10	1.691E-10	1.686E-10
ZR 90	1.885E+04	1.885E+04	1.885E+04	1.885E+04	1.885E+04	1.885E+04	1.885E+04	1.885E+04
ZR 91	4.101E+03	4.101E+03	4.101E+03	4.101E+03	4.101E+03	4.101E+03	4.101E+03	4.101E+03
ZR 92	6.292E+03	6.292E+03	6.292E+03	6.292E+03	6.292E+03	6.292E+03	6.292E+03	6.292E+03
ZR 93	1.098E+01	1.098E+01	1.098E+01	1.098E+01	1.098E+01	1.098E+01	1.098E+01	1.098E+01
ZR 94	6.367E+03	6.367E+03	6.367E+03	6.367E+03	6.367E+03	6.367E+03	6.367E+03	6.367E+03
ZR 96	1.023E+03	1.023E+03	1.023E+03	1.023E+03	1.023E+03	1.023E+03	1.023E+03	1.023E+03
NB 93	3.707E+00	3.707E+00	3.707E+00	3.707E+00	3.707E+00	3.707E+00	3.707E+00	3.707E+00
NB 93M	9.342E-06	4.995E-05	5.017E-05	5.038E-05	5.060E-05	5.081E-05	5.102E-05	5.124E-05
NB 94	2.357E-02	2.356E-02	2.356E-02	2.356E-02	2.356E-02	2.356E-02	2.356E-02	2.356E-02
MO 94	1.738E-06	1.228E-05	1.236E-05	1.244E-05	1.252E-05	1.260E-05	1.268E-05	1.276E-05
MO 95	1.689E+00	1.918E+00	1.918E+00	1.918E+00	1.918E+00	1.918E+00	1.918E+00	1.918E+00
MO 96	5.513E-02	5.513E-02	5.513E-02	5.513E-02	5.513E-02	5.513E-02	5.513E-02	5.513E-02
MO 97	2.923E+00	2.926E+00	2.926E+00	2.926E+00	2.926E+00	2.926E+00	2.926E+00	2.926E+00
MO 98	1.611E-02	1.611E-02	1.611E-02	1.611E-02	1.611E-02	1.611E-02	1.611E-02	1.611E-02
MO100	5.102E-09	5.102E-09	5.102E-09	5.102E-09	5.102E-09	5.102E-09	5.102E-09	5.102E-09
TC 98	2.257E-11	2.257E-11	2.257E-11	2.257E-11	2.257E-11	2.257E-11	2.257E-11	2.257E-11
TC 99	1.324E-05	1.339E-05	1.339E-05	1.339E-05	1.339E-05	1.339E-05	1.339E-05	1.339E-05
RU 98	2.715E-18	5.153E-17	5.190E-17	5.227E-17	5.264E-17	5.302E-17	5.339E-17	5.376E-17
RU 99	4.064E-11	6.165E-10	6.209E-10	6.253E-10	6.297E-10	6.341E-10	6.385E-10	6.429E-10
RU100	4.963E-07	4.963E-07	4.963E-07	4.963E-07	4.963E-07	4.963E-07	4.963E-07	4.963E-07
RU101	1.198E-09	1.198E-09	1.198E-09	1.198E-09	1.198E-09	1.198E-09	1.198E-09	1.198E-09
RU102	9.504E-12	9.504E-12	9.504E-12	9.504E-12	9.504E-12	9.504E-12	9.504E-12	9.504E-12

zirc1.g (Continiued)
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
RU104	8.033E-18	8.033E-18	8.033E-18	8.033E-18	8.033E-18	8.033E-18	8.033E-18	8.033E-18
RU106	8.437E-30	1.033E-33	1.033E-33	1.033E-33	1.033E-33	1.033E-33	1.033E-33	1.033E-33
RH102	8.722E-23	9.074E-24	9.074E-24	9.074E-24	9.074E-24	9.074E-24	9.074E-24	9.074E-24
RH103	3.826E-16	5.258E-16	5.258E-16	5.258E-16	5.258E-16	5.258E-16	5.258E-16	5.258E-16
RH106	4.244E-28	9.707E-40	9.676E-40	9.676E-40	9.676E-40	9.676E-40	9.676E-40	9.676E-40
PD104	3.096E-17	3.097E-17	3.097E-17	3.097E-17	3.097E-17	3.097E-17	3.097E-17	3.097E-17
PD105	3.929E-20	3.936E-20	3.936E-20	3.936E-20	3.936E-20	3.936E-20	3.936E-20	3.936E-20
PD106	3.397E-22	3.398E-22	3.398E-22	3.398E-22	3.398E-22	3.398E-22	3.398E-22	3.398E-22
PD107	8.848E-33	1.994E-32	1.994E-32	1.994E-32	1.994E-32	1.994E-32	1.994E-32	1.994E-32
CD111	2.329E-07	2.329E-07	2.329E-07	2.329E-07	2.329E-07	2.329E-07	2.329E-07	2.329E-07
CD112	1.937E-06	1.937E-06	1.937E-06	1.937E-06	1.937E-06	1.937E-06	1.937E-06	1.937E-06
CD113	9.753E-09	9.753E-09	9.753E-09	9.753E-09	9.753E-09	9.753E-09	9.753E-09	9.753E-09
CD114	2.357E-04	2.523E-04	2.523E-04	2.523E-04	2.523E-04	2.523E-04	2.523E-04	2.523E-04
CD116	1.443E-06	1.443E-06	1.443E-06	1.443E-06	1.443E-06	1.443E-06	1.443E-06	1.443E-06
IN113	5.183E-02	5.747E-02	5.747E-02	5.747E-02	5.747E-02	5.747E-02	5.747E-02	5.747E-02
IN113M	3.387E-06	1.038E-18	8.332E-19	6.687E-19	5.367E-19	4.307E-19	3.457E-19	2.774E-19
IN115	7.516E-07	7.608E-07	7.608E-07	7.608E-07	7.608E-07	7.608E-07	7.608E-07	7.608E-07
SN112	5.578E+00	5.578E+00	5.578E+00	5.578E+00	5.578E+00	5.578E+00	5.578E+00	5.578E+00
SN113	5.640E-03	1.729E-15	1.387E-15	1.113E-15	8.936E-16	7.172E-16	5.756E-16	4.619E-16
SN114	3.781E+00	3.782E+00	3.782E+00	3.782E+00	3.782E+00	3.782E+00	3.782E+00	3.782E+00
SN115	1.957E+00	1.957E+00	1.957E+00	1.957E+00	1.957E+00	1.957E+00	1.957E+00	1.957E+00
SN116	8.382E+01	8.382E+01	8.382E+01	8.382E+01	8.382E+01	8.382E+01	8.382E+01	8.382E+01
SN117	4.491E+01	4.492E+01	4.492E+01	4.492E+01	4.492E+01	4.492E+01	4.492E+01	4.492E+01
SN118	1.405E+02	1.405E+02	1.405E+02	1.405E+02	1.405E+02	1.405E+02	1.405E+02	1.405E+02
SN119	5.043E+01	5.052E+01	5.052E+01	5.052E+01	5.052E+01	5.052E+01	5.052E+01	5.052E+01
SN119M	9.028E-02	1.194E-07	1.077E-07	9.713E-08	8.760E-08	7.900E-08	7.124E-08	6.425E-08
SN120	1.895E+02	1.895E+02	1.895E+02	1.895E+02	1.895E+02	1.895E+02	1.895E+02	1.895E+02
SN121M	9.254E-04	7.717E-04	7.706E-04	7.695E-04	7.685E-04	7.674E-04	7.663E-04	7.653E-04
SN122	2.690E+01	2.690E+01	2.690E+01	2.690E+01	2.690E+01	2.690E+01	2.690E+01	2.690E+01
SN123	2.592E-03	1.830E-14	1.504E-14	1.236E-14	1.016E-14	8.355E-15	6.868E-15	5.645E-15
SN124	3.346E+01	3.346E+01	3.346E+01	3.346E+01	3.346E+01	3.346E+01	3.346E+01	3.346E+01
SB121	1.696E-01	1.700E-01	1.700E-01	1.700E-01	1.700E-01	1.700E-01	1.700E-01	1.700E-01
SB123	1.495E-02	1.755E-02	1.755E-02	1.755E-02	1.755E-02	1.755E-02	1.755E-02	1.755E-02
SB125	1.276E-01	4.954E-03	4.833E-03	4.714E-03	4.598E-03	4.485E-03	4.375E-03	4.267E-03
TE122	7.284E-03	7.335E-03	7.335E-03	7.335E-03	7.335E-03	7.335E-03	7.335E-03	7.335E-03
TE123	6.794E-05	7.774E-05	7.774E-05	7.774E-05	7.774E-05	7.774E-05	7.774E-05	7.774E-05
TE123M	9.792E-06	9.023E-18	7.303E-18	5.910E-18	4.783E-18	3.871E-18	3.133E-18	2.536E-18
TE124	3.747E-04	4.272E-04	4.272E-04	4.272E-04	4.272E-04	4.272E-04	4.272E-04	4.272E-04
TE125	7.502E-02	2.007E-01	2.008E-01	2.009E-01	2.010E-01	2.011E-01	2.013E-01	2.014E-01
TE125M	1.568E-03	6.814E-05	6.647E-05	6.483E-05	6.324E-05	6.168E-05	6.017E-05	5.869E-05
TE126	1.290E-03	1.312E-03	1.312E-03	1.312E-03	1.312E-03	1.312E-03	1.312E-03	1.312E-03
TE127	4.653E-09	1.722E-23	1.369E-23	1.088E-23	8.643E-24	6.869E-24	5.459E-24	4.338E-24
TE127M	8.047E-08	4.919E-21	3.909E-21	3.107E-21	2.469E-21	1.962E-21	1.559E-21	1.239E-21
TE128	4.229E-09	4.229E-09	4.229E-09	4.229E-09	4.229E-09	4.229E-09	4.229E-09	4.229E-09
TE130	6.658E-18	6.658E-18	6.658E-18	6.658E-18	6.658E-18	6.658E-18	6.658E-18	6.658E-18
I127	3.051E-06	3.136E-06	3.136E-06	3.136E-06	3.136E-06	3.136E-06	3.136E-06	3.136E-06
I129	1.580E-12	1.589E-12	1.589E-12	1.589E-12	1.589E-12	1.589E-12	1.589E-12	1.589E-12
XE128	5.525E-08	5.525E-08	5.525E-08	5.525E-08	5.525E-08	5.525E-08	5.525E-08	5.525E-08
XE129	1.175E-10	1.179E-10	1.179E-10	1.179E-10	1.179E-10	1.179E-10	1.179E-10	1.179E-10
XE130	2.566E-12	2.566E-12	2.566E-12	2.566E-12	2.566E-12	2.566E-12	2.566E-12	2.566E-12
XE131	3.545E-15	3.574E-15	3.574E-15	3.574E-15	3.574E-15	3.574E-15	3.574E-15	3.574E-15
XE132	2.130E-16	2.130E-16	2.130E-16	2.130E-16	2.130E-16	2.130E-16	2.130E-16	2.130E-16
XE134	6.106E-23	6.106E-23	6.106E-23	6.106E-23	6.106E-23	6.106E-23	6.106E-23	6.106E-23
XE136	3.470E-30	3.470E-30	3.470E-30	3.470E-30	3.470E-30	3.470E-30	3.470E-30	3.470E-30
CS133	3.730E-20	3.958E-20	3.958E-20	3.958E-20	3.958E-20	3.958E-20	3.958E-20	3.958E-20
CS134	5.763E-22	1.954E-24	1.954E-24	1.954E-24	1.954E-24	1.954E-24	1.954E-24	1.954E-24
CS135	2.061E-30	9.689E-30	9.689E-30	9.689E-30	9.689E-30	9.689E-30	9.689E-30	9.689E-30
CS137	4.137E-40	3.405E-39	3.405E-39	3.405E-39	3.405E-39	3.405E-39	3.405E-39	3.405E-39
BA132	6.143E-29	3.729E-28	3.729E-28	3.729E-28	3.729E-28	3.729E-28	3.729E-28	3.729E-28

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ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
BA133	1.223E-34	2.397E-34	2.397E-34	2.397E-34	2.397E-34	2.397E-34	2.397E-34	2.397E-34
BA134	1.611E-23	5.905E-22	5.905E-22	5.905E-22	5.905E-22	5.905E-22	5.905E-22	5.905E-22
BA135	1.899E-29	3.973E-29	3.973E-29	3.973E-29	3.973E-29	3.973E-29	3.973E-29	3.973E-29
BA136	9.329E-37	8.088E-36	8.088E-36	8.088E-36	8.088E-36	8.088E-36	8.088E-36	8.088E-36
ER166	7.531E-29	1.184E-28	1.184E-28	1.184E-28	1.184E-28	1.184E-28	1.184E-28	1.184E-28
ER167	6.684E-38	1.522E-37	1.522E-37	1.522E-37	1.522E-37	1.522E-37	1.522E-37	1.522E-37
ER170	3.401E-22	5.893E-22	5.893E-22	5.893E-22	5.893E-22	5.893E-22	5.893E-22	5.893E-22
TM169	2.279E-18	2.372E-18	2.372E-18	2.372E-18	2.372E-18	2.372E-18	2.372E-18	2.372E-18
TM170	1.707E-19	1.073E-30	1.073E-30	1.073E-30	1.073E-30	1.073E-30	1.073E-30	1.073E-30
TM171	3.554E-20	3.082E-22	3.082E-22	3.082E-22	3.082E-22	3.082E-22	3.082E-22	3.082E-22
YB170	2.637E-19	4.342E-19	4.342E-19	4.342E-19	4.342E-19	4.342E-19	4.342E-19	4.342E-19
YB171	1.392E-20	4.921E-20	4.921E-20	4.921E-20	4.921E-20	4.921E-20	4.921E-20	4.921E-20
YB172	2.018E-10	2.030E-10	2.030E-10	2.030E-10	2.030E-10	2.030E-10	2.030E-10	2.030E-10
YB173	1.270E-10	1.271E-10	1.271E-10	1.271E-10	1.271E-10	1.271E-10	1.271E-10	1.271E-10
YB174	5.824E-12	5.824E-12	5.824E-12	5.824E-12	5.824E-12	5.824E-12	5.824E-12	5.824E-12
LU175	4.458E-03	4.812E-03	4.812E-03	4.812E-03	4.812E-03	4.812E-03	4.812E-03	4.812E-03
LU176	1.174E-04	1.174E-04	1.174E-04	1.174E-04	1.174E-04	1.174E-04	1.174E-04	1.174E-04
LU177	2.892E-06	8.088E-19	6.869E-19	5.834E-19	4.955E-19	4.208E-19	3.574E-19	3.036E-19
LU177M	1.594E-07	8.126E-17	6.901E-17	5.861E-17	4.978E-17	4.228E-17	3.591E-17	3.050E-17
HF174	6.472E-03	6.472E-03	6.472E-03	6.472E-03	6.472E-03	6.472E-03	6.472E-03	6.472E-03
HF175	3.542E-04	9.389E-25	9.389E-25	9.389E-25	9.389E-25	9.389E-25	9.389E-25	9.389E-25
HF176	2.907E-01	2.907E-01	2.907E-01	2.907E-01	2.907E-01	2.907E-01	2.907E-01	2.907E-01
HF177	9.728E-02	9.728E-02	9.728E-02	9.728E-02	9.728E-02	9.728E-02	9.728E-02	9.728E-02
HF178	1.736E+00	1.736E+00	1.736E+00	1.736E+00	1.736E+00	1.736E+00	1.736E+00	1.736E+00
HF179	2.282E+00	2.282E+00	2.282E+00	2.282E+00	2.282E+00	2.282E+00	2.282E+00	2.282E+00
HF180	3.004E+00	3.004E+00	3.004E+00	3.004E+00	3.004E+00	3.004E+00	3.004E+00	3.004E+00
HF182	1.576E-04	1.576E-04	1.576E-04	1.576E-04	1.576E-04	1.576E-04	1.576E-04	1.576E-04
TA181	3.530E-01	3.577E-01	3.577E-01	3.577E-01	3.577E-01	3.577E-01	3.577E-01	3.577E-01
TA182	5.716E-03	5.514E-12	5.513E-12	5.513E-12	5.513E-12	5.513E-12	5.512E-12	5.512E-12
W182	4.321E-02	4.892E-02	4.892E-02	4.892E-02	4.892E-02	4.892E-02	4.892E-02	4.892E-02
W183	5.042E-02	5.080E-02	5.080E-02	5.080E-02	5.080E-02	5.080E-02	5.080E-02	5.080E-02
W184	3.069E-03	3.069E-03	3.069E-03	3.069E-03	3.069E-03	3.069E-03	3.069E-03	3.069E-03
W185	1.613E-06	1.067E-25	1.067E-25	1.067E-25	1.067E-25	1.067E-25	1.067E-25	1.067E-25
W186	4.842E-08	4.944E-08	4.944E-08	4.944E-08	4.944E-08	4.944E-08	4.944E-08	4.944E-08
W188	8.345E-13	1.467E-33	1.467E-33	1.467E-33	1.467E-33	1.467E-33	1.467E-33	1.467E-33
RE185	4.398E-06	6.011E-06	6.011E-06	6.011E-06	6.011E-06	6.011E-06	6.011E-06	6.011E-06
RE187	2.015E-09	2.029E-09	2.029E-09	2.029E-09	2.029E-09	2.029E-09	2.029E-09	2.029E-09
RE188	3.658E-13	1.511E-35	1.506E-35	1.506E-35	1.506E-35	1.506E-35	1.506E-35	1.506E-35
OS186	7.263E-07	7.411E-07	7.411E-07	7.411E-07	7.411E-07	7.411E-07	7.411E-07	7.411E-07
OS187	1.415E-20	3.825E-19	3.854E-19	3.882E-19	3.910E-19	3.938E-19	3.966E-19	3.994E-19
OS188	6.406E-11	6.527E-11	6.527E-11	6.527E-11	6.527E-11	6.527E-11	6.527E-11	6.527E-11
OS189	4.533E-13	4.533E-13	4.533E-13	4.533E-13	4.533E-13	4.533E-13	4.533E-13	4.533E-13
OS190	1.603E-14	1.603E-14	1.603E-14	1.603E-14	1.603E-14	1.603E-14	1.603E-14	1.603E-14
OS192	1.891E-19	3.635E-19	3.635E-19	3.635E-19	3.635E-19	3.635E-19	3.635E-19	3.635E-19
OS194	3.807E-27	3.807E-27	3.807E-27	3.807E-27	3.807E-27	3.807E-27	3.807E-27	3.807E-27
IR191	3.253E-17	3.980E-17	3.980E-17	3.980E-17	3.980E-17	3.980E-17	3.980E-17	3.980E-17
IR192	3.649E-18	2.638E-24	2.638E-24	2.638E-24	2.638E-24	2.638E-24	2.638E-24	2.638E-24
IR192M	3.255E-21	3.133E-21	3.133E-21	3.133E-21	3.133E-21	3.133E-21	3.133E-21	3.133E-21
IR193	4.855E-19	4.858E-19	4.858E-19	4.858E-19	4.858E-19	4.858E-19	4.858E-19	4.858E-19
IR194	2.931E-22	1.386E-30	1.387E-30	1.387E-30	1.387E-30	1.387E-30	1.387E-30	1.387E-30
PT192	3.754E-18	7.228E-18	7.228E-18	7.228E-18	7.228E-18	7.228E-18	7.228E-18	7.228E-18
PT193	1.535E-20	1.520E-20	1.520E-20	1.520E-20	1.520E-20	1.520E-20	1.520E-20	1.520E-20
PT194	2.536E-20	2.565E-20	2.565E-20	2.565E-20	2.565E-20	2.565E-20	2.565E-20	2.565E-20
PT195	1.518E-27	1.670E-26	1.670E-26	1.670E-26	1.670E-26	1.670E-26	1.670E-26	1.670E-26
HE 4	1.613E-04	2.045E-03	2.059E-03	2.072E-03	2.086E-03	2.100E-03	2.113E-03	2.127E-03
TL206	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29	2.320E-29
TL207	3.787E-17	4.068E-16	4.077E-16	4.106E-16	4.144E-16	4.185E-16	4.226E-16	4.268E-16
TL208	2.481E-14	2.385E-13	2.402E-13	2.404E-13	2.407E-13	2.409E-13	2.411E-13	2.413E-13

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ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
TL209	1.121E-19	5.259E-20	5.264E-20	5.277E-20	5.294E-20	5.311E-20	5.328E-20	5.345E-20
PB206	1.519E-15	5.603E-14	5.695E-14	5.788E-14	5.881E-14	5.975E-14	6.070E-14	6.166E-14
PB207	6.465E-12	1.979E-10	2.010E-10	2.042E-10	2.073E-10	2.105E-10	2.137E-10	2.170E-10
PB208	9.813E-09	7.220E-07	7.299E-07	7.378E-07	7.457E-07	7.537E-07	7.616E-07	7.696E-07
PB209	4.680E-16	2.191E-16	2.193E-16	2.199E-16	2.206E-16	2.213E-16	2.220E-16	2.227E-16
PB210	8.585E-14	3.033E-13	3.088E-13	3.143E-13	3.200E-13	3.258E-13	3.317E-13	3.376E-13
PB211	2.930E-16	3.147E-15	3.154E-15	3.177E-15	3.206E-15	3.237E-15	3.270E-15	3.302E-15
PB212	1.464E-11	1.407E-10	1.417E-10	1.418E-10	1.420E-10	1.421E-10	1.422E-10	1.423E-10
PB214	6.459E-20	4.782E-18	4.855E-18	4.942E-18	5.030E-18	5.119E-18	5.210E-18	5.301E-18
BI208	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18	1.256E-18
BI209	8.310E-13	5.350E-12	5.391E-12	5.431E-12	5.472E-12	5.513E-12	5.554E-12	5.595E-12
BI210M	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18	8.941E-18
BI210	5.220E-17	1.866E-16	1.893E-16	1.927E-16	1.962E-16	1.998E-16	2.034E-16	2.070E-16
BI211	1.729E-17	1.857E-16	1.861E-16	1.874E-16	1.892E-16	1.910E-16	1.929E-16	1.948E-16
BI212	1.388E-12	1.334E-11	1.344E-11	1.345E-11	1.347E-11	1.348E-11	1.349E-11	1.350E-11
BI213	1.097E-16	5.149E-17	5.153E-17	5.167E-17	5.183E-17	5.199E-17	5.216E-17	5.233E-17
BI214	4.796E-20	3.551E-18	3.605E-18	3.670E-18	3.735E-18	3.801E-18	3.868E-18	3.936E-18
PO210	9.369E-16	5.155E-15	5.160E-15	5.180E-15	5.212E-15	5.255E-15	5.308E-15	5.368E-15
PO211	2.121E-22	2.278E-21	2.283E-21	2.300E-21	2.321E-21	2.344E-21	2.367E-21	2.390E-21
PO212	7.345E-23	7.059E-22	7.110E-22	7.117E-22	7.124E-22	7.131E-22	7.137E-22	7.143E-22
PO213	1.646E-25	7.724E-26	7.732E-26	7.751E-26	7.775E-26	7.800E-26	7.826E-26	7.851E-26
PO214	6.465E-25	4.885E-25	4.960E-25	5.049E-25	5.139E-25	5.230E-25	5.322E-25	5.415E-25
PO215	2.453E-22	2.635E-21	2.641E-21	2.660E-21	2.685E-21	2.711E-21	2.738E-21	2.765E-21
PO216	5.840E-17	5.612E-16	5.652E-16	5.658E-16	5.664E-16	5.669E-16	5.674E-16	5.678E-16
PO218	7.490E-21	5.545E-19	5.630E-19	5.731E-19	5.833E-19	5.936E-19	6.041E-19	6.147E-19
AT217	1.318E-21	6.186E-22	6.191E-22	6.207E-22	6.226E-22	6.246E-22	6.267E-22	6.287E-22
RN219	5.559E-19	5.972E-18	5.985E-18	6.028E-18	6.083E-18	6.143E-18	6.204E-18	6.266E-18
RN220	2.205E-14	2.119E-13	2.134E-13	2.136E-13	2.138E-13	2.140E-13	2.142E-13	2.144E-13
RN222	1.377E-17	1.019E-15	1.035E-15	1.054E-15	1.072E-15	1.091E-15	1.111E-15	1.130E-15
FR221	1.197E-17	5.617E-18	5.622E-18	5.637E-18	5.654E-18	5.672E-18	5.691E-18	5.709E-18
FR223	2.595E-18	2.771E-17	2.799E-17	2.828E-17	2.856E-17	2.885E-17	2.913E-17	2.942E-17
RA223	1.412E-13	1.517E-12	1.520E-12	1.531E-12	1.545E-12	1.561E-12	1.576E-12	1.592E-12
RA224	1.277E-10	1.227E-09	1.236E-09	1.237E-09	1.238E-09	1.239E-09	1.240E-09	1.241E-09
RA225	5.557E-14	2.540E-14	2.544E-14	2.551E-14	2.560E-14	2.568E-14	2.576E-14	2.585E-14
RA226	2.161E-12	1.586E-10	1.615E-10	1.644E-10	1.673E-10	1.702E-10	1.732E-10	1.763E-10
RA228	5.379E-16	1.038E-14	1.048E-14	1.059E-14	1.069E-14	1.079E-14	1.089E-14	1.100E-14
AC225	3.655E-14	1.716E-14	1.717E-14	1.722E-14	1.727E-14	1.732E-14	1.738E-14	1.744E-14
AC227	1.006E-10	1.074E-09	1.085E-09	1.096E-09	1.107E-09	1.118E-09	1.129E-09	1.140E-09
AC228	2.287E-14	1.263E-18	1.275E-18	1.288E-18	1.300E-18	1.313E-18	1.325E-18	1.338E-18
TH227	2.321E-13	2.493E-12	2.504E-12	2.526E-12	2.550E-12	2.575E-12	2.601E-12	2.627E-12
TH228	2.505E-08	2.384E-07	2.387E-07	2.389E-07	2.392E-07	2.394E-07	2.396E-07	2.398E-07
TH229	3.489E-09	4.681E-09	4.696E-09	4.711E-09	4.726E-09	4.741E-09	4.757E-09	4.772E-09
TH230	1.500E-07	3.221E-06	3.260E-06	3.298E-06	3.337E-06	3.377E-06	3.416E-06	3.456E-06
TH231	1.704E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09	1.627E-09
TH232	7.632E-06	4.681E-05	4.711E-05	4.741E-05	4.770E-05	4.800E-05	4.830E-05	4.860E-05
TH234	1.246E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10	1.242E-10
PA231	1.811E-06	6.885E-06	6.925E-06	6.966E-06	7.006E-06	7.046E-06	7.087E-06	7.127E-06
PA233	2.217E-07	2.276E-07	2.276E-07	2.276E-07	2.276E-07	2.276E-07	2.276E-07	2.276E-07
PA234M	4.849E-14	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15	4.189E-15
PA234	1.528E-11	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15	1.871E-15
U232	3.048E-06	8.997E-06	8.995E-06	8.993E-06	8.991E-06	8.989E-06	8.986E-06	8.983E-06
U233	7.251E-06	3.520E-05	3.542E-05	3.563E-05	3.584E-05	3.606E-05	3.627E-05	3.648E-05
U234	2.857E-02	1.385E-01	1.393E-01	1.401E-01	1.409E-01	1.417E-01	1.425E-01	1.433E-01
U235	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02	4.000E+02
U236	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02	1.028E+02
U237	1.154E-01	1.440E-10	1.433E-10	1.426E-10	1.419E-10	1.412E-10	1.405E 10	1.398E-10
U238	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00	8.563E+00
U240	5.608E-11	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19	2.476E-19
NP235	3.251E-08	7.505E-12	7.040E-12	6.604E-12	6.195E-12	5.811E-12	5.452E-12	5.114E-12

zirc1.g (Continiued)
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
NP236	3.749E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06	3.748E-06
NP237	6.600E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00	6.715E+00
NP238	9.351E-03	1.914E-12	1.914E-12	1.913E-12	1.912E-12	1.911E-12	1.910E-12	1.909E-12
NP239	3.690E-04	9.906E-11	9.906E-11	9.906E-11	9.906E-11	9.906E-11	9.906E-11	9.906E-11
NP240M	1.021E-10	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21	2.166E-21
PU236	7.349E-06	3.055E-07	2.982E-07	2.910E-07	2.840E-07	2.772E-07	2.705E-07	2.640E-07
PU238	1.127E+00	1.025E+00	1.024E+00	1.023E+00	1.023E+00	1.022E+00	1.021E+00	1.020E+00
PU239	1.613E-01	1.616E-01	1.616E-01	1.616E-01	1.616E-01	1.616E-01	1.616E-01	1.616E-01
PU240	3.359E-02	3.355E-02	3.355E-02	3.355E-02	3.355E-02	3.355E 02	3.355E-02	3.355E-02
PU241	8.724E-03	4.634E-03	4.612E-03	4.589E-03	4.567E-03	4.545E-03	4.523E-03	4.502E-03
PU242	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03	1.215E-03
PU243	1.529E-07	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21	4.098E-21
PU244	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08	1.266E-08
PU246	4.021E-16	1.526E-27	1.526E-27	1.526E-27	1.526E-27	1.526E-27	1.526E-27	1.526E-27
AM241	3.078E-04	4.344E-03	4.366E-03	4.388E-03	4.409E-03	4.430E-03	4.451E-03	4.473E-03
AM242M	1.010E-05	9.472E-06	9.467E-06	9.463E-06	9.458E-06	9.454E-06	9.449E-06	9.444E 06
AM242	3.143E-07	1.220E-10	1.219E-10	1.219E-10	1.218E-10	1.218E-10	1.217E-10	1.216E-10
AM243	1.151E-04	1.151E-04	1.151E-04	1.151E-04	1.151E-04	1.151E-04	1.151E-04	1.151E-04
AM245	2.436E-14	2.453E-27	2.267E-27	2.094E-27	1.935E-27	1.788E-27	1.652E-27	1.526E-27
AM246	6.435E-19	2.442E-30	2.443E-30	2.443E-30	2.443E-30	2.443E-30	2.443E-30	2.443E-30
CM242	3.560E-05	2.470E-08	2.469E-08	2.468E-08	2.467E-08	2.466E-08	2.465E-08	2.464E-08
CM243	5.657E-07	4.114E-07	4.104E-07	4.094E-07	4.084E-07	4.074E-07	4.064E-07	4.054E-07
CM244	1.624E-05	9.840E-06	9.803E-06	9.765E-06	9.728E-06	9.691E-06	9.654E-06	9.617E-06
CM245	3.670E-07	3.666E-07	3.666E-07	3.666E-07	3.666E-07	3.666E-07	3.666E-07	3.666E-07
CM246	2.209E-08	2.205E-08	2.205E-08	2.205E-08	2.205E-08	2.205E-08	2.205E-08	2.205E-08
CM247	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10	1.150E-10
CM248	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12	3.443E-12
CM250	3.617E-21	3.634E-21	3.634E-21	3.634E-21	3.634E-21	3.634E-21	3.634E-21	3.634E-21
BK249	2.019E-14	6.378E-19	5.893E-19	5.445E-19	5.031E-19	4.648E-19	4.295E-19	3.968E-19
BK250	1.228E-17	7.709E-29	7.709E-29	7.709E-29	7.709E-29	7.709E-29	7.709E-29	7.709E-29
CF249	3.877E-15	2.352E-14	2.351E-14	2.351E-14	2.350E-14	2.350E-14	2.349E-14	2.349E-14
CF250	3.410E-15	1.709E-15	1.700E-15	1.691E-15	1.682E-15	1.673E-15	1.665E-15	1.656E-15
CF251	1.058E-15	1.048E-15	1.048E-15	1.047E-15	1.047E-15	1.047E-15	1.047E-15	1.047E-15
CF252	3.213E-16	1.028E-17	1.002E-17	9.756E-18	9.503E-18	9.257E-18	9.017E-18	8.783E-18
ES254	2.319E-20	1.383E-25	1.383E-25	1.383E-25	1.383E-25	1.383E-25	1.383E-25	1.383E-25
SF250	2.227E-11	2.524E-10	2.540E-10	2.556E-10	2.573E-10	2.589E-10	2.605E-10	2.622E-10
H 3	6.014E-04	2.883E-04	2.867E-04	2.851E-04	2.835E-04	2.819E-04	2.803E-04	2.787E-04
LI 6	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06	3.308E-06
LI 7	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07	1.461E-07
BE 9	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07	2.814E-07
BE 10	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06	1.877E-06
C 14	3.795E-07	3.789E-07	3.789E-07	3.789E-07	3.789E-07	3.788E-07	3.788E-07	3.788E-07
ZN 66	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10	7.465E-10
ZN 67	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11	3.324E-11
ZN 68	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06	5.868E-06
GA 69	9.063E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09	9.065E-09
ZN 70	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05	2.002E-05
GE 70	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11	2.602E-11
GA 71	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09	9.808E-09
GE 72	1.046E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E-04	1.048E 04
GE 73	3.676E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04	3.677E-04
GE 74	9.973E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04	9.974E-04
AS 75	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03	2.385E-03
GE 76	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03	7.270E-03
SE 76	4.545E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05	4.556E-05
SE 77	1.581E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02	1.584E-02
SE 78	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02	3.426E-02
SE 79	8.723E-02	8.721E-02	8.721E-02	8.721E-02	8.721E-02	8.721E-02	8.721E-02	8.721E-02

zirc1.g (Continiued)
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
BR 79	2.253E-06	1.444E-05	1.454E-05	1.463E-05	1.472E-05	1.482E-05	1.491E-05	1.500E-05
SE 80	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01	2.102E-01
KR 80	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06	1.077E-06
BR 81	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01	3.512E-01
KR 81	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08	4.171E-08
SE 82	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01	5.691E-01
KR 82	9.495E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03	9.527E-03
KR 83	7.796E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01	7.797E-01
KR 84	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00	1.959E+00
KR 85	4.116E-01	1.765E-01	1.754E-01	1.742E-01	1.731E-01	1.720E-01	1.709E-01	1.698E-01
RB 85	1.846E+00	2.082E+00	2.083E+00	2.084E+00	2.085E+00	2.086E+00	2.088E+00	2.089E+00
KR 86	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00	3.613E+00
SR 86	4.630E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03	4.818E-03
RB 87	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00	4.675E+00
SR 87	2.043E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05	2.044E-05
SR 88	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00	6.738E+00
Y 89	8.536E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00	8.882E+00
SR 90	1.013E+01	7.416E+00	7.398E+00	7.381E+00	7.363E+00	7.346E+00	7.328E+00	7.311E+00
Y 90	2.594E-03	1.860E-03	1.855E-03	1.851E-03	1.847E-03	1.842E-03	1.838E-03	1.833E-03
ZR 90	6.404E-01	3.355E+00	3.372E+00	3.390E+00	3.407E+00	3.425E+00	3.442E+00	3.460E+00
ZR 91	1.058E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01	1.109E+01
ZR 92	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01	1.154E+01
ZR 93	1.243E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01	1.244E+01
NB 93	1.798E-06	3.049E-05	3.081E-05	3.113E-05	3.146E-05	3.178E-05	3.211E-05	3.244E-05
NB 93M	1.239E-05	5.751E-05	5.775E-05	5.799E-05	5.823E-05	5.847E-05	5.871E-05	5.894E-05
ZR 94	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01	1.235E+01
NB 94	1.654E-06	1.653E-06	1.653E-06	1.653E-06	1.653E-06	1.653E-06	1.653E-06	1.653E-06
MO 95	1.132E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01	1.230E+01
ZR 96	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01	1.259E+01
MO 96	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01	4.198E-01
MO 97	1.185E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01	1.186E+01
MO 98	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01	1.189E+01
TC 98	4.572E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05	4.571E-05
TC 99	1.150E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01	1.153E+01
RU 99	9.490E-05	5.907E-04	5.945E-04	5.983E-04	6.020E-04	6.058E-04	6.096E-04	6.134E-04
MO100	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01	1.312E+01
RU100	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00	1.003E+00
RU101	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01	1.045E+01
RU102	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00	9.287E+00
RH102	5.323E-06	2.325E-07	2.270E-07	2.216E-07	2.164E-07	2.113E-07	2.063E-07	2.014E-07
RH103	4.659E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00	4.866E+00
RU104	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00	4.110E+00
PD104	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00	1.925E+00
PD105	2.157E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00	2.160E+00
RU106	2.595E-01	3.176E-05	2.965E-05	2.768E-05	2.584E-05	2.413E-05	2.252E-05	2.103E-05
RH106	2.616E-07	2.986E-11	2.787E-11	2.602E-11	2.429E-11	2.268E-11	2.117E-11	1.976E-11
PD106	7.981E-01	1.058E+00	1.058E+00	1.058E+00	1.058E+00	1.058E+00	1.058E+00	1.058E+00
PD107	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01	4.234E-01
AG107	1.092E-07	7.007E-07	7.052E-07	7.098E-07	7.143E-07	7.188E-07	7.233E-07	7.278E-07
PD108	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01	2.047E-01
AG108	9.552E-13	2.901E-19	2.900E-19	2.900E-19	2.899E-19	2.899E-19	2.898E-19	2.898E-19
AG108M	3.090E-10	3.023E-10	3.023E-10	3.022E-10	3.022E-10	3.021E-10	3.021E-10	3.020E-10
CD108	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07	2.724E-07
AG109	8.224E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02	8.230E-02
AG109M	5.107E-08	1.757E-19	1.664E-19	1.576E-19	1.492E-19	1.413E-19	1.338E-19	1.267E-19
CD109	2.261E-10	1.779E-13	1.685E-13	1.595E-13	1.510E-13	1.430E-13	1.354E-13	1.282E-13
PD110	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02	7.494E-02
AG110	1.878E-08	1.409E-17	1.273E-17	1.151E-17	1.040E-17	9.396E-18	8.491E-18	7.673E-18
AG110M	5.402E-04	9.298E-10	8.403E-10	7.593E-10	6.861E-10	6.200E-10	5.603E-10	5.063E-10

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ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
CD110	3.243E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02	3.297E-02
CD111	5.953E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02	5.989E-02
CD112	4.625E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02	4.628E-02
CD113	4.385E-04	4.456E-04	4.456E-04	4.456E-04	4.456E-04	4.456E-04	4.456E-04	4.456E-04
CD113M	8.755E-04	4.599E-04	4.576E-04	4.554E-04	4.531E-04	4.509E-04	4.487E-04	4.465E-04
IN113	9.778E-05	5.131E-04	5.153E-04	5.176E-04	5.198E-04	5.220E-04	5.242E-04	5.264E-04
CD114	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02	8.345E-02
SN114	6.881E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06	7.259E-06
IN115	1.111E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02
SN115	1.262E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03	1.265E-03
CD116	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02	4.075E-02
SN116	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02	2.657E-02
SN117	4.004E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02	4.005E-02
SN118	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02	4.477E-02
SN119	4.269E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02	4.283E-02
SN119M	1.423E-04	1.882E-10	1.698E-10	1.531E-10	1.381E-10	1.245E-10	1.123E-10	1.013E-10
SN120	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02	4.486E-02
SN121M	2.162E-05	1.833E-05	1.830E-05	1.828E-05	1.826E-05	1.823E-05	1.821E-05	1.819E-05
SB121	4.515E-02	4.519E-02	4.519E-02	4.519E-02	4.519E-02	4.519E-02	4.519E-02	4.519E-02
SN122	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02	5.028E-02
TE122	2.238E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03	2.251E-03
SN123	1.474E-03	1.041E-14	8.554E-15	7.032E-15	5.780E-15	4.751E-15	3.906E-15	3.211E-15
SB123	5.702E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02	5.850E-02
TE123	2.198E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05	2.507E-05
TE123M	3.090E-06	2.847E-18	2.304E-18	1.865E-18	1.509E-18	1.222E-18	9.886E-19	8.001E-19
SN124	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02	7.859E-02
TE124	1.566E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03	1.773E-03
SB125	5.871E-02	2.225E-03	2.170E-03	2.116E-03	2.064E-03	2.013E-03	1.963E-03	1.915E-03
TE125	4.338E-02	1.009E-01	1.010E-01	1.010E-01	1.011E-01	1.011E-01	1.012E-01	1.012E-01
TE125M	7.575E-04	3.112E-05	3.035E-05	2.960E-05	2.887E-05	2.816E-05	2.746E-05	2.678E-05
SN126	1.900E-01	1.900E-01	1.900E-01	1.900E-01	1.900E-01	1.900E-01	1.900E-01	1.900E-01
SB126	3.639E-05	9.077E-09	9.078E-09	9.078E-09	9.078E-09	9.078E-09	9.078E-09	9.078E-09
SB126M	1.490E-08	6.917E-11	6.917E-11	6.917E-11	6.917E-11	6.917E-11	6.917E-11	6.917E-11
TE126	4.547E-03	4.601E-03	4.601E-03	4.601E-03	4.601E-03	4.601E-03	4.601E-03	4.601E-03
TE127	1.288E-04	1.097E-18	8.695E-19	6.893E-19	5.464E-19	4.332E-19	3.434E-19	2.722E-19
TE127M	4.938E-03	3.133E-16	2.484E-16	1.969E-16	1.561E-16	1.237E-16	9.809E-17	7.776E-17
I127	3.994E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01	4.058E-01
TE128	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00	1.066E+00
XE128	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02	1.685E-02
I129	1.835E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00	1.843E+00
XE129	6.480E-05	6.599E-05	6.599E-05	6.600E-05	6.601E-05	6.602E-05	6.603E-05	6.604E-05
TE130	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00	4.096E+00
XE130	8.569E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02	8.578E-02
XE131	6.011E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00	6.062E+00
XE132	1.364E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01	1.367E+01
BA132	1.342E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05	1.360E-05
CS133	1.678E+01	1.687E+01	1.687E+01	1.687E+01	1.687E+01	1.687E+01	1.687E+01	1.687E+01
XE134	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01	2.149E+01
CS134	1.124E+00	1.375E-02	1.329E-02	1.285E-02	1.243E-02	1.202E-02	1.162E-02	1.124E-02
BA134	6.001E-01	1.710E+00	1.711E+00	1.711E+00	1.712E+00	1.712E+00	1.712E+00	1.713E+00
CS135	9.090E+00	9.096E+00	9.096E+00	9.096E+00	9.096E+00	9.096E+00	9.096E+00	9.096E+00
BA135	2.738E-03	2.775E-03	2.775E-03	2.775E-03	2.776E-03	2.776E-03	2.776E-03	2.776E-03
XE136	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01	2.756E+01
BA136	2.349E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01	2.410E-01
CS137	1.651E+01	1.220E+01	1.217E+01	1.214E+01	1.212E+01	1.209E+01	1.206E+01	1.203E+01
BA137	9.727E-01	5.286E+00	5.314E+00	5.342E+00	5.370E+00	5.398E+00	5.426E+00	5.453E+00
BA137M	2.527E-06	1.867E-06	1.862E-06	1.858E-06	1.854E-06	1.849E-06	1.845E-06	1.841E-06
BA138	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01	1.959E+01
LA138	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04	1.370E-04

zirc1.g (Continiued)
ORIGEN2 V2.1 (8-1-91), Run on 12/03/04 at 13:13:53

	1826.0D	13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR
LA139	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01	1.856E+01
CE140	1.816E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01	1.836E+01
PR141	1.663E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01	1.707E+01
CE142	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01	1.742E+01
ND142	2.736E-01	2.741E-01	2.741E-01	2.741E-01	2.741E-01	2.741E-01	2.741E-01	2.741E-01
ND143	1.373E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01	1.393E+01
CE144	3.589E+00	3.075E-05	2.813E-05	2.573E-05	2.354E-05	2.153E-05	1.970E-05	1.802E-05
PR144	1.520E-04	1.298E-09	1.188E-09	1.087E-09	9.940E-10	9.093E-10	8.318E-10	7.609E-10
PR144M	7.579E-07	6.491E-12	5.938E-12	5.432E-12	4.969E-12	4.545E-12	4.158E-12	3.804E-12
ND144	1.638E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01	1.997E+01
ND145	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01	1.095E+01
ND146	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00	9.987E+00
PM146	4.960E-05	9.516E-06	9.397E-06	9.279E-06	9.163E-06	9.048E-06	8.935E-06	8.823E-06
SM146	8.176E-05	9.659E-05	9.664E-05	9.668E-05	9.672E-05	9.677E-05	9.681E-05	9.685E-05
PM147	2.102E+00	6.790E-02	6.613E-02	6.440E-02	6.272E-02	6.109E-02	5.950E-02	5.794E-02
SM147	1.853E+00	3.948E+00	3.950E+00	3.951E+00	3.953E+00	3.955E+00	3.956E+00	3.958E+00
ND148	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00	5.199E+00
SM148	2.311E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00	2.339E+00
SM149	2.812E-02	3.714E-02	3.714E-02	3.714E-02	3.714E-02	3.714E-02	3.714E-02	3.714E-02
ND150	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00	2.023E+00
SM150	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00	3.651E+00
EU150	4.537E-09	3.528E-09	3.521E-09	3.514E-09	3.508E-09	3.501E-09	3.494E-09	3.487E-09
SM151	1.636E-01	1.491E-01	1.490E-01	1.489E-01	1.487E-01	1.486E-01	1.485E-01	1.484E-01
EU151	2.742E-04	1.610E-02	1.622E-02	1.633E-02	1.645E-02	1.656E-02	1.667E-02	1.679E-02
SM152	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00	1.478E+00
EU152	1.217E-03	6.226E-04	6.194E-04	6.162E-04	6.131E-04	6.100E-04	6.069E-04	6.038E-04
GD152	1.111E-03	1.277E-03	1.278E-03	1.279E-03	1.280E-03	1.281E-03	1.282E-03	1.283E-03
EU153	1.120E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00	1.126E+00
GD153	4.330E-05	4.841E-11	4.360E-11	3.927E-11	3.537E-11	3.186E-11	2.869E-11	2.584E-11
SM154	2.463E-01	2.463E-01	2.463E-01	2.463E-01	2.463E-01	2.463E-01	2.463E-01	2.463E-01
EU154	2.588E-01	8.996E-02	8.924E-02	8.852E-02	8.781E-02	8.710E-02	8.640E-02	8.571E-02
GD154	2.828E-02	1.971E-01	1.978E-01	1.985E-01	1.992E-01	1.999E-01	2.006E-01	2.013E-01
EU155	7.957E-02	1.181E-02	1.164E-02	1.147E-02	1.130E-02	1.114E-02	1.098E-02	1.082E-02
GD155	1.069E-03	6.883E-02	6.900E-02	6.917E-02	6.934E-02	6.950E-02	6.966E-02	6.982E-02
GD156	2.689E-01	2.775E-01	2.775E-01	2.775E-01	2.775E-01	2.775E-01	2.775E-01	2.775E-01
GD157	2.482E-04	2.689E-04	2.689E-04	2.689E-04	2.689E-04	2.689E-04	2.689E-04	2.689E-04
GD158	4.817E-02	4.817E-02	4.817E-02	4.817E-02	4.817E-02	4.817E-02	4.817E-02	4.817E-02
TB159	4.519E-03	4.524E-03	4.524E-03	4.524E-03	4.524E-03	4.524E-03	4.524E-03	4.524E-03
GD160	1.757E-03	1.757E-03	1.757E-03	1.757E-03	1.757E-03	1.757E-03	1.757E-03	1.757E-03
TB160	7.859E-05	9.424E-25	9.424E-25	9.424E-25	9.424E-25	9.424E-25	9.424E-25	9.424E-25
DY160	3.786E-04	4.571E-04	4.571E-04	4.571E-04	4.571E-04	4.571E-04	4.571E-04	4.571E-04
DY161	3.769E-04	3.804E-04	3.804E-04	3.804E-04	3.804E-04	3.804E-04	3.804E-04	3.804E-04
DY162	3.008E-04	3.008E-04	3.008E-04	3.008E-04	3.008E-04	3.008E-04	3.008E-04	3.008E-04
DY163	2.031E-04	2.031E-04	2.031E-04	2.031E-04	2.031E-04	2.031E-04	2.031E-04	2.031E-04
DY164	3.788E-05	3.788E-05	3.788E-05	3.788E-05	3.788E-05	3.788E-05	3.788E-05	3.788E-05
HO165	6.662E-05	6.663E-05	6.663E-05	6.663E-05	6.663E-05	6.663E-05	6.663E-05	6.663E-05
HO166M	4.628E-07	4.593E-07	4.593E-07	4.593E-07	4.592E-07	4.592E-07	4.592E-07	4.591E-07
ER166	1.514E-05	1.520E-05	1.520E-05	1.520E-05	1.520E-05	1.520E-05	1.520E-05	1.520E-05
ER167	2.061E-06	2.061E-06	2.061E-06	2.061E-06	2.061E-06	2.061E-06	2.061E-06	2.061E-06
ER168	2.843E-06	2.843E-06	2.843E-06	2.843E-06	2.843E-06	2.843E-06	2.843E-06	2.843E-06
TM169	1.408E-08	1.458E-08	1.458E-08	1.458E-08	1.458E-08	1.458E-08	1.458E-08	1.458E-08
ER170	2.803E-12	4.405E-12	4.405E-12	4.405E-12	4.405E-12	4.405E-12	4.405E-12	4.405E-12
TM170	1.098E-09	6.904E-21	5.678E-21	4.670E-21	3.841E-21	3.160E-21	2.599E-21	2.137E-21
YB170	1.875E-09	2.971E-09	2.971E-09	2.971E-09	2.971E-09	2.971E-09	2.971E-09	2.971E-09
TM171	5.745E-11	5.074E-13	4.894E-13	4.721E-13	4.553E-13	4.392E-13	4.236E-13	4.086E-13
YB171	6.068E-11	1.176E-10	1.176E-10	1.177E-10	1.177E-10	1.177E-10	1.177E-10	1.177E-10
YB172	2.427E-12	2.436E-12	2.436E-12	2.436E-12	2.436E-12	2.436E-12	2.436E-12	2.436E-12

ENGINEERING DESIGN FILE
Appendix E-4

Ratio of Nuclides	Decay Time 13.1YR	13.2YR	13.3YR	13.4YR	13.5YR	13.6YR	13.7YR	Sample Average	13.1 yr Decay /Sample Average
Co-60/Cs-137	1.20E-03	1.19E-03	1.18E-03	1.17E-03	1.15E-03	1.14E-03	1.13E-03	1.17E-03	**1.01E+00**
Cs-134/Cs-137	1.68E-02	1.63E-02	1.57E-02	1.53E-02	1.48E-02	1.43E-02	1.39E-02	1.56E-02	**1.01E+00**
Eu-154/Cs-137	2.29E-02	2.28E-02	2.26E-02	2.25E-02	2.24E-02	2.22E-02	2.21E-02	1.80E-02	**1.26E+00**
Eu-155/Cs-137	5.39E-03	5.33E-03	5.26E-03	5.20E-03	5.13E-03	5.07E-03	5.01E-03	2.01E-04	2.62E+01
U-234/Cs-137	8.12E-07	8.19E-07	8.25E-07	8.32E-07	8.38E-07	8.45E-07	8.52E-07	4.04E-06	2.04E-01
U-235/Cs-137	8.15E-07	8.17E-07	8.18E-07	8.21E-07	8.22E-07	8.24E-07	8.26E-07	2.27E-08	3.60E+01
U-236/Cs-137	6.26E-06	6.28E-06	6.29E-06	6.31E-06	6.32E-06	6.33E-06	6.35E-06	6.47E-08	9.72E+01
U-238/Cs-137	2.71E-09	2.72E-09	2.72E-09	2.73E-09	2.74E-09	2.74E-09	2.75E-09	1.29E-09	**2.12E+00**
Np-237/Cs-137	4.45E-06	4.46E-06	4.47E-06	4.48E-06	4.49E-06	4.50E-06	4.51E-06	4.05E-07	1.10E+01
Pu-238/Cs-137	1.65E-02	1.66E-02	1.66E-02	1.66E-02	1.66E-02	1.67E-02	1.67E-02	8.78E-03	**1.89E+00**
Pu-239/Cs-137	9.44E-06	9.47E-06	9.49E-06	9.52E-06	9.53E-06	9.55E-06	9.58E-06	1.13E-04	8.40E-02
Pu-240/Cs-137	7.17E-06	7.19E-06	7.21E-06	7.23E-06	7.24E-06	7.26E-06	7.28E-06	1.11E-04	6.52E-02
Pu-241/Cs-137	4.51E-04	4.50E-04	4.49E-04	4.48E-04	4.47E-04	4.45E-04	4.45E-04	1.42E-02	3.16E-02
Pu-242/Cs-137	4.53E-09	4.54E-09	4.55E-09	4.56E-09	4.57E-09	4.58E-09	4.60E-09	2.83E-07	1.61E-02
Am-241/Cs-137	1.40E-05	1.42E-05	1.42E-05	1.44E-05	1.45E-05	1.46E-05	1.47E-05	4.38E-04	3.25E-02
Eu-154/Eu-155	4.25E+00	4.27E+00	4.30E+00	4.33E+00	4.36E+00	4.39E+00	4.41E+00	8.96E+01	4.80E-02
Np-237/Pu-238	2.69E-04	2.69E-04	2.70E-04	2.70E-04	2.70E-04	2.70E-04	2.70E-04	4.62E-05	5.84E+00
Pu-238/Pu-239	1.75E+03	1.75E+03	1.75E+03	1.75E+03	1.75E+03	1.74E+03	1.74E+03	7.77E+01	2.25E+01
Pu-241/Am-241	3.21E+01	3.18E+01	3.15E+01	3.12E+01	3.09E+01	3.06E+01	3.03E+01	3.24E+01	**9.71E-01**
Pu-239/Pu-241	2.09E-02	2.10E-02	2.11E-02	2.12E-02	2.13E-02	2.14E-02	2.15E-02	1.26E+02	1.68E-04
U-235/U-234	1.00E+00	9.97E-01	9.92E-01	9.86E-01	9.81E-01	9.75E-01	9.70E-01	5.63E-03	1.76E+02
U-235/U-236	1.30E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01	3.51E-01	**3.70E-01**
U-235/U-238	3.01E+02	3.01E+02	3.01E+02	3.01E+02	3.01E+02	3.01E+02	3.01E+02	1.77E+01	1.70E+01
U-234/U-236	1.30E-01	1.30E-01	1.31E-01	1.32E-01	1.33E-01	1.33E-01	1.34E-01	6.24E+01	2.10E-03
U-234/U-238	3.00E+02	3.01E+02	3.03E+02	3.05E+02	3.06E+02	3.08E+02	3.10E+02	3.14E+03	9.66E-02

Adjustments to Nuclide Mass Based on Radiochemistry Sample Analysis

nuclide ident number	nuclide	ORIGEN2 calculated 13.1 yr old (g/fuel element)	normalized to analytical Cs-137	analytical measured (g/g calcine)	with adjustments (g/g calcine)	Basis for ajustments
260540	FE 54	6.48E+01	1.180E-04		**4.884E-04**	(Fe-54/Co-60) * Co-60 analytical
260550	FE 55	3.87E-03	7.044E-09		**2.916E-08**	(Fe-55/Co-60) * Co-60 analytical
260560	FE 56	1.01E+03	1.834E-03		**7.593E-03**	(Fe-56/Co-60) * Co-60 analytical
260570	FE 57	2.68E+01	4.871E-05		**2.017E-04**	(Fe-57/Co-60) * Co-60 analytical
260580	FE 58	3.23E+00	5.885E-06		**2.436E-05**	(Fe-58/Co-60) * Co-60 analytical
270580	CO 58	2.24E-23	4.080E-29		**1.689E-28**	(Co-58/Co-60) * Co-60 analytical
270590	CO 59	2.22E-02	4.032E-08		**1.669E-07**	(Co-58/Co-60) * Co-60 analytical
270600	CO 60	2.66E-04	4.831E-10	**2.000E-09**	**2.000E-09**	analytical Co-60
280580	NI 58	2.49E+02	4.533E-04		**1.876E-03**	(Ni-58/Co-60) * Co-60 analytical
280590	NI 59	1.33E+00	2.426E-06		**1.004E-05**	(Ni-59/Co-60) * Co-60 analytical
280600	NI 60	9.56E+01	1.739E-04		**7.198E-04**	(Ni-60/Co-60) * Co-60 analytical
280610	NI 61	4.51E+00	8.203E-06		**3.396E-05**	(Ni-61/Co-60) * Co-60 analytical
280620	NI 62	1.29E+01	2.355E-05		**9.748E-05**	(Ni-62/Co-60) * Co-60 analytical
280630	NI 63	2.24E-01	4.080E-07		**1.689E-06**	(Ni-63/Co-60) * Co-60 analytical
280640	NI 64	3.34E+00	6.074E-06		**2.515E-05**	(Ni-64/Co-60) * Co-60 analytical
922320	U232	9.00E-06	1.637E-11		**4.565E-13**	(U-232/U-235) * analytical U-235
922330	U233	3.52E-05	6.405E-11		**1.786E-12**	(U-233/U-235) * analytical U-235
922340	U234	1.39E-01	2.520E-07	**3.943E-06**	**3.943E-06**	analytical U-234
922350	U235	4.00E+02	7.279E-04	**2.030E-05**	**2.030E-05**	analytical U-235
922360	U236	1.03E+02	1.871E-04	**1.931E-06**	**1.931E-06**	analytical U-236
922370	U237	1.44E-10	2.620E-16		**7.307E-18**	(U-237/U-235) * analytical U-235
922380	U238	8.56E+00	1.558E-05	**7.387E-06**	**7.387E-06**	analytical U-238
922400	U240	2.48E-19	4.506E-25		**1.256E-26**	(U-240/U-235) * analytical U-235
932350	NP235	7.51E-12	1.366E-17		**3.579E-17**	(Np-235/total Pu) * total Pu analytical
932360	NP236	3.75E-06	6.820E-12		**1.787E-11**	(Np-236/total Pu) * total Pu analytical
932370	NP237	6.72E+00	1.222E-05		**3.202E-05**	(Np-237/total Pu) * total Pu analytical
932380	NP238	1.91E-12	3.483E-18		**9.128E-18**	(Np-238/total Pu) * total Pu analytical
932390	NP239	9.91E-11	1.803E-16		**4.724E-16**	(Np-239/total Pu) * total Pu analytical
932401	NP240M	2.17E-21	3.941E-27		**1.033E-26**	(Np-240m/total Pu) * total Pu analytical
942360	PU236	3.06E-07	5.559E-13		**2.951E-13**	(Pu-236/Pu-238) * analytical Pu-238
942380	PU238	1.03E+00	1.865E-06	**9.900E-07**	**9.900E-07**	analytical Pu-238

Adjustments to Nuclide Mass Based on Radiochemistry Sample Analysis (Continued)

nuclide ident number	nuclide	ORIGEN2 calculated 13.1 yr old (g/fuel element)	normalized to analytical Cs-137	analytical measured (g/g calcine)	with adjustments (g/g calcine)	Basis for ajustments
942390	PU239	1.62E-01	2.941E-07	**3.510E-06**	**3.510E-06**	analytical Pu-239
942400	PU240	3.36E-02	6.105E-08	**9.367E-07**	**9.367E-07**	analytical Pu-240
942410	PU241	4.63E-03	8.432E-09	**2.667E-07**	**2.667E-07**	analytical Pu-241
942420	PU242	1.22E-03	2.211E-09	**1.433E-07**	**1.433E-07**	analytical Pu-242
942430	PU243	4.10E-21	7.457E-27		**3.958E-27**	(Pu-243/Pu-238) * analytical Pu-238
942440	PU244	1.27E-08	2.304E-14		**1.223E-14**	(Pu-244/Pu-238) * analytical Pu-238
942460	PU246	1.53E-27	2.777E-33		**1.474E-33**	(Pu-246/Pu-238) * analytical Pu-238
952410	AM241	4.34E-03	7.905E-09	**2.467E-07**	**2.467E-07**	analytical Am-241
952421	AM242M	9.47E-06	1.724E-11		**5.379E-10**	(Am-242m/Am-241) * analytical Am-241
952420	AM242	1.22E-10	2.220E-16		**6.928E-15**	(Am-242/Am-241) * analytical Am-241
952430	AM243	1.15E-04	2.094E-10		**6.536E-09**	(Am-243/Am-241) * analytical Am-241
952450	AM245	2.45E-27	4.464E-33		**1.393E-31**	(Am-245/Am-241) * analytical Am-241
952460	AM246	2.44E-30	4.444E-36		**1.387E-34**	(Am-246/Am-241) * analytical Am-241
962420	CM242	2.47E-08	4.495E-14		**1.178E-13**	(Cm-242/total Pu) * total Pu analytical
962430	CM243	4.11E-07	7.486E-13		**1.962E-12**	(Cm-243/total Pu) * total Pu analytical
962440	CM244	9.84E-06	1.791E-11		**4.693E-11**	(Cm-244/total Pu) * total Pu analytical
962450	CM245	3.67E-07	6.671E-13		**1.748E-12**	(Cm-245/total Pu) * total Pu analytical
962460	CM246	2.21E-08	4.012E-14		**1.052E-13**	(Cm-246/total Pu) * total Pu analytical
962470	CM247	1.15E-10	2.093E-16		**5.484E-16**	(Cm-247/total Pu) * total Pu analytical
962480	CM248	3.44E-12	6.265E-18		**1.642E-17**	(Cm-248/total Pu) * total Pu analytical
962500	CM250	3.63E-21	6.613E-27		**1.733E-26**	(Cm-250/total Pu) * total Pu analytical
972490	BK249	6.38E-19	1.161E-24		**3.042E-24**	(Bk-249/total Pu) * total Pu analytical
972500	BK250	7.71E-29	1.403E-34		**3.676E-34**	(Bk-250/total Pu) * total Pu analytical
982490	CF249	2.35E-14	4.280E-20		**1.122E-19**	(Cf-249/total Pu) * total Pu analytical
982500	CF250	1.71E-15	3.110E-21		**8.150E-21**	(Cf-250/total Pu) * total Pu analytical
982510	CF251	1.05E-15	1.907E-21		**4.998E-21**	(Cf-251/total Pu) * total Pu analytical
982520	CF252	1.03E-17	1.871E-23		**4.902E-23**	(Cf-252/total Pu) * total Pu analytical
992540	ES254	1.38E-25	2.517E-31		**6.595E-31**	(Es-254/total Pu) * total Pu analytical
551340	CS134	1.38E-02	2.502E-08	**2.333E-08**	**2.502E-08**	analytical Cs-134
551370	CS137	1.22E+01	2.220E-05	**2.220E-05**	**2.220E-05**	analytical Cs-137
691690	TM169	1.46E-08	2.653E-14	**1.287E-07**	**1.287E-07**	analytical Eu-154
691700	TM170	6.90E-21	1.256E-26	**8.333E-10**	**8.333E-10**	analytical Eu-155

ORIGEN2 RUN ZR_RUN1.INP

```
-1
-1
-1
  RDA     ORIGEN2, VERSION 2.1 (8-1-91) GENERIC FUEL
  BAS     PWRU FUEL
  RDA     -1 = 1 G CALCINE
  CUT     -1
  LIP     0 0 0
  LIB     0  1 2 3  601  602  603   9   3   0  1   38
  TIT     INITIAL COMPOSITIONS OF UNIT AMOUNTS OF FUEL AND STRUCT MAT'LS
  RDA     READ FUEL COMPOSITION INCLUDING IMPURITIES
  INP     -1   1  -1  -1  1  1
  TIT     DECAY OF GENERIC FUEL
  MOV     -1   1   0   1.
  HED      1                                                    Ci/g
  OPTL    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTA    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTF    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  DEC     11.5    1   2   5   0
  DEC     14.0    2   3   5   0
  DEC     15.0    3   4   5   0
  DEC     22.0    4   5   5   0
  DEC     24.0    5   6   5   0
  DEC     28.0    6   7   5   0
  DEC     34.0    7   8   5   0
  OUT      -8    1     -1    0
  OUT       8    1     -1    0
  END
  1   20030 9.328E-16  20040 6.175E-08  30060 6.027E-12 0 0.
  1   50100 2.409E-17  50110 8.385E-09  60120 1.983E-05 0 0.
  1   60130 2.733E-07  70140 2.659E-05  70150 1.020E-07 0 0.
  1   80160 1.600E-03  80170 6.418E-07  80180 3.208E-06 0 0.
  1   90190 1.620E-12 100200 1.495E-17 100210 1.168E-16 0 0.
  1  100220 2.469E-19 110230 2.264E-23 120240 5.242E-11 0 0.
  1  120250 1.234E-14 120260 8.196E-18 130270 2.675E-05 0 0.
  1  140280 9.238E-09 140290 1.096E-12 140300 1.422E-16 0 0.
  1  140320 4.429E-28 150310 6.047E-21 150320 2.669E-32 0 0.
  1  160320 3.128E-25 160330 1.349E-29 160340 7.250E-27 0 0.
  1  170370 7.763E-21 180380 1.231E-24 180390 3.124E-25 0 0.
  1  180400 2.970E-17 180420 3.599E-26 190390 1.144E-26 0 0.
  1  190410 9.522E-19 190420 1.538E-30 200420 1.655E-20 0 0.
  1  200430 2.235E-12 200440 1.705E-11 200450 9.433E-23 0 0.
  1  200460 2.029E-12 210450 3.527E-13 210460 2.941E-29 0 0.
  1  220460 1.068E-06 220470 9.737E-07 220480 9.759E-06 0 0.
  1  220490 8.385E-07 220500 7.251E-07 230500 4.691E-09 0 0.
  1  230510 1.259E-06 240500 5.681E-05 240520 1.116E-03 0 0.
  1  240530 1.271E-04 240540 3.481E-05 250540 1.996E-13 0 0.
  1  250550 3.892E-07 260540 4.884E-04 260550 2.916E-08 0 0.
  1  260560 7.593E-03 260570 2.017E-04 260580 2.436E-05 0 0.
  1  270580 1.689E-28 270590 1.669E-07 270600 2.000E-09 0 0.
  1  280580 1.876E-03 280590 1.004E-05 280600 7.198E-04 0 0.
  1  280610 3.396E-05 280620 9.748E-05 280630 1.689E-06 0 0.
  1  280640 2.515E-05 290630 4.962E-08 290650 1.328E-08 0 0.
  1  300640 7.593E-12 300650 2.018E-21 420940 4.391E-10 0 0.
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ORIGEN2 RUN ZR_RUN1.INP (Continued)

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1  440980 1.843E-21 701730 4.546E-15 701740 2.084E-16 0 0.
1  711750 1.721E-07 711760 4.198E-09 711770 2.893E-23 0 0.
1  711771 2.906E-21 721740 2.315E-07 721750 3.357E-29 0 0.
1  721760 1.040E-05 721770 3.479E-06 721780 6.207E-05 0 0.
1  721790 8.159E-05 721800 1.074E-04 721820 5.634E-09 0 0.
1  731810 1.279E-05 731820 1.973E-16 741820 1.750E-06 0 0.
1  741830 1.817E-06 741840 1.098E-07 741850 3.818E-30 0 0.
1  741860 1.768E-12 741880 5.246E-38 751850 2.149E-10 0 0.
1  751870 7.255E-14 751880 5.403E-40 761860 2.649E-11 0 0.
1  761870 1.368E-23 761880 2.335E-15 761890 1.621E-17 0 0.
1  761900 5.730E-19 761920 1.300E-23 761940 1.363E-31 0 0.
1  771910 1.423E-21 771920 9.630E-29 771921 1.144E-25 0 0.
1  771930 1.737E-23 771940 4.962E-35 781920 2.586E-22 0 0.
1  781930 5.446E-25 781940 9.184E-25 781950 8.782E-29 0 0.
2   20040 6.175E-08 812060 4.222E-35 812070 7.402E-22 0 0.
2  812080 4.340E-19 812090 9.570E-26 822060 1.020E-19 0 0.
2  822070 3.601E-16 822080 1.314E-12 822090 3.987E-22 0 0.
2  822100 5.519E-19 822110 5.727E-21 822120 2.560E-16 0 0.
2  822140 8.702E-24 832080 2.286E-24 832090 9.735E-18 0 0.
2  832101 1.627E-23 832100 3.396E-22 832110 3.379E-22 0 0.
2  832120 2.427E-17 832130 9.369E-23 832140 6.462E-24 0 0.
2  842100 9.380E-21 842110 4.145E-27 842120 1.285E-27 0 0.
2  842130 1.406E-31 842140 8.889E-31 842150 4.795E-27 0 0.
2  842160 1.021E-21 842180 1.009E-24 852170 1.126E-27 0 0.
2  862190 1.087E-23 862200 3.856E-19 862220 1.854E-21 0 0.
2  872210 1.022E-23 872230 5.042E-23 882230 2.760E-18 0 0.
2  882240 2.233E-15 882250 4.622E-20 882260 2.886E-16 0 0.
2  882280 1.889E-20 892250 3.123E-20 892270 1.954E-15 0 0.
2  892280 2.298E-24 902270 4.536E-18 902280 4.338E-13 0 0.
2  902290 8.518E-15 902300 5.861E-12 902310 2.961E-15 0 0.
2  902320 8.518E-11 902340 2.260E-16 912310 1.253E-11 0 0.
2  912330 4.142E-13 912341 7.623E-21 912340 3.405E-21 0 0.
2  922320 4.565E-13 922330 1.786E-12 922340 3.943E-06 0 0.
2  922350 2.030E-05 922360 1.931E-06 922370 7.307E-18 0 0.
2  922380 7.387E-06 922400 1.256E-26 932350 3.579E-17 0 0.
2  932360 1.787E-11 932370 3.202E-05 932380 9.128E-18 0 0.
2  932390 4.724E-16 932401 1.033E-26 942360 2.951E-13 0 0.
2  942380 9.900E-07 942390 3.510E-06 942400 9.367E-07 0 0.
2  942410 2.667E-07 942420 1.433E-07 942430 3.958E-27 0 0.
2  942440 1.223E-14 942460 1.474E-33 952410 2.467E-07 0 0.
2  952421 5.379E-10 952420 6.928E-15 952430 6.536E-09 0 0.
2  952450 1.393E-31 952460 1.387E-34 962420 1.178E-13 0 0.
2  962430 1.962E-12 962440 4.693E-11 962450 1.748E-12 0 0.
2  962460 1.052E-13 962470 5.484E-16 962480 1.642E-17 0 0.
2  962500 1.733E-26 972490 3.042E-24 972500 3.676E-34 0 0.
2  982490 1.122E-19 982500 8.150E-21 982510 4.998E-21 0 0.
2  982520 4.902E-23 992540 6.595E-31       0 0.       0 0.
3   10030 5.246E-10  30060 6.027E-12  30070 2.659E-13 0 0.
3   40090 8.196E-11  40100 5.095E-12  60140 7.095E-08 0 0.
3  300660 2.315E-11 300670 1.015E-14 300680 1.068E-11 0 0.
3  310690 1.650E-14 300700 3.643E-11 320700 4.735E-17 0 0.
3  310710 1.785E-14 320720 1.907E-10 320730 6.691E-10 0 0.
3  320740 1.815E-09 330750 4.340E-09 320760 1.323E-08 0 0.
3  340760 8.290E-11 340770 2.882E-08 340780 6.234E-08 0 0.
3  340790 1.587E-07 350790 2.628E-11 340800 3.825E-07 0 0.
```

ORIGEN2 RUN ZR_RUN1.INP (Continued)

```
3  360800 1.960E-12 350810 6.391E-07 360810 7.590E-14 0 0.
3  340820 1.036E-06 360820 1.734E-08 360830 1.419E-06 0 0.
3  360840 3.565E-06 360850 3.212E-07 370850 3.789E-06 0 0.
3  360860 6.574E-06 380860 8.767E-09 370870 8.507E-06 0 0.
3  380870 7.787E-09 380880 1.298E-05 390890 1.621E-05 0 0.
3  380900 1.349E-05 390900 3.385E-09 400900 6.740E-01 0 0.
3  400910 1.467E-01 400920 2.249E-01 400930 4.151E-04 0 0.
3  410930 1.325E-04 410931 1.891E-09 400940 2.276E-01 0 0.
3  410940 8.425E-07 420950 9.095E-05 400960 3.661E-02 0 0.
3  420960 2.735E-06 420970 1.262E-04 420980 2.222E-05 0 0.
3  430980 8.318E-11 430990 2.098E-05 440990 1.075E-09 0 0.
3  421000 2.387E-05 441000 1.825E-06 441010 1.902E-05 0 0.
3  441020 1.690E-05 451020 4.231E-13 451030 8.855E-06 0 0.
3  441040 7.479E-06 461040 3.503E-06 461050 3.930E-06 0 0.
3  441060 5.779E-11 451060 5.434E-17 461060 1.925E-06 0 0.
3  461070 7.704E-07 471070 1.275E-12 461080 3.725E-07 0 0.
3  471080 5.279E-25 471081 5.501E-16 481080 4.957E-13 0 0.
3  471090 1.498E-07 471091 3.197E-25 481090 3.237E-19 0 0.
3  461100 1.364E-07 471100 2.564E-23 471101 1.692E-15 0 0.
3  481100 5.999E-08 481110 1.090E-07 481120 8.428E-08 0 0.
3  481130 8.111E-10 481131 8.369E-10 491130 2.055E-06 0 0.
3  481140 1.609E-07 501140 1.352E-04 491150 2.059E-08 0 0.
3  501150 7.000E-05 481160 7.420E-08 501160 2.997E-03 0 0.
3  501170 1.606E-03 501180 5.024E-03 501190 1.807E-03 0 0.
3  501191 4.271E-12 501200 6.778E-03 501211 2.762E-08 0 0.
3  511210 6.162E-06 501220 9.622E-04 521220 2.663E-07 0 0.
3  501230 6.733E-19 511230 7.339E-07 521230 2.826E-09 0 0.
3  521231 3.278E-22 501240 1.196E-03 521240 1.851E-08 0 0.
3  511250 1.812E-07 521250 7.361E-06 521251 2.494E-09 0 0.
3  501260 3.457E-07 511260 1.652E-14 511261 1.259E-16 0 0.
3  521260 5.528E-08 521270 1.997E-24 521271 5.703E-22 0 0.
3  531270 7.385E-07 521280 1.940E-06 541280 3.066E-08 0 0.
3  531290 3.354E-06 541290 1.201E-10 521300 7.453E-06 0 0.
3  541300 1.561E-07 541310 1.103E-05 541320 2.487E-05 0 0.
3  561320 2.475E-11 551330 3.070E-05 541340 3.910E-05 0 0.
3  551340 2.502E-08 561340 3.112E-06 551350 1.655E-05 0 0.
3  561350 5.050E-09 541360 5.015E-05 561360 4.385E-07 0 0.
3  551370 2.220E-05 561370 9.619E-06 561371 3.397E-12 0 0.
3  561380 3.565E-05 571380 2.493E-10 571390 3.377E-05 0 0.
3  581400 3.341E-05 591410 3.106E-05 581420 3.170E-05 0 0.
3  601420 4.988E-07 601430 2.535E-05 581440 5.595E-11 0 0.
3  591440 2.362E-15 591441 1.181E-17 601440 3.634E-05 0 0.
3  601450 1.993E-05 601460 1.817E-05 611460 1.732E-11 0 0.
3  621460 1.758E-10 611470 1.236E-07 621470 7.184E-06 0 0.
3  601480 9.460E-06 621480 4.256E-06 621490 6.758E-08 0 0.
3  601500 3.681E-06 621500 6.644E-06 631500 6.420E-15 0 0.
3  621510 2.713E-07 631510 2.930E-08 621520 2.689E-06 0 0.
3  631520 1.133E-09 641520 2.324E-09 631530 2.049E-06 0 0.
3  641530 8.809E-17 621540 4.482E-07 631540 1.637E-07 0 0.
3  641540 3.587E-07 631550 2.149E-08 641550 1.252E-07 0 0.
3  641560 5.050E-07 641570 4.893E-10 641580 8.765E-08 0 0.
3  651590 8.232E-09 641600 3.197E-09 651600 1.715E-30 0 0.
3  661600 8.318E-10 661610 6.922E-10 661620 5.474E-10 0 0.
3  661630 3.696E-10 661640 6.893E-11 671650 1.212E-10 0 0.
3  671661 8.358E-13 681660 2.766E-11 681670 3.750E-12 0 0.
```

ORIGEN2 RUN ZR_RUN1.INP (Continued)

```
3  681680 5.173E-12 691690 1.287E-07 681700 8.016E-18 0 0.
3  691700 8.333E-10 701700 5.406E-15 691710 9.233E-19 0 0.
3  701710 2.140E-16 701720 7.263E-15      0 0.        0 0.
0
```

ORIGEN2 RUN ZR_RUN1.BAT

```
echo off
echo **                                                                  **
echo **                              O R I G E N 2                       **
echo **                                                                  **
copy zirc1.INP tape5.inp >nul
copy \origen2\libs\decaymod.lib+\origen2\libs\pwrus.lib tape9.inp >nul
copy \origen2\libs\gxuo2brm.lib tape10.inp >nul
\origen2\code\origen2
echo finished with origen2 calculation
rem  combine and save files from run
copy tape12.out+tape6.out zirc1.u6 >nul
copy tape13.out+tape11.out zirc1.u11 >nul
ren tape7.out zirc1.pch
ren tape15.out zirc1.dbg
ren tape16.out zirc1.vxs
ren tape50.out zirc1.ech
rem  cleanup files
del tape*.inp
del tape*.out
del zirc1.dbg
del zirc1.pch
del zirc1.vxs
del zirc1.ech
del zirc1.u11
echo ************************************************************************
echo ****************** O R I G E N 2 - Version 2.1 **********************
echo ********************** Execution Completed **************************
echo ************************************************************************
echo on
```

zr_run1.ci
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	Ci/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
AR 39	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23
CA 45	1.680E-18	2.926E-26	2.926E-26	2.926E-26	5.539E-31	5.539E-31	5.539E-31	4.957E-35
V 50	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22
MN 54	1.545E-09	1.389E-13	1.833E-14	8.153E-15	2.806E-17	5.523E-18	2.038E-19	2.204E-20
FE 55	7.293E-05	3.400E-06	1.746E-06	1.337E-06	2.069E-07	1.214E-07	4.179E-08	8.440E-09
CO 60	2.262E-06	4.984E-07	3.588E-07	3.145E-07	1.253E-07	9.629E-08	5.689E-08	2.584E-08
NI 59	7.608E-07	7.607E-07	7.607E-07	7.607E-07	7.606E-07	7.606E-07	7.606E-07	7.605E-07
NI 63	1.042E-04	9.557E-05	9.379E-05	9.308E-05	8.830E-05	8.698E-05	8.440E-05	8.067E-05
ZN 65	1.663E-17	1.086E-22	1.086E-22	1.086E-22	7.583E-26	7.583E-26	7.583E-26	7.583E-26
LU176	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16
LU177	3.182E-18	2.213E-26	2.119E-26	2.136E-26	2.396E-31	2.282E-31	2.282E-31	1.329E-35
LU177M	1.384E-17	9.624E-26	9.624E-26	9.624E-26	1.042E-30	1.042E-30	1.042E-30	5.776E-35
HF182	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12
TA182	1.231E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12
RE187	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21
IR192	0.000E+00	8.849E-25	8.851E-25	8.851E-25	8.850E-25	8.850E-25	8.850E-25	8.850E-25
IR192M	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25
PT193	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24
TL206	0.000E+00	9.199E-27	9.199E-27	9.199E-27	9.199E-27	9.199E-27	9.199E-27	9.199E-27
TL207	1.410E-13	2.808E-13	3.057E-13	3.152E-13	3.736E-13	3.886E-13	4.157E-13	4.511E-13
TL208	1.278E-10	6.944E-12	5.827E-12	5.589E-12	4.865E-12	4.773E-12	4.583E-12	4.325E-12
TL209	0.000E+00	5.280E-17	5.932E-17	6.230E-17	8.887E-17	9.829E-17	1.196E-16	1.576E-16
PB209	1.812E-15	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E-15
PB210	4.215E-17	9.046E-16	1.497E-15	1.794E-15	5.009E-15	6.344E-15	9.651E-15	1.636E-14
PB211	1.414E-13	2.815E-13	3.066E-13	3.161E-13	3.747E-13	3.897E-13	4.168E-13	4.524E-13
PB212	3.558E-10	1.933E-11	1.622E-11	1.555E-11	1.354E-11	1.328E-11	1.276E-11	1.204E-11
PB214	2.854E-16	7.262E-15	1.048E-14	1.194E-14	2.490E-14	2.950E-14	3.987E-14	5.843E-14
BI208	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26
BI210M	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27
BI210	4.215E-17	9.046E-16	1.498E-15	1.795E-15	5.010E-15	6.347E-15	9.654E-15	1.637E-14
BI211	1.414E-13	2.815E-13	3.066E-13	3.161E-13	3.747E-13	3.897E-13	4.168E-13	4.524E-13
BI212	3.557E-10	1.933E-11	1.622E-11	1.555E-11	1.354E-11	1.328E-11	1.276E-11	1.204E-11
BI213	1.813E-15	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E-15
BI214	2.854E-16	7.262E-15	1.048E-14	1.194E-14	2.490E-14	2.950E-14	3.987E-14	5.843E-14
PO210	4.215E-17	9.046E-16	1.347E-15	1.614E-15	5.010E-15	5.926E-15	9.658E-15	1.637E-14
PO211	0.000E+00	7.883E-16	8.585E-16	8.850E-16	1.049E-15	1.091E-15	1.167E-15	1.267E-15
PO212	0.000E+00	1.238E-11	1.039E-11	9.966E-12	8.675E-12	8.511E-12	8.173E-12	7.712E-12
PO213	0.000E+00	2.392E-15	2.687E-15	2.822E-15	4.025E-15	4.452E-15	5.417E-15	7.138E-15
PO214	0.000E+00	7.261E-15	1.048E-14	1.194E-14	2.490E-14	2.949E-14	3.986E-14	5.841E-14
PO215	0.000E+00	2.815E-13	3.066E-13	3.161E-13	3.747E-13	3.897E-13	4.168E-13	4.524E-13
PO216	3.557E-10	1.933E-11	1.622E-11	1.555E-11	1.354E-11	1.328E-11	1.276E-11	1.204E-11
PO218	2.855E-16	7.264E-15	1.048E-14	1.194E-14	2.491E-14	2.950E-14	3.988E-14	5.844E-14
AT217	0.000E+00	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E-15
RN219	1.415E-13	2.815E-13	3.066E-13	3.161E-13	3.747E-13	3.897E-13	4.168E-13	4.524E-13
RN220	3.558E-10	1.933E-11	1.622E-11	1.555E-11	1.354E-11	1.328E-11	1.276E-11	1.204E-11
RN222	2.853E-16	7.264E-15	1.048E-14	1.194E 14	2.491E-14	2.950E-14	3.988E-14	5.844E-14
FR221	1.812E-15	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E-15
FR223	1.951E-15	3.882E-15	4.223E-15	4.352E-15	5.163E-15	5.366E-15	5.741E-15	6.232E-15
RA223	1.414E-13	2.815E-13	3.066E-13	3.161E-13	3.747E-13	3.897E-13	4.168E-13	4.524E-13
RA224	3.558E-10	1.933E-11	1.622E-11	1.555E-11	1.354E-11	1.328E-11	1.276E-11	1.204E-11
RA225	1.813E-15	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E-15
RA226	2.855E-16	7.264E-15	1.048E-14	1.194E-14	2.491E-14	2.950E-14	3.988E-14	5.844E-14
RA228	4.423E-18	7.874E-18	8.224E-18	8.342E-18	8.918E-18	9.024E-18	9.183E-18	9.349E-18
AC225	1.813E-15	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E 15
AC227	1.414E-13	2.813E-13	3.060E-13	3.154E-13	3.741E-13	3.889E-13	4.160E-13	4.516E 13
AC228	5.154E-18	7.874E-18	8.224E-18	8.343E-18	8.918E-18	9.025E-18	9.184E-18	9.350E-18
TH227	1.395E-13	2.777E-13	3.024E-13	3.117E-13	3.695E-13	3.843E-13	4.111E-13	4.462E-13
TH228	3.557E-10	1.930E-11	1.618E-11	1.550E-11	1.353E-11	1.325E-11	1.274E-11	1.203E-11
TH229	1.813E-15	2.445E-15	2.746E-15	2.884E-15	4.114E-15	4.551E-15	5.537E-15	7.295E-15
TH230	1.184E-13	2.697E-12	3.265E-12	3.493E-12	5.098E-12	5.560E-12	6.487E-12	7.890E-12
TH231	1.575E-09	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11
TH232	9.346E-18	9.417E-18	9.432E-18	9.438E-18	9.481E-18	9.494E-18	9.519E-18	9.556E-18
TH234	5.236E-12	2.484E-12	2.484E-12	2.485E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12
PA231	5.921E-13	6.028E-13	6.050E-13	6.060E-13	6.124E-13	6.142E-13	6.179E-13	6.234E-13
PA233	8.600E-09	2.258E-08	2.259E-08	2.259E-08	2.259E-08	2.259E 08	2.259E-08	2.259E-08
PA234M	5.238E-12	2.484E-12	2.484E-12	2.485E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12

zr_run1.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

Ci/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
PA234	6.809E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15
U232	9.775E-12	1.415E-11	1.398E-11	1.389E-11	1.311E-11	1.288E-11	1.240E-11	1.171E-11
U233	1.730E-14	1.146E-12	1.404E-12	1.513E-12	2.204E-12	2.413E-12	2.808E-12	3.401E-12
U234	2.465E-08	2.518E-08	2.528E-08	2.533E-08	2.562E-08	2.570E-08	2.585E-08	2.608E-08
U235	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11	4.390E-11
U236	1.250E-10	1.251E-10	1.251E-10	1.251E-10	1.251E-10	1.251E-10	1.252E-10	1.252E-10
U237	5.967E-13	3.876E-10	3.437E-10	3.275E-10	2.338E-10	2.124E-10	1.752E-10	1.312E-10
U238	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12
U240	0.000E+00	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19
NP235	5.023E-14	3.225E-17	6.528E-18	3.450E-18	5.118E-20	2.757E-20	1.949E-20	0.000E+00
NP236	2.355E-13	2.355E-13	2.355E-13	2.355E-13	2.355E-13	2.355E-13	2.355E-13	2.354E-13
NP237	2.258E-08	2.258E-08	2.259E-08	2.259E-08	2.259E-08	2.259E-08	2.259E-08	2.259E-08
NP238	2.367E-12	2.481E-11	2.453E-11	2.442E-11	2.365E-11	2.344E-11	2.302E-11	2.239E-11
NP239	1.096E-10	1.302E-09	1.302E-09	1.302E-09	1.301E-09	1.301E-09	1.300E-09	1.299E-09
NP240M	0.000E+00	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19
PU236	1.569E-10	9.597E-12	5.236E-12	4.110E-12	7.668E-13	4.797E-13	1.946E-13	6.150E-14
PU238	1.695E-05	1.548E-05	1.518E-05	1.506E-05	1.425E-05	1.403E-05	1.359E-05	1.296E-05
PU239	2.183E-07	2.182E-07	2.182E-07	2.182E-07	2.181E-07	2.181E-07	2.181E-07	2.181E-07
PU240	2.135E-07	2.133E-07	2.132E-07	2.132E-07	2.130E-07	2.130E-07	2.129E-07	2.128E-07
PU241	2.749E-05	1.580E-05	1.401E-05	1.335E-05	9.532E-06	8.657E-06	7.141E-06	5.350E-06
PU242	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10
PU243	0.000E+00	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20
PU244	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19
AM241	8.470E-07	1.217E-06	1.272E-06	1.292E-06	1.404E-06	1.428E-06	1.469E-06	1.515E-06
AM242M	5.230E-09	4.963E-09	4.906E-09	4.884E-09	4.731E-09	4.688E-09	4.603E-09	4.479E-09
AM242	5.603E-09	4.938E-09	4.882E-09	4.860E-09	4.707E-09	4.664E-09	4.580E-09	4.456E-09
AM243	1.303E-09	1.302E-09	1.302E-09	1.302E-09	1.301E-09	1.301E-09	1.300E-09	1.299E-09
AM245	0.000E+00	8.095E-30	8.100E-30	8.100E-30	8.100E-30	8.100E-30	8.100E-30	8.100E-30
CM242	3.896E-10	4.084E-09	4.045E-09	4.025E-09	3.893E-09	3.864E-09	3.796E-09	3.686E-09
CM243	1.013E-10	7.660E-11	7.208E-11	7.035E-11	5.934E-11	5.652E-11	5.128E-11	4.432E-11
CM244	3.798E-09	2.446E-09	2.223E-09	2.139E-09	1.636E-09	1.516E-09	1.301E-09	1.034E-09
CM245	3.002E-13	3.000E-13	2.999E-13	2.999E-13	2.997E-13	2.997E-13	2.996E-13	2.994E-13
CM246	3.233E-14	3.227E-14	3.226E-14	3.226E-14	3.222E-14	3.221E-14	3.220E-14	3.217E-14
CM247	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20
CM248	6.984E-20	6.984E-20	6.984E-20	6.984E-20	6.984E-20	6.984E-20	6.984E-20	6.983E-20
BK249	4.987E-21	5.581E-25	5.581E-25	5.581E-25	5.581E-25	5.581E-25	5.581E-25	5.581E-25
CF249	4.598E-19	4.495E-19	4.473E-19	4.464E-19	4.402E-19	4.385E-19	4.350E-19	4.298E-19
CF250	8.913E-19	4.852E-19	4.252E-19	4.026E-19	2.776E-19	2.481E-19	2.011E-19	1.473E-19
CF251	7.930E-21	7.860E-21	7.860E-21	7.860E-21	7.817E-21	7.817E-21	7.817E-21	7.817E-21
CF252	2.637E-20	9.940E-21	9.940E-21	9.940E-21	8.470E-21	8.470E-21	8.470E-21	8.470E-21
H 3	5.064E-06	2.656E-06	2.308E-06	2.182E-06	1.473E-06	1.317E-06	1.052E-06	7.511E-07
BE 10	1.139E-13	1.139E-13	1.139E-13	1.139E-13	1.139E-13	1.139E-13	1.139E-13	1.139E-13
C 14	3.164E-07	3.159E-07	3.158E-07	3.158E-07	3.155E-07	3.154E-07	3.153E-07	3.151E-07
SE 79	1.106E-08	1.106E-08	1.106E-08	1.106E-08	1.106E-08	1.106E-08	1.106E-08	1.106E-08
KR 81	1.597E-15	1.597E-15	1.597E-15	1.597E-15	1.597E-15	1.597E-15	1.597E-15	1.597E-15
KR 85	1.261E-04	5.994E-05	5.099E-05	4.780E-05	3.040E-05	2.671E-05	2.062E-05	1.399E-05
RB 87	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13
SR 90	1.841E-03	1.400E-03	1.319E-03	1.288E-03	1.090E-03	1.040E-03	9.453E-04	8.195E-04
Y 90	1.842E-03	1.400E-03	1.319E-03	1.288E-03	1.091E-03	1.040E-03	9.455E-04	8.197E-04
ZR 93	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06
NB 93M	5.347E-07	7.372E-07	7.676E-07	7.787E-07	8.425E-07	8.569E-07	8.817E-07	9.105E-07
NB 94	1.579E-07	1.578E-07	1.578E-07	1.578E-07	1.578E-07	1.578E-07	1.578E-07	1.577E-07
TC 98	7.230E-14	7.230E-14	7.230E-14	7.230E-14	7.230E-14	7.230E-14	7.230E-14	7.230E-14
TC 99	3.558E-07	3.558E-07	3.558E-07	3.558E-07	3.558E-07	3.558E-07	3.558E-07	3.558E-07
RH102	5.116E-10	3.275E-11	1.802E-11	1.419E-11	2.562E-12	1.651E-12	6.345E-13	1.512E-13
RU106	1.934E-07	7.115E-11	1.275E-11	6.411E-12	5.205E-14	1.316E-14	8.406E-16	1.356E-17
RH106	1.935E-07	7.115E-11	1.275E-11	6.411E-12	5.205E-14	1.316E-14	8.406E-16	1.358E-17
PD107	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10
AG108	3.880E-16	1.199E-15	1.183E-15	1.176E-15	1.132E-15	1.120E-15	1.096E-15	1.060E-15
AG108M	1.434E-14	1.347E-14	1.329E-14	1.322E-14	1.272E-14	1.258E-14	1.231E-14	1.191E-14
AG109M	8.360E-16	1.575E-18	3.987E-19	2.335E-19	1.626E-20	1.626E-20	1.834E-21	0.000E+00
CD109	8.361E-16	1.560E-18	3.870E-19	2.335E-19	1.626E-20	1.626E-20	0.000E+00	0.000E+00
AG110	1.069E-13	9.313E-19	7.450E-20	2.761E-20	2.296E-23	2.296E-23	2.296E-23	2.296E-23
AG110M	8.041E-12	7.002E-17	5.601E-18	2.076E-18	1.727E-21	1.727E-21	1.727E-21	1.727E-21
CD113M	1.816E-07	1.051E-07	9.336E-08	8.903E-08	6.384E-08	5.805E-08	4.800E-08	3.610E-08
IN115	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19

zr_run1.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	Ci/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
SN119M	1.913E-08	1.322E-13	9.988E-15	3.554E-15	2.568E-18	3.080E-19	3.925E-20	1.662E-20
SN121M	1.634E-06	1.393E-06	1.345E-06	1.327E-06	1.204E-06	1.171E-06	1.108E-06	1.019E-06
SN123	5.536E-15	8.995E-25	8.995E-25	8.995E-25	9.893E-31	9.893E-31	3.894E-34	2.834E-39
TE123	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19
TE123M	2.909E-18	7.911E-29	7.911E-29	7.911E-29	2.931E-35	2.931E-35	6.118E-39	0.000E+00
SB125	1.872E-04	1.053E-05	5.633E-06	4.386E-06	7.608E-07	4.612E-07	1.695E-07	3.777E-08
TE125M	4.494E-05	2.569E-06	1.374E-06	1.070E-06	1.856E-07	1.126E-07	4.136E-08	9.214E-09
SN126	9.812E-09	9.811E-09	9.811E-09	9.811E-09	9.810E-09	9.810E-09	9.810E-09	9.810E-09
SB126	1.382E-09	1.374E-09	1.374E-09	1.374E-09	1.373E-09	1.373E-09	1.373E-09	1.373E-09
SB126M	9.893E-09	9.811E-09	9.811E-09	9.811E-09	9.810E-09	9.810E-09	9.810E-09	9.810E-09
TE127	5.273E-18	1.324E-29	1.319E-29	1.321E-29	9.397E-37	0.000E+00	0.000E+00	0.000E+00
TE127M	5.381E-18	1.352E-29	1.352E-29	1.352E-29	1.176E-36	1.176E-36	0.000E+00	0.000E+00
I129	5.923E-10	5.923E-10	5.923E-10	5.923E 10	5.923E-10	5.923E-10	5.923E-10	5.923E-10
CS134	3.239E-05	6.783E-07	2.927E-07	2.092E-07	1.988E-08	1.015E-08	2.646E-09	3.520E-10
CS135	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08
CS137	1.932E-03	1.481E-03	1.398E-03	1.366E-03	1.162E-03	1.110E-03	1.012E-03	8.806E-04
BA137M	1.828E-03	1.401E-03	1.322E-03	1.292E-03	1.099E-03	1.050E-03	9.570E-04	8.331E-04
LA138	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18
CE142	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13
CE144	1.786E-07	6.362E-12	6.864E-13	2.817E-13	5.520E-16	9.298E-17	2.649E-18	2.619E-20
PR144	1.785E-07	6.362E-12	6.864E-13	2.817E-13	5.523E-16	9.299E-17	2.649E-18	2.619E-20
PR144M	2.143E-09	7.634E-14	8.237E-15	3.380E-15	6.628E-18	1.116E-18	3.178E-20	3.142E-22
ND144	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17
PM146	7.714E-09	1.811E-09	1.321E-09	1.165E-09	4.821E-10	3.747E-10	2.263E-10	1.063E-10
SM146	6.152E-15	6.324E-15	6.338E-15	6.343E-15	6.362E-15	6.365E-15	6.370E-15	6.373E-15
PM147	1.146E-04	5.492E-06	2.837E-06	2.178E-06	3.427E-07	2.020E-07	7.021E-08	1.439E-08
SM147	1.633E-13	1.660E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13
SM148	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18
SM149	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20
EU150	4.252E-13	3.407E-13	3.247E-13	3.185E-13	2.784E-13	2.679E-13	2.480E-13	2.209E-13
SM151	7.140E-06	6.535E-06	6.410E-06	6.361E-06	6.027E-06	5.935E-06	5.755E-06	5.495E-06
EU152	1.960E-07	1.091E-07	9.603E-08	9.126E-08	6.388E-08	5.769E-08	4.705E-08	3.465E-08
GD152	5.064E-20	5.369E-20	5.414E-20	5.431E-20	5.527E-20	5.549E-20	5.586E-20	5.630E-20
GD153	3.108E-13	1.853E-18	1.586E-19	7.946E-20	5.247E 23	5.247E-23	5.247E-23	5.247E-23
EU154	4.421E-05	1.750E-05	1.430E-05	1.320E-05	7.506E-06	6.389E-06	4.628E-06	2.854E-06
EU155	9.999E-06	2.004E-06	1.413E-06	1.229E-06	4.619E-07	3.492E-07	1.997E-07	8.632E-08
HO166M	1.501E-12	1.491E-12	1.488E-12	1.488E-12	1.482E-12	1.480E-12	1.477E-12	1.471E-12
TM170	4.980E-06	7.310E-16	5.393E-18	7.283E-19	7.531E-25	7.531E-25	2.861E-28	2.119E-33
TM171	1.006E-15	1.583E-17	6.410E-18	4.463E-18	3.460E-19	1.646E-19	4.576E-20	1.845E-20

zr_run1.g
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
HE 3	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16
HE 4	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08
LI 6	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12
B 10	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17
B 11	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09
C 12	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E 05	1.983E-05	1.983E-05
C 13	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07
N 14	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05
N 15	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07
O 16	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03
O 17	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07
O 18	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06
F 19	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E 12	1.620E-12
NE 20	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17
NE 21	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16
NE 22	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19
NA 23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23
MG 24	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11
MG 25	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14
MG 26	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18
AL 27	2.675E 05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05
SI 28	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09
SI 29	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12
SI 30	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16
P 31	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21
S 32	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25
CL 37	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21
AR 38	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24
AR 39	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25
AR 40	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17
K 41	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19
CA 42	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20
CA 43	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12
CA 44	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11
CA 45	9.433E-23	1.643E-30	1.643E-30	1.643E-30	3.109E-35	3.109E-35	3.109E-35	2.783E-39
CA 46	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12
SC 45	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13
TI 46	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06
TI 47	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07
TI 48	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06
TI 49	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07
TI 50	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07
V 50	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09
V 51	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06
CR 50	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05
CR 52	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03
CR 53	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04
CR 54	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05
MN 54	1.996E-13	1.795E-17	2.368E-18	1.053E-18	3.625E-21	7.135E-22	2.633E-23	2.847E-24
MN 55	3.892E-07	4.170E-07	4.177E-07	4.178E-07	4.183E-07	4.183E-07	4.183E-07	4.184E-07
FE 54	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04
FE 55	2.916E-08	1.359E-09	6.980E-10	5.347E-10	8.272E-11	4.853E-11	1.671E-11	3.375E-12
FE 56	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03
FE 57	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04
FE 58	2.436E-05	2.436E-05	2.436E 05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05
CO 59	1.669E-07	1.679E-07	1.681E-07	1.682E-07	1.688E-07	1.690E-07	1.693E-07	1.699E-07
CO 60	2.000E-09	4.407E-10	3.172E-10	2.781E-10	1.107E-10	8.512E-11	5.030E-11	2.285E-11
NI 58	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03
NI 59	1.004E-05	1.004E-05	1.004E-05	1.004E 05	1.004E-05	1.004E-05	1.004E-05	1.004E-05
NI 60	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04
NI 61	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05
NI 62	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05
NI 63	1.689E 06	1.549E-06	1.520E-06	1.509E-06	1.431E-06	1.410E-06	1.368E-06	1.307E-06
NI 64	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05
CU 63	4.962E-08	1.898E-07	2.187E-07	2.301E-07	3.076E-07	3.290E-07	3.709E-07	4.313E-07
CU 65	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08
ZN 64	7.593E-12	7.593E-12	7.593E 12	7.593E-12	7.593E-12	7.593E 12	7.593E-12	7.593E-12

zr_run1.g (Continued)
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	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
ZN 65	2.018E-21	1.318E-26	1.318E-26	1.318E-26	9.202E-30	9.202E-30	9.202E-30	9.202E-30
MO 94	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10
RU 98	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21
YB173	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15
YB174	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16
LU175	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07
LU176	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09
LU177	2.893E-23	2.012E-31	1.926E-31	1.942E-31	2.178E-36	2.074E-36	2.074E-36	1.208E-40
LU177M	2.906E-21	2.021E-29	2.021E-29	2.021E-29	2.188E-34	2.188E-34	2.188E-34	1.213E-38
HF174	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07
HF176	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05
HF177	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06
HF178	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05
HF179	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05
HF180	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04
HF182	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09
TA181	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05
TA182	1.973E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16
W182	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06
W183	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06
W184	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07
W186	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12
RE185	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10
RE187	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14
OS186	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11
OS187	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23
OS188	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15
OS189	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17
OS190	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19
OS192	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23
IR191	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21
IR192	0.000E+00	9.627E-29	9.629E-29	9.629E-29	9.627E-29	9.627E-29	9.627E-29	9.627E-29
IR192M	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25
IR193	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23
PT192	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22
PT193	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25
PT194	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25
HE 4	6.175E-08	6.333E-08	6.366E-08	6.379E-08	6.469E-08	6.494E-08	6.543E-08	6.614E-08
TL206	0.000E+00	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35
TL207	7.402E-22	1.474E-21	1.605E-21	1.654E-21	1.961E-21	2.040E-21	2.182E-21	2.368E-21
TL208	4.340E-19	2.357E-20	1.978E-20	1.897E 20	1.652E-20	1.620E-20	1.556E-20	1.468E-20
TL209	0.000E+00	1.291E-25	1.450E-25	1.523E-25	2.172E-25	2.403E-25	2.923E-25	3.852E-25
PB206	1.020E-19	1.387E-18	2.472E-18	3.070E-18	1.179E-17	1.611E-17	2.841E-17	5.865E-17
PB207	3.601E-16	1.352E-15	1.646E-15	1.771E-15	2.742E-15	3.048E-15	3.695E-15	4.741E-15
PB208	1.314E-12	1.752E-12	1.770E-12	1.776E-12	1.816E-12	1.827E-12	1.848E-12	1.878E-12
PB209	3.987E-22	5.378E-22	6.042E-22	6.345E-22	9.051E-22	1.001E-21	1.218E-21	1.605E-21
PB210	5.519E-19	1.184E-17	1.960E-17	2.349E-17	6.558E-17	8.306E-17	1.264E-16	2.142E-16
PB211	5.727E-21	1.140E-20	1.242E-20	1.280E-20	1.517E-20	1.578E-20	1.688E-20	1.832E-20
PB212	2.560E-16	1.390E-17	1.167E-17	1.119E-17	9.741E-18	9.556E-18	9.177E-18	8.659E-18
PB214	8.702E-24	2.214E-22	3.196E-22	3.640E-22	7.593E-22	8.993E-22	1.216E-21	1.781E-21
BI208	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24
BI209	9.735E-18	1.917E-17	2.179E-17	2.292E-17	3.272E-17	3.621E-17	4.435E-17	5.984E-17
BI210M	1.627E-23	1.627E-23	1.627E 23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23
BI210	3.396E-22	7.288E-21	1.207E-20	1.446E-20	4.036E-20	5.113E-20	7.778E-20	1.319E-19
BI211	3.379E-22	6.727E-22	7.325E-22	7.552E-22	8.952E-22	9.310E-22	9.959E-22	1.081E-21
BI212	2.427E-17	1.319E-18	1.107E-18	1.061E-18	9.240E-19	9.065E-19	8.705E-19	8.214E-19
BI213	9.369E-23	1.264E-22	1.420E-22	1.491E-22	2.127E-22	2.352E-22	2.862E-22	3.771E-22
BI214	6.462E-24	1.644E-22	2.373E-22	2.703E-22	5.638E-22	6.678E-22	9.027E-22	1.323E-21
PO210	9.380E-21	2.013E-19	2.997E-19	3.592E-19	1.115E-18	1.319E-18	2.149E-18	3.642E-18
PO211	0.000E+00	8.253E-27	8.988E-27	9.265E-27	1.098E-26	1.142E-26	1.222E-26	1.326E-26
PO212	0.000E+00	6.978E-29	5.855E-29	5.616E-29	4.889E-29	4.796E-29	4.605E-29	4.346E-29
PO213	0.000E+00	1.896E-31	2.130E-31	2.237E-31	3.191E-31	3.529E-31	4.294E-31	5.657E-31
PO214	0.000E+00	2.262E-29	3.264E-29	3.719E-29	7.757E-29	9.187E-29	1.242E-28	1.820E-28
PO215	0.000E+00	9.547E-27	1.040E-26	1.072E-26	1.270E-26	1.321E-26	1.413E-26	1.534E-26
PO216	1.021E-21	5.548E-23	4.656E-23	4.465E-23	3.887E-23	3.813E-23	3.662E-23	3.455E-23
PO218	1.009E-24	2.568E-23	3.705E-23	4.221E-23	8.805E-23	1.043E-22	1.410E-22	2.066E-22

zr_run1.g (Continued)
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	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
AT217	0.000E+00	1.518E-27	1.705E-27	1.791E-27	2.555E-27	2.826E-27	3.438E-27	4.530E-27
RN219	1.087E-23	2.163E-23	2.356E-23	2.429E-23	2.879E-23	2.994E-23	3.203E-23	3.476E-23
RN220	3.856E-19	2.095E-20	1.758E-20	1.686E-20	1.467E-20	1.440E-20	1.382E-20	1.305E-20
RN222	1.854E-21	4.721E-20	6.813E-20	7.761E-20	1.619E-19	1.917E-19	2.592E-19	3.798E-19
FR221	1.022E-23	1.379E-23	1.549E-23	1.627E-23	2.320E-23	2.566E-23	3.122E-23	4.114E-23
FR223	5.042E-23	1.003E-22	1.091E-22	1.125E-22	1.334E-22	1.387E-22	1.484E-22	1.611E-22
RA223	2.760E-18	5.496E-18	5.985E-18	6.169E-18	7.313E-18	7.606E-18	8.136E-18	8.831E-18
RA224	2.233E-15	1.213E-16	1.018E-16	9.761E-17	8.497E-17	8.336E-17	8.005E-17	7.554E-17
RA225	4.622E-20	6.233E-20	7.002E-20	7.354E-20	1.049E-19	1.160E-19	1.412E-19	1.860E-19
RA226	2.886E-16	7.344E-15	1.060E-14	1.207E-14	2.518E-14	2.983E-14	4.032E-14	5.908E-14
RA228	1.889E-20	3.363E-20	3.512E-20	3.563E-20	3.809E-20	3.854E-20	3.922E-20	3.993E-20
AC225	3.123E-20	4.211E-20	4.730E-20	4.968E-20	7.087E-20	7.838E-20	9.537E-20	1.257E-19
AC227	1.954E-15	3.888E-15	4.229E-15	4.358E-15	5.170E-15	5.374E-15	5.749E-15	6.241E-15
AC228	2.298E-24	3.511E-24	3.667E-24	3.720E-24	3.976E-24	4.024E-24	4.094E-24	4.168E-24
TH227	4.536E-18	9.030E-18	9.834E-18	1.014E-17	1.202E-17	1.250E-17	1.337E-17	1.451E-17
TH228	4.338E-13	2.353E-14	1.973E-14	1.890E-14	1.651E-14	1.616E-14	1.554E-14	1.467E-14
TH229	8.518E-15	1.149E-14	1.291E-14	1.355E-14	1.933E-14	2.138E-14	2.602E-14	3.428E-14
TH230	5.861E-12	1.336E-10	1.617E-10	1.730E-10	2.524E-10	2.753E-10	3.213E-10	3.907E-10
TH231	2.961E-15	8.254E-17	8.255E-17	8.255E-17	8.255E-17	8.255E-17	8.255E-17	8.255E-17
TH232	8.518E-11	8.583E-11	8.597E-11	8.602E-11	8.642E-11	8.653E-11	8.675E-11	8.709E-11
TH234	2.260E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16
PA231	1.253E-11	1.276E-11	1.280E-11	1.282E-11	1.296E-11	1.300E-11	1.308E-11	1.319E-11
PA233	4.142E-13	1.088E-12	1.088E-12	1.088E-12	1.088E-12	1.088E-12	1.088E-12	1.088E-12
PA234M	7.623E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21
PA234	3.405E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21
U232	4.565E-13	6.607E-13	6.530E-13	6.488E-13	6.125E-13	6.013E-13	5.792E-13	5.470E-13
U233	1.786E-12	1.184E-10	1.450E-10	1.562E-10	2.276E-10	2.491E-10	2.899E-10	3.512E-10
U234	3.943E-06	4.027E-06	4.045E-06	4.052E-06	4.098E-06	4.111E-06	4.136E-06	4.172E-06
U235	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05
U236	1.931E-06	1.932E-06	1.932E-06	1.932E-06	1.933E-06	1.933E-06	1.934E-06	1.934E-06
U237	7.307E-18	4.747E-15	4.209E-15	4.011E-15	2.864E-15	2.601E-15	2.145E-15	1.607E-15
U238	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06
U240	0.000E+00	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25
NP235	3.579E-17	2.298E-20	4.651E-21	2.458E-21	3.646E-23	1.965E-23	1.389E-23	0.000E+00
NP236	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11
NP237	3.202E-05	3.203E-05	3.203E-05	3.203E-05	3.203E-05	3.203E-05	3.204E-05	3.204E-05
NP238	9.128E-18	9.570E-17	9.462E-17	9.419E-17	9.123E-17	9.040E-17	8.877E-17	8.637E-17
NP239	4.724E-16	5.611E-15	5.610E-15	5.609E-15	5.605E-15	5.604E-15	5.602E-15	5.599E-15
NP240M	0.000E+00	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27
PU236	2.951E-13	1.806E-14	9.850E-15	7.733E-15	1.443E-15	9.024E-16	3.660E-16	1.157E-16
PU238	9.900E-07	9.040E-07	8.864E-07	8.794E-07	8.321E-07	8.191E-07	7.936E-07	7.569E-07
PU239	3.510E-06	3.509E-06	3.509E-06	3.508E-06	3.508E-06	3.508E-06	3.507E-06	3.507E-06
PU240	9.367E-07	9.356E-07	9.353E-07	9.352E-07	9.345E-07	9.343E-07	9.340E-07	9.334E-07
PU241	2.667E-07	1.533E-07	1.359E-07	1.295E-07	9.249E-08	8.400E-08	6.929E-08	5.191E-08
PU242	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07
PU243	0.000E+00	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26
PU244	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14
AM241	2.467E-07	3.544E-07	3.704E-07	3.762E-07	4.088E-07	4.160E-07	4.280E-07	4.412E-07
AM242M	5.379E-10	5.104E-10	5.046E-10	5.023E-10	4.866E-10	4.821E-10	4.734E-10	4.606E-10
AM242	6.928E-15	6.106E-15	6.036E-15	6.009E-15	5.820E-15	5.767E-15	5.663E-15	5.510E-15
AM243	6.536E-09	6.529E-09	6.527E-09	6.527E-09	6.523E-09	6.521E-09	6.519E-09	6.515E-09
AM245	0.000E+00	1.309E-36	1.310E-36	1.310E-36	1.310E-36	1.310E-36	1.310E-36	1.310E-36
CM242	1.178E-13	1.235E-12	1.223E-12	1.217E-12	1.177E-12	1.168E-12	1.148E-12	1.114E-12
CM243	1.962E-12	1.483E-12	1.396E-12	1.362E-12	1.149E-12	1.094E-12	9.930E-13	8.582E-13
CM244	4.693E-11	3.022E-11	2.746E-11	2.643E-11	2.022E-11	1.873E-11	1.607E-11	1.277E-11
CM245	1.748E-12	1.746E-12	1.746E-12	1.746E-12	1.745E-12	1.745E-12	1.744E-12	1.743E-12
CM246	1.052E-13	1.050E-13	1.050E-13	1.050E-13	1.049E-13	1.048E-13	1.048E-13	1.047E-13
CM247	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16
CM248	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17
BK249	3.042E-24	3.405E-28	3.405E-28	3.405E-28	3.405E-28	3.405E-28	3.405E-28	3.405E-28
CF249	1.122E-19	1.097E-19	1.091E-19	1.089E-19	1.074E-19	1.070E-19	1.061E-19	1.049E-19
CF250	8.150E-21	4.436E-21	3.887E-21	3.681E-21	2.538E-21	2.269E-21	1.839E-21	1.347E-21
CF251	4.998E-21	4.954E-21	4.954E-21	4.954E-21	4.927E-21	4.927E-21	4.927E-21	4.927E-21
CF252	4.902E-23	1.848E-23	1.848E-23	1.848E-23	1.574E-23	1.574E-23	1.574E-23	1.574E-23
SF250	0.000E+00	2.657E-16	3.206E-16	3.423E-16	4.889E-16	5.297E-16	6.097E-16	7.251E-16
H 3	5.246E-10	2.751E-10	2.391E-10	2.260E-10	1.526E-10	1.364E-10	1.090E-10	7.780E-11

zr run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
LI 6	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12
LI 7	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13
BE 9	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11
BE 10	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12
C 14	7.095E-08	7.085E-08	7.083E-08	7.082E-08	7.076E-08	7.074E-08	7.071E-08	7.066E-08
ZN 66	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11
ZN 67	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14
ZN 68	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11
GA 69	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14
ZN 70	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11
GE 70	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17
GA 71	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14
GE 72	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10
GE 73	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10
GE 74	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09
AS 75	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09
GE 76	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08
SE 76	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11
SE 77	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08
SE 78	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08
SE 79	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.586E-07
BR 79	2.628E-11	4.575E-11	4.999E-11	5.168E-11	6.353E-11	6.692E-11	7.369E-11	8.384E-11
SE 80	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07
KR 80	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12
BR 81	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07
KR 81	7.590E-14	7.590E-14	7.590E-14	7.590E-14	7.589E-14	7.589E-14	7.589E-14	7.589E-14
SE 82	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06
KR 82	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08
KR 83	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06
KR 84	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06
KR 85	3.212E-07	1.527E-07	1.299E-07	1.218E-07	7.745E-08	6.805E-08	5.254E-08	3.565E-08
RB 85	3.789E-06	3.957E-06	3.980E-06	3.988E-06	4.033E-06	4.042E-06	4.058E-06	4.075E-06
KR 86	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06
SR 86	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09
RB 87	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06
SR 87	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09
SR 88	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05
Y 89	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05
SR 90	1.349E-05	1.026E-05	9.667E-06	9.440E-06	7.991E-06	7.619E-06	6.927E-06	6.006E-06
Y 90	3.385E-09	2.573E-09	2.424E-09	2.367E-09	2.004E-09	1.911E-09	1.737E-09	1.506E-09
ZR 90	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01
ZR 91	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01
ZR 92	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01
ZR 93	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04
NB 93	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04
NB 93M	1.891E-09	2.607E-09	2.715E-09	2.754E-09	2.979E-09	3.030E-09	3.118E-09	3.220E-09
ZR 94	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01
NB 94	8.425E-07	8.422E-07	8.421E-07	8.421E-07	8.419E-07	8.418E-07	8.417E-07	8.415E-07
MO 95	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05
ZR 96	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02
MO 96	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06
MO 97	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04
MO 98	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05
TC 98	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11
TC 99	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05
RU 99	1.075E-09	1.860E-09	2.031E-09	2.099E-09	2.577E-09	2.713E-09	2.987E-09	3.396E-09
MO100	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05
RU100	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06
RU101	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05
RU102	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05
RH102	4.231E-13	2.708E-14	1.490E-14	1.173E-14	2.202E-15	1.365E-15	5.247E-16	1.251E-16
RH103	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06
RU104	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06
PD104	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06
PD105	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06
RU106	5.779E-11	2.126E-14	3.810E-15	1.915E-15	1.555E-17	3.931E-18	2.511E-19	4.052E-21
RH106	5.434E-17	1.998E-20	3.581E-21	1.800E-21	1.462E-23	3.695E-24	2.361E-25	3.812E-27

zr_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
PD106	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06
PD107	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07
AG107	1.275E-12	2.220E-12	2.426E-12	2.508E-12	3.083E-12	3.248E-12	3.577E-12	4.070E-12
PD108	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07
AG108	5.279E-25	1.631E-24	1.609E-24	1.600E-24	1.540E-24	1.524E-24	1.491E-24	1.443E-24
AG108M	5.501E-16	5.166E-16	5.096E-16	5.069E-16	4.879E-16	4.826E-16	4.721E-16	4.569E-16
CD108	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13
AG109	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07
AG109M	3.197E-25	6.022E-28	1.525E-28	8.929E-29	6.219E-30	6.219E-30	7.013E-31	0.000E+00
CD109	3.237E-19	6.038E-22	1.498E-22	9.039E-23	6.296E-24	6.296E-24	0.000E+00	0.000E+00
PD110	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07
AG110	2.564E-23	2.233E-28	1.786E-29	6.620E-30	5.506E-33	5.506E-33	5.506E-33	5.506E-33
AG110M	1.692E-15	1.473E-20	1.179E-21	4.369E-22	3.633E-25	3.633E-25	3.633E-25	3.633E-25
CD110	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08
CD111	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07
CD112	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08
CD113	8.111E-10	8.115E-10	8.115E-10	8.115E-10	8.116E-10	8.117E-10	8.117E-10	8.118E-10
CD113M	8.369E-10	4.846E-10	4.303E-10	4.104E-10	2.943E-10	2.676E-10	2.213E-10	1.664E-10
IN113	2.055E-06	2.055E-06	2.055E-06	2.055E-06	2.056E-06	2.056E-06	2.056E-06	2.056E-06
CD114	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07
SN114	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04
IN115	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08
SN115	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05
CD116	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08
SN116	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03
SN117	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03
SN118	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03
SN119	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03
SN119M	4.271E-12	2.951E-17	2.229E-18	7.933E-19	5.732E-22	6.875E-23	8.762E-24	3.709E-24
SN120	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03
SN121M	2.762E-08	2.355E-08	2.275E-08	2.243E-08	2.036E-08	1.980E-08	1.873E-08	1.723E-08
SB121	6.162E-06	6.166E-06	6.167E-06	6.167E-06	6.169E-06	6.170E-06	6.171E-06	6.172E-06
SN122	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04
TE122	2.663E-07	2.663E-07	2.663E-07	2.663E-07	2.563E-07	2.663E-07	2.663E-07	2.663E-07
SN123	6.733E-19	1.094E-28	1.094E-28	1.094E-28	1.203E-34	1.203E-34	4.736E-38	3.447E-43
SB123	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07
TE123	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09
TE123M	3.278E-22	8.914E-33	8.914E-33	8.914E-33	3.303E-39	3.303E-39	6.894E-43	0.000E+00
SN124	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03
TE124	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08
SB125	1.812E-07	1.019E-08	5.453E-09	4.246E-09	7.365E-10	4.465E-10	1.641E-10	3.656E-11
TE125	7.361E-06	7.534E-06	7.539E-06	7.540E-06	7.544E-06	7.544E-06	7.545E-06	7.545E-06
TE125M	2.494E-09	1.426E-10	7.627E-11	5.939E-11	1.030E-11	6.247E-12	2.295E-12	5.114E-13
SN126	3.457E-07	3.457E-07	3.457E-07	3.457E-07	3.456E-07	3.456E-07	3.456E-07	3.456E-07
SB126	1.652E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14
SB126M	1.259E-16	1.249E-16	1.249E-16	1.249E-16	1.249E-16	1.249E-16	1.248E-16	1.248E-16
TE126	5.528E-08	5.531E-08	5.531E-08	5.532E-08	5.533E-08	5.534E-08	5.535E-08	5.536E-08
TE127	1.997E-24	5.016E-36	4.995E-36	5.004E-36	3.559E-43	0.000E+00	0.000E+00	0.000E+00
TE127M	5.703E-22	1.433E-33	1.433E-33	1.433E-33	1.246E-40	1.246E-40	0.000E+00	0.000E+00
I127	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07
TE128	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06
XE128	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08
I129	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06
XE129	1.201E-10	1.218E-10	1.222E-10	1.223E-10	1.234E-10	1.237E-10	1.242E-10	1.251E-10
TE130	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06
XE130	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07
XE131	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05
XE132	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05
BA132	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11
CS133	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05
XE134	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05
CS134	2.502E-08	5.240E-10	2.261E-10	1.616E-10	1.536E-11	7.842E-12	2.044E-12	2.720E-13
BA134	3.112E-06	3.136E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06
CS135	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05
BA135	5.050E-09	5.107E-09	5.120E-09	5.125E-09	5.160E-09	5.170E-09	5.190E-09	5.220E-09
XE136	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05
BA136	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07

zr_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
CS137	2.220E-05	1.702E-05	1.606E-05	1.570E-05	1.335E-05	1.275E-05	1.162E-05	1.012E-05
BA137	9.619E-06	1.480E-05	1.575E-05	1.612E-05	1.847E-05	1.907E-05	2.019E-05	2.170E-05
BA137M	3.397E-12	2.604E-12	2.458E-12	2.402E-12	2.043E-12	1.951E-12	1.778E-12	1.548E-12
BA138	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05
LA138	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10
LA139	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05
CE140	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05
PR141	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05
CE142	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05
ND142	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07
ND143	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05
CE144	5.595E-11	1.993E-15	2.151E-16	8.827E-17	1.730E-19	2.914E-20	8.299E-22	8.205E-24
PR144	2.362E-15	8.417E-20	9.082E-21	3.727E-21	7.308E-24	1.230E-24	3.504E-26	3.465E-28
PR144M	1.181E-17	4.208E-22	4.540E-23	1.863E-23	3.653E-26	6.150E-27	1.752E-28	1.732E-30
ND144	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05
ND145	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05
ND146	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05
PM146	1.732E-11	4.066E-12	2.967E-12	2.616E-12	1.082E-12	8.413E-13	5.082E-13	2.386E-13
SM146	1.758E-10	1.807E-10	1.811E-10	1.812E-10	1.818E-10	1.819E-10	1.820E-10	1.821E-10
PM147	1.236E-07	5.922E-09	3.059E-09	2.349E-09	3.695E-10	2.178E-10	7.571E-11	1.551E-11
SM147	7.184E-06	7.302E-06	7.305E-06	7.305E-06	7.307E-06	7.307E-06	7.308E-06	7.308E-06
ND148	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06
SM148	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06
SM149	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08
ND150	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06
SM150	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06
EU150	6.420E-15	5.145E-15	4.903E-15	4.810E-15	4.203E-15	4.044E-15	3.745E-15	3.336E-15
SM151	2.713E-07	2.483E-07	2.436E-07	2.417E-07	2.290E-07	2.255E-07	2.187E-07	2.088E-07
EU151	2.930E-08	5.230E-08	5.703E-08	5.890E-08	7.159E-08	7.509E-08	8.193E-08	9.181E-08
SM152	2.689E-06	2.689E-06	2.689E-06	2.689E-06	2.690E-06	2.690E-06	2.690E-06	2.690E-06
EU152	1.133E-09	6.305E-10	5.551E-10	5.275E-10	3.692E-10	3.334E-10	2.719E-10	2.003E-10
GD152	2.324E-09	2.464E-09	2.485E-09	2.493E-09	2.537E-09	2.547E-09	2.564E-09	2.584E-09
EU153	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06
GD153	8.809E-17	5.251E-22	4.495E-23	2.252E-23	1.487E-26	1.487E-26	1.487E-26	1.487E-26
SM154	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07
EU154	1.637E-07	6.479E-08	5.297E-08	4.887E-08	2.780E-08	2.366E-08	1.714E-08	1.057E-08
GD154	3.587E-07	4.576E-07	4.694E-07	4.735E-07	4.946E-07	4.987E-07	5.053E-07	5.118E-07
EU155	2.149E-08	4.307E-09	3.037E-09	2.641E-09	9.927E-10	7.506E-10	4.291E-10	1.855E-10
GD155	1.252E-07	1.424E-07	1.437E-07	1.440E-07	1.457E-07	1.459E-07	1.463E-07	1.465E-07
GD156	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07
GD157	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10
GD158	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08
TB159	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09
GD160	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09
DY160	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10
DY161	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10
DY162	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10
DY163	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10
DY164	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11
HO165	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10
HO166M	8.358E-13	8.303E-13	8.291E-13	8.286E-13	8.252E-13	8.243E-13	8.224E-13	8.195E-13
ER166	2.766E-11	2.767E-11	2.767E-11	2.767E-11	2.767E-11	2.767E-11	2.767E-11	2.768E-11
ER167	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12
ER168	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12
TM169	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07
ER170	8.016E-18	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12
TM170	8.333E-10	1.223E-19	9.025E-22	1.219E-22	1.260E-28	1.260E-28	4.788E-32	3.546E-37
YB170	5.406E-15	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10
TM171	9.233E-19	1.453E-20	5.884E-21	4.097E-21	3.176E-22	1.511E-22	4.200E-23	1.694E-23
YB171	2.140E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16
YB172	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15

Source Listing of Program ROUNDZR1

```
      PROGRAM ROUNDZR1

!-------- WRITTEN BY D.R. WENZEL

!            To format the output of an ORIGEN2 run for zirconium
!            calcine and convert the output to 2 places of accuracy

      CHARACTER (LEN=1) :: BUFFER1(111), BUFFER3(96)
      CHARACTER (LEN=10) :: BLANK, ZERO(7)
      CHARACTER (LEN=12) :: DESC, NAME, NUCLIDE(175)
      CHARACTER (LEN=24) :: NAME2, NUCLIDE2(175)
      CHARACTER (LEN=96) :: BUFFER2
      CHARACTER (LEN=111) :: BUFFER, ORGLINE

      COMMON /AMT/ AMOUNT(9)
      EQUIVALENCE (ORGLINE, BUFFER1(1))
      EQUIVALENCE (BUFFER2, BUFFER3(1))
      EQUIVALENCE (ZERO(1), BUFFER3(27))

      REAL :: DATA(175,7), VALUE(7)

      DATA BLANK /'          '/

!-------- OPEN OUTPUT FILE

      OPEN(1,FILE ='MASTER', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(2,FILE ='ZR_RUN1.CI', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(6,FILE ='ROUNDZR1.OUT', STATUS='UNKNOWN', ERR = 900)

      WRITE(6,600)
  600 FORMAT(1x,'ROUNDZR1.OUT  (Ci/g calcine)')

!-------- READ MASTER LIST OF RADIONUCLIDES TO BE INCLUDED ON THE
!         FINAL REPORT

      LAST = 0
   10 READ(1,1000,END=20) NAME, NAME2
 1000 FORMAT(A12, 5X, A24)
      LAST = LAST + 1
      NUCLIDE(LAST) = NAME
      NUCLIDE2(LAST) = NAME2
      GO TO 10

!-------- ZERO MEMORY

   20 DO  l=1,175
         DO K=1,7
            DATA(l,K) = 0.
         END DO

      END DO
```

Source Listing of Program ROUNDZR1 (Continued)

```
!-------- READ RADIONUCLIDE INVENTORIES

!-------- READ FIRST 3 LINES OF FILE AND ECHO line 2

   35  DO  J=1,3
          READ(2,120) ORGLINE
  120     FORMAT(A111)

          IF(J == 2) THEN
             WRITE(6,120) ORGLINE
          END IF

       END DO

       WRITE(6,605)
  605  FORMAT(/,3X,'Nuclide',5X,'Half-Life',6X,'1999Jul   2002Jan   ', &
              '2003Jan   2010Jan   2012Jan   2016Jan   2022Jan')

!-------- READ RADIONUCLIDE INVENTORIES

   50  READ(2,120,END=80) ORGLINE
       WRITE(BUFFER,120) ORGLINE
       READ(BUFFER,400) DESC, VALUE
  400  FORMAT(A12,9X,7(E10.4))
       DO  J=1,175
          IF(DESC == NUCLIDE(J)) THEN
             DO 60 K=1,7
                DATA(J,K) = VALUE(K)
   60        CONTINUE

          END IF

       END DO

       GO TO 50

   80  DO  J=1,LAST
          WRITE(BUFFER2,620) NUCLIDE2(J), (DATA(J,K),K=1,7)
  620     FORMAT(2X,A24,7(1PE10.1))
          DO K=1,7
             IF(DATA(J,K) == 0.) THEN
                ZERO(K) = BLANK
             ENDIF

          END DO

          WRITE(6,625) BUFFER2
  625     FORMAT(A96)

       END DO

       GO TO 999

!-------- ERROR STATEMENTS
```

Source Listing of Program ROUNDZR1 (Continued)

```
  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE ')

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM ROUNDZR1
```

See Appendix A-5, pages 7-9, for a listing of file MASTER.

ROUNDZR1.OUT (Ci/g calcine)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

Nuclide	Half-Life		1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
H-3	1.233E+01	yr	2.7E-06	2.3E-06	2.2E-06	1.5E-06	1.3E-06	1.1E-06	7.5E-07
Be-10	1.510E+06	yr	1.1E-13	1.1E-13	1.1E-13	1.1E-13	1.1E-13	1.1E-13	1.1E-13
C-14	5.729E+03	yr	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07	3.2E-07
Ca-45	1.630E+02	d	2.9E-26	2.9E-26	2.9E-26	5.5E-31	5.5E-31	5.5E-31	5.0E-35
V-50	4.000E+16	yr	8.4E-22	8.4E-22	8.4E-22	8.4E-22	8.4E-22	8.4E-22	8.4E-22
Mn-54	3.125E+02	d	1.4E-13	1.8E-14	8.2E-15	2.8E-17	5.5E-18	2.0E-19	2.2E-20
Fe-55	2.600E+00	yr	3.4E-06	1.7E-06	1.3E-06	2.1E-07	1.2E-07	4.2E-08	8.4E-09
Ni-59	8.000E+04	yr	7.6E-07	7.6E-07	7.6E-07	7.6E-07	7.6E-07	7.6E-07	7.6E-07
Co-60	5.270E+00	yr	5.0E-07	3.6E-07	3.1E-07	1.3E-07	9.6E-08	5.7E-08	2.6E-08
Ni-63	9.200E+01	yr	9.6E-05	9.4E-05	9.3E-05	8.8E-05	8.7E-05	8.4E-05	8.1E-05
Se-79	1.130E+06	yr	1.1E-08	1.1E-08	1.1E-08	1.1E-08	1.1E-08	1.1E-08	1.1E-08
Rb-87	4.750E+10	yr	7.4E-13	7.4E-13	7.4E-13	7.4E-13	7.4E 13	7.4E 13	7.4E-13
Sr-90	2.878E+01	yr	1.4E-03	1.3E-03	1.3E-03	1.1E-03	1.0E-03	9.5E-04	8.2E-04
Y-90	6.400E+01	h	1.4E-03	1.3E-03	1.3E-03	1.1E-03	1.0E-03	9.5E-04	8.2E-04
Zr-93	1.530E+06	yr	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06
Nb-93m	1.360E+01	yr	7.4E-07	7.7E-07	7.8E-07	8.4E-07	8.6E-07	8.8E-07	9.1E-07
Nb-94	2.030E+04	yr	1.6E-07	1.6E-07	1.6E-07	1.6E-07	1.6E-07	1.6E-07	1.6E-07
Tc-98	4.199E+06	yr	7.2E-14	7.2E-14	7.2E-14	7.2E-14	7.2E-14	7.2E-14	7.2E-14
Tc-99	2.111E+05	yr	3.6E-07	3.6E-07	3.6E-07	3.6E-07	3.6E-07	3.6E-07	3.6E-07
Rh-102	2.070E+02	d	3.3E-11	1.8E-11	1.4E-11	2.7E-12	1.7E-12	6.3E-13	1.5E-13
Ru-106	3.682E+02	d	7.1E-11	1.3E-11	6.4E-12	5.2E-14	1.3E-14	8.4E-16	1.4E-17
Rh-106	2.990E+01	s	7.1E-11	1.3E-11	6.4E-12	5.2E-14	1.3E-14	8.4E-16	1.4E-17
Pd-107	6.500E+06	yr	4.0E-10	4.0E-10	4.0E-10	4.0E-10	4.0E-10	4.0E-10	4.0E-10
Ag-108	2.370E+00	m	1.2E-15	1.2E-15	1.2E-15	1.1E-15	1.1E-15	1.1E-15	1.1E-15
Ag-108m	4.180E+02	yr	1.3E-14	1.3E-14	1.3E-14	1.3E-14	1.3E-14	1.2E-14	1.2E-14
Ag-109m	3.960E+01	s	1.6E-18	4.0E-19	2.3E-19	1.6E-20	1.6E-20	1.8E-21	
Cd-109	4.640E+02	d	1.6E-18	3.9E-19	2.3E-19	1.6E-20	1.6E-20		
Ag-110	2.460E+01	s	9.3E-19	7.5E-20	2.8E-20	2.3E-23	2.3E-23	2.3E-23	2.3E-23
Ag-110m	2.499E+02	d	7.0E-17	5.6E-18	2.1E-18	1.7E-21	1.7E-21	1.7E-21	1.7E-21
Cd-113m	1.410E+01	yr	1.1E-07	9.3E-08	8.9E-08	6.4E-08	5.8E-08	4.8E-08	3.6E-08
In-115	4.410E+14	yr	1.3E-19	1.3E-19	1.3E-19	1.3E-19	1.3E-19	1.3E-19	1.3E-19
Sn-119m	2.450E+02	d	1.3E-13	1.0E-14	3.6E-15	2.6E-18	3.1E-19	3.9E-20	1.7E-20
Sn-121m	5.500E+01	yr	1.4E-06	1.3E-06	1.3E-06	1.2E-06	1.2E-06	1.1E-06	1.0E-06
Te-123	1.000E+13	yr	8.2E-19	8.2E-19	8.2E-19	8.2E-19	8.2E-19	8.2E-19	8.2E-19
Sb-125	2.758E+00	yr	1.1E-05	5.6E-06	4.4E-06	7.6E-07	4.6E-07	1.7E-07	3.8E-08
Te-125m	5.740E+01	d	2.6E-06	1.4E-06	1.1E-06	1.9E-07	1.1E-07	4.1E-08	9.2E-09
Sn-126	1.000E+05	yr	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.8E-09
Sb-126	1.246E+01	d	1.4E-09	1.4E-09	1.4E-09	1.4E-09	1.4E-09	1.4E-09	1.4E-09
Sb-126m	1.915E+01	m	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.8E-09
I-129	1.570E+07	yr	5.9E-10	5.9E-10	5.9E-10	5.9E-10	5.9E-10	5.9E-10	5.9E-10
Cs-134	2.065E+00	yr	6.8E-07	2.9E-07	2.1E-07	2.0E-08	1.0E-08	2.6E-09	3.5E-10
Cs-135	2.300E+06	yr	1.9E-08	1.9E-08	1.9E-08	1.9E-08	1.9E-08	1.9E-08	1.9E-08
Cs-137	3.007E+01	yr	1.5E-03	1.4E-03	1.4E-03	1.2E-03	1.1E-03	1.0E-03	8.8E-04
Ba-137m	2.552E+00	m	1.4E-03	1.3E-03	1.3E-03	1.1E-03	1.0E-03	9.6E-04	8.3E-04
La-138	1.050E+11	yr	4.8E-18	4.8E-18	4.8E-18	4.8E-18	4.8E-18	4.8E-18	4.8E-18
Ce-142	5.000E+16	yr	7.6E-13	7.6E-13	7.6E-13	7.6E-13	7.6E-13	7.6E-13	7.6E-13
Ce-144	2.843E+02	d	6.4E-12	6.9E-13	2.8E-13	5.5E-16	9.3E-17	2.6E-18	2.6E-20
Pr-144	1.728E+01	m	6.4E-12	6.9E-13	2.8E-13	5.5E-16	9.3E-17	2.6E-18	2.6E-20
Pr-144m	7.200E+00	m	7.6E-14	8.2E-15	3.4E-15	6.6E-18	1.1E-18	3.2E-20	3.1E-22
Nd-144	2.290E+15	yr	4.3E-17	4.3E-17	4.3E-17	4.3E-17	4.3E-17	4.3E-17	4.3E-17
Pm-146	5.500E+00	yr	1.8E-09	1.3E-09	1.2E-09	4.8E-10	3.7E-10	2.3E-10	1.1E-10
Sm-146	7.000E+07	yr	6.3E-15	6.3E-15	6.3E-15	6.4E-15	6.4E-15	6.4E-15	6.4E-15
Pm-147	2.623E+00	yr	5.5E-06	2.8E-06	2.2E-06	3.4E-07	2.0E-07	7.0E-08	1.4E-08
Sm 147	1.070E+11	yr	1.7E-13	1.7E-13	1.7E-13	1.7E-13	1.7E-13	1.7E-13	1.7E-13
Sm-148	7.000E+15	yr	1.3E-18	1.3E-18	1.3E-18	1.3E-18	1.3E-18	1.3E-18	1.3E-18
Sm-149	2.000E+15	yr	1.6E-20	1.6E-20	1.6E-20	1.6E-20	1.6E-20	1.6E-20	1.6E-20
Eu-150	3.690E+01	yr	3.4E-13	3.2E-13	3.2E-13	2.8E-13	2.7E-13	2.5E-13	2.2E-13
Sm-151	8.999E+01	yr	6.5E-06	6.4E-06	6.4E-06	6.0E-06	5.9E-06	5.8E-06	5.5E-06
Eu-152	1.354E+01	yr	1.1E-07	9.6E-08	9.1E-08	6.4E-08	5.8E-08	4.7E-08	3.5E-08
Gd-152	1.080E+14	yr	5.4E-20	5.4E-20	5.4E-20	5.5E-20	5.5E-20	5.6E-20	5.6E-20
Gd-153	2.420E+02	d	1.9E-18	1.6E-19	7.9E-20	5.2E-23	5.2E 23	5.2E-23	5.2E-23
Eu-154	8.593E+00	yr	1.8E-05	1.4E-05	1.3E-05	7.5E 06	6.4E-06	4.6E-06	2.9E-06
Eu-155	4.761E+00	yr	2.0E-06	1.4E-06	1.2E-06	4.6E-07	3.5E-07	2.0E-07	8.6E-08
Ho-166m	1.200E+03	yr	1.5E-12	1.5E-12	1.5E-12	1.5E-12	1.5E-12	1.5E-12	1.5E-12
Tm-171	1.920E+00	yr	1.6E-17	6.4E-18	4.5E-18	3.5E-19	1.6E-19	4.6E-20	1.8E-20
Lu-176	3.000E+10	yr	2.8E-16	2.8E-16	2.8E-16	2.8E-16	2.8E-16	2.8E-16	2.8E-16

ROUNDZR1.OUT (Continued) (Ci/g calcine)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

Nuclide	Half-Life		1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
Lu-177	6.709E+00	d	2.2E-26	2.1E-26	2.1E-26	2.4E-31	2.3E-31	2.3E-31	1.3E-35
Hf-182	9.000E+06	yr	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12
Ta-182	1.150E+02	d	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12
Re-187	5.000E+10	yr	2.8E-21	2.8E-21	2.8E-21	2.8E-21	2.8E-21	2.8E-21	2.8E-21
Tl-207	4.770E+00	m	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Tl-208	3.070E+00	m	6.9E-12	5.8E-12	5.6E-12	4.9E-12	4.8E-12	4.6E-12	4.3E-12
Tl-209	2.200E+00	m	5.3E-17	5.9E-17	6.2E-17	8.9E-17	9.8E-17	1.2E-16	1.6E-16
Pb-209	3.300E+00	h	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Pb-210	2.230E+01	yr	9.0E-16	1.5E-15	1.8E-15	5.0E-15	6.3E-15	9.7E-15	1.6E-14
Pb-211	3.610E+01	m	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Pb-212	1.064E+01	h	1.9E-11	1.6E-11	1.6E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11
Pb-214	2.680E+01	m	7.3E-15	1.0E-14	1.2E-14	2.5E-14	2.9E-14	4.0E-14	5.8E-14
Bi-210m	3.000E+06	yr	9.2E-27	9.2E-27	9.2E-27	9.2E-27	9.2E-27	9.2E-27	9.2E-27
Bi-210	5.012E+00	d	9.0E-16	1.5E-15	1.8E-15	5.0E-15	6.3E-15	9.7E-15	1.6E-14
Bi-211	2.130E+00	m	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Bi-212	6.055E+01	m	1.9E-11	1.6E-11	1.6E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11
Bi-213	4.565E+01	m	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Bi-214	1.990E+01	m	7.3E-15	1.0E-14	1.2E-14	2.5E-14	2.9E-14	4.0E-14	5.8E-14
Po-210	1.384E+02	d	9.0E-16	1.3E-15	1.6E-15	5.0E-15	5.9E-15	9.7E-15	1.6E-14
Po-211	5.600E-01	s	7.9E-16	8.6E-16	8.8E-16	1.0E-15	1.1E-15	1.2E-15	1.3E-15
Po-212	3.000E-07	s	1.2E-11	1.0E-11	1.0E-11	8.7E-12	8.5E-12	8.2E-12	7.7E-12
Po-213	4.200E-06	s	2.4E-15	2.7E-15	2.8E-15	4.0E-15	4.5E-15	5.4E-15	7.1E-15
Po-214	1.643E-04	s	7.3E-15	1.0E-14	1.2E-14	2.5E-14	2.9E-14	4.0E-14	5.8E-14
Po-215	1.780E-03	s	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Po-216	1.500E-01	s	1.9E-11	1.6E-11	1.6E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11
Po-218	3.050E+00	m	7.3E-15	1.0E-14	1.2E-14	2.5E-14	2.9E-14	4.0E-14	5.8E-14
At-217	3.230E-02	s	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Rn-219	3.960E+00	s	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Rn-220	5.560E+01	s	1.9E-11	1.6E-11	1.6E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11
Rn-222	3.824E+00	d	7.3E-15	1.0E-14	1.2E-14	2.5E-14	2.9E-14	4.0E-14	5.8E-14
Fr-221	4.800E+00	m	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Fr-223	2.180E+01	m	3.9E-15	4.2E-15	4.4E-15	5.2E-15	5.4E-15	5.7E-15	6.2E-15
Ra-223	1.143E+01	d	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Ra-224	3.660E+00	d	1.9E-11	1.6E-11	1.6E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11
Ra-225	1.480E+01	d	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Ra-226	1.600E+03	yr	7.3E-15	1.0E-14	1.2E-14	2.5E-14	2.9E-14	4.0E-14	5.8E-14
Ra 228	5.750E+00	yr	7.9E-18	8.2E-18	8.3E-18	8.9E-18	9.0E-18	9.2E-18	9.3E-18
Ac-225	1.000E+01	d	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Ac-227	2.177E+01	yr	2.8E-13	3.1E-13	3.2E-13	3.7E-13	3.9E-13	4.2E-13	4.5E-13
Ac-228	6.131E+00	h	7.9E-18	8.2E-18	8.3E-18	8.9E-18	9.0E-18	9.2E-18	9.3E-18
Th-227	1.872E+01	d	2.8E-13	3.0E-13	3.1E-13	3.7E-13	3.8E-13	4.1E-13	4.5E-13
Th-228	1.913E+00	yr	1.9E-11	1.6E-11	1.6E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11
Th-229	7.339E+03	yr	2.4E-15	2.7E-15	2.9E-15	4.1E-15	4.6E-15	5.5E-15	7.3E-15
Th-230	7.700E+04	yr	2.7E-12	3.3E-12	3.5E-12	5.1E-12	5.6E-12	6.5E-12	7.9E-12
Th-231	2.552E+01	h	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11
Th-232	1.405E+10	yr	9.4E-18	9.4E-18	9.4E-18	9.5E-18	9.5E-18	9.5E-18	9.6E-18
Th-234	2.410E+01	d	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12
Pa-231	3.277E+04	yr	6.0E-13	6.0E-13	6.1E-13	6.1E-13	6.1E-13	6.2E-13	6.2E-13
Pa-233	2.700E+01	d	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Pa-234m	1.170E+00	m	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12
Pa-234	6.700E+00	h	3.2E-15	3.2E-15	3.2E-15	3.2E-15	3.2E-15	3.2E-15	3.2E-15
U-232	6.890E+01	yr	1.4E-11	1.4E-11	1.4E-11	1.3E-11	1.3E-11	1.2E-11	1.2E-11
U-233	1.592E+05	yr	1.1E-12	1.4E-12	1.5E-12	2.2E-12	2.4E-12	2.8E-12	3.4E-12
U-234	2.455E+05	yr	2.5E-08	2.5E-08	2.5E-08	2.6E-08	2.6E-08	2.6E-08	2.6E-08
U-235	7.038E+08	yr	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11
U-236	2.342E+07	yr	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.3E-10
U-237	6.750E+00	d	3.9E-10	3.4E-10	3.3E-10	2.3E-10	2.1E-10	1.8E-10	1.3E-10
U-238	4.470E+09	yr	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12
U-240	1.410E+01	h	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19
Np-236	1.150E+05	yr	2.4E-13	2.4E-13	2.4E-13	2.4E-13	2.4E-13	2.4E-13	2.4E-13
Np-237	2.140E+06	yr	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Np-238	2.117E+00	d	2.5E-11	2.5E-11	2.4E-11	2.4E-11	2.3E-11	2.3E-11	2.2E-11
Np-239	2.355E+00	d	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09
Np-240m	7.400E+00	m	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19
Pu-236	2.851E+00	yr	9.6E-12	5.2E-12	4.1E-12	7.7E-13	4.8E-13	1.9E-13	6.1E-14
Pu-238	8.770E+01	yr	1.5E-05	1.5E-05	1.5E-05	1.4E-05	1.4E-05	1.4E-05	1.3E-05
Pu-239	2.411E+04	yr	2.2E-07	2.2E-07	2.2E-07	2.2E-07	2.2E-07	2.2E-07	2.2E-07

ROUNDZR1.OUT (Continued) (Ci/g calcine)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

Nuclide	Half-Life		1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
Pu-240	6.537E+03	yr	2.1E-07	2.1E-07	2.1E-07	2.1E-07	2.1E-07	2.1E-07	2.1E-07
Pu-241	1.440E+01	yr	1.6E-05	1.4E-05	1.3E-05	9.5E-06	8.7E-06	7.1E-06	5.3E-06
Pu-242	3.733E+05	yr	5.5E-10	5.5E-10	5.5E-10	5.5E-10	5.5E-10	5.5E-10	5.5E-10
Pu-243	4.956E+00	h	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20
Pu-244	8.080E+07	yr	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19
Am-241	4.322E+02	yr	1.2E-06	1.3E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06
Am-242m	1.410E+02	yr	5.0E-09	4.9E-09	4.9E-09	4.7E-09	4.7E-09	4.6E-09	4.5E-09
Am-242	1.602E+01	h	4.9E-09	4.9E-09	4.9E-09	4.7E-09	4.7E-09	4.6E-09	4.5E-09
Am-243	7.370E+03	yr	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.3E-09
Cm-242	1.632E+02	d	4.1E-09	4.0E-09	4.0E-09	3.9E-09	3.9E-09	3.8E-09	3.7E-09
Cm-243	2.850E+01	yr	7.7E-11	7.2E-11	7.0E-11	5.9E-11	5.7E-11	5.1E-11	4.4E-11
Cm-244	1.811E+01	yr	2.4E-09	2.2E-09	2.1E-09	1.6E-09	1.5E-09	1.3E-09	1.0E-09
Cm-245	8.499E+03	yr	3.0E-13	3.0E-13	3.0E-13	3.0E-13	3.0E-13	3.0E-13	3.0E-13
Cm-246	4.731E+03	yr	3.2E-14	3.2E-14	3.2E-14	3.2E-14	3.2E-14	3.2E-14	3.2E-14
Cm-247	1.560E+07	yr	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20
Cm-248	3.391E+05	yr	7.0E-20	7.0E-20	7.0E-20	7.0E-20	7.0E-20	7.0E 20	7.0E 20
Cf-249	3.505E+02	yr	4.5E-19	4.5E-19	4.5E-19	4.4E-19	4.4E-19	4.4E-19	4.3E-19
Cf-250	1.308E+01	yr	4.9E-19	4.3E-19	4.0E-19	2.8E-19	2.5E-19	2.0E-19	1.5E-19
Cf-251	8.980E+02	yr	7.9E-21	7.9E-21	7.9E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21
Cf-252	2.638E+00	yr	9.9E-21	9.9E-21	9.9E-21	8.5E-21	8.5E-21	8.5E-21	8.5E-21

Appendix E-8
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zr_run1.g
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
HE 3	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16
HE 4	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08
LI 6	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E 12	6.027E-12
B 10	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17
B 11	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09
C 12	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05
C 13	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07
N 14	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05
N 15	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07
O 16	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03
O 17	6.418E-07	6.418E-07	6.418E 07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07
O 18	3.208E-06	3.208E-06	3.208E 06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06
F 19	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12
NE 20	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17
NE 21	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16
NE 22	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19
NA 23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23
MG 24	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11
MG 25	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14
MG 26	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18
AL 27	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05
SI 28	9.238E-09	9.238E 09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09
SI 29	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12
SI 30	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E 16	1.422E-16	1.422E-16
P 31	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21
S 32	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25
CL 37	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21
AR 38	1.231E-24	1.231E-24	1.231E 24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24
AR 39	3.124E-25	3.124E-25	3.124E 25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25
AR 40	2.970E-17	2.970E-17	2.970E 17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17
K 41	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19
CA 42	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20
CA 43	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12
CA 44	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11
CA 45	9.433E-23	1.643E-30	1.643E-30	1.643E-30	3.109E-35	3.109E-35	3.109E-35	2.783E-39
CA 46	2.029E-12	2.029E-12	2.029E 12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12
SC 45	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13
TI 46	1.068E-06	1.068E 06	1.068E 06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06
TI 47	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07
TI 48	9.759E-06	9.759E-06	9.759E 06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06
TI 49	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07
TI 50	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07
V 50	4.691E-09	4.691E-09	4.691E 09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E 09
V 51	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06
CR 50	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05
CR 52	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03
CR 53	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04
CR 54	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05
MN 54	1.996E-13	1.795E-17	2.368E-18	1.053E-18	3.625E-21	7.135E-22	2.633E-23	2.847E-24
MN 55	3.892E-07	4.170E-07	4.177E-07	4.178E-07	4.183E-07	4.183E-07	4.183E-07	4.184E-07
FE 54	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04
FE 55	2.916E-08	1.359E-09	6.980E-10	5.347E-10	8.272E-11	4.853E-11	1.671E-11	3.375E-12
FE 56	7.593E-03	7.593E-03	7.593E 03	7.593E 03	7.593E-03	7.593E-03	7.593E-03	7.593E-03
FE 57	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04
FE 58	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05
CO 59	1.669E-07	1.679E-07	1.681E-07	1.682E-07	1.688E-07	1.690E-07	1.693E-07	1.699E-07
CO 60	2.000E-09	4.407E-10	3.172E-10	2.781E-10	1.107E-10	8.512E-11	5.030E-11	2.285E-11
NI 58	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03
NI 59	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05	1.004E-05
NI 60	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04
NI 61	3.396E 05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05
NI 62	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05

zr_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
NI 63	1.689E-06	1.549E-06	1.520E-06	1.509E-06	1.431E-06	1.410E-06	1.368E-06	1.307E-06
NI 64	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05
CU 63	4.962E-08	1.898E-07	2.187E-07	2.301E-07	3.076E-07	3.290E-07	3.709E-07	4.313E-07
CU 65	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08
ZN 64	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12
ZN 65	2.018E-21	1.318E-26	1.318E-26	1.318E-26	9.202E-30	9.202E-30	9.202E-30	9.202E-30
MO 94	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10
RU 98	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21
YB173	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15
YB174	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16
LU175	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07
LU176	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09
LU177	2.893E-23	2.012E-31	1.926E-31	1.942E-31	2.178E-36	2.074E-36	2.074E-36	1.208E-40
LU177M	2.906E-21	2.021E-29	2.021E-29	2.021E-29	2.188E-34	2.188E-34	2.188E-34	1.213E-38
HF174	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07
HF176	1.040E 05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05
HF177	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06
HF178	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05
HF179	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05
HF180	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04
HF182	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09
TA181	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05
TA182	1.973E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16
W182	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E 06	1.750E 06
W183	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06
W184	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07
W186	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12
RE185	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10
RE187	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14
OS186	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11
OS187	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23	1.368E-23
OS188	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15
OS189	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17
OS190	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19
OS192	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23
IR191	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21
IR192	0.000E+00	9.627E-29	9.629E-29	9.629E-29	9.627E 29	9.627E-29	9.627E-29	9.627E-29
IR192M	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25
IR193	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23
PT192	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22
PT193	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25
PT194	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25
HE 4	6.175E-08	6.333E-08	6.366E-08	6.379E-08	6.469E-08	6.494E-08	6.543E-08	6.614E-08
TL206	0.000E+00	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35
TL207	7.402E-22	1.474E-21	1.605E-21	1.654E-21	1.961E-21	2.040E-21	2.182E-21	2.368E-21
TL208	4.340E-19	2.357E-20	1.978E-20	1.897E-20	1.652E-20	1.620E-20	1.556E-20	1.468E-20
TL209	0.000E+00	1.291E-25	1.450E-25	1.523E-25	2.172E-25	2.403E-25	2.923E-25	3.852E-25
PB206	1.020E-19	1.387E-18	2.472E-18	3.070E-18	1.179E-17	1.611E-17	2.841E-17	5.865E-17
PB207	3.601E-16	1.352E-15	1.646E-15	1.771E-15	2.742E-15	3.048E-15	3.695E-15	4.741E-15
PB208	1.314E-12	1.752E-12	1.770E-12	1.776E-12	1.816E-12	1.827E-12	1.848E-12	1.878E-12
PB209	3.987E-22	5.378E-22	6.042E-22	6.345E-22	9.051E-22	1.001E-21	1.218E-21	1.605E-21
PB210	5.519E-19	1.184E-17	1.960E-17	2.349E-17	6.558E-17	8.306E-17	1.264E-16	2.142E-16
PB211	5.727E-21	1.140E-20	1.242E-20	1.280E-20	1.517E-20	1.578E-20	1.688E-20	1.832E-20
PB212	2.560E-16	1.390E-17	1.167E-17	1.119E-17	9.741E-18	9.556E-18	9.177E-18	8.659E-18
PB214	8.702E-24	2.214E-22	3.196E-22	3.640E-22	7.593E-22	8.993E-22	1.216E-21	1.781E-21
BI208	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24
BI209	9.735E-18	1.917E-17	2.179E 17	2.292E-17	3.272E-17	3.621E-17	4.435E-17	5.984E-17
BI210M	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23
BI210	3.396E-22	7.288E-21	1.207E-20	1.446E-20	4.036E-20	5.113E-20	7.778E-20	1.319E-19
BI211	3.379E-22	6.727E-22	7.325E-22	7.552E-22	8.952E-22	9.310E-22	9.959E-22	1.081E-21
BI212	2.427E-17	1.319E-18	1.107E-18	1.061E-18	9.240E-19	9.065E-19	8.705E-19	8.214E-19
BI213	9.369E-23	1.264E-22	1.420E-22	1.491E-22	2.127E-22	2.352E 22	2.862E-22	3.771E-22
BI214	6.462E-24	1.644E-22	2.373E-22	2.703E-22	5.638E-22	6.678E-22	9.027E-22	1.323E-21
PO210	9.380E-21	2.013E-19	2.997E-19	3.592E-19	1.115E-18	1.319E-18	2.149E-18	3.642E-18
PO211	0.000E+00	8.253E-27	8.988E-27	9.265E-27	1.098E 26	1.142E 26	1.222E-26	1.326E-26
PO212	0.000E+00	6.978E-29	5.855E-29	5.616E-29	4.889E-29	4.796E 29	4.605E-29	4.346E-29

zr_run1.g (Continued)
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	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
PO213	0.000E+00	1.896E-31	2.130E-31	2.237E-31	3.191E-31	3.529E-31	4.294E-31	5.657E-31
PO214	0.000E+00	2.262E-29	3.264E-29	3.719E-29	7.757E-29	9.187E-29	1.242E-28	1.820E-28
PO215	0.000E+00	9.547E-27	1.040E-26	1.072E-26	1.270E-26	1.321E-26	1.413E-26	1.534E-26
PO216	1.021E-21	5.548E-23	4.656E-23	4.465E-23	3.887E-23	3.813E-23	3.662E-23	3.455E-23
PO218	1.009E-24	2.568E-23	3.705E-23	4.221E-23	8.805E-23	1.043E-22	1.410E-22	2.066E-22
AT217	0.000E+00	1.518E-27	1.705E-27	1.791E-27	2.555E-27	2.826E-27	3.438E-27	4.530E-27
RN219	1.087E-23	2.163E-23	2.356E-23	2.429E-23	2.879E-23	2.994E-23	3.203E-23	3.476E-23
RN220	3.856E-19	2.095E-20	1.758E-20	1.686E-20	1.467E-20	1.440E-20	1.382E-20	1.305E-20
RN222	1.854E-21	4.721E-20	6.813E-20	7.761E-20	1.619E-19	1.917E-19	2.592E-19	3.798E-19
FR221	1.022E-23	1.379E-23	1.549E-23	1.627E-23	2.320E-23	2.566E-23	3.122E-23	4.114E-23
FR223	5.042E-23	1.003E-22	1.091E-22	1.125E-22	1.334E-22	1.387E-22	1.484E-22	1.611E-22
RA223	2.760E-18	5.496E-18	5.985E-18	6.169E-18	7.313E-18	7.606E-18	8.136E-18	8.831E-18
RA224	2.233E-15	1.213E-16	1.018E-16	9.761E-17	8.497E-17	8.336E-17	8.005E-17	7.554E-17
RA225	4.622E-20	6.233E-20	7.002E-20	7.354E-20	1.049E-19	1.160E-19	1.412E-19	1.860E-19
RA226	2.886E-16	7.344E-15	1.060E-14	1.207E-14	2.518E-14	2.983E-14	4.032E-14	5.908E-14
RA228	1.889E-20	3.363E-20	3.512E-20	3.563E-20	3.809E-20	3.854E-20	3.922E-20	3.993E-20
AC225	3.123E-20	4.211E-20	4.730E-20	4.968E-20	7.087E-20	7.838E-20	9.537E-20	1.257E-19
AC227	1.954E-15	3.888E-15	4.229E-15	4.358E-15	5.170E-15	5.374E-15	5.749E-15	6.241E-15
AC228	2.298E-24	3.511E-24	3.667E-24	3.720E-24	3.976E-24	4.024E-24	4.094E-24	4.168E-24
TH227	4.536E-18	9.030E-18	9.834E-18	1.014E-17	1.202E-17	1.250E-17	1.337E-17	1.451E-17
TH228	4.338E-13	2.353E-14	1.973E-14	1.890E-14	1.651E-14	1.616E-14	1.554E-14	1.467E-14
TH229	8.518E-15	1.149E-14	1.291E-14	1.355E-14	1.933E-14	2.138E-14	2.602E-14	3.428E-14
TH230	5.861E-12	1.336E-10	1.617E-10	1.730E-10	2.324E-10	2.753E-10	3.213E-10	3.907E-10
TH231	2.961E-15	8.254E-17	8.255E-17	8.255E-17	8.255E-17	8.255E-17	8.255E-17	8.255E-17
TH232	8.518E-11	8.583E-11	8.597E-11	8.602E-11	8.642E-11	8.653E-11	8.675E-11	8.709E-11
TH234	2.260E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16
PA231	1.253E-11	1.276E-11	1.280E-11	1.282E-11	1.296E-11	1.300E-11	1.308E-11	1.319E-11
PA233	4.142E-13	1.088E-12	1.088E-12	1.088E-12	1.088E-12	1.088E-12	1.088E-12	1.088E-12
PA234M	7.623E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21
PA234	3.405E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21
U232	4.565E-13	6.607E-13	6.530E-13	6.488E-13	6.125E-13	6.013E-13	5.792E-13	5.470E-13
U233	1.786E-12	1.184E-10	1.450E-10	1.562E-10	2.276E-10	2.491E-10	2.899E-10	3.512E-10
U234	3.943E-06	4.027E-06	4.045E-06	4.052E-06	4.098E-06	4.111E-06	4.136E-06	4.172E-06
U235	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05	2.030E-05
U236	1.931E-06	1.932E-06	1.932E-06	1.932E-06	1.933E-06	1.933E-06	1.934E-06	1.934E-06
U237	7.307E-18	4.747E-15	4.209E-15	4.011E-15	2.864E-15	2.601E-15	2.145E-15	1.607E-15
U238	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06
U240	0.000E+00	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25
NP235	3.579E-17	2.298E-20	4.651E-21	2.458E-21	3.646E-23	1.965E-23	1.389E-23	0.000E+00
NP236	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11	1.787E-11
NP237	3.202E-05	3.203E-05	3.203E-05	3.203E-05	3.203E-05	3.203E-05	3.204E-05	3.204E-05
NP238	9.128E-18	9.570E-17	9.462E-17	9.419E-17	9.123E-17	9.040E-17	8.877E-17	8.637E-17
NP239	4.724E-16	5.611E-15	5.610E-15	5.609E-15	5.605E-15	5.604E-15	5.602E-15	5.599E-15
NP240M	0.000E+00	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27
PU236	2.951E-13	1.806E-14	9.850E-15	7.733E-15	1.443E-15	9.024E-16	3.660E-16	1.157E-16
PU238	9.900E-07	9.040E-07	8.864E-07	8.794E-07	8.321E-07	8.191E-07	7.936E-07	7.569E-07
PU239	3.510E-06	3.509E-06	3.509E-06	3.508E-06	3.508E-06	3.508E-06	3.507E-06	3.507E-06
PU240	9.367E-07	9.356E-07	9.353E-07	9.352E-07	9.345E-07	9.343E-07	9.340E-07	9.334E-07
PU241	2.667E-07	1.533E-07	1.359E-07	1.295E-07	9.249E-08	8.400E-08	6.929E-08	5.191E-08
PU242	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07
PU243	0.000E+00	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26
PU244	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14
AM241	2.467E-07	3.544E-07	3.704E-07	3.762E-07	4.088E-07	4.160E-07	4.280E-07	4.412E-07
AM242M	5.379E-10	5.104E-10	5.046E-10	5.023E-10	4.866E-10	4.821E-10	4.734E-10	4.606E-10
AM242	6.928E-15	6.106E-15	6.036E-15	6.009E-15	5.820E-15	5.767E-15	5.663E-15	5.510E-15
AM243	6.536E-09	6.529E-09	6.527E-09	6.527E-09	6.523E-09	6.521E-09	6.519E-09	6.515E-09
AM245	0.000E+00	1.309E-36	1.310E-36	1.310E-36	1.310E-36	1.310E-36	1.310E-36	1.310E-36
CM242	1.178E-13	1.235E-12	1.223E-12	1.217E-12	1.177E-12	1.168E-12	1.148E-12	1.114E-12
CM243	1.962E-12	1.483E-12	1.396E-12	1.362E-12	1.249E-12	1.094E-12	9.930E-13	8.582E-13
CM244	4.693E-11	3.022E-11	2.746E-11	2.643E-11	2.022E-11	1.873E-11	1.607E-11	1.277E-11
CM245	1.748E-12	1.746E-12	1.746E-12	1.746E-12	1.745E-12	1.745E-12	1.744E-12	1.743E-12
CM246	1.052E-13	1.050E-13	1.050E-13	1.050E-13	1.049E-13	1.048E-13	1.048E-13	1.047E-13
CM247	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16
CM248	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.642E-17
BK249	3.042E-24	3.405E-28	3.405E-28	3.405E-28	3.405E-28	3.405E-28	3.405E-28	3.405E-28
CF249	1.122E-19	1.097E-19	1.091E-19	1.089E-19	1.074E-19	1.070E-19	1.061E-19	1.049E-19
CF250	8.150E-21	4.436E-21	3.887E-21	3.681E-21	2.538E-21	2.269E-21	1.839E-21	1.347E-21

zr_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
CF251	4.998E-21	4.954E-21	4.954E-21	4.954E-21	4.927E-21	4.927E-21	4.927E-21	4.927E-21
CF252	4.902E-23	1.848E-23	1.848E-23	1.848E-23	1.574E-23	1.574E-23	1.574E-23	1.574E-23
SF250	0.000E+00	2.657E-16	3.206E-16	3.423E-16	4.889E-16	5.297E-16	6.097E-16	7.251E-16
H 3	5.246E-10	2.751E-10	2.391E-10	2.260E-10	1.526E-10	1.364E-10	1.090E-10	7.780E-11
LI 6	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12
LI 7	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13
BE 9	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11
BE 10	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.095E-12
C 14	7.095E-08	7.085E-08	7.083E-08	7.082E-08	7.076E-08	7.074E-08	7.071E-08	7.066E-08
ZN 66	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11
ZN 67	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14
ZN 68	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11
GA 69	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14
ZN 70	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11
GE 70	4.735E-17	4.735E-17	4.735E-17	4.735E 17	4.735E-17	4.735E-17	4.735E-17	4.735E-17
GA 71	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14
GE 72	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10
GE 73	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10
GE 74	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09
AS 75	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09
GE 76	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08
SE 76	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11
SE 77	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08
SE 78	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08
SE 79	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.587E-07	1.586E-07
BR 79	2.628E-11	4.575E-11	4.999E-11	5.168E-11	6.353E-11	6.692E-11	7.369E-11	8.384E-11
SE 80	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07
KR 80	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12
BR 81	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07
KR 81	7.590E-14	7.590E-14	7.590E-14	7.590E-14	7.589E-14	7.589E-14	7.589E-14	7.589E-14
SE 82	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06
KR 82	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08
KR 83	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06
KR 84	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06
KR 85	3.212E-07	1.527E-07	1.299E-07	1.218E-07	7.745E-08	6.805E-08	5.254E-08	3.565E-08
RB 85	3.789E-06	3.957E-06	3.980E-06	3.988E-06	4.033E-06	4.042E-06	4.058E-06	4.075E-06
KR 86	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06
SR 86	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09
RB 87	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06
SR 87	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09
SR 88	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05
Y 89	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05
SR 90	1.349E-05	1.026E-05	9.667E-06	9.440E-06	7.991E-06	7.619E-06	6.927E-06	6.006E-06
Y 90	3.385E-09	2.573E-09	2.424E-09	2.367E-09	2.004E-09	1.911E-09	1.737E-09	1.506E-09
ZR 90	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01
ZR 91	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01
ZR 92	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01
ZR 93	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.151E-04
NB 93	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.325E-04
NB 93M	1.891E-09	2.607E-09	2.715E-09	2.754E-09	2.979E-09	3.030E-09	3.118E-09	3.220E-09
ZR 94	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01
NB 94	8.425E-07	8.422E-07	8.421E-07	8.421E-07	8.419E-07	8.418E-07	8.417E-07	8.415E-07
MO 95	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05
ZR 96	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02
MO 96	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06
MO 97	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04
MO 98	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E 05	2.222E-05	2.222E-05	2.222E-05
TC 98	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.318E-11
TC 99	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05	2.098E-05
RU 99	1.075E-09	1.860E-09	2.031E-09	2.099E-09	2.577E-09	2.713E-09	2.987E-09	3.396E-09
MO100	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05
RU100	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06
RU101	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05
RU102	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05
RH102	4.231E-13	2.708E-14	1.490E-14	1.173E-14	2.202E-15	1.365E-15	5.247E 16	1.251E-16
RH103	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06

zr_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
RU104	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06
PD104	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06
PD105	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06
RU106	5.779E-11	2.126E-14	3.810E-15	1.915E-15	1.555E-17	3.931E-18	2.511E-19	4.052E-21
RH106	5.434E-17	1.998E-20	3.581E-21	1.800E-21	1.462E-23	3.695E-24	2.361E-25	3.812E-27
PD106	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06
PD107	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07	7.704E-07
AG107	1.275E-12	2.220E-12	2.426E-12	2.508E-12	3.083E-12	3.248E-12	3.577E-12	4.070E-12
PD108	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07
AG108	5.279E-25	1.631E-24	1.609E-24	1.600E-24	1.540E-24	1.524E-24	1.491E-24	1.443E-24
AG108M	5.501E-16	5.166E-16	5.096E-16	5.069E-16	4.879E-16	4.826E-16	4.721E-16	4.569E-16
CD108	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13
AG109	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07
AG109M	3.197E-25	6.022E-28	1.525E-28	8.929E-29	6.219E-30	6.219E-30	7.013E-31	0.000E+00
CD109	3.237E-19	6.038E-22	1.498E-22	9.039E-23	6.296E-24	6.296E-24	0.000E+00	0.000E+00
PD110	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07
AG110	2.564E-23	2.233E-28	1.786E-29	6.620E-30	5.506E-33	5.506E-33	5.506E-33	5.506E-33
AG110M	1.692E-15	1.473E-20	1.179E-21	4.369E-22	3.633E-25	3.633E-25	3.633E-25	3.633E-25
CD110	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08
CD111	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07
CD112	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08
CD113	8.111E-10	8.115E-10	8.115E-10	8.115E-10	8.116E-10	8.117E-10	8.117E-10	8.118E-10
CD113M	8.369E-10	4.846E-10	4.303E-10	4.104E-10	2.943E-10	2.676E-10	2.213E-10	1.664E-10
IN113	2.055E-06	2.055E-06	2.055E-06	2.055E-06	2.056E-06	2.056E-06	2.056E-06	2.056E-06
CD114	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07
SN114	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04
IN115	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08
SN115	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05
CD116	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08
SN116	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03
SN117	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03
SN118	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03
SN119	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03
SN119M	4.271E-12	2.951E-17	2.229E-18	7.933E-19	5.732E-22	6.875E-23	8.762E-24	3.709E-24
SN120	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03
SN121M	2.762E-08	2.355E-08	2.275E-08	2.243E-08	2.036E-08	1.980E-08	1.873E-08	1.723E-08
SB121	6.162E-06	6.166E-06	6.167E-06	6.167E-06	6.169E-06	6.170E-06	6.171E-06	6.172E-06
SN122	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04
TE122	2.663E-07	2.663E-07	2.663E-07	2.663E-07	2.563E-07	2.663E-07	2.663E-07	2.663E-07
SN123	6.733E-19	1.094E-28	1.094E-28	1.094E-28	1.203E-34	1.203E-34	4.736E-38	3.447E-43
SB123	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07
TE123	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09
TE123M	3.278E-22	8.914E-33	8.914E-33	8.914E-33	3.303E-39	3.303E-39	6.894E-43	0.000E+00
SN124	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03
TE124	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08
SB125	1.812E-07	1.019E-08	5.453E-09	4.246E-09	7.365E-10	4.465E-10	1.641E-10	3.656E-11
TE125	7.361E-06	7.534E-06	7.539E-06	7.540E-06	7.544E-06	7.544E-06	7.545E-06	7.545E-06
TE125M	2.494E-09	1.426E-10	7.627E-11	5.939E-11	1.030E-11	6.247E-12	2.295E-12	5.114E-13
SN126	3.457E-07	3.457E-07	3.457E-07	3.457E-07	3.456E-07	3.456E-07	3.456E-07	3.456E-07
SB126	1.652E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14	1.642E-14
SB126M	1.259E-16	1.249E-16	1.249E-16	1.249E-16	1.249E-16	1.249E-16	1.248E-16	1.248E-16
TE126	5.528E-08	5.531E-08	5.531E-08	5.532E-08	5.533E-08	5.534E-08	5.535E-08	5.536E-08
TE127	1.997E-24	5.016E-36	4.995E-36	5.004E-36	3.559E-43	0.000E+00	0.000E+00	0.000E+00
TE127M	5.703E-22	1.433E-33	1.433E-33	1.433E-33	1.246E-40	1.246E-40	0.000E+00	0.000E+00
I127	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07
TE128	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06
XE128	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E-08
I129	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06
XE129	1.201E-10	1.218E-10	1.222E-10	1.223E-10	1.234E-10	1.237E-10	1.242E-10	1.251E-10
TE130	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06
XE130	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07
XE131	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05
XE132	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05
BA132	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11
CS133	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05
XE134	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05
CS134	2.502E-08	5.240E-10	2.261E-10	1.616E-10	1.536E-11	7.842E-12	2.044E-12	2.720E-13

zr_run1.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

	g/g	11.5YR	14.0YR	15.0YR	22.0YR	24.0YR	28.0YR	34.0YR
BA134	3.112E-06	3.136E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06
CS135	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05
BA135	5.050E-09	5.107E-09	5.120E-09	5.125E-09	5.160E-09	5.170E-09	5.190E-09	5.220E-09
XE136	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05
BA136	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07
CS137	2.220E-05	1.702E-05	1.606E-05	1.570E-05	1.335E-05	1.275E-05	1.162E-05	1.012E-05
BA137	9.619E-06	1.480E-05	1.575E-05	1.612E-05	1.847E-05	1.907E-05	2.019E-05	2.170E-05
BA137M	3.397E-12	2.604E-12	2.458E-12	2.402E-12	2.043E-12	1.951E-12	1.778E-12	1.548E-12
BA138	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05	3.565E-05
LA138	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10
LA139	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05	3.377E-05
CE140	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05
PR141	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05
CE142	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05
ND142	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07
ND143	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05
CE144	5.595E-11	1.993E-15	2.151E-16	8.827E-17	1.730E-19	2.914E-20	8.299E-22	8.205E-24
PR144	2.362E-15	8.417E-20	9.082E-21	3.727E-21	7.308E-24	1.230E-24	3.504E-26	3.465E-28
PR144M	1.181E-17	4.208E-22	4.540E-23	1.863E-23	3.653E-26	6.150E-27	1.752E-28	1.732E-30
ND144	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05
ND145	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05
ND146	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05
PM146	1.732E-11	4.066E-12	2.967E-12	2.616E-12	1.082E-12	8.413E-13	5.082E-13	2.386E-13
SM146	1.758E-10	1.807E-10	1.811E-10	1.812E-10	1.818E-10	1.819E-10	1.820E-10	1.821E-10
PM147	1.236E-07	5.922E-09	3.059E-09	2.349E-09	3.695E-10	2.178E-10	7.571E-11	1.551E-11
SM147	7.184E-06	7.302E-06	7.305E-06	7.305E-06	7.307E-06	7.307E-06	7.308E-06	7.308E-06
ND148	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06
SM148	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06
SM149	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08
ND150	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06
SM150	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06
EU150	6.420E-15	5.145E-15	4.903E-15	4.810E-15	4.203E-15	4.044E-15	3.745E-15	3.336E-15
SM151	2.713E-07	2.483E-07	2.436E-07	2.417E-07	2.290E-07	2.255E-07	2.187E-07	2.088E-07
EU151	2.930E-08	5.230E-08	5.703E-08	5.890E-08	7.159E-08	7.509E-08	8.193E-08	9.181E-08
SM152	2.689E-06	2.689E-06	2.689E-06	2.689E-06	2.690E-06	2.690E-06	2.690E-06	2.690E-06
EU152	1.133E-09	6.305E-10	5.551E-10	5.275E-10	3.692E-10	3.334E-10	2.719E-10	2.003E-10
GD152	2.324E-09	2.464E-09	2.485E-09	2.493E-09	2.537E-09	2.547E-09	2.564E-09	2.584E-09
EU153	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06
GD153	8.809E-17	5.251E-22	4.495E-23	2.252E-23	1.487E-26	1.487E-26	1.487E-26	1.487E-26
SM154	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07
EU154	1.637E-07	6.479E-08	5.297E-08	4.887E-08	2.780E-08	2.366E-08	1.714E-08	1.057E-08
GD154	3.587E-07	4.576E-07	4.694E-07	4.735E-07	4.946E-07	4.987E-07	5.053E-07	5.118E-07
EU155	2.149E-08	4.307E-09	3.037E-09	2.641E-09	9.927E-10	7.506E-10	4.291E-10	1.855E-10
GD155	1.252E-07	1.424E-07	1.437E-07	1.440E-07	1.457E-07	1.459E-07	1.463E-07	1.465E-07
GD156	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07
GD157	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10
GD158	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08
TB159	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09
GD160	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09
DY160	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10
DY161	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10
DY162	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10
DY163	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10
DY164	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11
HO165	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10
HO166M	8.358E-13	8.303E-13	8.291E-13	8.286E-13	8.252E-13	8.243E-13	8.224E-13	8.195E-13
ER166	2.766E-11	2.767E-11	2.767E-11	2.767E-11	2.767E-11	2.767E-11	2.767E-11	2.768E-11
ER167	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12
ER168	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12
TM169	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07
ER170	8.016E-18	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12
TM170	8.333E-10	1.223E-19	9.025E-22	1.219E-22	1.260E-28	1.260E-28	4.788E-32	3.546E-37
YB170	5.406E-15	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10
TM171	9.233E-19	1.453E-20	5.884E-21	4.097E-21	3.176E-22	1.511E-22	4.200E-23	1.694E-23
YB171	2.140E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16
YB172	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15

Source Listing of Program ELEZR1

```
      PROGRAM ELEZR1

!-------- WRITTEN BY D.R. WENZEL
!          Revised 11/22/04

!            To sum the g/L of coprocess waste and round
!            the output to 2 places of accuracy

       CHARACTER (LEN=2) :: BLANK, ELE, SMBCAP, SMBLC
       CHARACTER (LEN=6) :: NAME
       CHARACTER (LEN=85) :: TITLE
       EQUIVALENCE (ELE, NAME)
       LOGICAL :: FIRST
       REAL *4 OLD(7), SIGMA(7), TOTAL(7)

       OPEN(3,FILE ='ZR_RUN1.G', STATUS='OLD',FORM='FORMATTED', ERR = 900)
       OPEN(4,FILE ='SYMBOL', STATUS='OLD',FORM='FORMATTED', ERR = 910)
       OPEN(6,FILE ='ZR_RUN1.ELE', STATUS='UNKNOWN', ERR = 920)

       DATA BLANK /'  '/


       FIRST = .TRUE.
       SIGMA = 0.

!        Read symbol of element to be summed

   10  READ(4,400) SMBCAP, SMBLC
  400  FORMAT(A2,3X,A2)
       IF(SMBCAP == BLANK) GO TO 100

!--------- Zero out summary

       TOTAL = 0.

!--------- On the first pass only, modify the name on the first
!          line of data

       READ(3,300) TITLE
  300  FORMAT(A85)
       IF(FIRST) WRITE(6,600)
  600  FORMAT(1X,'ZR_RUN1.ELE     g/g Zr calcine')

!--------- On the first pass only, echo the next line of data

       READ(3,300) TITLE
       IF(FIRST) WRITE(6,610) TITLE
  610  FORMAT(A85,/,'Element',5X,'1999Jul   2002Jan   2003Jan   2010' &
              'Jan   2012Jan   2016Jan   2022Jan')

!--------- Skip the next 2 lines of data

       READ(3,300) TITLE
       READ(3,300) TITLE
```

Source Listing of Program ELEZR1 (Continued)

```
      FIRST = .FALSE.

!--------- Read individual nuclide mass and search for the
!           element to be summed

   60 READ(3,310,END=80) NAME, (OLD(J),J=1,7)
  310 FORMAT(1X,A6,14X,7(1PE10.3))
      IF(ELE /= SMBCAP) GO TO 60

      DO J=1,7
         TOTAL(J) = TOTAL(J) + OLD(J)
      END DO

      GO TO 60

!--------- Write element total when element found

   80 REWIND(3)

!--------- Write results with 2 places of accuracy

      IF(TOTAL(1) > 0.) THEN
         WRITE(6,620) SMBLC, (TOTAL(J),J=1,7)
  620    FORMAT(1X,a2,6X,7(1PE10.1))
      ENDIF

!--------- Keep a sum of the total for all elements

      DO J=1,7
         SIGMA(J) = SIGMA(J) + TOTAL(J)
      END DO

      GO TO 10
  100 WRITE(6,630) (SIGMA(J),J=1,7)
  630 FORMAT(1X,/,1X,'Total ',2X,7(1PE10.1))
      GO TO 999

!-------- ERROR STATEMENTS

  900 WRITE(6,9000)
 9000 FORMAT(2X,'ERROR IN OPENING FILE 3')
      GO TO 999

  910 WRITE(6,9010)
 9010 FORMAT(2X,'ERROR IN OPENING FILE 4')
      GO TO 999

  920 WRITE(6,9020)
 9020 FORMAT(2X,'ERROR IN OPENING FILE 6')
      GO TO 999

!-------- PROGRAM END
  999 CONTINUE
      END PROGRAM ELEZR1
```

See Appendix A-7, pages 3-4, for a listing of file SYMBOL.

ZR_RUN1.ELE g/g Zr calcine
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

Element	1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
H	2.8E-10	2.4E-10	2.3E-10	1.5E-10	1.4E-10	1.1E-10	7.8E-11
He	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07
Li	1.2E-11	1.2E-11	1.2E-11	1.2E-11	1.2E-11	1.2E-11	1.2E-11
Be	8.7E-11	8.7E-11	8.7E-11	8.7E-11	8.7E-11	8.7E-11	8.7E-11
B	8.4E-09	8.4E-09	8.4E-09	8.4E-09	8.4E-09	8.4E-09	8.4E-09
C	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05
N	2.7E-05	2.7E-05	2.7E-05	2.7E-05	2.7E-05	2.7E-05	2.7E-05
O	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03
F	1.6E-12	1.6E-12	1.6E-12	1.6E-12	1.6E-12	1.6E-12	1.6E-12
Ne	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16
Na	2.3E-23	2.3E-23	2.3E-23	2.3E-23	2.3E-23	2.3E-23	2.3E-23
Mg	5.2E-11	5.2E-11	5.2E-11	5.2E-11	5.2E-11	5.2E-11	5.2E-11
Si	9.2E-09	9.2E-09	9.2E-09	9.2E-09	9.2E-09	9.2E-09	9.2E-09
P	6.0E-21	6.0E-21	6.0E-21	6.0E-21	6.0E-21	6.0E-21	6.0E-21
S	3.1E-25	3.1E-25	3.1E-25	3.1E-25	3.1E-25	3.1E-25	3.1E-25
Cl	7.8E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21
Ar	3.0E-17	3.0E-17	3.0E-17	3.0E-17	3.0E-17	3.0E-17	3.0E-17
K	9.5E-19	9.5E-19	9.5E-19	9.5E-19	9.5E-19	9.5E-19	9.5E-19
Ca	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11
Sc	3.5E-13	3.5E-13	3.5E-13	3.5E-13	3.5E-13	3.5E-13	3.5E-13
Ti	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
V	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06
Mn	4.2E-07	4.2E-07	4.2E-07	4.2E-07	4.2E-07	4.2E-07	4.2E-07
Co	1.7E-07	1.7E-07	1.7E-07	1.7E-07	1.7E-07	1.7E-07	1.7E-07
Cu	2.0E-07	2.3E-07	2.4E-07	3.2E-07	3.4E-07	3.8E-07	4.4E-07
Zn	7.8E-11	7.8E-11	7.8E-11	7.8E-11	7.8E-11	7.8E-11	7.8E-11
Ga	3.4E-14	3.4E-14	3.4E-14	3.4E-14	3.4E-14	3.4E-14	3.4E-14
Ge	1.6E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08
As	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09
Se	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
Br	6.4E-07	6.4E-07	6.4E-07	6.4E-07	6.4E-07	6.4E-07	6.4E-07
Kr	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.2E-05
Rb	1.2E-05	1.2E-05	1.2E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
Sr	2.3E-05	2.3E-05	2.2E-05	2.1E-05	2.1E-05	2.0E-05	1.9E-05
Y	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05
Nb	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04
Mo	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Tc	2.1E-05	2.1E-05	2.1E-05	2.1E-05	2.1E-05	2.1E-05	2.1E-05
Ru	4.5E-05	4.5E-05	4.5E-05	4.5E-05	4.5E-05	4.5E-05	4.5E-05
Rh	8.9E-06	8.9E-06	8.9E-06	8.9E-06	8.9E-06	8.9E-06	8.9E-06
Pd	1.1E-05	1.1E-05	1.1E-05	1.1E-05	1.1E-05	1.1E-05	1.1E-05
Ag	1.5E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07
Cd	4.9E-07	4.9E-07	4.9E-07	4.9E-07	4.9E-07	4.9E-07	4.9E-07
In	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06
Sb	6.9E-06	6.9E-06	6.9E-06	6.9E-06	6.9E-06	6.9E-06	6.9E-06
Te	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05
I	4.1E-06	4.1E-06	4.1E-06	4.1E-06	4.1E-06	4.1E-06	4.1E-06
Xe	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04
Cs	6.4E-05	6.3E-05	6.3E-05	6.1E-05	6.0E-05	5.9E-05	5.7E-05
Ba	5.4E-05	5.5E-05	5.5E-05	5.8E-05	5.8E-05	5.9E-05	6.1E-05
La	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05

ZR_RUN1.ELE (Continued) g/g Zr calcine
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:19

Element	1999Jul	2002Jan	2003Jan	2010Jan	2012Jan	2016Jan	2022Jan
Ce	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05
Pr	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05
Nd	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04
Pm	5.9E-09	3.1E-09	2.4E-09	3.7E-10	2.2E-10	7.6E-11	1.6E-11
Sm	2.2E-05	2.2E-05	2.2E-05	2.2E-05	2.2E-05	2.2E-05	2.2E-05
Eu	2.2E-06	2.2E-06	2.2E-06	2.1E-06	2.1E-06	2.1E-06	2.2E-06
Gd	1.2E-06	1.2E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.3E-06
Tb	8.2E-09	8.2E-09	8.2E-09	8.2E-09	8.2E-09	8.2E-09	8.2E-09
Dy	2.5E-09	2.5E-09	2.5E-09	2.5E-09	2.5E-09	2.5E-09	2.5E-09
Ho	1.2E-10	1.2E-10	1.2E-10	1.2E-10	1.2E-10	1.2E-10	1.2E-10
Er	3.8E-11	3.8E-11	3.8E-11	3.8E-11	3.8E-11	3.8E-11	3.8E-11
Tm	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07
Yb	8.3E-10	8.3E-10	8.3E-10	8.3E-10	8.3E-10	8.3E-10	8.3E-10
Lu	1.8E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07
Hf	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Ta	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
W	3.7E-06	3.7E-06	3.7E-06	3.7E-06	3.7E-06	3.7E-06	3.7E-06
Re	2.1E-10	2.1E-10	2.1E-10	2.1E-10	2.1E-10	2.1E-10	2.1E-10
Os	2.6E-11	2.6E-11	2.6E-11	2.6E-11	2.6E-11	2.6E-11	2.6E-11
Ir	1.4E-21	1.4E-21	1.4E-21	1.4E-21	1.4E-21	1.4E-21	1.4E-21
Pt	2.6E-22	2.6E-22	2.6E-22	2.6E-22	2.6E-22	2.6E-22	2.6E-22
Tl	2.5E-20	2.1E-20	2.1E-20	1.8E-20	1.8E-20	1.8E-20	1.7E-20
Pb	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.8E-12	1.9E-12	1.9E-12
Bi	2.0E-17	2.3E-17	2.4E-17	3.4E-17	3.7E-17	4.5E-17	6.1E-17
Po	2.0E-19	3.0E-19	3.6E-19	1.1E-18	1.3E-18	2.1E-18	3.6E-18
At	1.5E-27	1.7E-27	1.8E-27	2.6E-27	2.8E-27	3.4E-27	4.5E-27
Rn	6.8E-20	8.6E-20	9.4E-20	1.8E-19	2.1E-19	2.7E-19	3.9E-19
Fr	1.1E-22	1.2E-22	1.3E-22	1.6E-22	1.6E-22	1.8E-22	2.0E-22
Ra	7.5E-15	1.1E-14	1.2E-14	2.5E-14	3.0E-14	4.0E-14	5.9E-14
Ac	3.9E-15	4.2E-15	4.4E-15	5.2E-15	5.4E-15	5.7E-15	6.2E-15
Th	2.2E-10	2.5E-10	2.6E-10	3.4E-10	3.6E-10	4.1E-10	4.8E-10
Pa	1.4E-11	1.4E-11	1.4E-11	1.4E-11	1.4E-11	1.4E-11	1.4E-11
U	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05
Np	3.2E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05
Pu	5.6E-06	5.6E-06	5.6E-06	5.5E-06	5.5E-06	5.4E-06	5.4E-06
Am	3.6E-07	3.8E-07	3.8E-07	4.2E-07	4.2E-07	4.3E-07	4.5E-07
Cm	3.5E-11	3.2E-11	3.1E-11	2.4E-11	2.3E-11	2.0E-11	1.7E-11
Bk	3.4E-28	3.4E-28	3.4E-28	3.4E-28	3.4E-28	3.4E-28	3.4E-28
Cf	1.2E-19	1.2E-19	1.2E-19	1.1E-19	1.1E-19	1.1E-19	1.1E-19
Total	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03

File ZR_RUN2.INP

```
-1
-1
-1
  RDA     ORIGEN2, VERSION 2.1 (8-1-91) GENERIC FUEL
  BAS     PWRU FUEL
  RDA     -1 = 1 G CALCINE
  CUT     -1
  LIP     0 0 0
  LIB     0  1 2 3  601  602  603   9   3   0  1   38
  TIT     INITIAL COMPOSITIONS OF UNIT AMOUNTS OF FUEL AND STRUCT MAT'LS
  RDA     READ FUEL COMPOSITION INCLUDING IMPURITIES
  INP     -1   1  -1  -1  1  1
  TIT     DECAY OF GENERIC FUEL
  MOV     -1   1   0   1.
  HED      1                                                    Ci/g
  OPTL    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTA    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  OPTF    8 8 8 8 5   8 5 8 8 8   8 8 8 8 8   8 8 8 8 8   8 8 8 8
  DEC     44.0    1   2   5   0
  DEC     54.0    2   3   5   0
  DEC    128.0    3   4   5   0
  DEC    412.0    4   5   5   0
  DEC   1028.0    5   6   5   0
  DEC   1122.0    6   7   5   0
  DEC  10012.0    7   8   5   0
  OUT      -8    1     -1    0
  OUT       8    1     -1    0
  END
  1   20030 9.328E-16  20040 6.175E-08  30060 6.027E-12 0 0.
  1   50100 2.409E-17  50110 8.385E-09  60120 1.983E-05 0 0.
  1   60130 2.733E-07  70140 2.659E-05  70150 1.020E-07 0 0.
  1   80160 1.600E-03  80170 6.418E-07  80180 3.208E-06 0 0.
  1   90190 1.620E-12 100200 1.495E-17 100210 1.168E-16 0 0.
  1  100220 2.469E-19 110230 2.264E-23 120240 5.242E-11 0 0.
  1  120250 1.234E-14 120260 8.196E-18 130270 2.675E-05 0 0.
  1  140280 9.238E-09 140290 1.096E-12 140300 1.422E-16 0 0.
  1  140320 4.429E-28 150310 6.047E-21 150320 2.669E-32 0 0.
  1  160320 3.128E-25 160330 1.349E-29 160340 7.250E-27 0 0.
  1  170370 7.763E-21 180380 1.231E-24 180390 3.124E-25 0 0.
  1  180400 2.970E-17 180420 3.599E-26 190390 1.144E-26 0 0.
  1  190410 9.522E-19 190420 1.538E-30 200420 1.655E-20 0 0.
  1  200430 2.235E-12 200440 1.705E-11 200450 9.433E-23 0 0.
  1  200460 2.029E-12 210450 3.527E-13 210460 2.941E-29 0 0.
  1  220460 1.068E-06 220470 9.737E-07 220480 9.759E-06 0 0.
  1  220490 8.385E-07 220500 7.251E-07 230500 4.691E-09 0 0.
  1  230510 1.259E-06 240500 5.681E-05 240520 1.116E-03 0 0.
  1  240530 1.271E-04 240540 3.481E-05 250540 1.996E-13 0 0.
  1  250550 3.892E-07 260540 4.884E-04 260550 2.916E-08 0 0.
  1  260560 7.593E-03 260570 2.017E-04 260580 2.436E-05 0 0.
  1  270580 1.689E-28 270590 1.669E-07 270600 2.000E-09 0 0.
  1  280580 1.876E-03 280590 1.004E-05 280600 7.198E-04 0 0.
  1  280610 3.396E-05 280620 9.748E-05 280630 1.689E-06 0 0.
  1  280640 2.515E-05 290630 4.962E-08 290650 1.328E-08 0 0.
  1  300640 7.593E-12 300650 2.018E-21 420940 4.391E-10 0 0.
```

File ZR_RUN2.INP (Continued)

```
1  440980 1.843E-21 701730 4.546E-15 701740 2.084E-16 0 0.
1  711750 1.721E-07 711760 4.198E-09 711770 2.893E-23 0 0.
1  711771 2.906E-21 721740 2.315E-07 721750 3.357E-29 0 0.
1  721760 1.040E-05 721770 3.479E-06 721780 6.207E-05 0 0.
1  721790 8.159E-05 721800 1.074E-04 721820 5.634E-09 0 0.
1  731810 1.279E-05 731820 1.973E-16 741820 1.750E-06 0 0.
1  741830 1.817E-06 741840 1.098E-07 741850 3.818E-30 0 0.
1  741860 1.768E-12 741880 5.246E-38 751850 2.149E-10 0 0.
1  751870 7.255E-14 751880 5.403E-40 761860 2.649E-11 0 0.
1  761870 1.368E-23 761880 2.335E-15 761890 1.621E-17 0 0.
1  761900 5.730E-19 761920 1.300E-23 761940 1.363E-31 0 0.
1  771910 1.423E-21 771920 9.630E-29 771921 1.144E-25 0 0.
1  771930 1.737E-23 771940 4.962E-35 781920 2.586E-22 0 0.
1  781930 5.446E-25 781940 9.184E-25 781950 8.782E-29 0 0.
2   20040 6.175E-08 812060 4.222E-35 812070 7.402E-22 0 0.
2  812080 4.340E-19 812090 9.570E-26 822060 1.020E-19 0 0.
2  822070 3.601E-16 822080 1.314E-12 822090 3.987E-22 0 0.
2  822100 5.519E-19 822110 5.727E-21 822120 2.560E-16 0 0.
2  822140 8.702E-24 832080 2.286E-24 832090 9.735E-18 0 0.
2  832101 1.627E-23 832100 3.396E-22 832110 3.379E-22 0 0.
2  832120 2.427E-17 832130 9.369E-23 832140 6.462E-24 0 0.
2  842100 9.380E-21 842110 4.145E-27 842120 1.285E-27 0 0.
2  842130 1.406E-31 842140 8.889E-31 842150 4.795E-27 0 0.
2  842160 1.021E-21 842180 1.009E-24 852170 1.126E-27 0 0.
2  862190 1.087E-23 862200 3.856E-19 862220 1.854E-21 0 0.
2  872210 1.022E-23 872230 5.042E-23 882230 2.760E-18 0 0.
2  882240 2.233E-15 882250 4.622E-20 882260 2.886E-16 0 0.
2  882280 1.889E-20 892250 3.123E-20 892270 1.954E-15 0 0.
2  892280 2.298E-24 902270 4.536E-18 902280 4.338E-13 0 0.
2  902290 8.518E-15 902300 5.861E-12 902310 2.961E-15 0 0.
2  902320 8.518E-11 902340 2.260E-16 912310 1.253E-11 0 0.
2  912330 4.142E-13 912341 7.623E-21 912340 3.405E-21 0 0.
2  922320 4.565E-13 922330 1.786E-12 922340 3.943E-06 0 0.
2  922350 2.030E-05 922360 1.931E-06 922370 7.307E-18 0 0.
2  922380 7.387E-06 922400 1.256E-26 932350 3.579E-17 0 0.
2  932360 1.787E-11 932370 3.202E-05 932380 9.128E-18 0 0.
2  932390 4.724E-16 932401 1.033E-26 942360 2.951E-13 0 0.
2  942380 9.900E-07 942390 3.510E-06 942400 9.367E-07 0 0.
2  942410 2.667E-07 942420 1.433E-07 942430 3.958E-27 0 0.
2  942440 1.223E-14 942460 1.474E-33 952410 2.467E-07 0 0.
2  952421 5.379E-10 952420 6.928E-15 952430 6.536E-09 0 0.
2  952450 1.393E-31 952460 1.387E-34 962420 1.178E-13 0 0.
2  962430 1.962E-12 962440 4.693E-11 962450 1.748E-12 0 0.
2  962460 1.052E-13 962470 5.484E-16 962480 1.642E-17 0 0.
2  962500 1.733E-26 972490 3.042E-24 972500 3.676E-34 0 0.
2  982490 1.122E-19 982500 8.150E-21 982510 4.998E-21 0 0.
2  982520 4.902E-23 992540 6.595E-31      0 0.        0 0.
3   10030 5.246E-10  30060 6.027E-12  30070 2.659E-13 0 0.
3   40090 8.196E-11  40100 5.095E-12  60140 7.095E-08 0 0.
3  300660 2.315E-11 300670 1.015E-14 300680 1.068E-11 0 0.
3  310690 1.650E-14 300700 3.643E-11 320700 4.735E-17 0 0.
3  310710 1.785E-14 320720 1.907E-10 320730 6.691E-10 0 0.
3  320740 1.815E-09 330750 4.340E-09 320760 1.323E-08 0 0.
3  340760 8.290E-11 340770 2.882E-08 340780 6.234E-08 0 0.
3  340790 1.587E-07 350790 2.628E-11 340800 3.825E-07 0 0.
```

File ZR_RUN2.INP (Continued)

```
3  360800 1.960E-12 350810 6.391E-07 360810 7.590E-14 0 0.
3  340820 1.036E-06 360820 1.734E-08 360830 1.419E-06 0 0.
3  360840 3.565E-06 360850 3.212E-07 370850 3.789E-06 0 0.
3  360860 6.574E-06 380860 8.767E-09 370870 8.507E-06 0 0.
3  380870 7.787E-09 380880 1.298E-05 390890 1.621E-05 0 0.
3  380900 1.349E-05 390900 3.385E-09 400900 6.740E-01 0 0.
3  400910 1.467E-01 400920 2.249E-01 400930 4.151E-04 0 0.
3  410930 1.325E-04 410931 1.891E-09 400940 2.276E-01 0 0.
3  410940 8.425E-07 420950 9.095E-05 400960 3.661E-02 0 0.
3  420960 2.735E-06 420970 1.262E-04 420980 2.222E-05 0 0.
3  430980 8.318E-11 430990 2.098E-05 440990 1.075E-09 0 0.
3  421000 2.387E-05 441000 1.825E-06 441010 1.902E-05 0 0.
3  441020 1.690E-05 451020 4.231E-13 451030 8.855E-06 0 0.
3  441040 7.479E-06 461040 3.503E-06 461050 3.930E-06 0 0.
3  441060 5.779E-11 451060 5.434E-17 461060 1.925E-06 0 0.
3  461070 7.704E-07 471070 1.275E-12 461080 3.725E-07 0 0.
3  471080 5.279E-25 471081 5.501E-16 481080 4.957E-13 0 0.
3  471090 1.498E-07 471091 3.197E-25 481090 3.237E-19 0 0.
3  461100 1.364E-07 471100 2.564E-23 471101 1.692E-15 0 0.
3  481100 5.999E-08 481110 1.090E-07 481120 8.428E-08 0 0.
3  481130 8.111E-10 481131 8.369E-10 491130 2.055E-06 0 0.
3  481140 1.609E-07 501140 1.352E-04 491150 2.059E-08 0 0.
3  501150 7.000E-05 481160 7.420E-08 501160 2.997E-03 0 0.
3  501170 1.606E-03 501180 5.024E-03 501190 1.807E-03 0 0.
3  501191 4.271E-12 501200 6.778E-03 501211 2.762E-08 0 0.
3  511210 6.162E-06 501220 9.622E-04 521220 2.663E-07 0 0.
3  501230 6.733E-19 511230 7.339E-07 521230 2.826E-09 0 0.
3  521231 3.278E-22 501240 1.196E-03 521240 1.851E-08 0 0.
3  511250 1.812E-07 521250 7.361E-06 521251 2.494E-09 0 0.
3  501260 3.457E-07 511260 1.652E-14 511261 1.259E-16 0 0.
3  521260 5.528E-08 521270 1.997E-24 521271 5.703E-22 0 0.
3  531270 7.385E-07 521280 1.940E-06 541280 3.066E-08 0 0.
3  531290 3.354E-06 541290 1.201E-10 521300 7.453E-06 0 0.
3  541300 1.561E-07 541310 1.103E-05 541320 2.487E-05 0 0.
3  561320 2.475E-11 551330 3.070E-05 541340 3.910E-05 0 0.
3  551340 2.502E-08 561340 3.112E-06 551350 1.655E-05 0 0.
3  561350 5.050E-09 541360 5.015E-05 561360 4.385E-07 0 0.
3  551370 2.220E-05 561370 9.619E-06 561371 3.397E-12 0 0.
3  561380 3.565E-05 571380 2.493E-10 571390 3.377E-05 0 0.
3  581400 3.341E-05 591410 3.106E-05 581420 3.170E-05 0 0.
3  601420 4.988E-07 601430 2.535E-05 581440 5.595E-11 0 0.
3  591440 2.362E-15 591441 1.181E-17 601440 3.634E-05 0 0.
3  601450 1.993E-05 601460 1.817E-05 611460 1.732E-11 0 0.
3  621460 1.758E-10 611470 1.236E-07 621470 7.184E-06 0 0.
3  601480 9.460E-06 621480 4.256E-06 621490 6.758E-08 0 0.
3  601500 3.681E-06 621500 6.644E-06 631500 6.420E-15 0 0.
3  621510 2.713E-07 631510 2.930E-08 621520 2.689E-06 0 0.
3  631520 1.133E-09 641520 2.324E-09 631530 2.049E-06 0 0.
3  641530 8.809E-17 621540 4.482E-07 631540 1.637E-07 0 0.
3  641540 3.587E-07 631550 2.149E-08 641550 1.252E-07 0 0.
3  641560 5.050E-07 641570 4.893E-10 641580 8.765E-08 0 0.
3  651590 8.232E-09 641600 3.197E-09 651600 1.715E-30 0 0.
3  661600 8.318E-10 661610 6.922E-10 661620 5.474E-10 0 0.
3  661630 3.696E-10 661640 6.893E-11 671650 1.212E-10 0 0.
3  671661 8.358E-13 681660 2.766E-11 681670 3.750E-12 0 0.
```

File ZR_RUN2.INP (Continued)

```
3  681680 5.173E-12 691690 1.287E-07 681700 8.016E-18 0 0.
3  691700 8.333E-10 701700 5.406E-15 691710 9.233E-19 0 0.
3  701710 2.140E-16 701720 7.263E-15      0 0.        0 0.
0
```

File ZR_RUN2.BAT

```
echo off
echo **                                                                  **
echo **                              O R I G E N 2                       **
echo **                                                                  **
copy zr_run2.INP tape5.inp >nul
REM  (NOT USED IN THIS CASE) copy zr_run2.u3 tape3.inp >nul
copy \origen2\libs\decaymod.lib+\origen2\libs\pwrus.lib tape9.inp >nul
copy \origen2\libs\gxuo2brm.lib tape10.inp >nul
\origen2\code\origen2
echo finished with origen2 calculation
rem  combine and save files from run
copy tape12.out+tape6.out zr_run2.u6 >nul
copy tape13.out+tape11.out zr_run2.u11 >nul
ren tape7.out zr_run2.pch
ren tape15.out zr_run2.dbg
ren tape16.out zr_run2.vxs
ren tape50.out zr_run2.ech
rem  cleanup files
del tape*.inp
del tape*.out
del zr_run2.pch
del zr_run2.dbg
del zr_run2.vxs
del zr_run2.ech
del zr_run2.u11
echo ************************************************************************
echo ******************* O R I G E N 2 - Version 2.1 ************************
echo ************************ Execution Completed ***************************
echo ************************************************************************
echo on
```

zr_run2.ci
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	Ci/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
AR 39	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.065E-23	1.199E-33
V 50	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22	8.389E-22
MN 54	1.545E-09	5.103E-25	1.547E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE 55	7.293E-05	5.869E-10	4.081E-11	1.104E-19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO 60	2.262E-06	6.933E-09	1.861E-09	1.103E-13	6.594E-30	0.000E+00	0.000E+00	0.000E+00
NI 59	7.608E-07	7.605E-07	7.604E-07	7.599E-07	7.580E-07	7.540E-07	7.534E-07	6.975E-07
NI 63	1.042E-04	7.481E-05	6.939E-05	3.973E-05	4.676E-06	4.511E-08	2.222E-08	0.000E+00
ZN 65	1.663E-17	2.417E-37	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LU176	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16	2.844E-16
HF182	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.229E-12
TA182	1.231E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.230E-12	1.229E-12
RE187	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21	2.775E-21
IR192	0.000E+00	8.849E-25	8.849E-25	8.848E-25	8.846E-25	8.844E-25	8.848E-25	6.959E-36
IR192M	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25	8.842E-25	6.953E-36
PT193	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24	2.018E-24	8.968E-30
TL206	0.000E+00	9.199E-27	9.199E-27	9.199E-27	9.199E-27	9.199E-27	9.199E-27	9.199E-27
TL207	1.410E-13	4.984E-13	5.366E-13	6.717E-13	9.662E-13	1.523E-12	1.580E-12	9.027E-12
TL208	1.278E-10	3.927E-12	3.568E-12	1.754E-12	1.209E-13	7.831E-15	7.692E-15	7.199E-15
TL209	0.000E+00	2.352E-16	3.340E-16	1.688E-15	1.696E-14	1.036E-13	1.231E-13	7.525E-12
PB209	1.812E-15	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
PB210	4.215E-17	3.284E-14	5.673E-14	5.141E-13	8.783E-12	5.246E-11	5.878E-11	2.030E-09
PB211	1.414E-13	4.998E-13	5.381E-13	6.736E-13	9.690E-13	1.527E-12	1.584E-12	9.052E-12
PB212	3.558E-10	1.093E-11	9.930E-12	4.880E-12	3.365E-13	2.179E-14	2.141E-14	2.004E-14
PB214	2.854E-16	9.737E-14	1.464E-13	8.302E-13	8.784E-12	5.247E-11	6.190E-11	2.030E-09
BI208	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26	1.068E-26
BI210M	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27	9.236E-27
BI210	4.215E-17	3.284E-14	5.674E-14	5.141E-13	8.783E-12	5.246E-11	5.878E-11	2.030E-09
BI211	1.414E-13	4.998E-13	5.381E-13	6.736E-13	9.690E-13	1.527E-12	1.584E-12	9.052E-12
BI212	3.557E-10	1.093E-11	9.930E-12	4.880E-12	3.365E-13	2.179E-14	2.141E-14	2.004E-14
BI213	1.813E-15	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
BI214	2.854E-16	9.737E-14	1.464E-13	8.302E-13	8.784E-12	5.247E-11	6.190E-11	2.030E-09
PO210	4.215E-17	3.284E-14	5.674E-14	5.141E-13	8.783E-12	5.246E-11	5.878E-11	2.030E-09
PO211	0.000E+00	1.400E-15	1.507E-15	1.886E-15	2.713E-15	4.275E-15	4.436E-15	2.535E-14
PO212	0.000E+00	7.003E-12	6.362E-12	3.127E-12	2.156E-13	1.396E-14	1.372E-14	1.284E-14
PO213	0.000E+00	1.065E-14	1.513E-14	7.644E-14	7.684E-13	4.692E-12	5.574E-12	3.409E-10
PO214	0.000E+00	9.735E-14	1.464E-13	8.301E-13	8.782E-12	5.246E-11	6.189E-11	2.030E-09
PO215	0.000E+00	4.998E-13	5.381E-13	6.736E-13	9.690E-13	1.527E-12	1.584E-12	9.052E-12
PO216	3.557E-10	1.093E-11	9.930E-12	4.880E-12	3.365E-13	2.179E-14	2.141E-14	2.004E-14
PO218	2.855E-16	9.739E-14	1.465E-13	8.304E-13	8.786E-12	5.248E-11	6.191E-11	2.031E-09
AT217	0.000E+00	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
RN219	1.415E-13	4.998E-13	5.381E-13	6.736E-13	9.690E-13	1.527E-12	1.584E-12	9.052E-12
RN220	3.558E-10	1.093E-11	9.930E-12	4.880E-12	3.365E-13	2.179E-14	2.141E-14	2.004E-14
RN222	2.853E-16	9.739E-14	1.465E-13	8.304E-13	8.786E-12	5.248E-11	6.191E-11	2.031E-09
FR221	1.812E-15	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
FR223	1.951E-15	6.897E-15	7.414E-15	9.294E-15	1.337E-14	2.107E-14	2.186E-14	1.249E-13
RA223	1.414E-13	4.998E-13	5.381E-13	6.736E-13	9.690E-13	1.527E-12	1.584E-12	9.052E-12
RA224	3.558E-10	1.093E-11	9.930E-12	4.880E-12	3.365E-13	2.179E-14	2.141E-14	2.004E-14
RA225	1.813E-15	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
RA226	2.855E-16	9.739E-14	1.465E-13	8.304E-13	8.786E-12	5.248E-11	6.191E-11	2.031E-09
RA228	4.423E-18	9.505E-18	9.603E-18	1.014E-17	1.191E-17	1.584E-17	1.645E-17	8.237E-17
AC225	1.813E-15	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
AC227	1.414E-13	4.997E-13	5.373E-13	6.735E-13	9.690E-13	1.527E-12	1.584E-12	9.052E-12
AC228	5.154E-18	9.505E-18	9.603E-18	1.014E-17	1.191E-17	1.584E-17	1.645E-17	8.237E-17
TH227	1.395E-13	4.929E-13	5.307E-13	6.643E-13	9.556E-13	1.506E-12	1.562E-12	8.927E-12
TH228	3.557E-10	1.093E-11	9.929E-12	4.880E-12	3.365E-13	2.179E-14	2.141E-14	2.004E-14
TH229	1.813E-15	1.089E-14	1.546E-14	7.813E-14	7.854E-13	4.796E-12	5.697E-12	3.484E-10
TH230	1.184E-13	1.025E-11	1.265E-11	3.109E-11	1.072E-10	2.759E-10	3.016E-10	2.605E-09
TH231	1.575E-09	4.391E-11	4.391E-11	4.392E-11	4.399E-11	4.412E-11	4.413E-11	4.577E-11
TH232	9.346E-18	9.617E-18	9.679E-18	1.014E-17	1.191E-17	1.584E-17	1.645E-17	8.237E-17
TH234	5.236E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.485E-12	2.485E-12	2.485E-12
PA231	5.921E-13	6.325E-13	6.417E-13	7.094E-13	9.684E-13	1.526E-12	1.611E-12	9.051E-12
PA233	8.600E-09	2.260E-08	2.260E-08	2.264E-08	2.275E-08	2.286E-08	2.287E-08	2.286E-08
PA234M	5.238E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.485E-12	2.485E-12	2.485E-12
PA234	6.809E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15	3.230E-15	3.231E-15

zr_run2.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	Ci/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
U232	9.775E-12	1.064E-11	9.665E-12	4.751E-12	3.281E-13	2.175E-14	2.114E-14	1.995E-14
U233	1.730E-14	4.357E-12	5.345E-12	1.266E-11	4.082E-11	1.021E-10	1.114E-10	9.802E-10
U234	2.465E-08	2.643E-08	2.676E-08	2.851E-08	3.047E-08	3.065E-08	3.064E-08	2.988E-08
U235	4.390E-11	4.391E-11	4.391E-11	4.392E-11	4.399E-11	4.412E-11	4.413E-11	4.577E-11
U236	1.250E-10	1.253E-10	1.253E-10	1.258E-10	1.275E-10	1.311E-10	1.317E-10	1.639E-10
U237	5.967E-13	8.109E-11	5.011E-11	1.422E-12	8.767E-18	6.776E-18	6.724E-18	3.256E-18
U238	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.484E-12	2.485E-12	2.485E-12	2.485E-12
U240	0.000E+00	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19
NP235	5.023E-14	3.063E-26	3.063E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	2.355E-13	2.354E-13	2.354E-13	2.353E-13	2.349E-13	2.340E-13	2.339E-13	2.217E-13
NP237	2.258E-08	2.260E-08	2.260E-08	2.264E-08	2.275E-08	2.286E-08	2.287E-08	2.286E-08
NP238	2.367E-12	2.140E-11	2.044E-11	1.459E-11	3.995E-12	2.408E-13	1.569E-13	3.891E-31
NP239	1.096E-10	1.298E-09	1.297E-09	1.288E-09	1.254E-09	1.183E-09	1.173E-09	5.090E-10
NP240M	0.000E+00	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19	2.167E-19
PU236	1.569E-10	2.473E-14	2.150E-14	2.118E-14	2.114E-14	2.106E-14	2.105E-14	1.995E-14
PU238	1.695E-05	1.198E-05	1.107E-05	6.170E-06	6.555E-07	5.132E-09	2.459E-09	1.528E-28
PU239	2.183E-07	2.180E-07	2.179E-07	2.175E-07	2.157E-07	2.119E-07	2.114E-07	1.638E-07
PU240	2.135E-07	2.125E-07	2.123E-07	2.107E-07	2.044E-07	1.915E-07	1.896E-07	7.386E-08
PU241	2.749E-05	3.306E-06	2.043E-06	5.796E-08	3.578E-13	2.766E-13	2.745E-13	1.329E-13
PU242	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.473E-10	5.467E-10	5.466E-10	5.380E-10
PU243	0.000E+00	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.088E-20
PU244	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19	2.170E-19
AM241	8.470E-07	1.558E-06	1.575E-06	1.459E-06	9.267E-07	3.451E-07	2.968E-07	3.238E-13
AM242M	5.230E-09	4.279E-09	4.088E-09	2.917E-09	7.990E 10	4.816E-11	3.137E-11	7.782E-29
AM242	5.603E-09	4.258E-09	4.068E-09	2.903E-09	7.951E-10	4.792E-11	3.121E-11	7.744E-29
AM243	1.303E-09	1.298E-09	1.297E-09	1.288E-09	1.254E-09	1.183E-09	1.173E-09	5.090E-10
CM242	3.896E 10	3.521E-09	3.364E-09	2.401E-09	6.575E-10	3.963E-11	2.581E-11	6.423E-29
CM243	1.013E-10	3.475E-11	2.725E-11	4.505E-12	4.472E-15	1.393E-21	6.602E-22	0.000E+00
CM244	3.798E-09	7.050E-10	4.808E-10	2.831E-11	5.384E-16	3.102E-26	3.102E-26	0.000E+00
CM245	3.002E-13	2.992E-13	2.989E-13	2.971E-13	2.903E-13	2.761E-13	2.740E-13	1.327E-13
CM246	3.233E-14	3.212E-14	3.207E-14	3.173E-14	3.043E-14	2.781E-14	2.743E-14	7.456E-15
CM247	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.090E-20	5.088E-20
CM248	6.984E-20	6.983E-20	6.983E-20	6.982E-20	6.978E-20	6.969E-20	6.968E-20	6.842E-20
BK249	4.987E-21	3.807E-36	1.144E-39	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CF249	4.598E-19	4.216E-19	4.132E-19	3.570E-19	2.035E-19	6.017E-20	5.003E-20	1.157E-27
CF250	8.913E-19	8.563E-20	5.228E-20	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CF251	7.930E 21	7.661E-21	7.602E-21	7.168E-21	5.769E-21	3.575E-21	3.315E-21	2.159E-23
CF252	2.637E-20	2.513E-25	2.513E-25	9.036E-34	0.000E+00	0.000E+00	0.000E+00	0.000E+00
H 3	5.064E-06	4.285E-07	2.444E-07	3.839E-09	4.583E-16	4.414E-31	4.414E-31	0.000E+00
BE 10	1.139E-13	1.139E-13	1.139E-13	1.139E-13	1.139E-13	1.138E-13	1.138E-13	1.134E-13
C 14	3.164E-07	3.147E-07	3.143E-07	3.115E-07	3.010E-07	2.794E-07	2.762E-07	9.422E-08
SE 79	1.106E-08	1.105E-08	1.105E-08	1.104E-08	1.101E-08	1.094E-08	1.093E-08	9.939E-09
KR 81	1.597E-15	1.597E-15	1.597E-15	1.596E-15	1.595E-15	1.591E-15	1.591E-15	1.545E-15
KR 85	1.261E-04	7.329E-06	3.839E-06	3.208E-08	3.398E 16	1.712E-33	1.712E-33	0.000E+00
RB 87	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13	7.447E-13
SR 90	1.841E-03	6.459E-04	5.091E-04	8.747E-05	1.014E-07	4.350E-14	4.643E-15	0.000E+00
Y 90	1.842E-03	6.461E-04	5.092E-04	8.749E-05	1.015E-07	4.351E-14	4.644E-15	0.000E+00
ZR 93	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.043E-06	1.039E-06
NB 93M	5.347E-07	9.428E-07	9.621E-07	9.905E-07	9.911E-07	9.908E-07	9.908E-07	9.868E-07
NB 94	1.579E-07	1.577E-07	1.576E-07	1.572E-07	1.557E-07	1.525E-07	1.520E-07	1.122E-07
TC 98	7.230E-14	7.230E-14	7.230E-14	7.230E-14	7.229E-14	7.229E-14	7.229E-14	7.218E-14
TC 99	3.558E-07	3.558E-07	3.558E-07	3.557E-07	3.553E-07	3.546E-07	3.545E-07	3.444E-07
RH102	5.116E-10	1.385E-14	1.269E-15	2.643E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU106	1.934E-07	1.401E-20	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH106	1.935E-07	1.401E-20	1.445E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD107	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.964E-10	3.960E-10
AG108	3.880E-16	1.004E-15	9.507E-16	6.348E-16	1.347E-16	4.672E-18	2.797E-18	0.000E+00
AG108M	1.434E-14	1.128E-14	1.068E-14	7.133E-15	1.514E-15	5.249E-17	3.143E-17	2.668E-38
AG109M	8.360E-16	3.133E-26	3.133E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD109	8.361E-16	3.133E-26	3.133E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110	1.069E-13	4.500E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110M	8.041E-12	3.507E-31	1.396E-35	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD113M	1.816E-07	2.245E-08	1.396E-08	4.149E-10	5.727E-16	1.116E-28	1.116E-28	0.000E+00
IN115	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19	1.281E-19
SN119M	1.913E 08	3.446E-28	1.122E-32	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN121M	1.634E-06	8.874E-07	7.725E-07	2.768E-07	5.386E-09	1.048E-12	2.846E-13	0.000E+00

zr_run2.ci (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	Ci/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
TE123	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19	8.217E-19
SB125	1.872E-04	3.092E-09	2.532E-10	2.297E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE125M	4.494E-05	7.545E-10	6.178E-11	5.604E-19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN126	9.812E-09	9.809E-09	9.808E-09	9.803E-09	9.784E-09	9.742E-09	9.736E-09	9.154E-09
SB126	1.382E-09	1.373E-09	1.373E-09	1.372E-09	1.370E-09	1.364E-09	1.363E-09	1.282E-09
SB126M	9.893E-09	9.809E-09	9.808E-09	9.803E-09	9.784E-09	9.742E-09	9.736E-09	9.154E-09
I129	5.923E-10	5.923E-10	5.923E-10	5.923E-10	5.923E-10	5.923E-10	5.923E-10	5.921E-10
CS134	3.239E-05	1.221E-11	4.234E-13	6.656E-24	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS135	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.906E-08	1.901E-08
CS137	1.932E-03	6.990E-04	5.548E-04	1.004E-04	1.416E-07	9.326E-14	1.063E-14	0.000E+00
BA137M	1.828E-03	6.612E-04	5.248E-04	9.494E-05	1.342E-07	8.822E-14	1.005E-14	0.000E+00
LA138	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18	4.786E-18
CE142	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13	7.610E-13
CE144	1.786E-07	1.708E-24	2.315E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144	1.785E-07	1.709E-24	2.315E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144M	2.143E-09	2.050E-26	2.778E-30	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND144	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17	4.301E-17
PM146	7.714E-09	3.012E-11	8.541E-12	7.608E-16	2.174E-31	0.000E+00	0.000E+00	0.000E+00
SM146	6.152E-15	6.375E-15	6.376E-15	6.376E-15	6.376E-15	6.376E-15	6.376E-15	6.376E-15
PM147	1.146E-04	1.024E-09	7.295E-11	2.354E-19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM147	1.633E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13	1.661E-13
SM148	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18	1.285E-18
SM149	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20	1.623E-20
EU150	4.252E-13	1.823E-13	1.503E-13	3.616E-14	1.525E-16	1.077E-21	0.000E+00	0.000E+00
SM151	7.140E-06	5.088E-06	4.711E-06	2.664E-06	2.989E-07	2.600E-09	1.261E-09	0.000E+00
EU152	1.960E-07	2.082E-08	1.250E-08	2.879E-10	1.490E-16	3.458E-30	3.458E-30	0.000E+00
GD152	5.064E-20	5.678E-20	5.707E-20	5.750E-20	5.751E-20	5.751E-20	5.751E-20	5.751E-20
GD153	3.108E-13	3.180E-33	9.076E-38	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU154	4.421E-05	1.275E-06	5.693E-07	1.462E-09	1.675E-19	5.827E-41	0.000E+00	0.000E+00
EU155	9.999E-06	2.128E-08	5.259E-09	1.694E-13	9.767E-31	0.000E+00	0.000E+00	0.000E+00
HO166M	1.501E-12	1.463E-12	1.454E-12	1.394E-12	1.183E-12	8.287E-13	7.849E-13	4.621E-15
TM171	1.006E-15	1.270E-22	1.270E-22	3.173E-34	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Source Listing of Program ROUNDZR2

```
      PROGRAM ROUNDZR2

!-------- WRITTEN BY D.R. WENZEL

!            To format the output of an ORIGEN2 run for zirconium
!            calcine and convert the output to 2 places of accuracy

      CHARACTER (LEN=1) :: BUFFER1(111), BUFFER3(96)
      CHARACTER (LEN=10) :: BLANK, ZERO(7)
      CHARACTER (LEN=12) :: DESC, NAME, NUCLIDE(175)
      CHARACTER (LEN=24) :: NAME2, NUCLIDE2(175)
      CHARACTER (LEN=96) :: BUFFER2
      CHARACTER (LEN=111) :: BUFFER, ORGLINE

      COMMON /AMT/ AMOUNT(9)
      EQUIVALENCE (ORGLINE, BUFFER1(1))
      EQUIVALENCE (BUFFER2, BUFFER3(1))
      EQUIVALENCE (ZERO(1), BUFFER3(27))

      REAL :: DATA(175,7), VALUE(7)

      DATA BLANK /'          '/

!-------- OPEN OUTPUT FILE

      OPEN(1,FILE ='MASTER', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(2,FILE ='ZR_RUN2.CI', STATUS='OLD',FORM='FORMATTED', ERR = 900)

      OPEN(6,FILE ='ROUNDZR2.OUT', STATUS='UNKNOWN', ERR = 900)

      WRITE(6,600)
  600 FORMAT(1x,'ROUNDZR2.OUT  (Ci/g calcine)')

!-------- READ MASTER LIST OF RADIONUCLIDES TO BE INCLUDED ON THE
!         FINAL REPORT

      LAST = 0
   10 READ(1,1000,END=20) NAME, NAME2
 1000 FORMAT(A12, 5X, A24)
      LAST = LAST + 1
      NUCLIDE(LAST) = NAME
      NUCLIDE2(LAST) = NAME2
      GO TO 10

!-------- ZERO MEMORY

   20 DO  l=1,175
         DO K=1,7
            DATA(l,K) = 0.
         END DO

      END DO
```

Source Listing of Program ROUNDZR2 (Continued)

```
!-------- READ RADIONUCLIDE INVENTORIES

!-------- READ FIRST 3 LINES OF FILE AND ECHO line 2

   35  DO  J=1,3
          READ(2,120) ORGLINE
  120     FORMAT(A111)

          IF(J == 2) THEN
             WRITE(6,120) ORGLINE
          END IF

       END DO

       WRITE(6,605)
  605  FORMAT(/,3X,'Nuclide',5X,'Half-Life',6X,'2032Jan   2042Jan   ', &
             '2116Jan   2400Jan   3016Jan   3110Jan   12000Jan')

!-------- READ RADIONUCLIDE INVENTORIES

   50  READ(2,120,END=80) ORGLINE
       WRITE(BUFFER,120) ORGLINE
       READ(BUFFER,400) DESC, VALUE
  400  FORMAT(A12,9X,7(E10.4))
       DO  J=1,175
          IF(DESC == NUCLIDE(J)) THEN
             DO 60 K=1,7
                DATA(J,K) = VALUE(K)
   60        CONTINUE

          END IF

       END DO

       GO TO 50

   80  DO  J=1,LAST
          WRITE(BUFFER2,620) NUCLIDE2(J), (DATA(J,K),K=1,7)
  620     FORMAT(2X,A24,7(1PE10.1))
          DO K=1,7
             IF(DATA(J,K) == 0.) THEN
                ZERO(K) = BLANK
             ENDIF

          END DO

          WRITE(6,625) BUFFER2
  625     FORMAT(A96)

       END DO

       GO TO 999

!-------- ERROR STATEMENTS
```

Source Listing of Program ROUNDZR2 (Continued)

```
  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE ')

!-------- PROGRAM END

  999  CONTINUE
       END PROGRAM ROUNDZR2
```

See Appendix A-5, pages 7-9, for a listing of file MASTER.

ROUNDZR2.OUT (Ci/g calcine)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

Nuclide	Half-Life		2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
H-3	1.233E+01	yr	4.3E-07	2.4E-07	3.8E-09	4.6E-16	4.4E-31	4.4E-31	
Be-10	1.510E+06	yr	1.1E-13	1.1E-13	1.1E-13	1.1E-13	1.1E-13	1.1E-13	1.1E-13
C-14	5.729E+03	yr	3.1E-07	3.1E-07	3.1E-07	3.0E-07	2.8E-07	2.8E-07	9.4E-08
Ca-45	1.630E+02	d							
V-50	4.000E+16	yr	8.4E-22	8.4E-22	8.4E-22	8.4E-22	8.4E-22	8.4E-22	8.4E-22
Mn-54	3.125E+02	d	5.1E-25	1.5E-28					
Fe-55	2.600E+00	yr	5.9E-10	4.1E-11	1.1E-19				
Ni-59	8.000E+04	yr	7.6E-07	7.6E-07	7.6E-07	7.6E-07	7.5E-07	7.5E-07	7.0E-07
Co-60	5.270E+00	yr	6.9E-09	1.9E-09	1.1E-13	6.6E-30			
Ni-63	9.200E+01	yr	7.5E-05	6.9E-05	4.0E-05	4.7E-06	4.5E-08	2.2E-08	
Se-79	1.130E+06	yr	1.1E-08	1.1E-08	1.1E-08	1.1E-08	1.1E-08	1.1E-08	9.9E-09
Rb-87	4.750E+10	yr	7.4E-13	7.4E-13	7.4E-13	7.4E-13	7.4E-13	7.4E-13	7.4E-13
Sr-90	2.878E+01	yr	6.5E-04	5.1E-04	8.7E-05	1.0E-07	4.4E-14	4.6E-15	
Y-90	6.400E+01	h	6.5E-04	5.1E-04	8.7E-05	1.0E-07	4.4E-14	4.6E-15	
Zr-93	1.530E+06	yr	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06	1.0E-06
Nb-93m	1.360E+01	yr	9.4E-07	9.6E-07	9.9E-07	9.9E-07	9.9E-07	9.9E-07	9.9E-07
Nb-94	2.030E+04	yr	1.6E-07	1.6E-07	1.6E-07	1.6E-07	1.5E-07	1.5E-07	1.1E-07
Tc-98	4.199E+06	yr	7.2E-14	7.2E-14	7.2E-14	7.2E-14	7.2E-14	7.2E-14	7.2E-14
Tc-99	2.111E+05	yr	3.6E-07	3.6E-07	3.6E-07	3.6E-07	3.5E-07	3.5E-07	3.4E-07
Rh-102	2.070E+02	d	1.4E-14	1.3E-15	2.6E-23				
Ru-106	3.682E+02	d	1.4E-20						
Rh-106	2.990E+01	s	1.4E-20	1.4E-23					
Pd-107	6.500E+06	yr	4.0E-10	4.0E-10	4.0E-10	4.0E-10	4.0E-10	4.0E-10	4.0E-10
Ag-108	2.370E+00	m	1.0E-15	9.5E-16	6.3E-16	1.3E-16	4.7E-18	2.8E-18	
Ag-108m	4.180E+02	yr	1.1E-14	1.1E-14	7.1E-15	1.5E-15	5.2E-17	3.1E-17	2.7E-38
Ag-109m	3.960E+01	s	3.1E-26	3.1E-26					
Cd-109	4.640E+02	d	3.1E-26	3.1E-26					
Ag-110	2.460E+01	s	4.5E-33						
Ag-110m	2.499E+02	d	3.5E-31	1.4E-35					
Cd-113m	1.410E+01	yr	2.2E-08	1.4E-08	4.1E-10	5.7E-16	1.1E-28	1.1E-28	
In-115	4.410E+14	yr	1.3E-19	1.3E-19	1.3E-19	1.3E-19	1.3E-19	1.3E-19	1.3E-19
Sn-119m	2.450E+02	d	3.4E-28	1.1E-32					
Sn-121m	5.500E+01	yr	8.9E-07	7.7E-07	2.8E-07	5.4E-09	1.0E-12	2.8E-13	
Te-123	1.000E+13	yr	8.2E-19	8.2E-19	8.2E-19	8.2E-19	8.2E-19	8.2E-19	8.2E-19
Sb-125	2.758E+00	yr	3.1E-09	2.5E-10	2.3E-18				
Te-125m	5.740E+01	d	7.5E-10	6.2E-11	5.6E-19				
Sn-126	1.000E+05	yr	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.7E-09	9.7E-09	9.2E-09
Sb-126	1.246E+01	d	1.4E-09	1.4E-09	1.4E-09	1.4E-09	1.4E-09	1.4E-09	1.3E-09
Sb-126m	1.915E+01	m	9.8E-09	9.8E-09	9.8E-09	9.8E-09	9.7E-09	9.7E-09	9.2E-09
I-129	1.570E+07	yr	5.9E-10	5.9E-10	5.9E-10	5.9E-10	5.9E-10	5.9E-10	5.9E-10
Cs-134	2.065E+00	yr	1.2E-11	4.2E-13	6.7E-24				
Cs-135	2.300E+06	yr	1.9E-08	1.9E-08	1.9E-08	1.9E-08	1.9E-08	1.9E-08	1.9E-08
Cs-137	3.007E+01	yr	7.0E-04	5.5E-04	1.0E-04	1.4E-07	9.3E-14	1.1E-14	
Ba-137m	2.552E+00	m	6.6E-04	5.2E-04	9.5E-05	1.3E-07	8.8E-14	1.0E-14	
La-138	1.050E+11	yr	4.8E-18	4.8E-18	4.8E-18	4.8E-18	4.8E-18	4.8E-18	4.8E-18
Ce-142	5.000E+16	yr	7.6E-13	7.6E-13	7.6E-13	7.6E-13	7.6E-13	7.6E-13	7.6E-13
Ce-144	2.843E+02	d	1.7E-24	2.3E-28					
Pr-144	1.728E+01	m	1.7E-24	2.3E-28					
Pr-144m	7.200E+00	m	2.1E-26	2.8E-30					
Nd-144	2.290E+15	yr	4.3E-17	4.3E-17	4.3E-17	4.3E-17	4.3E-17	4.3E-17	4.3E-17
Pm-146	5.500E+00	yr	3.0E-11	8.5E-12	7.6E-16	2.2E-31			
Sm-146	7.000E+07	yr	6.4E-15	6.4E-15	6.4E-15	6.4E-15	6.4E-15	6.4E-15	6.4E-15
Pm-147	2.623E+00	yr	1.0E-09	7.3E-11	2.4E-19				
Sm-147	1.070E+11	yr	1.7E-13	1.7E-13	1.7E-13	1.7E-13	1.7E-13	1.7E-13	1.7E-13
Sm-148	7.000E+15	yr	1.3E-18	1.3E-18	1.3E-18	1.3E-18	1.3E-18	1.3E-18	1.3E-18
Sm-149	2.000E+15	yr	1.6E-20	1.6E-20	1.6E-20	1.6E-20	1.6E-20	1.6E-20	1.6E-20
Eu-150	3.690E+01	yr	1.8E-13	1.5E-13	3.6E-14	1.5E-16	1.1E-21		
Sm-151	8.999E+01	yr	5.1E-06	4.7E-06	2.7E-06	3.0E-07	2.6E-09	1.3E-09	
Eu-152	1.354E+01	yr	2.1E-08	1.3E-08	2.9E-10	1.5E-16	3.5E-30	3.5E-30	
Gd-152	1.080E+14	yr	5.7E-20	5.7E-20	5.7E-20	5.8E-20	5.8E-20	5.8E-20	5.8E-20
Gd-153	2.420E+02	d	3.2E-33	9.1E-38					
Eu-154	8.593E+00	yr	1.3E-06	5.7E-07	1.5E-09	1.7E-19	5.8E-41		
Eu-155	4.761E+00	yr	2.1E-08	5.3E-09	1.7E-23	9.8E-31			
Ho-166m	1.200E+03	yr	1.5E-12	1.5E-12	1.4E-12	1.2E-12	8.3E-13	7.8E-13	4.6E-15
Tm-171	1.920E+00	yr	1.3E-22	1.3E-22	3.2E-34				

ROUNDZR2.OUT (Continued) (Ci/g calcine)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

Nuclide	Half-Life		2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
Lu-176	3.000E+10	yr	2.8E-16	2.8E-16	2.8E-16	2.8E-16	2.8E-16	2.8E-16	2.8E-16
Lu-177	6.709E+00	d							
Hf-182	9.000E+06	yr	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12
Ta-182	1.150E+02	d	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12	1.2E-12
Re-187	5.000E+10	yr	2.8E-21	2.8E-21	2.8E-21	2.8E-21	2.8E-21	2.8E-21	2.8E-21
Tl-207	4.770E+00	m	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.0E-12
Tl-208	3.070E+00	m	3.9E-12	3.6E-12	1.8E-12	1.2E-13	7.8E-15	7.7E-15	7.2E-15
Tl-209	2.200E+00	m	2.4E-16	3.3E-16	1.7E-15	1.7E-14	1.0E-13	1.2E-13	7.5E-12
Pb-209	3.300E+00	h	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E-12	3.5E-10
Pb-210	2.230E+01	yr	3.3E-14	5.7E-14	5.1E-13	8.8E-12	5.2E-11	5.9E-11	2.0E-09
Pb-211	3.610E+01	m	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Pb-212	1.064E+01	h	1.1E-11	9.9E-12	4.9E-12	3.4E-13	2.2E-14	2.1E-14	2.0E-14
Pb-214	2.680E+01	m	9.7E-14	1.5E-13	8.3E-13	8.8E-12	5.2E-11	6.2E-11	2.0E-09
Bi-210m	3.000E+06	yr	9.2E-27	9.2E-27	9.2E-27	9.2E-27	9.2E-27	9.2E-27	9.2E-27
Bi-210	5.012E+00	d	3.3E-14	5.7E-14	5.1E-13	8.8E-12	5.2E-11	5.9E-11	2.0E-09
Bi-211	2.130E+00	m	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Bi-212	6.055E+01	m	1.1E-11	9.9E-12	4.9E-12	3.4E-13	2.2E-14	2.1E-14	2.0E-14
Bi-213	4.565E+01	m	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E-12	3.5E-10
Bi-214	1.990E+01	m	9.7E-14	1.5E-13	8.3E-13	8.8E-12	5.2E-11	6.2E-11	2.0E-09
Po-210	1.384E+02	d	3.3E-14	5.7E-14	5.1E-13	8.8E-12	5.2E-11	5.9E-11	2.0E-09
Po-211	5.600E-01	s	1.4E-15	1.5E-15	1.9E-15	2.7E-15	4.3E-15	4.4E-15	2.5E-14
Po-212	3.000E-07	s	7.0E-12	6.4E-12	3.1E-12	2.2E-13	1.4E-14	1.4E-14	1.3E-14
Po-213	4.200E-06	s	1.1E-14	1.5E-14	7.6E-14	7.7E-13	4.7E-12	5.6E-12	3.4E-10
Po-214	1.643E-04	s	9.7E-14	1.5E-13	8.3E-13	8.8E-12	5.2E-11	6.2E-11	2.0E-09
Po-215	1.780E-03	s	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Po-216	1.500E-01	s	1.1E-11	9.9E-12	4.9E-12	3.4E-13	2.2E-14	2.1E-14	2.0E-14
Po-218	3.050E+00	m	9.7E-14	1.5E-13	8.3E-13	8.8E-12	5.2E-11	6.2E-11	2.0E-09
At-217	3.230E-02	s	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E-12	3.5E-10
Rn-219	3.960E+00	s	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Rn-220	5.560E+01	s	1.1E-11	9.9E-12	4.9E-12	3.4E-13	2.2E-14	2.1E-14	2.0E-14
Rn-222	3.824E+00	d	9.7E-14	1.5E-13	8.3E-13	8.8E-12	5.2E-11	6.2E-11	2.0E-09
Fr-221	4.800E+00	m	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E-12	3.5E-10
Fr-223	2.180E+01	m	6.9E-15	7.4E-15	9.3E-15	1.3E-14	2.1E-14	2.2E-14	1.2E-13
Ra-223	1.143E+01	d	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Ra-224	3.660E+00	d	1.1E-11	9.9E-12	4.9E-12	3.4E-13	2.2E-14	2.1E-14	2.0E-14
Ra-225	1.480E+01	d	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E-12	3.5E-10
Ra-226	1.600E+03	yr	9.7E-14	1.5E-13	8.3E-13	8.8E-12	5.2E-11	6.2E-11	2.0E-09
Ra-228	5.750E+00	yr	9.5E-18	9.6E-18	1.0E-17	1.2E-17	1.6E-17	1.6E-17	8.2E-17
Ac-225	1.000E+01	d	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E-12	3.5E-10
Ac-227	2.177E+01	yr	5.0E-13	5.4E-13	6.7E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Ac-228	6.131E+00	h	9.5E-18	9.6E-18	1.0E-17	1.2E-17	1.6E-17	1.6E-17	8.2E-17
Th-227	1.872E+01	d	4.9E-13	5.3E-13	6.6E-13	9.6E-13	1.5E-12	1.6E-12	8.9E-12
Th-228	1.913E+00	yr	1.1E-11	9.9E-12	4.9E-12	3.4E-13	2.2E-14	2.1E-14	2.0E-14
Th-229	7.339E+03	yr	1.1E-14	1.5E-14	7.8E-14	7.9E-13	4.8E-12	5.7E 12	3.5E-10
Th-230	7.700E+04	yr	1.0E-11	1.3E-11	3.1E-11	1.1E-10	2.8E-10	3.0E-10	2.6E-09
Th-231	2.552E+01	h	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.6E-11
Th-232	1.405E+10	yr	9.6E-18	9.7E-18	1.0E-17	1.2E-17	1.6E-17	1.6E-17	8.2E-17
Th-234	2.410E+01	d	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12
Pa-231	3.277E+04	yr	6.3E-13	6.4E-13	7.1E-13	9.7E-13	1.5E-12	1.6E-12	9.1E-12
Pa-233	2.700E+01	d	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Pa-234m	1.170E+00	m	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12
Pa-234	6.700E+00	h	3.2E-15	3.2E-15	3.2E-15	3.2E-15	3.2E-15	3.2E-15	3.2E-15
U-232	6.890E+01	yr	1.1E-11	9.7E-12	4.8E-12	3.3E-13	2.2E-14	2.1E-14	2.0E-14
U-233	1.592E+05	yr	4.4E-12	5.3E-12	1.3E-11	4.1E-11	1.0E-10	1.1E-10	9.8E-10
U-234	2.455E+05	yr	2.6E-08	2.7E-08	2.9E-08	3.0E-08	3.1E-08	3.1E-08	3.0E-08
U-235	7.038E+08	yr	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.4E-11	4.6E-11
U-236	2.342E+07	yr	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.3E-10	1.6E-10
U-237	6.750E+00	d	8.1E-11	5.0E-11	1.4E-12	8.8E-18	6.8E-18	6.7E-18	3.3E-18
U-238	4.470E+09	yr	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12	2.5E-12
U-240	1.410E+01	h	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19
Np-236	1.150E+05	yr	2.4E-13	2.4E-13	2.4E-13	2.3E-13	2.3E-13	2.3E-13	2.2E-13
Np-237	2.140E+06	yr	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08	2.3E-08
Np-238	2.117E+00	d	2.1E-11	2.0E-11	1.5E-11	4.0E-12	2.4E-13	1.6E-13	3.9E-31
Np-239	2.355E+00	d	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.2E-09	1.2E-09	5.1E-10
Np 240m	7.400E+00	m	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19
Pu-236	2.851E+00	yr	2.5E-14	2.2E-14	2.1E-14	2.1E-14	2.1E-14	2.1E-14	2.0E-14

ROUNDZR2.OUT (Continued) (Ci/g calcine)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

Nuclide	Half-Life		2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
Pu-238	8.770E+01	yr	1.2E-05	1.1E-05	6.2E-06	6.6E-07	5.1E-09	2.5E-09	1.5E-28
Pu-239	2.411E+04	yr	2.2E-07	2.2E-07	2.2E-07	2.2E-07	2.1E-07	2.1E-07	1.6E-07
Pu-240	6.537E+03	yr	2.1E-07	2.1E-07	2.1E-07	2.0E-07	1.9E-07	1.9E-07	7.4E-08
Pu-241	1.440E+01	yr	3.3E-06	2.0E-06	5.8E-08	3.6E-13	2.8E-13	2.7E-13	1.3E-13
Pu-242	3.733E+05	yr	5.5E-10	5.5E-10	5.5E-10	5.5E-10	5.5E-10	5.5E-10	5.4E-10
Pu-243	4.956E+00	h	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20
Pu-244	8.080E+07	yr	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19	2.2E-19
Am-241	4.322E+02	yr	1.6E-06	1.6E-06	1.5E-06	9.3E-07	3.5E-07	3.0E-07	3.2E-13
Am-242m	1.410E+02	yr	4.3E-09	4.1E-09	2.9E-09	8.0E-10	4.8E-11	3.1E-11	7.8E-29
Am-242	1.602E+01	h	4.3E-09	4.1E-09	2.9E-09	8.0E-10	4.8E-11	3.1E-11	7.7E-29
Am-243	7.370E+03	yr	1.3E-09	1.3E-09	1.3E-09	1.3E-09	1.2E-09	1.2E-09	5.1E-10
Cm-242	1.632E+02	d	3.5E-09	3.4E-09	2.4E-09	6.6E-10	4.0E-11	2.6E-11	6.4E-29
Cm-243	2.850E+01	yr	3.5E-11	2.7E-11	4.5E-12	4.5E-15	1.4E-21	6.6E-22	
Cm-244	1.811E+01	yr	7.1E-10	4.8E-10	2.8E-11	5.4E-16	3.1E-26	3.1E-26	
Cm-245	8.499E+03	yr	3.0E-13	3.0E-13	3.0E-13	2.9E-13	2.8E-13	2.7E-13	1.3E-13
Cm-246	4.731E+03	yr	3.2E-14	3.2E-14	3.2E-14	3.0E-14	2.8E-14	2.7E-14	7.5E-15
Cm-247	1.560E+07	yr	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20	5.1E-20
Cm-248	3.391E+05	yr	7.0E-20	7.0E-20	7.0E-20	7.0E-20	7.0E-20	7.0E-20	6.8E-20
Cf-249	3.505E+02	yr	4.2E-19	4.1E-19	3.6E-19	2.0E-19	6.0E-20	5.0E-20	1.2E-27
Cf-250	1.308E+01	yr	8.6E-20	5.2E-20					
Cf-251	8.980E+02	yr	7.7E-21	7.6E-21	7.2E-21	5.8E-21	3.6E-21	3.3E-21	2.2E-23
Cf-252	2.638E+00	yr	2.5E-25	2.5E-25	9.0E-34				

zr_run2.g
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	g/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
HE 3	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16	9.328E-16
HE 4	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08	6.175E-08
LI 6	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12
B 10	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17	2.409E-17
B 11	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09	8.385E-09
C 12	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05	1.983E-05
C 13	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07	2.733E-07
N 14	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05	2.659E-05
N 15	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07	1.020E-07
O 16	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03	1.600E-03
O 17	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07	6.418E-07
O 18	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06	3.208E-06
F 19	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12	1.620E-12
NE 20	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17	1.495E-17
NE 21	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16	1.168E-16
NE 22	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19	2.469E-19
NA 23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23	2.264E-23
MG 24	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11	5.242E-11
MG 25	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14	1.234E-14
MG 26	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18	8.196E-18
AL 27	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05	2.675E-05
SI 28	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09	9.238E-09
SI 29	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12	1.096E-12
SI 30	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16	1.422E-16
P 31	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21	6.047E-21
S 32	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25	3.128E-25
CL 37	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21	7.763E-21
AR 38	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24	1.231E-24
AR 39	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.124E-25	3.517E-35
AR 40	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17	2.970E-17
K 41	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19	9.522E-19
CA 42	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20	1.655E-20
CA 43	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12	2.235E-12
CA 44	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11	1.705E-11
CA 46	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12	2.029E-12
SC 45	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13	3.527E-13
TI 46	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06	1.068E-06
TI 47	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07	9.737E-07
TI 48	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06	9.759E-06
TI 49	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07	8.385E-07
TI 50	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07	7.251E-07
V 50	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09	4.691E-09
V 51	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06	1.259E-06
CR 50	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05	5.681E-05
CR 52	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03	1.116E-03
CR 53	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04	1.271E-04
CR 54	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05	3.481E-05
MN 54	1.996E-13	6.592E-29	1.998E-32	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MN 55	3.892E-07	4.184E-07	4.184E-07	4.184E-07	4.184E-07	4.184E-07	4.184E-07	4.184E-07
FE 54	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04	4.884E-04
FE 55	2.916E-08	2.347E-13	1.632E-14	4.414E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE 56	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03	7.593E-03
FE 57	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04	2.017E-04
FE 58	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05	2.436E-05
CO 59	1.669E-07	1.707E-07	1.716E-07	1.780E-07	2.027E-07	2.559E-07	2.640E-07	1.001E-06
CO 60	2.000E-09	6.129E-12	1.645E-12	9.749E-17	5.829E-33	0.000E+00	0.000E+00	0.000E+00
NI 58	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03	1.876E-03
NI 59	1.004E-05	1.004E-05	1.004E-05	1.003E-05	1.000E-05	9.951E-06	9.943E-06	9.206E-06
NI 60	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04	7.198E-04
NI 61	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05	3.396E-05
NI 62	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05	9.748E-05
NI 63	1.689E-06	1.212E-06	1.124E-06	6.439E-07	7.578E-08	7.310E-10	3.601E-10	0.000E+00
NI 64	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05	2.515E-05
CU 63	4.962E-08	5.262E-07	6.142E-07	1.095E-06	1.663E-06	1.738E-06	1.738E-06	1.739E-06
CU 65	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08	1.328E-08
ZN 64	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12	7.593E-12

zr_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	g/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
ZN 65	2.018E-21	2.933E-41	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MO 94	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10	4.391E-10
RU 98	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21	1.843E-21
YB173	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15	4.546E-15
YB174	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16	2.084E-16
LU175	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07	1.721E-07
LU176	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09	4.198E-09
HF174	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07	2.315E-07
HF176	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05	1.040E-05
HF177	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06	3.479E-06
HF178	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05	6.207E-05
HF179	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05	8.159E-05
HF180	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04	1.074E-04
HF182	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.634E-09	5.630E-09
TA181	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05	1.279E-05
TA182	1.973E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.971E-16	1.969E-16
W182	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06	1.750E-06
W183	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06	1.817E-06
W184	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07	1.098E-07
W186	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12	1.768E-12
RE185	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10	2.149E-10
RE187	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14	7.255E-14
OS186	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11	2.649E-11
OS187	1.368E-23	5.793E-23	5.793E-23	1.324E-22	4.180E-22	1.038E-21	1.132E-21	1.007E-20
OS188	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15	2.335E-15
OS189	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17	1.621E-17
OS190	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19	5.730E-19
OS192	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.300E-23	1.301E-23
IR191	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21	1.423E-21
IR192	0.000E+00	9.626E-29	9.627E-29	9.626E-29	9.623E-29	9.621E-29	9.626E-29	7.571E-40
IR192M	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	1.144E-25	8.996E-37
IR193	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.737E-23	1.791E-23
PT192	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.586E-22	2.587E-22
PT193	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	5.446E-25	2.420E-30
PT194	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25	9.184E-25
HE 4	6.175E-08	6.726E-08	6.831E-08	7.428E-08	8.333E-08	8.902E-08	8.959E-08	1.166E-07
TL206	0.000E+00	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35	4.221E-35
TL207	7.402E-22	2.616E-21	2.817E-21	3.526E-21	5.072E-21	7.992E-21	8.292E-21	4.738E-20
TL208	4.340E-19	1.333E-20	1.211E-20	5.953E-21	4.105E-22	2.658E-23	2.611E-23	2.444E-23
TL209	0.000E+00	5.749E-25	8.164E-25	4.125E-24	4.147E-23	2.532E-22	3.008E-22	1.839E-20
PB206	1.020E-19	1.552E-16	3.302E-16	7.474E-15	4.286E-13	7.069E-12	9.141E-12	3.424E-09
PB207	3.601E-16	6.653E-15	8.739E-15	2.710E-14	1.206E-13	4.255E-13	4.840E-13	1.978E-11
PB208	1.314E-12	1.935E-12	1.977E-12	2.189E-12	2.382E-12	2.400E-12	2.401E-12	2.475E-12
PB209	3.987E-22	2.395E-21	3.402E-21	1.719E-20	1.728E-19	1.055E-18	1.253E-18	7.664E-17
PB210	5.519E-19	4.300E-16	7.427E-16	6.732E-15	1.150E-13	6.869E-13	7.696E-13	2.658E-11
PB211	5.727E-21	2.024E-20	2.179E-20	2.728E-20	3.924E-20	6.183E-20	6.415E-20	3.666E-19
PB212	2.560E-16	7.863E-18	7.144E-18	3.511E-18	2.421E-19	1.568E-20	1.540E-20	1.441E-20
PB214	8.702E-24	2.969E-21	4.464E-21	2.531E-20	2.578E-19	1.600E-18	1.887E-18	6.190E-17
BI208	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24	2.286E-24
BI209	9.735E-18	9.610E-17	1.491E-16	1.424E-15	4.403E-14	6.710E-13	8.705E-13	5.075E-10
BI210M	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23	1.627E-23
BI210	3.396E-22	2.646E-19	4.571E-19	4.142E-18	7.076E-17	4.226E-16	4.736E-16	1.635E-14
BI211	3.379E-22	1.194E-21	1.286E-21	1.609E-21	2.315E-21	3.648E-21	3.785E-21	2.163E-20
BI212	2.427E-17	7.459E-19	6.776E-19	3.330E-19	2.296E-20	1.487E-21	1.461E-21	1.367E-21
BI213	9.369E-23	5.628E-22	7.993E-22	4.038E-21	4.060E-20	2.479E-19	2.945E-19	1.801E-17
BI214	6.462E-24	2.204E-21	3.315E-21	1.880E-20	1.989E-19	1.188E-18	1.401E-18	4.597E-17
PO210	9.380E-21	7.308E-18	1.263E-17	1.144E-16	1.954E-15	1.167E-14	1.308E-14	4.517E-13
PO211	0.000E+00	1.465E-26	1.577E-26	1.974E-26	2.840E-26	4.476E-26	4.644E-26	2.654E-25
PO212	0.000E+00	3.946E-29	3.585E-29	1.762E-29	1.215E-30	7.868E-32	7.729E-32	7.234E-32
PO213	0.000E+00	8.444E-31	1.199E-30	6.059E-30	6.091E-29	3.719E-28	4.418E-28	2.702E-26
PO214	0.000E+00	3.033E-28	4.561E-28	2.586E-27	2.736E-26	1.634E-25	1.928E-25	6.324E-24
PO215	0.000E+00	1.695E-26	1.825E-26	2.284E-26	3.286E-26	5.177E-26	5.372E-26	3.069E-25
PO216	1.021E-21	3.138E-23	2.851E-23	1.401E-23	9.661E-25	6.256E-26	6.146E-26	5.752E-26
PO218	1.009E-24	3.442E-22	5.177E-22	2.935E-21	3.106E-20	1.855E-19	2.188E-19	7.178E-18
AT217	0.000E+00	6.762E-27	9.603E-27	4.852E-26	4.877E-25	2.978E-24	3.538E-24	2.164E-22
RN219	1.087E-23	3.841E-23	4.135E-23	5.176E-23	7.445E-23	1.173E-22	1.217E-22	6.956E-22

zr_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	g/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
RN220	3.856E-19	1.185E-20	1.076E-20	5.289E-21	3.647E-22	2.362E-23	2.320E-23	2.171E-23
RN222	1.854E-21	6.329E-19	9.518E-19	5.397E-18	5.710E-17	3.411E-16	4.024E-16	1.320E-14
FR221	1.022E-23	6.140E-23	8.720E-23	4.406E-22	4.429E-21	2.704E-20	3.213E-20	1.965E-18
FR223	5.042E-23	1.782E-22	1.916E-22	2.402E-22	3.456E-22	5.445E-22	5.649E-22	3.228E-21
RA223	2.760E-18	9.756E-18	1.050E-17	1.315E-17	1.891E-17	2.980E-17	3.092E-17	1.767E-16
RA224	2.233E-15	6.859E-17	6.232E-17	3.063E-17	2.112E-18	1.368E-19	1.343E-19	1.257E-19
RA225	4.622E-20	2.776E-19	3.943E-19	1.992E-18	2.003E-17	1.223E-16	1.453E-16	8.883E-15
RA226	2.886E-16	9.846E-14	1.481E-13	8.395E-13	8.883E-12	5.306E-11	6.260E-11	2.053E-09
RA228	1.889E-20	4.060E-20	4.102E-20	4.332E-20	5.088E-20	6.767E-20	7.028E-20	3.518E-19
AC225	3.123E-20	1.875E-19	2.663E-19	1.346E-18	1.353E-17	8.260E-17	9.813E-17	6.001E-15
AC227	1.954E-15	6.906E-15	7.425E-15	9.307E-15	1.339E-14	2.110E-14	2.189E-14	1.251E-13
AC228	2.298E-24	4.238E-24	4.281E-24	4.522E-24	5.311E-24	7.063E-24	7.335E-24	3.672E-23
TH227	4.536E-18	1.603E-17	1.726E-17	2.160E-17	3.108E-17	4.897E-17	5.081E-17	2.903E-16
TH228	4.338E-13	1.333E-14	1.211E-14	5.952E-15	4.104E-16	2.658E-17	2.611E-17	2.444E-17
TH229	8.518E-15	5.117E-14	7.266E-14	3.671E-13	3.691E-12	2.254E-11	2.677E-11	1.637E-09
TH230	5.861E-12	5.077E-10	6.262E-10	1.540E 09	5.307E-09	1.366E-08	1.494E-08	1.290E-07
TH231	2.961E-15	8.256E-17	8.256E-17	8.259E-17	8.271E-17	8.295E-17	8.299E-17	8.606E-17
TH232	8.518E-11	8.766E-11	8.822E-11	9.240E-11	1.086E-10	1.444E-10	1.500E-10	7.507E-10
TH234	2.260E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.072E-16	1.073E-16
PA231	1.253E-11	1.339E-11	1.358E-11	1.501E-11	2.049E-11	3.230E-11	3.409E-11	1.916E-10
PA233	4.142E-13	1.088E-12	1.089E-12	1.090E-12	1.096E-12	1.101E-12	1.101E-12	1.101E-12
PA234M	7.623E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.616E-21	3.617E-21
PA234	3.405E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.615E-21	1.616E-21
U232	4.565E-13	4.969E-13	4.514E-13	2.219E-13	1.532E-14	1.016E-15	9.874E-16	9.319E-16
U233	1.786E-12	4.499E-10	5.519E-10	1.308E-09	4.215E-09	1.054E-08	1.151E-08	1.012E-07
U234	3.943E-06	4.228E-06	4.280E-06	4.561E-06	4.874E-06	4.903E-06	4.901E-06	4.780E-06
U235	2.030E-05	2.030E-05	2.031E-05	2.031E-05	2.034E-05	2.040E-05	2.041E-05	2.117E-05
U236	1.931E-06	1.935E-06	1.936E-06	1.943E-06	1.970E-06	2.026E-06	2.034E-06	2.533E-06
U237	7.307E-18	9.931E-16	6.137E-16	1.741E-17	1.074E-22	8.298E-23	8.235E-23	3.988E-23
U238	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.387E-06	7.389E-06
U240	0.000E+00	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25	2.339E-25
NP235	3.579E-17	2.183E-29	2.183E-29	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	1.787E-11	1.787E-11	1.786E-11	1.786E-11	1.783E-11	1.776E-11	1.775E-11	1.682E-11
NP237	3.202E-05	3.205E-05	3.205E-05	3.211E-05	3.226E-05	3.242E-05	3.243E-05	3.242E-05
NP238	9.128E-18	8.252E-17	7.884E-17	5.626E-17	1.541E-17	9.287E-19	6.050E-19	1.501E-36
NP239	4.724E-16	5.594E-15	5.589E-15	5.550E-15	5.404E-15	5.100E-15	5.055E-15	2.193E-15
NP240M	0.000E+00	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27	2.046E-27
PU236	2.951E-13	4.653E-17	4.045E-17	3.984E-17	3.977E-17	3.963E-17	3.961E-17	3.754E-17
PU238	9.900E-07	6.994E-07	6.463E-07	3.603E-07	3.828E-08	2.996E-10	1.436E-10	8.925E-30
PU239	3.510E-06	3.506E-06	3.505E-06	3.497E-06	3.469E-06	3.408E-06	3.399E-06	2.634E-06
PU240	9.367E-07	9.324E-07	9.314E-07	9.241E-07	8.967E-07	8.400E-07	8.317E-07	3.240E-07
PU241	2.667E-07	3.207E-08	1.982E-08	5.624E-10	3.471E-15	2.683E-15	2.663E-15	1.290E-15
PU242	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.433E-07	1.431E-07	1.431E-07	1.408E-07
PU243	0.000E+00	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.955E-26	1.954E-26
PU244	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14	1.223E-14
AM241	2.467E-07	4.538E-07	4.587E-07	4.250E-07	2.699E-07	1.005E-07	8.644E-08	9.432E-14
AM242M	5.379E-10	4.401E-10	4.205E-10	3.001E-10	8.219E-11	4.953E-12	3.227E-12	8.005E-30
AM242	6.928E-15	5.265E-15	5.030E-15	3.589E-15	9.831E-16	5.925E-17	3.860E-17	9.575E-35
AM243	6.536E-09	6.509E-09	6.503E-09	6.458E-09	6.288E-09	5.934E-09	5.882E-09	2.552E-09
CM242	1.178E-13	1.065E-12	1.017E-12	7.258E-13	1.988E-13	1.198E-14	7.804E-15	1.942E-32
CM243	1.962E-12	6.729E-13	5.276E-13	8.724E-14	8.659E-17	2.698E-23	1.278E-23	0.000E+00
CM244	4.693E-11	8.711E-12	5.941E-12	3.498E-13	6.652E-18	3.832E-28	3.832E-28	0.000E+00
CM245	1.748E-12	1.742E-12	1.740E-12	1.730E-12	1.690E-12	1.607E-12	1.595E-12	7.725E-13
CM246	1.052E-13	1.045E-13	1.044E-13	1.032E-13	9.904E-14	9.049E-14	8.925E-14	2.426E-14
CM247	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.484E-16	5.482E-16
CM248	1.642E-17	1.642E-17	1.642E-17	1.642E-17	1.641E-17	1.639E-17	1.638E-17	1.609E-17
BK249	3.042E-24	2.322E-39	6.978E-43	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CF249	1.122E 19	1.029E-19	1.008E-19	8.710E-20	4.966E-20	1.468E-20	1.221E-20	2.823E-28
CF250	8.150E-21	7.830E-22	4.780E-22	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CF251	4.998E-21	4.828E-21	4.791E-21	4.517E-21	3.636E-21	2.253E-21	2.089E-21	1.361E-23
CF252	4.902E-23	4.672E-28	4.672E-28	1.680E-36	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SF250	0.000E+00	9.068E-16	1.080E-15	2.129E-15	4.600E-15	8.537E-15	9.110E-15	4.854E-14
H 3	5.246E-10	4.438E-11	2.532E-11	3.977E-13	4.747E-20	4.572E-35	4.572E-35	0.000E+00
LI 6	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12	6.027E-12
LI 7	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13	2.659E-13
BE 9	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11	8.196E-11

zr_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	g/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
BE 10	5.095E-12	5.095E-12	5.095E-12	5.095E-12	5.094E-12	5.093E-12	5.093E-12	5.073E-12
C 14	7.095E-08	7.057E-08	7.049E-08	6.986E-08	6.750E-08	6.265E-08	6.194E-08	2.113E-08
ZN 66	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11	2.315E-11
ZN 67	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14	1.015E-14
ZN 68	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11	1.068E-11
GA 69	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14	1.650E-14
ZN 70	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11	3.643E-11
GE 70	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17	4.735E-17
GA 71	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14	1.785E-14
GE 72	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10	1.907E-10
GE 73	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10	6.691E-10
GE 74	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09	1.815E-09
AS 75	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09	4.340E-09
GE 76	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08	1.323E-08
SE 76	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11	8.290E-11
SE 77	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08	2.882E-08
SE 78	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08	6.234E-08
SE 79	1.587E-07	1.586E-07	1.586E-07	1.585E-07	1.580E-07	1.570E-07	1.568E-07	1.426E-07
BR 79	2.628E-11	1.008E-10	1.177E-10	2.429E-10	7.224E-10	1.758E-09	1.915E-09	1.611E-08
SE 80	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07	3.825E-07
KR 80	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12	1.960E-12
BR 81	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07	6.391E-07
KR 81	7.590E-14	7.589E-14	7.589E-14	7.587E-14	7.580E-14	7.564E-14	7.562E-14	7.343E-14
SE 82	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06	1.036E-06
KR 82	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08	1.734E-08
KR 83	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06	1.419E-06
KR 84	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06	3.565E-06
KR 85	3.212E-07	1.867E-08	9.781E-09	8.174E-11	8.658E-19	4.361E-36	4.361E-36	0.000E+00
RB 85	3.789E-06	4.092E-06	4.100E-06	4.110E-06	4.110E-06	4.110E-06	4.110E-06	4.110E-06
KR 86	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06	6.574E-06
SR 86	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09	8.767E-09
RB 87	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06	8.507E-06
SR 87	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.787E-09	7.788E-09
SR 88	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05	1.298E-05
Y 89	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05	1.621E-05
SR 90	1.349E-05	4.733E-06	3.731E-06	6.410E-07	7.433E-10	3.188E-16	3.403E-17	0.000E+00
Y 90	3.385E-09	1.187E-09	9.356E-10	1.607E-10	1.864E-13	7.994E-20	8.533E-21	0.000E+00
ZR 90	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01	6.740E-01
ZR 91	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01	1.467E-01
ZR 92	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01	2.249E-01
ZR 93	4.151E-04	4.151E-04	4.151E-04	4.151E-04	4.150E-04	4.149E-04	4.149E-04	4.132E-04
NB 93	1.325E-04	1.325E-04	1.325E-04	1.325E-04	1.326E-04	1.327E-04	1.327E-04	1.344E-04
NB 93M	1.891E-09	3.334E-09	3.403E-09	3.503E-09	3.505E-09	3.504E-09	3.504E-09	3.490E-09
ZR 94	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01	2.276E-01
NB 94	8.425E-07	8.412E-07	8.409E-07	8.388E-07	8.307E-07	8.134E-07	8.108E-07	5.985E-07
MO 95	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05	9.095E-05
ZR 96	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02	3.661E-02
MO 96	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06	2.735E-06
MO 97	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04	1.262E-04
MO 98	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05	2.222E-05
TC 98	8.318E-11	8.318E-11	8.318E-11	8.318E-11	8.317E-11	8.317E-11	8.316E-11	8.304E-11
TC 99	2.098E-05	2.098E-05	2.098E-05	2.097E-05	2.095E-05	2.091E-05	2.090E-05	2.031E-05
RU 99	1.075E-09	4.079E-09	4.761E-09	9.812E-09	2.918E-08	7.114E-08	7.754E-08	6.736E-07
MO100	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05	2.387E-05
RU100	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06	1.825E-06
RU101	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05	1.902E-05
RU102	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05	1.690E-05
RH102	4.231E-13	1.146E-17	1.050E-18	2.186E-26	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH103	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06	8.855E-06
RU104	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06	7.479E-06
PD104	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06	3.503E-06
PD105	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06	3.930E-06
RU106	5.779E-11	4.184E-24	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH106	5.434E-17	3.933E-30	4.058E 33	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD106	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06	1.925E-06
PD107	7.704E-07	7.704E-07	7.704E 07	7.704E-07	7.704E-07	7.703E-07	7.703E-07	7.696E-07
AG107	1.275E-12	4.892E-12	5.714E-12	1.180E-11	3.514E-11	8.578E-11	9.350E-11	8.239E-10

zr_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	g/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
PD108	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07	3.725E-07
AG108	5.279E-25	1.366E-24	1.294E-24	8.638E-25	1.833E-25	6.357E-27	3.806E-27	0.000E+00
AG108M	5.501E-16	4.327E-16	4.097E-16	2.736E-16	5.807E-17	2.013E-18	1.205E-18	1.023E-39
CD108	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13	4.957E-13
AG109	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07	1.498E-07
AG109M	3.197E-25	1.198E-35	1.198E-35	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD109	3.237E-19	1.213E-29	1.213E-29	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD110	1.364E 07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07	1.364E-07
AG110	2.564E-23	1.079E-42	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110M	1.692E-15	7.379E-35	2.937E-39	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD110	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08	5.999E-08
CD111	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07	1.090E-07
CD112	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08	8.428E-08
CD113	8.111E-10	8.118E-10	8.119E-10	8.119E-10	8.119E-10	8.119E-10	8.119E-10	8.119E-10
CD113M	8.369E-10	1.035E-10	6.434E-11	1.912E-12	2.640E-18	5.142E-31	5.142E-31	0.000E+00
IN113	2.055E-06	2.056E-06	2.056E-06	2.056E-06	2.056E-06	2.056E-06	2.056E-06	2.056E-06
CD114	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07	1.609E-07
SN114	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04	1.352E-04
IN115	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08	2.059E-08
SN115	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05	7.000E-05
CD116	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08	7.420E-08
SN116	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03	2.997E-03
SN117	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03	1.606E-03
SN118	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03	5.024E-03
SN119	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03	1.807E-03
SN119M	4.271E-12	7.692E-32	2.504E-36	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN120	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03	6.778E-03
SN121M	2.762E-08	1.500E-08	1.306E-08	4.679E-09	9.106E-11	1.773E-14	4.812E-15	0.000E+00
SB121	6.162E-06	6.175E-06	6.177E-06	6.185E-06	6.190E-06	6.190E-06	6.190E-06	6.190E-06
SN122	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04	9.622E-04
TE122	2.663E-07	2.663E-07	2.663E-07	2.663E-07	2.663E-07	2.663E-07	2.663E-07	2.663E-07
SB123	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07	7.339E-07
TE123	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09	2.826E-09
SN124	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03	1.196E-03
TE124	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08	1.851E-08
SB125	1.812E-07	2.994E-12	2.451E-13	2.223E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE125	7.361E-06	7.545E-06	7.545E-06	7.545E-06	7.545E-06	7.545E-06	7.545E-06	7.545E-06
TE125M	2.494E-09	4.187E-14	3.429E-15	3.110E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN126	3.457E-07	3.456E-07	3.456E-07	3.454E-07	3.447E-07	3.432E-07	3.430E-07	3.225E-07
SB126	1.652E-14	1.642E-14	1.642E-14	1.641E-14	1.638E-14	1.631E-14	1.630E-14	1.532E-14
SB126M	1.259E-16	1.248E-16	1.248E-16	1.248E-16	1.245E-16	1.240E-16	1.239E-16	1.165E-16
TE126	5.528E-08	5.539E-08	5.541E-08	5.559E-08	5.627E-08	5.773E-08	5.796E-08	7.846E-08
I127	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07	7.385E-07
TE128	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06	1.940E-06
XE128	3.066E-08	3.066E-08	3.066E-08	3.066E-08	3.066E 08	3.066E-08	3.066E-08	3.066E-08
I129	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.354E-06	3.353E-06
XE129	1.201E-10	1.266E-10	1.281E-10	1.391E-10	1.811E-10	2.723E-10	2.863E-10	1.602E-09
TE130	7.453E-06	7.453E-06	7.453E 06	7.453E-06	7.453E-06	7.453E-06	7.453E-06	7.453E-06
XE130	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07	1.561E-07
XE131	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05	1.103E-05
XE132	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05	2.487E-05
BA132	2.475E-11	2.475E-11	2.475E 11	2.475E-11	2.475E-11	2.475E-11	2.475E-11	2.475E-11
CS133	3.070E-05	3.070E-05	3.070E 05	3.070E-05	3.070E-05	3.070E-05	3.070E-05	3.070E-05
XE134	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05	3.910E-05
CS134	2.502E-08	9.432E-15	3.271E-16	5.142E-27	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA134	3.112E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06	3.137E-06
CS135	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.655E-05	1.654E-05	1.654E-05	1.650E-05
BA135	5.050E-09	5.269E-09	5.319E-09	5.688E-09	7.105E-09	1.018E-08	1.065E-08	5.491E-08
XE136	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05	5.015E-05
BA136	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07	4.385E-07
CS137	2.220E-05	8.032E-06	6.375E-06	1.153E-06	1.627E-09	1.072E-15	1.221E-16	0.000E+00
BA137	9.619E-06	2.379E-05	2.544E-05	3.067E-05	3.182E-05	3.182E-05	3.182E-05	3.182E-05
BA137M	3.397E-12	1.229E-12	9.753E-13	1.764E-13	2.493E-16	1.640E-22	1.868E-23	0.000E+00
BA138	3.565E-05	3.565E-05	3.565E 05	3.565E-05	3.565E-05	3.565E 05	3.565E-05	3.565E-05
LA138	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10	2.493E-10
LA139	3.377E 05	3.377E-05	3.377E 05	3.377E-05	3.377E 05	3.377E 05	3.377E-05	3.377E-05
CE140	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05	3.341E-05

zr_run2.g (Continued)
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

	g/g	44.0YR	54.0YR	128.0YR	412.0YR	1028.0YR	1122.0YR	1.0E+04YR
PR141	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05	3.106E-05
CE142	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05	3.170E-05
ND142	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07	4.988E-07
ND143	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05	2.535E-05
CE144	5.595E-11	5.354E-28	7.255E-32	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144	2.362E-15	2.261E-32	3.064E-36	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144M	1.181E-17	1.130E-34	1.531E-38	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND144	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05	3.634E-05
ND145	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05	1.993E-05
ND146	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05	1.817E-05
PM146	1.732E-11	6.762E-14	1.918E-14	1.708E-18	4.880E-34	0.000E+00	0.000E+00	0.000E+00
SM146	1.758E-10	1.822E-10	1.822E-10	1.822E-10	1.822E-10	1.822E-10	1.822E-10	1.822E-10
PM147	1.236E-07	1.105E-12	7.866E-14	2.539E-22	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM147	7.184E-06	7.308E-06	7.308E-06	7.308E-06	7.308E-06	7.308E-06	7.308E-06	7.308E-06
ND148	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06	9.460E-06
SM148	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06	4.256E-06
SM149	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08	6.758E-08
ND150	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06	3.681E-06
SM150	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06	6.644E-06
EU150	6.420E-15	2.752E-15	2.270E-15	5.460E-16	2.303E-18	1.627E-23	0.000E+00	0.000E+00
SM151	2.713E-07	1.933E-07	1.790E-07	1.012E-07	1.136E-08	9.880E-11	4.790E-11	0.000E+00
EU151	2.930E-08	1.073E-07	1.216E-07	1.994E-07	2.892E-07	3.005E-07	3.006E-07	3.006E-07
SM152	2.689E-06	2.690E-06	2.690E-06	2.690E-06	2.690E-06	2.690E-06	2.690E-06	2.690E-06
EU152	1.133E-09	1.203E-10	7.228E-11	1.664E-12	8.613E-19	1.999E-32	1.999E-32	0.000E+00
GD152	2.324E-09	2.606E-09	2.620E-09	2.639E-09	2.640E-09	2.640E-09	2.640E-09	2.640E-09
EU153	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06	2.049E-06
GD153	8.809E-17	9.015E-37	2.573E-41	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM154	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07	4.482E-07
EU154	1.637E-07	4.720E-09	2.108E-09	5.413E-12	6.203E-22	2.158E-43	0.000E+00	0.000E+00
GD154	3.587E-07	5.177E-07	5.203E-07	5.224E-07	5.224E-07	5.224E-07	5.224E-07	5.224E-07
EU155	2.149E-08	4.573E-11	1.130E-11	3.642E-16	2.099E-33	0.000E+00	0.000E+00	0.000E+00
GD155	1.252E-07	1.466E-07	1.467E-07	1.467E-07	1.467E-07	1.467E-07	1.467E-07	1.467E-07
GD156	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07	5.050E-07
GD157	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10	4.893E-10
GD158	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08	8.765E-08
TB159	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09	8.232E-09
GD160	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09	3.197E-09
DY160	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10	8.318E-10
DY161	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10	6.922E-10
DY162	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10	5.474E-10
DY163	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10	3.696E-10
DY164	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11	6.893E-11
HO165	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10	1.212E-10
HO166M	8.358E-13	8.148E-13	8.101E-13	7.762E-13	6.588E-13	4.616E-13	4.372E-13	2.574E-15
ER166	2.766E-11	2.768E-11	2.769E-11	2.772E-11	2.784E-11	2.803E-11	2.806E-11	2.849E-11
ER167	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12	3.750E-12
ER168	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12	5.173E-12
TM169	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07	1.287E-07
ER170	8.016E-18	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12	1.217E-12
YB170	5.406E-15	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10	8.321E-10
TM171	9.233E-19	1.166E-25	1.166E-25	2.913E-37	0.000E+00	0.000E+00	0.000E+00	0.000E+00
YB171	2.140E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16	2.149E-16
YB172	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15	7.263E-15

Source Listing of Program ELEZR2

```
      PROGRAM ELEZR2

!-------- WRITTEN BY D.R. WENZEL
!          Revised 11/22/04

!            To sum the g/L of coprocess waste and round
!            the output to 2 places of accuracy

      CHARACTER (LEN=2) :: BLANK, ELE, SMBCAP, SMBLC
      CHARACTER (LEN=6) :: NAME
      CHARACTER (LEN=85) :: TITLE
      EQUIVALENCE (ELE, NAME)
      LOGICAL :: FIRST
      REAL *4 OLD(7), SIGMA(7), TOTAL(7)

      OPEN(3,FILE ='ZR_RUN2.G', STATUS='OLD',FORM='FORMATTED', ERR = 900)
      OPEN(4,FILE ='SYMBOL', STATUS='OLD',FORM='FORMATTED', ERR = 910)
      OPEN(6,FILE ='ZR_RUN2.ELE', STATUS='UNKNOWN', ERR = 920)

      DATA BLANK /'  '/

      FIRST = .TRUE.
      SIGMA = 0.

!        Read symbol of element to be summed

   10 READ(4,400) SMBCAP, SMBLC
  400 FORMAT(A2,3X,A2)
      IF(SMBCAP == BLANK) GO TO 100

!--------- Zero out summary

      TOTAL = 0.

!--------- On the first pass only, modify the name on the first
!          line of data

      READ(3,300) TITLE
  300 FORMAT(A85)
      IF(FIRST) WRITE(6,600)
  600 FORMAT(1X,'ZR_RUN2.ELE     g/g Zr calcine')

!--------- On the first pass only, echo the next line of data

      READ(3,300) TITLE
      IF(FIRST) WRITE(6,610) TITLE
  610 FORMAT(A85,/,'Element',5X,'2032Jan   2042Jan   2116Jan   2400' &
             'Jan   3016Jan   3110Jan   12000Jan')

!--------- Skip the next 2 lines of data

      READ(3,300) TITLE
      READ(3,300) TITLE
      FIRST = .FALSE.
```

Source Listing of Program ELEZR2 (Continued)

```
!--------- Read individual nuclide mass and search for the
!           element to be summed

   60  READ(3,310,END=80) NAME, (OLD(J),J=1,7)
  310  FORMAT(1X,A6,14X,7(1PE10.3))
       IF(ELE /= SMBCAP) GO TO 60

       DO J=1,7
          TOTAL(J) = TOTAL(J) + OLD(J)
       END DO

       GO TO 60

!--------- Write element total when element found

   80  REWIND(3)

!--------- Write results with 2 places of accuracy

       IF(TOTAL(1) > 0.) THEN
          WRITE(6,620) SMBLC, (TOTAL(J),J=1,7)
  620     FORMAT(1X,a2,6X,7(1PE10.1))
       ENDIF

!--------- Keep a sum of the total for all elements

       DO J=1,7
          SIGMA(J) = SIGMA(J) + TOTAL(J)
       END DO

       GO TO 10
  100  WRITE(6,630) (SIGMA(J),J=1,7)
  630  FORMAT(1X,/,1X,'Total ',2X,7(1PE10.1))
       GO TO 999

!-------- ERROR STATEMENTS

  900  WRITE(6,9000)
 9000  FORMAT(2X,'ERROR IN OPENING FILE 3')
       GO TO 999

  910  WRITE(6,9010)
 9010  FORMAT(2X,'ERROR IN OPENING FILE 4')
       GO TO 999

  920  WRITE(6,9020)
 9020  FORMAT(2X,'ERROR IN OPENING FILE 6')
       GO TO 999

!-------- PROGRAM END
  999  CONTINUE
       END PROGRAM ELEZR2
```

See Appendix A-7, pages 3-4, for a listing of file SYMBOL.

ZR_RUN2.ELE g/g Zr calcine
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

Element	2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
H	4.4E-11	2.5E-11	4.0E-13	4.7E-20	4.6E-35	4.6E-35	0.0E+00
He	1.3E-07	1.3E-07	1.4E-07	1.5E-07	1.5E-07	1.5E-07	1.8E-07
Li	1.2E-11	1.2E-11	1.2E-11	1.2E-11	1.2E-11	1.2E-11	1.2E-11
Be	8.7E-11	8.7E-11	8.7E-11	8.7E-11	8.7E-11	8.7E-11	8.7E-11
B	8.4E-09	8.4E-09	8.4E-09	8.4E-09	8.4E-09	8.4E-09	8.4E-09
C	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05	2.0E-05
N	2.7E-05	2.7E-05	2.7E-05	2.7E-05	2.7E-05	2.7E-05	2.7E-05
O	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03
F	1.6E-12	1.6E-12	1.6E-12	1.6E-12	1.6E-12	1.6E-12	1.6E-12
Ne	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16	1.3E-16
Na	2.3E-23	2.3E-23	2.3E-23	2.3E-23	2.3E-23	2.3E-23	2.3E-23
Mg	5.2E-11	5.2E-11	5.2E-11	5.2E-11	5.2E-11	5.2E-11	5.2E-11
Si	9.2E-09	9.2E-09	9.2E-09	9.2E-09	9.2E-09	9.2E-09	9.2E-09
P	6.0E-21	6.0E-21	6.0E-21	6.0E-21	6.0E-21	6.0E-21	6.0E-21
S	3.1E-25	3.1E-25	3.1E-25	3.1E-25	3.1E-25	3.1E-25	3.1E-25
Cl	7.8E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21	7.8E-21
Ar	3.0E-17	3.0E-17	3.0E-17	3.0E-17	3.0E-17	3.0E-17	3.0E-17
K	9.5E-19	9.5E-19	9.5E-19	9.5E-19	9.5E-19	9.5E-19	9.5E-19
Ca	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11	2.1E-11
Sc	3.5E-13	3.5E-13	3.5E-13	3.5E-13	3.5E-13	3.5E-13	3.5E-13
Ti	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
V	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06
Mn	4.2E-07	4.2E-07	4.2E-07	4.2E-07	4.2E-07	4.2E-07	4.2E-07
Co	1.7E-07	1.7E-07	1.8E-07	2.0E-07	2.6E-07	2.6E-07	1.0E-06
Cu	5.4E-07	6.3E-07	1.1E-06	1.7E-06	1.8E-06	1.8E-06	1.8E-06
Zn	7.8E-11	7.8E-11	7.8E-11	7.8E-11	7.8E-11	7.8E-11	7.8E-11
Ga	3.4E-14	3.4E-14	3.4E-14	3.4E-14	3.4E-14	3.4E-14	3.4E-14
Ge	1.6E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08	1.6E-08
As	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09
Se	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
Br	6.4E-07	6.4E-07	6.4E-07	6.4E-07	6.4E-07	6.4E-07	6.6E-07
Kr	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.2E-05
Rb	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
Sr	1.8E-05	1.7E-05	1.4E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
Y	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05	1.6E-05
Nb	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.4E-04
Mo	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Tc	2.1E-05	2.1E-05	2.1E-05	2.1E-05	2.1E-05	2.1E-05	2.0E-05
Ru	4.5E-05	4.5E-05	4.5E-05	4.5E-05	4.5E-05	4.5E-05	4.6E-05
Rh	8.9E-06	8.9E-06	8.9E-06	8.9E-06	8.9E-06	8.9E-06	8.9E-06
Pd	1.1E-05	1.1E-05	1.1E-05	1.1E-05	1.1E-05	1.1E-05	1.1E-05
Ag	1.5E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07	1.5E-07
Cd	4.9E-07	4.9E-07	4.9E-07	4.9E-07	4.9E-07	4.9E-07	4.9E-07
In	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06
Sb	6.9E-06	6.9E-06	6.9E-06	6.9E-06	6.9E-06	6.9E-06	6.9E-06
Te	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05	1.7E-05
I	4.1E-06	4.1E-06	4.1E-06	4.1E-06	4.1E-06	4.1E-06	4.1E-06
Xe	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04
Cs	5.5E-05	5.4E-05	4.8E-05	4.7E-05	4.7E-05	4.7E-05	4.7E-05
Ba	6.3E-05	6.5E-05	7.0E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05
La	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05	3.4E-05

ZR_RUN2.ELE g/g Zr calcine
ORIGEN2 V2.1 (8-1-91), Run on 12/04/04 at 07:35:25

Element	2032Jan	2042Jan	2116Jan	2400Jan	3016Jan	3110Jan	12000Jan
Ce	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05
Pr	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05	3.1E-05
Nd	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04
Pm	1.2E-12	9.8E-14	1.7E-18	4.9E-34	0.0E+00	0.0E+00	0.0E+00
Sm	2.2E-05	2.2E-05	2.2E-05	2.1E-05	2.1E-05	2.1E-05	2.1E-05
Eu	2.2E-06	2.2E-06	2.2E-06	2.3E-06	2.3E-06	2.3E-06	2.3E-06
Gd	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06
Tb	8.2E-09	8.2E-09	8.2E-09	8.2E-09	8.2E-09	8.2E-09	8.2E-09
Dy	2.5E-09	2.5E-09	2.5E-09	2.5E-09	2.5E-09	2.5E-09	2.5E-09
Ho	1.2E-10	1.2E-10	1.2E-10	1.2E-10	1.2E-10	1.2E-10	1.2E-10
Er	3.8E-11	3.8E-11	3.8E-11	3.8E-11	3.8E-11	3.8E-11	3.9E-11
Tm	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07	1.3E-07
Yb	8.3E-10	8.3E-10	8.3E-10	8.3E-10	8.3E-10	8.3E-10	8.3E-10
Lu	1.8E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07	1.8E-07
Hf	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04
Ta	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05	1.3E-05
W	3.7E-06	3.7E-06	3.7E-06	3.7E-06	3.7E-06	3.7E-06	3.7E-06
Re	2.1E-10	2.1E-10	2.1E-10	2.1E-10	2.1E-10	2.1E-10	2.1E-10
Os	2.6E-11	2.6E-11	2.6E-11	2.6E-11	2.6E-11	2.6E-11	2.6E-11
Ir	1.4E-21	1.4E-21	1.4E-21	1.4E-21	1.4E-21	1.4E-21	1.4E-21
Pt	2.6E-22	2.6E-22	2.6E-22	2.6E-22	2.6E-22	2.6E-22	2.6E-22
Tl	1.6E-20	1.5E-20	9.5E-21	5.5E-21	8.3E-21	8.6E-21	6.6E-20
Pb	1.9E-12	2.0E-12	2.2E-12	3.0E-12	1.1E-11	1.3E-11	3.5E-09
Bi	9.7E-17	1.5E-16	1.4E-15	4.4E-14	6.7E-13	8.7E-13	5.1E-10
Po	7.3E-18	1.3E-17	1.1E-16	2.0E-15	1.2E-14	1.3E-14	4.5E-13
At	6.8E-27	9.6E-27	4.9E-26	4.9E-25	3.0E-24	3.5E-24	2.2E-22
Rn	6.4E-19	9.6E-19	5.4E-18	5.7E-17	3.4E-16	4.0E-16	1.3E-14
Fr	2.4E-22	2.8E-22	6.8E-22	4.8E-21	2.8E-20	3.3E-20	2.0E-18
Ra	9.9E-14	1.5E-13	8.4E-13	8.9E-12	5.3E-11	6.3E-11	2.1E-09
Ac	6.9E-15	7.4E-15	9.3E-15	1.3E-14	2.1E-14	2.2E-14	1.3E-13
Th	6.0E-10	7.1E-10	1.6E-09	5.4E-09	1.4E-08	1.5E-08	1.3E-07
Pa	1.4E-11	1.5E-11	1.6E-11	2.2E-11	3.3E-11	3.5E-11	1.9E-10
U	3.4E-05	3.4E-05	3.4E-05	3.5E-05	3.5E-05	3.5E-05	3.6E-05
Np	3.2E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05
Pu	5.3E-06	5.2E-06	4.9E-06	4.5E-06	4.4E-06	4.4E-06	3.1E-06
Am	4.6E-07	4.7E-07	4.3E-07	2.8E-07	1.1E-07	9.2E-08	2.6E-09
Cm	1.2E-11	9.3E-12	3.0E-12	2.0E-12	1.7E-12	1.7E-12	8.0E-13
Bk	2.3E-39	7.0E-43	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cf	1.1E-19	1.1E-19	9.2E-20	5.3E-20	1.7E-20	1.4E-20	1.4E-23
Total	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03