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***The Exposure Rate Conversion Factor for
Nuclear Fallout***

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Weapons and Complex Integration
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The Exposure Rate Conversion Factor for Nuclear Fallout

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Nuclear fallout is comprised of approximately 2000 radionuclides. About 1000 of these radionuclides are either primary fission products or *activated* fission products that are created during the burn process. The exposure rate one meter above the surface produced by this complex mixture of radionuclides varies rapidly with time since many of the radionuclides are short-lived and decay numerous times before reaching a stable isotope. As a result, the mixture of radionuclides changes rapidly with time. Using a new code developed at the Lawrence Livermore National Laboratory, the mixture of radionuclides at any given point in time can be calculated. The code also calculates the exposure rate conversion factor (ECF) for all 3864 individual isotopes contained in its database based on the total gamma energy released per decay. Based on the combination of isotope mixture and individual ECFs, the time-dependent variation of the *composite* exposure rate conversion factor for nuclear fallout can be easily calculated. As example of this new capability, a simple test case corresponding to a 10 kt, uranium-plutonium fuel has been calculated. The results for the time-dependent, composite ECF for this test case are shown in Figure 1.

For comparison, we also calculated the composite exposure rate conversion factor using the conversion factors found in Federal Guidance Report #12 (FGR-12)¹ published by ORNL, which contains the conversion factors for approximately 1000 isotopes. As can be noted from Figure 1, the two functions agree reasonably well at times greater than about 30 minutes. However, they do not agree at early times since FGR-12 does not include all of the short-lived isotopes that are produced in nuclear fallout.

It should also be noted that the composite ECF at one hour is 19.7 R/hr per Ci/m². This corresponds to 3148 R/hr per 1 kt per square mile, which agrees reasonably well with the value of 3000 R/hr per 1 kt per square mile as quoted by Glasstone.²

We have also tabulated the top 50 contributors to the exposure rate at various points in time following a detonation. These major contributors are given in Table 1.

¹ Eckerman, Keith F. and Jeffrey C. Ryman, *External Exposure to Radionuclides in Air, Water, and Soil*, Federal Guidance Report No. 12, US Environmental Protection Agency Report EPA-402-R-93-081 (September 1993).

² Glasstone, Samuel and Alexander Sesonske, *Nuclear Reactor Engineering*, D. Van Nostrand Co, Inc., Princeton, NJ, 1967.

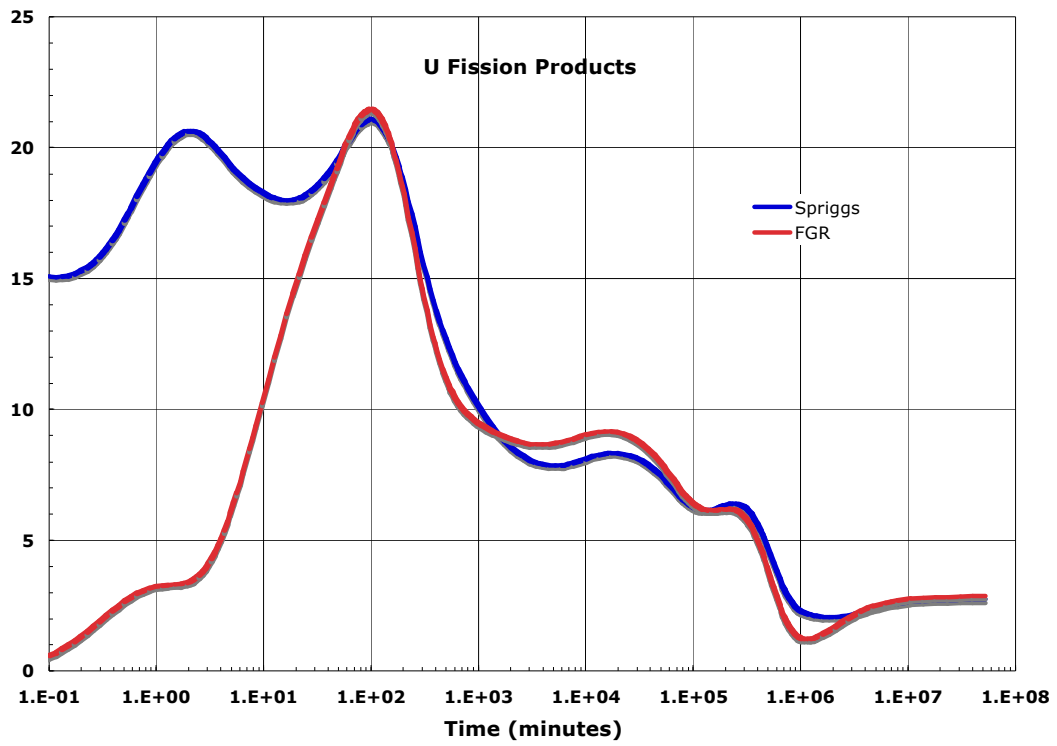


Figure 1. Composite Exposure Rate Conversion Factor for Nuclear Fallout.

**Table 1. Top 50 Contributors to Exposure Rate Conversion Factor
(per 10 kt fission yield)**

Point in time = 1.00000000 sec									
Isotope	Half-life +/- pct		Atoms	Curies	Total Energy Release (Mev) per Decay				
					gamma	beta(-)	beta(+)	alpha	
Sr-96	1.0600	s	2.83	2.8689E+22	5.0703E+11	0.9320	1.9900	0.0000	0.0000
Sr-97	0.42900	s	1.17	5.7116E+21	2.4942E+11	1.8600	2.6600	0.0000	0.0000
Y-100	0.73500	s	0.95	8.2150E+21	2.0939E+11	1.9610	3.6680	0.0000	0.0000
Rb-94	2.7020	s	0.26	2.1029E+22	1.4580E+11	2.7400	3.2400	0.0000	0.0000
Y-97m	1.1700	s	2.56	1.3250E+22	2.1215E+11	1.8000	2.4100	0.0000	0.0000
Y-98m	2.0000	s	10.00	1.2891E+22	1.2074E+11	3.0400	2.6300	0.0000	0.0000
Y-98	0.59000	s	5.09	1.1387E+22	3.6155E+11	0.9070	3.7400	0.0000	0.0000
Y-97	3.7500	s	0.80	3.3640E+22	1.6806E+11	1.8300	2.1600	0.0000	0.0000
Zr-99	2.2000	s	4.55	4.1565E+22	3.5394E+11	0.8600	1.5500	0.0000	0.0000
Y-99	1.4770	s	0.34	2.4555E+22	3.1144E+11	0.8180	3.1200	0.0000	0.0000
Kr-92	1.8400	s	0.43	1.4405E+22	1.4666E+11	1.4050	1.9900	0.0000	0.0000
Zr-101	2.3000	s	4.35	3.9890E+22	3.2491E+11	0.5564	2.2060	0.0000	0.0000
Rb-92	4.4920	s	0.45	2.9257E+22	1.2201E+11	1.3995	2.9000	0.0000	0.0000
Cs-142	1.7000	s	1.18	2.1384E+22	2.3564E+11	0.6754	2.8800	0.0000	0.0000
Rb-93	5.8000	s	0.69	3.4114E+22	1.1019E+11	1.4200	2.7100	0.0000	0.0000
Kr-93	1.2860	s	0.78	5.0343E+21	7.3337E+10	2.1290	2.8730	0.0000	0.0000
Y-96m	9.6200	s	1.56	1.8299E+22	3.5634E+10	3.9700	0.0049	0.0000	0.0000
Nb-102m	4.3000	s	9.30	1.3729E+22	5.9811E+10	2.0920	2.2690	0.0000	0.0000
I-138	6.4600	s	0.93	2.2660E+22	6.5713E+10	1.8900	2.5900	0.0000	0.0000
Kr-91	8.5700	s	0.47	3.0147E+22	6.5901E+10	1.7310	2.0880	0.0000	0.0000
Br-90	1.9000	s	2.11	7.3964E+21	7.2927E+10	1.3710	2.9250	0.0000	0.0000
Cs-143	1.7910	s	0.39	1.3534E+22	1.4157E+11	0.7010	2.7600	0.0000	0.0000
Br-89	4.3700	s	1.14	1.4412E+22	6.1781E+10	1.5880	2.5100	0.0000	0.0000
Xe-141	1.7300	s	0.58	1.3532E+22	1.4654E+11	0.6594	1.7940	0.0000	0.0000
La-148	1.4280	s	0.84	5.3703E+21	7.0453E+10	1.2500	0.0369	0.0000	0.0000
Ba-146	2.2200	s	3.15	1.1504E+22	9.7080E+10	0.8094	1.1750	0.0000	0.0000
Y-101	0.45000	s	4.44	1.8567E+21	7.7297E+10	0.9522	3.5580	0.0000	0.0000
Nb-100	1.5000	s	13.33	8.1768E+21	1.0212E+11	0.7117	2.5460	0.0000	0.0000
Rb-95	0.38100	s	0.79	2.2256E+21	1.0943E+11	0.6120	2.3320	0.0000	0.0000
Nb-100m	2.9000	s	6.90	4.3378E+21	2.8022E+10	2.2230	2.0100	0.0000	0.0000
Xe-140	13.600	s	0.74	3.8581E+22	5.3145E+10	1.1500	1.2200	0.0000	0.0000
Te-136	17.500	s	1.14	2.3135E+22	2.4766E+10	2.1700	1.2200	0.0000	0.0000
La-146	6.2700	s	1.59	1.1608E+22	3.4682E+10	1.4900	2.1600	0.0000	0.0000
Sr-95	23.900	s	0.59	5.7697E+22	4.5225E+10	1.0200	2.3000	0.0000	0.0000
Zr-102	2.9000	s	6.90	2.9223E+22	1.8878E+11	0.2374	1.9850	0.0000	0.0000
I-140	0.86000	s	4.65	2.0986E+21	4.5714E+10	0.9787	1.7200	0.0000	0.0000
Zr-100	7.1000	s	5.63	6.3809E+22	1.6836E+11	0.2589	1.3410	0.0000	0.0000
Rb-96	0.19900	s	1.51	2.1184E+20	1.9943E+10	2.0300	4.0800	0.0000	0.0000
Se-88	1.5300	s	3.92	3.1181E+21	3.8178E+10	1.0400	1.3300	0.0000	0.0000
I-139	2.3000	s	1.30	9.7478E+21	7.9396E+10	0.4984	2.5300	0.0000	0.0000
Sr-99	0.27000	s	3.70	4.3409E+20	3.0119E+10	1.2720	3.2490	0.0000	0.0000
Cs-141	24.940	s	0.24	4.2534E+22	3.1950E+10	1.0100	1.8800	0.0000	0.0000
Ba-145	4.3100	s	3.71	2.3928E+22	1.0400E+11	0.3100	2.0200	0.0000	0.0000
I-137	24.510	s	0.24	3.6896E+22	2.8201E+10	1.1400	1.9600	0.0000	0.0000
Nb-106	0.92000	s	4.35	1.5220E+21	3.0993E+10	1.0000	0.0000	0.0000	0.0000
Se-86	15.300	s	5.88	1.1097E+22	1.3588E+10	2.2690	1.4390	0.0000	0.0000
Sb-135	1.7400	s	1.72	4.1879E+21	4.5089E+10	0.6719	2.7540	0.0000	0.0000
In-130m	0.54000	s	1.85	1.7354E+20	6.0203E+09	4.9910	6.1500	0.0000	0.0000
Ba-144	11.500	s	1.74	3.7646E+22	6.1326E+10	0.4690	0.8533	0.0000	0.0000
Kr-90	32.320	s	0.28	3.5741E+22	2.0717E+10	1.3230	1.3600	0.0000	0.0000

Point in time = 3.00000000 sec									
Isotope	Half-life +/- pct		Atoms	Curies	Total Energy Release (Mev) per Decay				
					gamma	beta(-)	beta(+)	alpha	
Y-97	3.7500	s	0.80	2.6879E+22	1.3428E+11	1.8300	2.1600	0.0000	0.0000
Rb-94	2.7020	s	0.26	1.2676E+22	8.7888E+10	2.7400	3.2400	0.0000	0.0000
Zr-99	2.2000	s	4.55	3.2726E+22	2.7867E+11	0.8600	1.5500	0.0000	0.0000
Y-98m	2.0000	s	10.00	6.4453E+21	6.0372E+10	3.0400	2.6300	0.0000	0.0000
Rb-92	4.4920	s	0.45	2.7961E+22	1.1661E+11	1.3995	2.9000	0.0000	0.0000
Rb-93	5.8000	s	0.69	2.9755E+22	9.6106E+10	1.4200	2.7100	0.0000	0.0000
Sr-96	1.0600	s	2.83	7.8211E+21	1.3822E+11	0.9320	1.9900	0.0000	0.0000
Y-97m	1.1700	s	2.56	4.4093E+21	7.0601E+10	1.8000	2.4100	0.0000	0.0000
Y-96m	9.6200	s	1.56	1.5844E+22	3.0855E+10	3.9700	0.0049	0.0000	0.0000
I-138	6.4600	s	0.93	1.9276E+22	5.5898E+10	1.8900	2.5900	0.0000	0.0000
Zr-101	2.3000	s	4.35	2.2998E+22	1.8732E+11	0.5564	2.2060	0.0000	0.0000
Y-99	1.4770	s	0.34	9.8101E+21	1.2443E+11	0.8180	3.1200	0.0000	0.0000
Kr-91	8.5700	s	0.47	2.6476E+22	5.7875E+10	1.7310	2.0880	0.0000	0.0000
Nb-100	1.5000	s	13.33	1.1109E+22	1.3874E+11	0.7117	2.5460	0.0000	0.0000
Kr-92	1.8400	s	0.43	6.8396E+21	6.9636E+10	1.4050	1.9900	0.0000	0.0000
Nb-102m	4.3000	s	9.30	9.9452E+21	4.3328E+10	2.0920	2.2690	0.0000	0.0000
Cs-142	1.7000	s	1.18	1.1992E+22	1.3215E+11	0.6754	2.8800	0.0000	0.0000
Br-89	4.3700	s	1.14	1.0774E+22	4.6185E+10	1.5880	2.5100	0.0000	0.0000
Y-98	0.59000	s	5.09	2.3931E+21	7.5987E+10	0.9070	3.7400	0.0000	0.0000
Y-100	0.73500	s	0.95	1.2562E+21	3.2019E+10	1.9610	3.6680	0.0000	0.0000
La-146	6.2700	s	1.59	1.4065E+22	4.2025E+10	1.4900	2.1600	0.0000	0.0000
Xe-140	13.600	s	0.74	3.6323E+22	5.0034E+10	1.1500	1.2200	0.0000	0.0000
Kr-93	1.2860	s	0.78	1.7131E+21	2.4956E+10	2.1290	2.8730	0.0000	0.0000
Te-136	17.500	s	1.14	2.1724E+22	2.3255E+10	2.1700	1.2200	0.0000	0.0000
Br-90	1.9000	s	2.11	3.5995E+21	3.5491E+10	1.3710	2.9250	0.0000	0.0000
Cs-143	1.7910	s	0.39	6.4081E+21	6.7028E+10	0.7010	2.7600	0.0000	0.0000
Sr-95	23.900	s	0.59	5.6370E+22	4.4185E+10	1.0200	2.3000	0.0000	0.0000

Xe-141	1.7300	s	0.58	6.1795E+21	6.6916E+10	0.6594	1.7940	0.0000	0.0000
Ba-146	2.2200	s	3.15	6.1988E+21	5.2309E+10	0.8094	1.1750	0.0000	0.0000
Zr-100	7.1000	s	5.63	5.8619E+22	1.5467E+11	0.2589	1.3410	0.0000	0.0000
Nb-100m	2.9000	s	6.90	2.6894E+21	1.7374E+10	2.2230	2.0100	0.0000	0.0000
La-148	1.4280	s	0.84	2.2367E+21	2.9342E+10	1.2500	0.0369	0.0000	0.0000
Cs-141	24.940	s	0.24	4.7555E+22	3.5721E+10	1.0100	1.8800	0.0000	0.0000
I-137	24.510	s	0.24	3.7471E+22	2.8640E+10	1.1400	1.9600	0.0000	0.0000
Nb-101	7.1000	s	4.23	4.5529E+22	1.2013E+11	0.2700	1.8320	0.0000	0.0000
Se-86	15.300	s	5.88	1.0476E+22	1.2827E+10	2.2690	1.4390	0.0000	0.0000
Kr-90	32.320	s	0.28	3.7293E+22	2.1616E+10	1.3230	1.3600	0.0000	0.0000
Ba-144	11.500	s	1.74	3.7149E+22	6.0516E+10	0.4690	0.8533	0.0000	0.0000
Zr-102	2.9000	s	6.90	1.8290E+22	1.1815E+11	0.2374	1.9850	0.0000	0.0000
Ba-145	4.3100	s	3.71	1.7991E+22	7.8197E+10	0.3100	2.0200	0.0000	0.0000
Cs-140	1.0620	m	0.47	3.5820E+22	1.0531E+10	2.2600	1.7500	0.0000	0.0000
Sb-134m	10.070	s	0.50	6.1324E+21	1.1408E+10	2.0500	2.8700	0.0000	0.0000
I-139	2.3000	s	1.30	5.4261E+21	4.4196E+10	0.4984	2.5300	0.0000	0.0000
La-144	40.800	s	0.98	2.1697E+22	9.9623E+09	2.1700	1.6100	0.0000	0.0000
Xe-139	39.680	s	0.35	5.0207E+22	2.3704E+10	0.8940	1.7800	0.0000	0.0000
Rb-91	58.400	s	0.68	2.5037E+22	8.0314E+09	2.3400	1.5800	0.0000	0.0000
Sr-97	0.42900	s	1.17	2.2621E+20	9.8784E+09	1.8600	2.6600	0.0000	0.0000
Pr-152	3.6300	s	3.31	2.0881E+21	1.0776E+10	1.6860	2.0370	0.0000	0.0000
Sr-94	1.2550	m	0.53	5.0717E+22	1.2618E+10	1.4270	0.8350	0.0000	0.0000
La-146m	10.000	s	1.00	6.9651E+21	1.3048E+10	1.3100	0.9883	0.0000	0.0000

Point in time = 10.000000 sec

Isotope	Half-life	+/-	pct	Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Y-96m	9.6200	s	1.56	9.5681E+21	1.8633E+10	3.9700	0.0049	0.0000	0.0000
Rb-92	4.4920	s	0.45	1.2599E+22	5.2545E+10	1.3995	2.9000	0.0000	0.0000
Nb-100	1.5000	s	13.33	7.9094E+21	9.8782E+10	0.7117	2.5460	0.0000	0.0000
Y-97	3.7500	s	0.80	7.4417E+21	3.7176E+10	1.8300	2.1600	0.0000	0.0000
Rb-93	5.8000	s	0.69	1.3793E+22	4.4550E+10	1.4200	2.7100	0.0000	0.0000
Kr-91	8.5700	s	0.47	1.5075E+22	3.2953E+10	1.7310	2.0880	0.0000	0.0000
I-138	6.4600	s	0.93	9.4688E+21	2.7459E+10	1.8900	2.5900	0.0000	0.0000
La-146	6.2700	s	1.59	9.8354E+21	2.9387E+10	1.4900	2.1600	0.0000	0.0000
Zr-99	2.2000	s	4.55	5.7439E+21	4.8911E+10	0.8600	1.5500	0.0000	0.0000
Xe-140	13.600	s	0.74	2.5709E+22	3.5414E+10	1.1500	1.2200	0.0000	0.0000
Rb-94	2.7020	s	0.26	2.1044E+21	1.4590E+10	2.7400	3.2400	0.0000	0.0000
Te-136	17.500	s	1.14	1.6544E+22	1.7710E+10	2.1700	1.2200	0.0000	0.0000
Sr-95	23.900	s	0.59	4.6057E+22	3.6102E+10	1.0200	2.3000	0.0000	0.0000
Cs-141	24.940	s	0.24	4.4222E+22	3.3217E+10	1.0100	1.8800	0.0000	0.0000
La-144	40.800	s	0.98	3.1627E+22	1.4522E+10	2.1700	1.6100	0.0000	0.0000
Nb-102m	4.3000	s	9.30	3.2178E+21	1.4019E+10	2.0920	2.2690	0.0000	0.0000
I-137	24.510	s	0.24	3.3427E+22	2.5549E+10	1.1400	1.9600	0.0000	0.0000
Cs-140	1.0620	m	0.47	4.3761E+22	1.2866E+10	2.2600	1.7500	0.0000	0.0000
Kr-90	32.320	s	0.28	3.4368E+22	1.9921E+10	1.3230	1.3600	0.0000	0.0000
Nb-101	7.1000	s	4.23	3.6087E+22	9.5217E+10	0.2700	1.8320	0.0000	0.0000
Rb-91	58.400	s	0.68	3.4009E+22	1.0909E+10	2.3400	1.5800	0.0000	0.0000
Br-89	4.3700	s	1.14	3.5539E+21	1.5235E+10	1.5880	2.5100	0.0000	0.0000
Tc-106	36.000	s	2.78	1.8875E+22	9.8221E+09	2.1870	1.8980	0.0000	0.0000
Se-86	15.300	s	5.88	7.7098E+21	9.4401E+09	2.2690	1.4390	0.0000	0.0000
Zr-100	7.1000	s	5.63	3.0296E+22	7.9939E+10	0.2589	1.3410	0.0000	0.0000
Xe-139	39.680	s	0.35	4.8438E+22	2.2868E+10	0.8940	1.7800	0.0000	0.0000
Sr-94	1.2550	m	0.53	5.6677E+22	1.4101E+10	1.4270	0.8350	0.0000	0.0000
Ba-144	11.500	s	1.74	2.5304E+22	4.1221E+10	0.4690	0.8533	0.0000	0.0000
Nb-98	2.8600	s	2.10	5.6317E+21	3.6889E+10	0.5110	1.7770	0.0000	0.0000
Br-87	55.700	s	0.36	1.6716E+22	5.6222E+09	3.1060	1.6790	0.0000	0.0000
Y-98m	2.0000	s	10.00	5.6969E+20	5.3362E+09	3.0400	2.6300	0.0000	0.0000
Sb-133	2.5000	m	4.00	2.9218E+22	3.6491E+09	4.3440	0.0000	0.0000	0.0000
La-145	24.800	s	8.06	3.2236E+22	2.4351E+10	0.6430	1.4800	0.0000	0.0000
I-136	1.3900	m	1.20	2.7704E+22	6.2230E+09	2.4600	1.9700	0.0000	0.0000
I-136m	46.900	s	2.13	1.7599E+22	7.0297E+09	2.1360	2.1900	0.0000	0.0000
Sb-134m	10.070	s	0.50	3.7878E+21	7.0466E+09	2.0500	2.8700	0.0000	0.0000
Zr-101	2.3000	s	4.35	2.8023E+21	2.2825E+10	0.5564	2.2060	0.0000	0.0000
Te-135	19.000	s	1.05	3.3035E+22	3.2572E+10	0.3843	2.4090	0.0000	0.0000
Se-85	31.700	s	2.84	9.6091E+21	5.6787E+09	2.0540	1.9310	0.0000	0.0000
Ba-143	14.500	s	2.07	3.7371E+22	4.8283E+09	0.2310	1.7200	0.0000	0.0000
La-146m	10.000	s	1.00	4.2875E+21	8.0321E+09	1.3100	0.9883	0.0000	0.0000
Mo-105	35.600	s	4.49	3.2907E+22	1.7317E+10	0.5511	1.9000	0.0000	0.0000
Br-86	55.000	s	1.46	8.2353E+21	2.8050E+09	3.3060	1.9440	0.0000	0.0000
Pr-150	6.1000	s	6.56	4.8274E+21	1.4825E+10	0.5558	1.8950	0.0000	0.0000
Ba-145	4.3100	s	3.71	5.8681E+21	2.5506E+10	0.3100	2.0200	0.0000	0.0000
Nb-99	15.000	s	1.33	3.4706E+22	4.3345E+10	0.1680	1.4530	0.0000	0.0000
Nb-100m	2.9000	s	6.90	5.0471E+20	3.2603E+09	2.2230	2.0100	0.0000	0.0000
Tc-108	5.1700	s	1.35	2.1818E+21	7.9060E+09	0.9010	3.1200	0.0000	0.0000
Cs-142	1.7000	s	1.18	9.5077E+20	1.0477E+10	0.6754	2.8800	0.0000	0.0000
Kr-92	1.8400	s	0.43	4.8972E+20	4.9860E+09	1.4050	1.9900	0.0000	0.0000

Point in time = 30.000000 sec

Isotope	Half-life	+/-	pct	Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
La-144	40.800	s	0.98	3.7052E+22	1.7013E+10	2.1700	1.6100	0.0000	0.0000
Cs-140	1.0620	m	0.47	4.9706E+22	1.4614E+10	2.2600	1.7500	0.0000	0.0000
Rb-91	58.400	s	0.68	3.7252E+22	1.1950E+10	2.3400	1.5800	0.0000	0.0000
Tc-106	36.000	s	2.78	1.9465E+22	1.0129E+10	2.1870	1.8980	0.0000	0.0000
Sr-95	23.900	s	0.59	2.5786E+22	2.0212E+10	1.0200	2.3000	0.0000	0.0000
Cs-141	24.940	s	0.24	2.5596E+22	1.9226E+10	1.0100	1.8800	0.0000	0.0000
I-136	1.3900	m	1.20	3.1717E+22	7.1245E+09	2.4600	1.9700	0.0000	0.0000
Y-96m	9.6200	s	1.56	2.2646E+21	4.4099E+09	3.9700	0.0049	0.0000	0.0000

Te-136	17.500	s	1.14	7.4923E+21	8.0205E+09	2.1700	1.2200	0.0000	0.0000
Sr-94	1.2550	m	0.53	4.8768E+22	1.2133E+10	1.4270	0.8350	0.0000	0.0000
Kr-90	32.320	s	0.28	2.2527E+22	1.3057E+10	1.3230	1.3600	0.0000	0.0000
I-137	24.510	s	0.24	1.9302E+22	1.4753E+10	1.1400	1.9600	0.0000	0.0000
Br-87	55.700	s	0.36	1.4749E+22	4.9606E+09	3.1060	1.6790	0.0000	0.0000
Xe-140	13.600	s	0.74	9.2774E+21	1.2779E+10	1.1500	1.2200	0.0000	0.0000
Xe-139	39.680	s	0.35	3.4599E+22	1.6335E+10	0.8940	1.7800	0.0000	0.0000
Sb-133	2.5000	m	4.00	2.6668E+22	3.3306E+09	4.3440	0.0000	0.0000	0.0000
Nb-98	2.8600	s	2.10	4.2397E+21	2.7771E+10	0.5110	1.7770	0.0000	0.0000
Br-86	55.000	s	1.46	1.0386E+22	3.5376E+09	3.3060	1.9440	0.0000	0.0000
Kr-91	8.5700	s	0.47	2.9904E+21	6.5370E+09	1.7310	2.0880	0.0000	0.0000
I-136m	46.900	s	2.13	1.3101E+22	5.2332E+09	2.1360	2.1900	0.0000	0.0000
La-145	24.800	s	8.06	2.2208E+22	1.6776E+10	0.6430	1.4800	0.0000	0.0000
Nb-100	1.5000	s	13.33	1.1517E+21	1.4384E+10	0.7117	2.5460	0.0000	0.0000
Se-86	15.300	s	5.88	3.1158E+21	3.8151E+09	2.2690	1.4390	0.0000	0.0000
Se-85	31.700	s	2.84	6.2608E+21	3.7000E+09	2.0540	1.9310	0.0000	0.0000
Mo-105	35.600	s	4.49	2.3139E+22	1.2176E+10	0.5511	1.9000	0.0000	0.0000
Kr-89	3.1500	m	1.27	3.4066E+22	3.3766E+09	1.8460	1.3780	0.0000	0.0000
I-138	6.4600	s	0.93	1.1105E+21	3.2205E+09	1.8900	2.5900	0.0000	0.0000
Sb-132	2.7900	m	1.79	2.0819E+22	2.3299E+09	2.6100	1.2400	0.0000	0.0000
Te-135	19.000	s	1.05	1.5978E+22	1.5754E+10	0.3843	2.4090	0.0000	0.0000
Sr-93	7.4230	m	0.32	6.3713E+22	2.6799E+09	2.2200	0.7870	0.0000	0.0000
Rb-93	5.8000	s	0.69	1.2682E+21	4.0964E+09	1.4200	2.7100	0.0000	0.0000
Ba-144	11.500	s	1.74	7.5832E+21	1.2353E+10	0.4690	0.8533	0.0000	0.0000
La-146	6.2700	s	1.59	1.1940E+21	3.5675E+09	1.4900	2.1600	0.0000	0.0000
Ba-143	14.500	s	2.07	1.4550E+22	1.8799E+10	0.2310	1.7200	0.0000	0.0000
Nb-101	7.1000	s	4.23	5.6995E+21	1.5038E+10	0.2700	1.8320	0.0000	0.0000
Sn-132	39.700	s	1.26	6.6316E+21	3.1293E+09	1.2800	0.7320	0.0000	0.0000
Rh-110	28.500	s	5.26	2.2505E+21	1.4793E+09	2.5900	1.0900	0.0000	0.0000
Rb-90	2.6330	m	3.17	1.7117E+22	2.0298E+09	1.8500	1.9800	0.0000	0.0000
Sb-134m	10.070	s	0.50	9.5612E+20	1.7787E+09	2.0500	2.8700	0.0000	0.0000
Tc-107	21.200	s	0.94	7.8156E+21	6.9064E+09	0.5210	1.8600	0.0000	0.0000
Rb-92	4.4920	s	0.45	6.1296E+20	2.5563E+09	1.3995	2.9000	0.0000	0.0000
Nb-99	15.000	s	1.33	1.5605E+22	1.9489E+10	0.1680	1.4530	0.0000	0.0000
Sb-132m	4.1000	m	1.71	1.5806E+22	1.2037E+09	2.5900	1.3400	0.0000	0.0000
Zr-100	7.1000	s	5.63	4.2998E+21	1.1345E+10	0.2589	1.3410	0.0000	0.0000
Nb-99m	2.6000	m	7.69	2.9406E+22	3.5313E+09	0.7550	1.4700	0.0000	0.0000
La-146m	10.000	s	1.00	1.0719E+21	2.0080E+09	1.3100	0.9883	0.0000	0.0000
Mo-101	14.610	m	0.21	7.5751E+22	1.6189E+09	1.5100	0.5120	0.0000	0.0000
Ru-109	34.500	s	1.45	2.5772E+21	1.3995E+09	1.6600	1.0380	0.0000	0.0000
Ce-145	2.9500	m	2.03	2.4634E+22	2.6073E+09	0.7740	0.6910	0.0000	0.0000
Ba-142	10.600	m	1.89	6.5236E+22	1.9216E+09	1.0400	0.3780	0.0000	0.0000

Point in time = 1.666666 min

Isotope	Half-life +/- pct	Atoms	Curies	Total Energy Release (Mev) per Decay	gamma	beta(-)	beta(+)	alpha
Cs-140	1.0620 m 0.47	2.8387E+22	8.3458E+09	2.2600	1.7500	0.0000	0.0000	0.0000
La-144	40.800 s 0.98	1.4340E+22	6.5845E+09	2.1700	1.6100	0.0000	0.0000	0.0000
Rb-91	58.400 s 0.68	1.7745E+22	5.6923E+09	2.3400	1.5800	0.0000	0.0000	0.0000
I-136	1.3900 m 1.20	2.2434E+22	5.0392E+09	2.4600	1.9700	0.0000	0.0000	0.0000
Sb-133	2.5000 m 4.00	1.9298E+22	2.4101E+09	4.3440	0.0000	0.0000	0.0000	0.0000
Sr-94	1.2550 m 0.53	2.5609E+22	6.3712E+09	1.4270	0.8350	0.0000	0.0000	0.0000
Br-86	55.000 s 1.46	5.9039E+21	2.0110E+09	3.3060	1.9440	0.0000	0.0000	0.0000
Tc-106	36.000 s 2.78	5.7848E+21	3.0103E+09	2.1870	1.8980	0.0000	0.0000	0.0000
Br-87	55.700 s 0.36	6.2462E+21	2.1008E+09	3.1060	1.6790	0.0000	0.0000	0.0000
Sb-132	2.7900 m 1.79	1.9526E+22	2.1851E+09	2.6100	1.2400	0.0000	0.0000	0.0000
Rb-90	2.6330 m 3.17	2.5249E+22	2.9941E+09	1.8500	1.9800	0.0000	0.0000	0.0000
Sr-93	7.4230 m 0.32	5.8274E+22	2.4511E+09	2.2200	0.7870	0.0000	0.0000	0.0000
Kr-89	3.1500 m 1.27	2.6454E+22	2.6222E+09	1.8460	1.3780	0.0000	0.0000	0.0000
Xe-139	39.680 s 0.35	1.0187E+22	4.8093E+09	0.8940	1.7800	0.0000	0.0000	0.0000
I-136m	46.900 s 2.13	4.6560E+21	1.8598E+09	2.1360	2.1900	0.0000	0.0000	0.0000
Kr-90	32.320 s 0.28	5.0201E+21	2.9098E+09	1.3230	1.3600	0.0000	0.0000	0.0000
Nb-98	2.8600 s 2.10	8.7473E+20	5.7297E+09	0.5110	1.7770	0.0000	0.0000	0.0000
Ce-145	2.9500 m 2.03	3.4878E+22	3.6915E+09	0.7740	0.6910	0.0000	0.0000	0.0000
Cs-141	24.940 s 0.24	3.6581E+21	2.7478E+09	1.0100	1.8800	0.0000	0.0000	0.0000
Sr-95	23.900 s 0.59	3.3862E+21	2.6542E+09	1.0200	2.3000	0.0000	0.0000	0.0000
Sb-132m	4.1000 m 1.71	1.2977E+22	9.8821E+08	2.5900	1.3400	0.0000	0.0000	0.0000
Y-95	10.300 m 0.97	6.5379E+22	1.9819E+09	1.2910	1.3520	0.0000	0.0000	0.0000
Mo-101	14.610 m 0.21	7.7109E+22	1.6479E+09	1.5100	0.5120	0.0000	0.0000	0.0000
I-137	24.510 s 0.24	2.6663E+21	2.0379E+09	1.1400	1.9600	0.0000	0.0000	0.0000
Rb-90m	4.3000 m 1.55	8.9285E+21	6.4831E+08	3.3000	1.4030	0.0000	0.0000	0.0000
Tc-103	54.200 s 1.48	2.4221E+22	8.3719E+09	0.2486	0.9830	0.0000	0.0000	0.0000
Nb-99m	2.6000 m 7.69	2.1549E+22	2.5878E+09	0.7550	1.4700	0.0000	0.0000	0.0000
Ba-142	10.600 m 1.89	6.0445E+22	1.7804E+09	1.0400	0.3780	0.0000	0.0000	0.0000
Xe-138	14.080 m 0.57	6.9544E+22	1.5422E+09	1.1300	0.6390	0.0000	0.0000	0.0000
Mo-105	35.600 s 4.49	5.9244E+21	3.1176E+09	0.5511	1.9000	0.0000	0.0000	0.0000
Se-85	31.700 s 2.84	1.3549E+21	8.0070E+08	2.0540	1.9310	0.0000	0.0000	0.0000
Pr-148	2.2900 m 0.87	1.2806E+22	1.7460E+09	0.8870	1.7900	0.0000	0.0000	0.0000
La-145	24.800 s 8.06	3.1796E+21	2.4018E+09	0.6430	1.4800	0.0000	0.0000	0.0000
Tc-104	18.300 m 1.64	4.1645E+22	7.1052E+08	2.0000	1.6100	0.0000	0.0000	0.0000
Sn-132	39.700 s 1.26	1.9536E+21	9.2186E+08	1.2800	0.7320	0.0000	0.0000	0.0000
Te-136	17.500 s 1.14	4.6827E+20	5.0128E+08	2.1700	1.2200	0.0000	0.0000	0.0000
Rh-110	28.500 s 5.26	6.0835E+20	3.9988E+08	2.5900	1.0900	0.0000	0.0000	0.0000
Ba-141	18.270 m 0.38	6.7929E+22	1.1609E+09	0.8470	0.9670	0.0000	0.0000	0.0000
Xe-137	3.8180 m 0.34	6.0421E+22	4.9411E+09	0.1960	1.7030	0.0000	0.0000	0.0000
Mo-104	1.0000 m 3.33	1.9138E+22	5.9755E+09	0.1470	0.6850	0.0000	0.0000	0.0000
Sn-129	2.2300 m 1.79	6.0097E+21	8.4144E+08	1.0080	1.2940	0.0000	0.0000	0.0000
Sb-131	23.030 m 0.17	3.4323E+22	4.6533E+08	1.8100	0.5820	0.0000	0.0000	0.0000
Tc-105	7.6000 m 1.32	3.7760E+22	1.5513E+09	0.5390	1.4300	0.0000	0.0000	0.0000
Sb-130m	6.3000 m 3.17	6.2218E+21	3.0835E+08	2.6500	1.0100	0.0000	0.0000	0.0000
Sn-130m	1.7000 m 5.88	5.0822E+21	9.3342E+08	0.7926	1.4440	0.0000	0.0000	0.0000
Ce-148	56.000 s 1.79	6.8065E+21	2.2770E+09	0.3180	0.6330	0.0000	0.0000	0.0000

Cs-139	9.2700	m	0.54	6.3461E+22	2.1375E+09	0.3290	1.6500	0.0000	0.0000
Te-133	12.450	m	2.41	2.8454E+22	7.1358E+08	0.9540	0.7970	0.0000	0.0000
Ce-147	57.000	s	3.51	9.3346E+21	3.0679E+09	0.2004	1.4990	0.0000	0.0000
Rb-89	15.400	m	1.30	1.4215E+22	2.8821E+08	2.0700	1.0200	0.0000	0.0000

Point in time = 5.0000000 min

Isotope	Half-life +/- pct			Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Sb-133	2.5000	m	4.00	7.6584E+21	9.5646E+08	4.3440	0.0000	0.0000	0.0000
Sr-93	7.4230	m	0.32	4.2687E+22	1.7955E+09	2.2200	0.7870	0.0000	0.0000
Rb-90	2.6330	m	3.17	1.2771E+22	1.5144E+09	1.8500	1.9800	0.0000	0.0000
Sb-132	2.7900	m	1.79	9.5709E+21	1.0711E+09	2.6100	1.2400	0.0000	0.0000
I-136	1.3900	m	1.20	4.3683E+21	9.8122E+08	2.4600	1.9700	0.0000	0.0000
Kr-89	3.1500	m	1.27	1.2704E+22	1.2592E+09	1.8460	1.3780	0.0000	0.0000
Cs-140	1.0620	m	0.47	3.2608E+21	9.5869E+08	2.2600	1.7500	0.0000	0.0000
Y-95	10.300	m	0.97	5.5046E+22	1.6686E+09	1.2910	1.3520	0.0000	0.0000
Mo-101	14.610	m	0.21	6.5836E+22	1.4070E+09	1.5100	0.5120	0.0000	0.0000
Tc-104	18.300	m	1.64	5.2540E+22	8.9642E+08	2.0000	1.6100	0.0000	0.0000
Ba-142	10.600	m	1.89	4.8607E+22	1.4317E+09	1.0400	0.3780	0.0000	0.0000
Xe-138	14.080	m	0.57	5.9019E+22	1.3088E+09	1.1300	0.6390	0.0000	0.0000
Sb-132m	4.1000	m	1.71	7.3862E+21	5.6248E+08	2.5900	1.3400	0.0000	0.0000
Ce-145	2.9500	m	2.03	1.7613E+22	1.8641E+09	0.7740	0.6910	0.0000	0.0000
Sr-94	1.2550	m	0.53	4.0630E+21	1.0108E+09	1.4270	0.8350	0.0000	0.0000
Rb-90m	4.3000	m	1.55	5.6453E+21	4.0991E+08	3.3000	1.4030	0.0000	0.0000
Rb-91	58.400	s	0.68	1.6537E+21	5.3047E+08	2.3400	1.5800	0.0000	0.0000
Rb-89	15.400	m	1.30	2.4888E+22	5.0459E+08	2.0700	1.0200	0.0000	0.0000
Pr-148	2.2900	m	0.87	7.8916E+21	1.0760E+09	0.8870	1.7900	0.0000	0.0000
Ba-141	18.270	m	0.38	6.3144E+22	1.0791E+09	0.8470	0.9670	0.0000	0.0000
Sb-131	23.030	m	0.17	3.6133E+22	4.8987E+08	1.8100	0.5820	0.0000	0.0000
Nb-99m	2.6000	m	7.69	8.8613E+21	1.0641E+09	0.7550	1.4700	0.0000	0.0000
Te-133	12.450	m	2.41	3.2529E+22	8.1578E+08	0.9540	0.7970	0.0000	0.0000
Sb-130m	6.3000	m	3.17	5.8293E+21	2.8890E+08	2.6500	1.0100	0.0000	0.0000
Y-94	18.700	m	0.53	5.7769E+22	9.6455E+08	0.7780	1.8130	0.0000	0.0000
Tc-105	7.6000	m	1.32	3.2472E+22	1.3340E+09	0.5390	1.4300	0.0000	0.0000
Tc-103	54.200	s	1.48	7.4838E+21	2.5867E+09	0.2486	0.9830	0.0000	0.0000
Cs-139	9.2700	m	0.54	5.7676E+22	1.9426E+09	0.3290	1.6500	0.0000	0.0000
Xe-137	3.8180	m	0.34	3.4503E+22	2.8216E+09	0.1960	1.7030	0.0000	0.0000
Br-86	55.000	s	1.46	4.8932E+20	1.6667E+08	3.3060	1.9440	0.0000	0.0000
Br-87	55.700	s	0.36	5.1846E+20	1.7438E+08	3.1060	1.6790	0.0000	0.0000
Cs-138	33.420	m	0.54	2.2926E+22	2.1418E+08	2.3600	1.2400	0.0000	0.0000
Pr-147	13.400	m	2.98	2.4698E+22	5.7548E+08	0.8640	0.7810	0.0000	0.0000
Te-134	41.800	m	1.91	7.6349E+22	5.7030E+08	0.8580	0.2430	0.0000	0.0000
La-144	40.800	s	0.98	4.8484E+20	2.2262E+08	2.1700	1.6100	0.0000	0.0000
Y-93m	0.82000	s	4.88	1.9700E+19	4.5007E+08	0.8600	0.0790	0.0000	0.0000
I-134	52.500	m	0.38	2.1655E+22	1.2878E+08	2.6100	0.0618	0.0000	0.0000
Te-133m	55.400	m	0.72	3.4857E+22	1.9645E+08	1.6960	0.6000	0.0000	0.0000
Sb-130	39.500	m	2.03	1.2813E+22	1.0128E+08	3.2700	0.7030	0.0000	0.0000
Sn-130	3.7200	m	1.08	3.7535E+21	3.1504E+08	0.9650	0.4750	0.0000	0.0000
Sn-129	2.2300	m	1.79	2.1325E+21	2.9857E+08	1.0080	1.2940	0.0000	0.0000
La-143	14.140	m	1.13	5.2857E+22	1.1671E+09	0.2515	1.5000	0.0000	0.0000
Ce-146	13.520	m	0.96	3.1453E+22	7.2637E+08	0.2890	0.0431	0.0000	0.0000
I-136m	46.900	s	2.13	2.4227E+20	9.6774E+07	2.1360	2.1900	0.0000	0.0000
Sn-130m	1.7000	m	5.88	1.3056E+21	2.3978E+08	0.7926	1.4440	0.0000	0.0000
Ru-107	3.7500	m	1.33	9.8757E+21	8.2226E+08	0.2060	1.2300	0.0000	0.0000
La-142	1.5180	h	0.55	1.9817E+22	6.7933E+07	2.4900	0.8420	0.0000	0.0000
Nd-151	12.440	m	0.56	7.0078E+21	1.7589E+08	0.9170	0.6200	0.0000	0.0000
Sr-92	2.7100	h	0.37	6.0060E+22	1.1533E+08	1.3410	0.1770	0.0000	0.0000
Rh-108	16.800	s	2.98	3.8842E+20	4.3313E+08	0.3250	1.7800	0.0000	0.0000

Point in time = 10.0000000 min

Isotope	Half-life +/- pct			Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Sr-93	7.4230	m	0.32	2.6763E+22	1.1257E+09	2.2200	0.7870	0.0000	0.0000
Mo-101	14.610	m	0.21	5.1932E+22	1.1098E+09	1.5100	0.5120	0.0000	0.0000
Y-95	10.300	m	0.97	3.9326E+22	1.1921E+09	1.2910	1.3520	0.0000	0.0000
Tc-104	18.300	m	1.64	4.5074E+22	7.6904E+08	2.0000	1.6100	0.0000	0.0000
Xe-138	14.080	m	0.57	4.6142E+22	1.0232E+09	1.1300	0.6390	0.0000	0.0000
Rb-89	15.400	m	1.30	2.7310E+22	5.5369E+08	2.0700	1.0200	0.0000	0.0000
Ba-142	10.600	m	1.89	3.5051E+22	1.0324E+09	1.0400	0.3780	0.0000	0.0000
Sb-133	2.5000	m	4.00	1.9146E+21	2.3912E+08	4.3440	0.0000	0.0000	0.0000
Sb-132	2.7900	m	1.79	2.7857E+21	3.1174E+08	2.6100	1.2400	0.0000	0.0000
Sb-131	23.030	m	0.17	3.1545E+22	4.2767E+08	1.8100	0.5820	0.0000	0.0000
Kr-89	3.1500	m	1.27	4.2279E+21	4.1907E+08	1.8460	1.3780	0.0000	0.0000
Rb-90	2.6330	m	3.17	3.4857E+21	4.1335E+08	1.8500	1.9800	0.0000	0.0000
Ba-141	18.270	m	0.38	5.2245E+22	8.9285E+08	0.8470	0.9670	0.0000	0.0000
Cs-138	33.420	m	0.54	3.3512E+22	3.1309E+08	2.3600	1.2400	0.0000	0.0000
Te-133	12.450	m	2.41	2.8972E+22	7.2657E+08	0.9540	0.7970	0.0000	0.0000
Y-94	18.700	m	0.53	5.1339E+22	8.5719E+08	0.7780	1.8130	0.0000	0.0000
Sb-132m	4.1000	m	1.71	3.1718E+21	2.4154E+08	2.5900	1.3400	0.0000	0.0000
Rb-90m	4.3000	m	1.55	2.5261E+21	1.8342E+08	3.3000	1.4030	0.0000	0.0000
Sb-130m	6.3000	m	3.17	3.7622E+21	1.8645E+08	2.6500	1.0100	0.0000	0.0000
Tc-105	7.6000	m	1.32	2.0663E+22	8.4890E+08	0.5390	1.4300	0.0000	0.0000
Te-134	41.800	m	1.91	7.0274E+22	5.2492E+08	0.8580	0.2430	0.0000	0.0000
Ce-145	2.9500	m	2.03	5.4444E+21	5.7624E+08	0.7740	0.6910	0.0000	0.0000
Cs-139	9.2700	m	0.54	3.9913E+22	1.3443E+09	0.3290	1.6500	0.0000	0.0000
I-134	52.500	m	0.38	2.8091E+22	1.6706E+08	2.6100	0.0618	0.0000	0.0000
Pr-147	13.400	m	2.98	1.9728E+22	4.5968E+08	0.8640	0.7810	0.0000	0.0000
Sb-130	39.500	m	2.03	1.4436E+22	1.1411E+08	3.2700	0.7030	0.0000	0.0000
Te-133m	55.400	m	0.72	3.3699E+22	1.8993E+08	1.6960	0.6000	0.0000	0.0000

La-142	1.5180	h	0.55	3.2364E+22	1.1095E+08	2.4900	0.8420	0.0000	0.0000
Y-93m	0.82000	s	4.88	1.2351E+19	2.8217E+08	0.8600	0.0790	0.0000	0.0000
Pr-148	2.2900	m	0.87	1.9266E+21	2.6268E+08	0.8870	1.7900	0.0000	0.0000
La-143	14.140	m	1.13	4.1367E+22	9.1343E+08	0.2515	1.5000	0.0000	0.0000
Xe-137	3.8180	m	0.34	1.3924E+22	1.1387E+09	0.1960	1.7030	0.0000	0.0000
Nb-99m	2.6000	m	7.69	2.3366E+21	2.8060E+08	0.7550	1.4700	0.0000	0.0000
I-136	1.3900	m	1.20	3.6099E+20	8.1086E+07	2.4600	1.9700	0.0000	0.0000
Pr-146	24.150	m	0.75	1.3900E+22	1.7971E+08	1.0200	1.3000	0.0000	0.0000
Tc-101	14.200	m	0.70	2.3989E+22	5.2748E+08	0.3387	0.4770	0.0000	0.0000
Ce-146	13.520	m	0.96	2.4341E+22	5.6212E+08	0.2890	0.0431	0.0000	0.0000
Sr-92	2.7100	h	0.37	5.8793E+22	1.1290E+08	1.3410	0.1770	0.0000	0.0000
Br-84	31.800	m	0.25	7.6778E+21	7.5384E+07	1.7680	1.2360	0.0000	0.0000
Nd-151	12.440	m	0.56	5.3040E+21	1.3312E+08	0.9170	0.6200	0.0000	0.0000
Sn-130	3.7200	m	1.08	1.4785E+21	1.2410E+08	0.9650	0.4750	0.0000	0.0000
I-135	6.5690	h	0.30	8.7234E+22	6.9104E+07	1.6500	0.3770	0.0000	0.0000
Kr-88	2.8390	h	1.06	3.0248E+22	5.5445E+07	1.9550	0.3616	0.0000	0.0000
Tc-102	5.2800	s	2.84	3.4287E+20	1.2165E+09	0.0786	1.9400	0.0000	0.0000
Sr-94	1.2550	m	0.53	2.5676E+20	6.3878E+07	1.4270	0.8350	0.0000	0.0000
Cs-140	1.0620	m	0.47	1.2475E+20	3.6678E+07	2.2600	1.7500	0.0000	0.0000
Se-83	22.300	m	1.35	2.2620E+21	3.1671E+07	2.4290	0.4976	0.0000	0.0000
Kr-87	1.2720	h	0.79	2.2612E+22	9.2506E+07	0.7960	1.3380	0.0000	0.0000
Rh-107	21.700	m	1.84	1.5607E+22	2.2456E+08	0.3125	0.4370	0.0000	0.0000
Ru-107	3.7500	m	1.33	3.9197E+21	3.2636E+08	0.2060	1.2300	0.0000	0.0000

Point in time = 30.000000 min

Isotope	Half-life	+/-	pct	Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Cs-138	33.420	m	0.54	4.5219E+22	4.2246E+08	2.3600	1.2400	0.0000	0.0000
Tc-104	18.300	m	1.64	2.1161E+22	3.6104E+08	2.0000	1.6100	0.0000	0.0000
Mo-101	14.610	m	0.21	2.0107E+22	4.2971E+08	1.5100	0.5120	0.0000	0.0000
I-134	52.500	m	0.38	3.9878E+22	2.3716E+08	2.6100	0.0618	0.0000	0.0000
Rb-89	15.400	m	1.30	1.3196E+22	2.6755E+08	2.0700	1.0200	0.0000	0.0000
La-142	1.5180	h	0.55	5.1135E+22	1.7529E+08	2.4900	0.8420	0.0000	0.0000
Xe-138	14.080	m	0.57	1.7238E+22	3.8226E+08	1.1300	0.6390	0.0000	0.0000
Sb-131	23.030	m	0.17	1.7287E+22	2.3436E+08	1.8100	0.5820	0.0000	0.0000
Y-95	10.300	m	0.97	1.0237E+22	3.1031E+08	1.2910	1.3520	0.0000	0.0000
Sr-93	7.4230	m	0.32	4.1348E+21	1.7392E+08	2.2200	0.7870	0.0000	0.0000
Ba-141	18.270	m	0.38	2.4463E+22	4.1807E+08	0.8470	0.9670	0.0000	0.0000
Te-134	41.800	m	1.91	5.0438E+22	3.7675E+08	0.8580	0.2430	0.0000	0.0000
Y-94	18.700	m	0.53	2.4593E+22	4.1062E+08	0.7780	1.8130	0.0000	0.0000
Sb-130	39.500	m	2.03	1.1336E+22	8.9603E+07	3.2700	0.7030	0.0000	0.0000
Ba-142	10.600	m	1.89	9.4781E+21	2.7918E+08	1.0400	0.3780	0.0000	0.0000
Te-133	12.450	m	2.41	1.0934E+22	2.7421E+08	0.9540	0.7970	0.0000	0.0000
Te-133m	55.400	m	0.72	2.6507E+22	1.4939E+08	1.6960	0.6000	0.0000	0.0000
Pr-146	24.150	m	0.75	1.9143E+22	2.4749E+08	1.0200	1.3000	0.0000	0.0000
Tc-101	14.200	m	0.70	2.7857E+22	6.1252E+08	0.3387	0.4770	0.0000	0.0000
Pr-147	13.400	m	2.98	7.0193E+21	1.6355E+08	0.8640	0.7810	0.0000	0.0000
Sr-92	2.7100	h	0.37	5.3988E+22	1.0367E+08	1.3410	0.1770	0.0000	0.0000
I-135	6.5690	h	0.30	8.4219E+22	6.6716E+07	1.6500	0.3770	0.0000	0.0000
Kr-88	2.8390	h	1.06	2.7884E+22	5.1111E+07	1.9550	0.3616	0.0000	0.0000
Cs-139	9.2700	m	0.54	8.9467E+21	3.0134E+08	0.3290	1.6500	0.0000	0.0000
Br-84	31.800	m	0.25	5.7073E+21	5.6037E+07	1.7680	1.2360	0.0000	0.0000
La-141	3.9190	h	0.77	4.8376E+22	6.4236E+07	1.4500	0.9626	0.0000	0.0000
La-143	14.140	m	1.13	1.5519E+22	3.4268E+08	0.2515	1.5000	0.0000	0.0000
Te-131	25.000	m	0.40	1.5221E+22	1.9010E+08	0.4220	0.7210	0.0000	0.0000
Tc-105	7.6000	m	1.32	3.3344E+21	1.3699E+08	0.5390	1.4300	0.0000	0.0000
Kr-87	1.2720	h	0.79	1.8866E+22	7.7182E+07	0.7960	1.3380	0.0000	0.0000
Ce-146	13.520	m	0.96	8.7302E+21	2.0161E+08	0.2890	0.0431	0.0000	0.0000
Sb-130m	6.3000	m	3.17	4.2953E+20	2.1287E+07	2.6500	1.0100	0.0000	0.0000
Rh-107	21.700	m	1.84	1.0623E+22	1.5284E+08	0.3125	0.4370	0.0000	0.0000
Se-83	22.300	m	1.35	1.2148E+21	1.7009E+07	2.4290	0.4976	0.0000	0.0000
Nd-151	12.440	m	0.56	1.7403E+21	4.3680E+07	0.9170	0.6200	0.0000	0.0000
Y-93m	0.82000	s	4.88	1.9082E+18	4.3595E+07	0.8600	0.0790	0.0000	0.0000
Ru-105	4.4390	h	0.45	4.2701E+22	5.0058E+07	0.7380	0.4104	0.0000	0.0000
Sr-91	9.6310	h	0.52	5.4936E+22	2.9683E+07	1.0480	0.6670	0.0000	0.0000
Tc-102	5.2800	s	2.84	1.0054E+20	3.5672E+08	0.0786	1.9400	0.0000	0.0000
Rb-88	17.800	m	0.56	2.2560E+21	3.9573E+07	0.6370	2.0700	0.0000	0.0000
Rb-90m	4.3000	m	1.55	1.0053E+20	7.2998E+06	3.3000	1.4030	0.0000	0.0000
Sb-129	4.3610	h	0.69	1.3366E+22	1.5949E+07	1.3600	0.3940	0.0000	0.0000
Sb-132m	4.1000	m	1.71	1.0786E+20	8.2141E+06	2.5900	1.3400	0.0000	0.0000
Nd-149	1.7280	h	0.06	1.5124E+22	4.5544E+07	0.3850	0.5040	0.0000	0.0000
Sn-128	59.100	m	0.85	5.4380E+21	2.8729E+07	0.6020	0.2520	0.0000	0.0000
Nb-97m	52.700	s	3.42	6.3865E+19	2.2703E+07	0.7278	0.0156	0.0000	0.0000
Xe-135m	15.290	m	0.33	1.6825E+21	3.4358E+07	0.4320	0.0984	0.0000	0.0000
Pm-152	4.1200	m	1.94	5.6008E+20	4.2445E+07	0.2800	1.3100	0.0000	0.0000
Sn-127	2.1000	h	1.91	2.5684E+21	6.3645E+06	1.8600	0.5190	0.0000	0.0000
Ba-139	1.3840	h	0.34	6.1355E+22	2.3069E+08	0.0454	0.8990	0.0000	0.0000

Point in time = 1.00000000 hrs

Isotope	Half-life	+/-	pct	Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Cs-138	33.420	m	0.54	3.3460E+22	3.1260E+08	2.3600	1.2400	0.0000	0.0000
I-134	52.500	m	0.38	4.2913E+22	2.5521E+08	2.6100	0.0618	0.0000	0.0000
La-142	1.5180	h	0.55	4.7726E+22	1.6361E+08	2.4900	0.8420	0.0000	0.0000
Tc-104	18.300	m	1.64	6.7928E+21	1.1590E+08	2.0000	1.6100	0.0000	0.0000
Te-134	41.800	m	1.91	3.0670E+22	2.2909E+08	0.8580	0.2430	0.0000	0.0000
Te-133m	55.400	m	0.72	1.8213E+22	1.0265E+08	1.6960	0.6000	0.0000	0.0000
Sb-130	39.500	m	2.03	6.7191E+21	5.3111E+07	3.2700	0.7030	0.0000	0.0000
Sb-131	23.030	m	0.17	7.0077E+21	9.5007E+07	1.8100	0.5820	0.0000	0.0000

Pr-146	24.150	m	0.75	1.2216E+22	1.5793E+08	1.0200	1.3000	0.0000	0.0000
Mo-101	14.610	m	0.21	4.8442E+21	1.0352E+08	1.5100	0.5120	0.0000	0.0000
Rb-89	15.400	m	1.30	3.4369E+21	6.9681E+07	2.0700	1.0200	0.0000	0.0000
Sr-92	2.7100	h	0.37	4.7507E+22	9.1224E+07	1.3410	0.1770	0.0000	0.0000
La-141	3.9190	h	0.77	6.0062E+22	7.9753E+07	1.4500	0.9626	0.0000	0.0000
Ba-141	18.270	m	0.38	7.8381E+21	1.3395E+08	0.8470	0.9670	0.0000	0.0000
Y-94	18.700	m	0.53	8.0887E+21	1.3505E+08	0.7780	1.8130	0.0000	0.0000
I-135	6.5690	h	0.30	7.9891E+22	6.3288E+07	1.6500	0.3770	0.0000	0.0000
Xe-138	14.080	m	0.57	3.9364E+21	8.7290E+07	1.1300	0.6390	0.0000	0.0000
Tc-101	14.200	m	0.70	1.3196E+22	2.9015E+08	0.3387	0.4770	0.0000	0.0000
Kr-88	2.8390	h	1.06	2.4680E+22	4.5237E+07	1.9550	0.3616	0.0000	0.0000
Te-131	25.000	m	0.40	1.2670E+22	1.5824E+08	0.4220	0.7210	0.0000	0.0000
Te-133	12.450	m	2.41	2.7301E+21	6.8467E+07	0.9540	0.7970	0.0000	0.0000
Y-95	10.300	m	0.97	1.3595E+21	4.1210E+07	1.2910	1.3520	0.0000	0.0000
Br-84	31.800	m	0.25	2.9748E+21	2.9208E+07	1.7680	1.2360	0.0000	0.0000
Kr-87	1.2720	h	0.79	1.4367E+22	5.8774E+07	0.7960	1.3380	0.0000	0.0000
Ba-142	10.600	m	1.89	1.3327E+21	3.9257E+07	1.0400	0.3780	0.0000	0.0000
Ru-105	4.4390	h	0.45	4.2446E+22	4.9759E+07	0.7380	0.4104	0.0000	0.0000
Sr-91	9.6310	h	0.52	5.2994E+22	2.8634E+07	1.0480	0.6670	0.0000	0.0000
Pr-147	13.400	m	2.98	1.4871E+21	3.4651E+07	0.8640	0.7810	0.0000	0.0000
Rb-88	17.800	m	0.56	2.5697E+21	4.5074E+07	0.6370	2.0700	0.0000	0.0000
Sr-93	7.4230	m	0.32	2.5110E+20	1.0562E+07	2.2200	0.7870	0.0000	0.0000
Sb-129	4.3610	h	0.69	1.2491E+22	1.4905E+07	1.3600	0.3940	0.0000	0.0000
La-143	14.140	m	1.13	3.5661E+21	7.8743E+07	0.2515	1.5000	0.0000	0.0000
Rh-107	21.700	m	1.84	4.1190E+21	5.9267E+07	0.3125	0.4370	0.0000	0.0000
Se-83	22.300	m	1.35	4.7812E+20	6.6943E+06	2.4290	0.4976	0.0000	0.0000
Nb-97m	52.700	s	3.42	6.2556E+19	2.2237E+07	0.7278	0.0156	0.0000	0.0000
Nd-149	1.7280	h	0.06	1.2377E+22	3.7272E+07	0.3850	0.5040	0.0000	0.0000
Ce-146	13.520	m	0.96	1.8752E+21	4.3306E+07	0.2890	0.0431	0.0000	0.0000
Sn-128	59.100	m	0.85	3.8250E+21	2.0208E+07	0.6020	0.2520	0.0000	0.0000
I-133	20.800	h	0.48	7.1334E+22	1.7847E+07	0.6080	0.4100	0.0000	0.0000
Cs-139	9.2700	m	0.54	9.4941E+20	3.1978E+07	0.3290	1.6500	0.0000	0.0000
Sn-127	2.1000	h	1.91	2.1776E+21	5.3962E+06	1.8600	0.5190	0.0000	0.0000
Ba-139	1.3840	h	0.34	5.4535E+22	2.0505E+08	0.0454	0.8990	0.0000	0.0000
Nd-151	12.440	m	0.56	3.2709E+20	8.2096E+06	0.9170	0.6200	0.0000	0.0000
Sb-128	9.0110	h	0.33	4.0863E+21	2.3598E+06	3.1100	0.5060	0.0000	0.0000
Xe-135m	15.290	m	0.33	8.2014E+20	1.6748E+07	0.4320	0.0984	0.0000	0.0000
Nb-97	1.2020	h	0.97	2.5031E+21	1.0836E+07	0.6670	0.4671	0.0000	0.0000
I-132	2.2950	h	0.57	1.1762E+21	2.6670E+06	2.2900	0.4940	0.0000	0.0000
Y-91m	49.720	m	0.08	1.5465E+21	9.7116E+06	0.5283	0.0279	0.0000	0.0000
Tc-105	7.6000	m	1.32	2.1615E+20	8.8798E+06	0.5390	1.4300	0.0000	0.0000
Y-92	3.5390	h	0.57	1.2602E+22	1.8530E+07	0.2570	1.4300	0.0000	0.0000

Point in time = 3.0000000 hrs

Isotope	Half-life +/- pct		Atoms	Curies	gamma	Total Energy Release (Mev) per Decay	beta(-)	beta(+)	alpha
I-134	52.500	m	0.38	1.9090E+22	1.1353E+08	2.6100	0.0618	0.0000	0.0000
La-142	1.5180	h	0.55	1.9753E+22	6.7716E+07	2.4900	0.8420	0.0000	0.0000
La-141	3.9190	h	0.77	4.8044E+22	6.3795E+07	1.4500	0.9626	0.0000	0.0000
I-135	6.5690	h	0.30	6.4691E+22	5.1247E+07	1.6500	0.3770	0.0000	0.0000
Sr-92	2.7100	h	0.37	2.8484E+22	5.4695E+07	1.3410	0.1770	0.0000	0.0000
Cs-138	33.420	m	0.54	3.3234E+21	3.1049E+07	2.3600	1.2400	0.0000	0.0000
Kr-88	2.8390	h	1.06	1.5145E+22	2.7761E+07	1.9550	0.3616	0.0000	0.0000
Te-133m	55.400	m	0.72	4.0581E+21	2.2871E+07	1.6960	0.6000	0.0000	0.0000
Ru-105	4.4390	h	0.45	3.1223E+22	3.6603E+07	0.7380	0.4104	0.0000	0.0000
Te-134	41.800	m	1.91	4.1929E+21	3.1319E+07	0.8580	0.2430	0.0000	0.0000
Sr-91	9.6310	h	0.52	4.5890E+22	2.4795E+07	1.0480	0.6670	0.0000	0.0000
Sb-130	39.500	m	2.03	8.1809E+20	6.4666E+06	3.2700	0.7030	0.0000	0.0000
Rb-88	17.800	m	0.56	1.7644E+21	3.0949E+07	0.6370	2.0700	0.0000	0.0000
Kr-87	1.2720	h	0.79	4.8310E+21	1.9764E+07	0.7960	1.3380	0.0000	0.0000
Nb-97m	52.700	s	3.42	5.7584E+19	2.0470E+07	0.7278	0.0156	0.0000	0.0000
Sb-129	4.3610	h	0.69	9.1215E+21	1.0884E+07	1.3600	0.3940	0.0000	0.0000
I-133	20.800	h	0.48	8.2712E+22	2.0693E+07	0.6080	0.4100	0.0000	0.0000
Nb-97	1.2020	h	0.97	4.3118E+21	1.8667E+07	0.6670	0.4671	0.0000	0.0000
Sb-128	9.0110	h	0.33	6.1347E+21	3.5428E+06	3.1100	0.5060	0.0000	0.0000
Y-92	3.5390	h	0.57	2.3997E+22	3.5286E+07	0.2570	1.4300	0.0000	0.0000
I-132	2.2950	h	0.57	1.7067E+21	3.8698E+06	2.2900	0.4940	0.0000	0.0000
Y-91m	49.720	m	0.08	2.2812E+21	1.4326E+07	0.5283	0.0279	0.0000	0.0000
Pr-146	24.150	m	0.75	5.1701E+20	6.6842E+06	1.0200	1.3000	0.0000	0.0000
Nd-149	1.7280	h	0.06	5.5487E+21	1.6710E+07	0.3850	0.5040	0.0000	0.0000
Te-131	25.000	m	0.40	1.2037E+21	1.5034E+07	0.4220	0.7210	0.0000	0.0000
Sn-127	2.1000	h	1.91	1.1254E+21	2.7886E+06	1.8600	0.5190	0.0000	0.0000
Te-133	12.450	m	2.41	2.0813E+20	5.2195E+06	0.9540	0.7970	0.0000	0.0000
Sb-131	23.030	m	0.17	1.8925E+20	2.5657E+06	1.8100	0.5820	0.0000	0.0000
Xe-135	9.1390	h	0.22	2.7891E+22	1.5882E+07	0.2490	0.3190	0.0000	0.0000
Zr-97	16.740	h	0.07	6.9220E+22	2.1518E+07	0.1800	0.7020	0.0000	0.0000
Xe-135m	15.290	m	0.33	4.3230E+20	8.8278E+06	0.4320	0.0984	0.0000	0.0000
Br-84	31.800	m	0.25	2.1752E+20	2.1357E+06	1.7680	1.2360	0.0000	0.0000
Ba-139	1.3840	h	0.34	2.0421E+22	7.6783E+07	0.0454	0.8990	0.0000	0.0000
Sn-128	59.100	m	0.85	9.3627E+20	4.9464E+06	0.6020	0.2520	0.0000	0.0000
Ce-143	1.3800	d	0.15	6.3044E+22	9.9054E+06	0.2750	0.4390	0.0000	0.0000
Y-93	10.180	h	0.79	5.7117E+22	2.9197E+07	0.0919	1.1720	0.0000	0.0000
Tc-104	18.300	m	1.64	7.2124E+19	1.2306E+06	2.0000	1.6100	0.0000	0.0000
Te-131m	1.2500	d	0.64	7.6248E+21	1.3226E+06	1.4200	0.0523	0.0000	0.0000
Kr-85m	4.4810	h	0.18	8.8473E+21	1.0274E+07	0.1570	0.2282	0.0000	0.0000
Y-94	18.700	m	0.53	9.4653E+19	1.5804E+06	0.7780	1.8130	0.0000	0.0000
Ba-141	18.270	m	0.38	8.2604E+19	1.4117E+06	0.8470	0.9670	0.0000	0.0000
Te-132	3.2040	d	0.41	6.6624E+22	4.5087E+06	0.2340	0.1020	0.0000	0.0000
Mo-99	2.7480	d	0.02	8.1051E+22	6.3951E+06	0.1450	0.4080	0.0000	0.0000
Tc-101	14.200	m	0.70	1.2339E+20	2.7131E+06	0.3387	0.4770	0.0000	0.0000
Cd-117	2.4900	h	1.61	3.5481E+20	7.4152E+05	1.0900	0.4440	0.0000	0.0000
As-78	1.5120	h	0.22	1.5577E+20	5.3613E+05	1.2520	1.2530	0.0000	0.0000

Rb-89	15.400	m	1.30	1.5506E+19	3.1437E+05	2.0700	1.0200	0.0000	0.0000
Te-129	1.1600	h	0.29	2.0068E+21	9.0026E+06	0.0631	0.5420	0.0000	0.0000
Mo-101	14.610	m	0.21	1.6319E+19	3.4875E+05	1.5100	0.5120	0.0000	0.0000
Pm-151	1.1830	d	0.14	8.5627E+21	1.5694E+06	0.3270	0.3050	0.0000	0.0000

Point in time = 10.000000 hrs

Isotope	Half-life +/- pct			Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
I-135	6.5690	h	0.30	3.0907E+22	2.4484E+07	1.6500	0.3770	0.0000	0.0000
La-141	3.9190	h	0.77	1.3956E+22	1.8531E+07	1.4500	0.9626	0.0000	0.0000
Sr-91	9.6310	h	0.52	2.7728E+22	1.4982E+07	1.0480	0.6670	0.0000	0.0000
Sr-92	2.7100	h	0.37	4.7537E+21	9.1281E+06	1.3410	0.1770	0.0000	0.0000
Nb-97	1.2020	h	0.97	3.9922E+21	1.7283E+07	0.6670	0.4671	0.0000	0.0000
Nb-97m	52.700	s	3.42	4.3095E+19	1.5319E+07	0.7278	0.0156	0.0000	0.0000
I-133	20.800	h	0.48	6.9015E+22	1.7266E+07	0.6080	0.4100	0.0000	0.0000
I-132	2.2950	h	0.57	1.9116E+21	4.3344E+06	2.2900	0.4940	0.0000	0.0000
Kr-88	2.8390	h	1.06	2.7418E+21	5.0257E+06	1.9550	0.3616	0.0000	0.0000
Ru-105	4.4390	h	0.45	1.0466E+22	1.2269E+07	0.7380	0.4104	0.0000	0.0000
Sb-128	9.0110	h	0.33	4.1864E+21	2.4176E+06	3.1100	0.5060	0.0000	0.0000
La-142	1.5180	h	0.55	8.0817E+20	2.7705E+06	2.4900	0.8420	0.0000	0.0000
Y-92	3.5390	h	0.57	1.6666E+22	2.4505E+07	0.2570	1.4300	0.0000	0.0000
Xe-135	9.1390	h	0.22	4.1919E+22	2.3869E+07	0.2490	0.3190	0.0000	0.0000
Y-91m	49.720	m	0.08	1.5352E+21	9.6406E+06	0.5283	0.0279	0.0000	0.0000
Sb-129	4.3610	h	0.69	2.9984E+21	3.5779E+06	1.3600	0.3940	0.0000	0.0000
Rb-88	17.800	m	0.56	3.1994E+20	5.6121E+06	0.6370	2.0700	0.0000	0.0000
Zr-97	16.740	h	0.07	5.1803E+22	1.6103E+07	0.1800	0.7020	0.0000	0.0000
Ce-143	1.3800	d	0.15	5.4461E+22	8.5570E+06	0.2750	0.4390	0.0000	0.0000
I-134	52.500	m	0.38	1.3550E+20	8.0582E+05	2.6100	0.0618	0.0000	0.0000
Xe-135m	15.290	m	0.33	2.0594E+20	4.2055E+06	0.4320	0.0984	0.0000	0.0000
Y-93	10.180	h	0.79	3.5463E+22	1.8128E+07	0.0919	1.1720	0.0000	0.0000
Te-131m	1.2500	d	0.64	6.4992E+21	1.1274E+06	1.4200	0.0523	0.0000	0.0000
Te-132	3.2040	d	0.41	6.2550E+22	4.2330E+06	0.2340	0.1020	0.0000	0.0000
Mo-99	2.7480	d	0.02	7.5302E+22	5.9415E+06	0.1450	0.4080	0.0000	0.0000
Kr-85m	4.4810	h	0.18	2.9961E+21	3.4794E+06	0.1570	0.2282	0.0000	0.0000
Sn-127	2.1000	h	1.91	1.1165E+20	2.7667E+05	1.8600	0.5190	0.0000	0.0000
La-140	1.6780	d	0.01	1.6840E+21	2.1760E+05	2.3200	0.5340	0.0000	0.0000
Tc-99m	6.0110	h	0.17	4.3109E+21	3.7320E+06	0.1240	0.0142	0.0000	0.0000
Pm-151	1.1830	d	0.14	7.2179E+21	1.3229E+06	0.3270	0.3050	0.0000	0.0000
I-131	8.0230	d	0.02	4.0522E+22	1.0951E+06	0.3823	0.1920	0.0000	0.0000
Nd-149	1.7280	h	0.06	3.3476E+20	1.0081E+06	0.3850	0.5040	0.0000	0.0000
Rh-105	1.4730	d	0.17	3.3675E+22	4.9569E+06	0.0773	0.1521	0.0000	0.0000
Kr-87	1.2720	h	0.79	1.0652E+20	4.3577E+05	0.7960	1.3380	0.0000	0.0000
Te-129	1.1600	h	0.29	8.9760E+20	4.0267E+06	0.0631	0.5420	0.0000	0.0000
Ba-140	12.770	d	0.12	7.7483E+22	1.3156E+06	0.1830	0.3100	0.0000	0.0000
Ag-112	3.1310	h	0.29	1.9367E+20	3.2188E+05	0.6950	1.3800	0.0000	0.0000
Pr-145	5.9830	h	0.17	1.5463E+22	1.3449E+07	0.0159	0.6770	0.0000	0.0000
Te-133m	55.400	m	0.72	2.1191E+19	1.1943E+05	1.6960	0.6000	0.0000	0.0000
Ru-103	39.260	d	0.05	7.4173E+22	4.0964E+05	0.4850	0.1100	0.0000	0.0000
Zr-95	64.030	d	0.01	7.4825E+22	2.5338E+05	0.7328	0.1200	0.0000	0.0000
Sb-127	3.8500	d	1.30	4.6674E+21	2.6286E+05	0.6640	0.3140	0.0000	0.0000
In-117	43.200	m	1.62	2.9679E+19	2.1451E+05	0.6920	0.2670	0.0000	0.0000
Rh-105m	40.000	s	0.00	7.4559E+18	3.4919E+06	0.0345	0.0948	0.0000	0.0000
Cd-117	2.4900	h	1.61	5.0551E+19	1.0565E+05	1.0900	0.4440	0.0000	0.0000
Ba-139	1.3840	h	0.34	6.1311E+20	2.3053E+06	0.0454	0.8990	0.0000	0.0000
Te-131	25.000	m	0.40	1.9246E+19	2.4036E+05	0.4220	0.7210	0.0000	0.0000
Cd-117m	3.3610	h	1.49	3.1087E+19	4.8131E+04	2.0400	0.2380	0.0000	0.0000
As-78	1.5120	h	0.22	1.9865E+19	6.8368E+04	1.2520	1.2530	0.0000	0.0000
Nd-147	10.980	d	0.09	2.9980E+22	5.9202E+05	0.1410	0.2690	0.0000	0.0000

Point in time = 1.250000 day

Isotope	Half-life +/- pct			Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
I-132	2.2950	h	0.57	1.6068E+21	3.6434E+06	2.2900	0.4940	0.0000	0.0000
I-133	20.800	h	0.48	3.5452E+22	8.8694E+06	0.6080	0.4100	0.0000	0.0000
Nb-97	1.2020	h	0.97	1.7521E+21	7.5855E+06	0.6670	0.4671	0.0000	0.0000
I-135	6.5690	h	0.30	3.7458E+21	2.9673E+06	1.6500	0.3770	0.0000	0.0000
Nb-97m	52.700	s	3.42	1.8827E+19	6.6925E+06	0.7278	0.0156	0.0000	0.0000
Sr-91	9.6310	h	0.52	6.5734E+21	3.5517E+06	1.0480	0.6670	0.0000	0.0000
Xe-135	9.1390	h	0.22	2.0050E+22	1.1417E+07	0.2490	0.3190	0.0000	0.0000
Sb-128	9.0110	h	0.33	9.0052E+20	5.2004E+05	3.1100	0.5060	0.0000	0.0000
Ce-143	1.3800	d	0.15	3.5835E+22	5.6304E+06	0.2750	0.4390	0.0000	0.0000
Zr-97	16.740	h	0.07	2.2631E+22	7.0350E+06	0.1800	0.7020	0.0000	0.0000
La-140	1.6780	d	0.01	4.0890E+21	5.2836E+05	2.3200	0.5340	0.0000	0.0000
Y-91m	49.720	m	0.08	3.6412E+20	2.2866E+06	0.5283	0.0279	0.0000	0.0000
Te-131m	1.2500	d	0.64	4.0942E+21	7.1019E+05	1.4200	0.0523	0.0000	0.0000
Te-132	3.2040	d	0.41	5.2231E+22	3.5347E+06	0.2340	0.1020	0.0000	0.0000
La-141	3.9190	h	0.77	4.0597E+20	5.3907E+05	1.4500	0.9626	0.0000	0.0000
Mo-99	2.7480	d	0.02	6.1026E+22	4.8152E+06	0.1450	0.4080	0.0000	0.0000
Tc-99m	6.0110	h	0.17	5.1561E+21	4.4637E+06	0.1240	0.0142	0.0000	0.0000
Y-93	10.180	h	0.79	9.0857E+21	4.6444E+06	0.0919	1.1720	0.0000	0.0000
I-131	8.0230	d	0.02	4.0028E+22	1.0818E+06	0.3823	0.1920	0.0000	0.0000
Ru-105	4.4390	h	0.45	4.6076E+20	5.4015E+05	0.7380	0.4104	0.0000	0.0000
Rh-105	1.4730	d	0.17	3.0316E+22	4.4624E+06	0.0773	0.1521	0.0000	0.0000
Pm-151	1.1830	d	0.14	4.4295E+21	8.1187E+05	0.3270	0.3050	0.0000	0.0000
Y-92	3.5390	h	0.57	6.1354E+20	9.0217E+05	0.2570	1.4300	0.0000	0.0000
Ba-140	12.770	d	0.12	7.4057E+22	1.2574E+06	0.1830	0.3100	0.0000	0.0000
Xe-135m	15.290	m	0.33	2.4959E+19	5.0968E+05	0.4320	0.0984	0.0000	0.0000
Sb-129	4.3610	h	0.69	1.2483E+20	1.4896E+05	1.3600	0.3940	0.0000	0.0000
Ru-103	39.260	d	0.05	7.3090E+22	4.0366E+05	0.4850	0.1100	0.0000	0.0000

Zr-95	64.030	d	0.01	7.4153E+22	2.5110E+05	0.7328	0.1200	0.0000	0.0000
Sb-127	3.8500	d	1.30	4.1153E+21	2.3177E+05	0.6640	0.3140	0.0000	0.0000
Ag-112	3.1310	h	0.29	1.1504E+20	1.9120E+05	0.6950	1.3800	0.0000	0.0000
Xe-133	5.2440	d	0.08	5.2292E+22	2.1621E+06	0.0463	0.1360	0.0000	0.0000
Nd-147	10.980	d	0.09	2.8443E+22	5.6168E+05	0.1410	0.2690	0.0000	0.0000
Kr-88	2.8390	h	1.06	2.0766E+19	3.8064E+04	1.9550	0.3616	0.0000	0.0000
Sr-92	2.7100	h	0.37	2.8537E+19	5.4797E+04	1.3410	0.1770	0.0000	0.0000
Te-131	25.000	m	0.40	1.2110E+19	1.5124E+05	0.4220	0.7210	0.0000	0.0000
Ce-141	32.500	d	0.03	7.3408E+22	4.8974E+05	0.0771	0.1710	0.0000	0.0000
Rb-88	17.800	m	0.56	2.4232E+18	4.2506E+04	0.6370	2.0700	0.0000	0.0000
Kr-85m	4.4810	h	0.18	1.3582E+20	1.5773E+05	0.1570	0.2282	0.0000	0.0000
Pr-145	5.9830	h	0.17	1.5241E+21	1.3256E+06	0.0159	0.6770	0.0000	0.0000
Sm-153	1.9280	d	0.01	2.9599E+21	3.3288E+05	0.0617	0.2700	0.0000	0.0000
Cs-136	13.030	d	0.54	5.3235E+20	8859.	2.1700	0.1350	0.0000	0.0000
Eu-156	15.190	d	0.53	1.0043E+21	1.4336E+04	1.3300	0.4250	0.0000	0.0000
Eu-157	15.180	h	0.20	1.8827E+20	6.4540E+04	0.2905	0.3703	0.0000	0.0000
Pm-149	2.2120	d	0.09	1.2640E+22	1.2390E+06	0.0119	0.3670	0.0000	0.0000
Cd-115	2.2280	d	0.19	7.0426E+20	6.8538E+04	0.2020	0.4930	0.0000	0.0000
In-115m	4.4860	h	0.09	6.3520E+19	7.3684E+04	0.1625	0.0174	0.0000	0.0000
Te-129	1.1600	h	0.29	4.1121E+19	1.8447E+05	0.0631	0.5420	0.0000	0.0000
Sm-156	9.4000	h	2.13	1.2654E+20	7.0050E+04	0.1142	0.1800	0.0000	0.0000
Xe-133m	2.1880	d	0.50	1.5387E+21	1.5248E+05	0.0414	0.1920	0.0000	0.0000
I-130	12.360	h	0.08	6.6308E+18	2792.	2.1400	0.2960	0.0000	0.0000

Point in time = 4.166665 day

Isotope	Half-life	+/-	pct	Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
I-132	2.2950	h	0.57	8.5494E+20	1.9385E+06	2.2900	0.4940	0.0000	0.0000
La-140	1.6780	d	0.01	7.4304E+21	9.6013E+05	2.3200	0.5340	0.0000	0.0000
I-133	20.800	h	0.48	3.4400E+21	8.6062E+05	0.6080	0.4100	0.0000	0.0000
Te-132	3.2040	d	0.41	2.7791E+22	1.8807E+06	0.2340	0.1020	0.0000	0.0000
Ce-143	1.3800	d	0.15	8.2808E+21	1.3011E+06	0.2750	0.4390	0.0000	0.0000
I-131	8.0230	d	0.02	3.3927E+22	9.1691E+05	0.3823	0.1920	0.0000	0.0000
Mo-99	2.7480	d	0.02	2.9242E+22	2.3073E+06	0.1450	0.4080	0.0000	0.0000
Nb-97	1.2020	h	0.97	9.6556E+19	4.1802E+05	0.6670	0.4671	0.0000	0.0000
Tc-99m	6.0110	h	0.17	2.5823E+21	2.2355E+06	0.1240	0.0142	0.0000	0.0000
Nb-97m	52.700	s	3.42	1.0375E+18	3.6881E+05	0.7278	0.0156	0.0000	0.0000
Te-131m	1.2500	d	0.64	8.1240E+20	1.4092E+05	1.4200	0.0523	0.0000	0.0000
Ba-140	12.770	d	0.12	6.3213E+22	1.0733E+06	0.1830	0.3100	0.0000	0.0000
Ru-103	39.260	d	0.05	6.9422E+22	3.8340E+05	0.4850	0.1100	0.0000	0.0000
Zr-95	64.030	d	0.01	7.1848E+22	2.4330E+05	0.7328	0.1200	0.0000	0.0000
Xe-133	5.2440	d	0.08	6.0719E+22	2.5106E+06	0.0463	0.1360	0.0000	0.0000
Sb-127	3.8500	d	1.30	2.4342E+21	1.3709E+05	0.6640	0.3140	0.0000	0.0000
Rh-105	1.4730	d	0.17	7.8179E+21	1.1508E+06	0.0773	0.1521	0.0000	0.0000
Zr-97	16.740	h	0.07	1.2471E+21	3.8768E+05	0.1800	0.7020	0.0000	0.0000
Nd-147	10.980	d	0.09	2.3660E+22	4.6723E+05	0.1410	0.2690	0.0000	0.0000
Pm-151	1.1830	d	0.14	8.0200E+20	1.4699E+05	0.3270	0.3050	0.0000	0.0000
Ce-141	32.500	d	0.03	6.9364E+22	4.6276E+05	0.0771	0.1710	0.0000	0.0000
Sr-91	9.6310	h	0.52	4.2643E+19	2.3041E+04	1.0480	0.6670	0.0000	0.0000
Xe-135	9.1390	h	0.22	1.5712E+20	8.9467E+04	0.2490	0.3190	0.0000	0.0000
Eu-156	15.190	d	0.53	9.9214E+20	1.4162E+04	1.3300	0.4250	0.0000	0.0000
Cs-136	13.030	d	0.54	4.5584E+20	7585.	2.1700	0.1350	0.0000	0.0000
Nb-95	34.990	d	0.02	3.1507E+21	1.9524E+04	0.7645	0.0434	0.0000	0.0000
Te-131	25.000	m	0.40	2.4029E+18	3.0010E+04	0.4220	0.7210	0.0000	0.0000
Ag-112	3.1310	h	0.29	1.0577E+19	1.7580E+04	0.6950	1.3800	0.0000	0.0000
Y-91m	49.720	m	0.08	2.3621E+18	1.4833E+04	0.5283	0.0279	0.0000	0.0000
Sb-128	9.0110	h	0.33	4.1305E+18	2385.	3.1100	0.5060	0.0000	0.0000
Sm-153	1.9280	d	0.01	1.0373E+21	1.1665E+05	0.0617	0.2700	0.0000	0.0000
Pm-149	2.2120	d	0.09	5.0679E+21	4.9677E+05	0.0119	0.3670	0.0000	0.0000
Cd-115	2.2280	d	0.19	2.8422E+20	2.7660E+04	0.2020	0.4930	0.0000	0.0000
In-115m	4.4860	h	0.09	2.6028E+19	3.0193E+04	0.1625	0.0174	0.0000	0.0000
Xe-133m	2.1880	d	0.50	1.1125E+21	1.1025E+05	0.0414	0.1920	0.0000	0.0000
Sn-125	9.6400	d	0.31	6.1031E+20	1.3727E+04	0.3140	0.8110	0.0000	0.0000
Rh-106	30.000	s	0.67	3.1549E+16	1.9701E+04	0.2100	1.4110	0.0000	0.0000
Y-93	10.180	h	0.79	7.7341E+19	3.9535E+04	0.0919	1.1720	0.0000	0.0000
I-135	6.5690	h	0.30	2.3213E+18	1839.	1.6500	0.3770	0.0000	0.0000
Sb-126	12.400	d	0.81	5.6845E+19	994.0	2.7500	0.3530	0.0000	0.0000
Pr-144	17.280	m	0.12	2.5864E+18	4.6733E+04	0.0320	1.2100	0.0000	0.0000
Ag-111	7.4500	d	0.13	1.7744E+21	5.1641E+04	0.0270	0.3550	0.0000	0.0000
Ba-137m	2.5520	m	0.04	1.3177E+16	1612.	0.5990	0.0652	0.0000	0.0000
Y-91	58.510	d	0.10	5.4474E+22	2.0187E+05	0.0046	0.6032	0.0000	0.0000
Te-129	1.1600	h	0.29	3.2195E+18	1.4443E+04	0.0631	0.5420	0.0000	0.0000
Ce-144	285.00	d	0.07	6.1424E+22	4.6731E+04	0.0192	0.0918	0.0000	0.0000
Te-129m	33.600	d	0.30	3.5468E+21	2.2888E+04	0.0373	0.2660	0.0000	0.0000
Eu-157	15.180	h	0.20	7.7024E+18	2640.	0.2905	0.3703	0.0000	0.0000
Te-127	9.3500	h	0.64	2.2993E+20	1.2797E+05	0.0050	0.2245	0.0000	0.0000
Rh-103m	56.120	m	0.00	6.8155E+19	3.7918E+05	0.0017	0.0375	0.0000	0.0000

Point in time = 10.000000 day

Isotope	Half-life	+/-	pct	Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
La-140	1.6780	d	0.01	6.7760E+21	8.7557E+05	2.3200	0.5340	0.0000	0.0000
I-132	2.2950	h	0.57	2.4203E+20	5.4879E+05	2.2900	0.4940	0.0000	0.0000
I-131	8.0230	d	0.02	2.1042E+22	5.6866E+05	0.3823	0.1920	0.0000	0.0000
Ru-103	39.260	d	0.05	6.2628E+22	3.4588E+05	0.4850	0.1100	0.0000	0.0000
Zr-95	64.030	d	0.01	6.7451E+22	2.2841E+05	0.7328	0.1200	0.0000	0.0000
Ba-140	12.770	d	0.12	4.6057E+22	7.8202E+05	0.1830	0.3100	0.0000	0.0000
Te-132	3.2040	d	0.41	7.8674E+21	5.3241E+05	0.2340	0.1020	0.0000	0.0000
Mo-99	2.7480	d	0.02	6.7143E+21	5.2977E+05	0.1450	0.4080	0.0000	0.0000

Tc-99m	6.0110	h	0.17	5.9292E+20	5.1330E+05	0.1240	0.0142	0.0000	0.0000
Xe-133	5.2440	d	0.08	3.0531E+22	1.2624E+06	0.0463	0.1360	0.0000	0.0000
Nd-147	10.980	d	0.09	1.6372E+22	3.2329E+05	0.1410	0.2690	0.0000	0.0000
Nb-95	34.990	d	0.02	6.9437E+21	4.3028E+04	0.7645	0.0434	0.0000	0.0000
Sb-127	3.8500	d	1.30	8.5165E+20	4.7963E+04	0.6640	0.3140	0.0000	0.0000
Ce-141	32.500	d	0.03	6.1249E+22	4.0863E+05	0.0771	0.1710	0.0000	0.0000
Ce-143	1.3800	d	0.15	4.4218E+20	6.9476E+04	0.2750	0.4390	0.0000	0.0000
Eu-156	15.190	d	0.53	7.6084E+20	1.0860E+04	1.3300	0.4250	0.0000	0.0000
Cs-136	13.030	d	0.54	3.3423E+20	5562.	2.1700	0.1350	0.0000	0.0000
Te-131m	1.2500	d	0.64	3.1986E+19	5548.	1.4200	0.0523	0.0000	0.0000
Rh-105	1.4730	d	0.17	5.0229E+20	7.3938E+04	0.0773	0.1521	0.0000	0.0000
I-133	20.800	h	0.48	3.2389E+19	8103.	0.6080	0.4100	0.0000	0.0000
Rh-106	30.000	s	0.67	3.1208E+16	1.9488E+04	0.2100	1.4110	0.0000	0.0000
Sn-125	9.6400	d	0.31	4.0123E+20	9025.	0.3140	0.8110	0.0000	0.0000
Sb-126	12.400	d	0.81	4.1028E+19	717.4	2.7500	0.3530	0.0000	0.0000
Pm-151	1.1830	d	0.14	2.6291E+19	4819.	0.3270	0.3050	0.0000	0.0000
Pr-144	17.280	m	0.12	2.5499E+18	4.6074E+04	0.0320	1.2100	0.0000	0.0000
Ba-137m	2.5520	m	0.04	1.3172E+16	1612.	0.5990	0.0652	0.0000	0.0000
Pm-149	2.2120	d	0.09	8.1465E+20	7.9854E+04	0.0119	0.3670	0.0000	0.0000
Cd-115	2.2280	d	0.19	4.6292E+19	4505.	0.2020	0.4930	0.0000	0.0000
Ce-144	285.00	d	0.07	6.0559E+22	4.6073E+04	0.0192	0.0918	0.0000	0.0000
Sm-153	1.9280	d	0.01	1.2738E+20	1.4325E+04	0.0617	0.2700	0.0000	0.0000
Y-91	58.510	d	0.10	5.0879E+22	1.8855E+05	0.0046	0.6032	0.0000	0.0000
Nb-97	1.2020	h	0.97	2.9323E+17	1269.	0.6670	0.4671	0.0000	0.0000
Xe-133m	2.1880	d	0.50	1.9933E+20	1.9753E+04	0.0414	0.1920	0.0000	0.0000
Nb-97m	52.700	s	3.42	3.1507E+15	1120.	0.7278	0.0156	0.0000	0.0000
Ag-111	7.4500	d	0.13	1.0312E+21	3.0012E+04	0.0270	0.3550	0.0000	0.0000
Te-129	1.1600	h	0.29	2.8539E+18	1.2803E+04	0.0631	0.5420	0.0000	0.0000
In-115m	4.4860	h	0.09	4.2393E+18	4918.	0.1625	0.0174	0.0000	0.0000
Te-129m	33.600	d	0.30	3.1447E+21	2.0293E+04	0.0373	0.2660	0.0000	0.0000
Rh-103m	56.120	m	0.00	6.1485E+19	3.4208E+05	0.0017	0.0375	0.0000	0.0000
Te-131	25.000	m	0.40	9.4607E+16	1182.	0.4220	0.7210	0.0000	0.0000
Te-127	9.3500	h	0.64	8.2399E+19	4.5860E+04	0.0050	0.2245	0.0000	0.0000
Pr-143	13.560	d	0.07	4.4050E+22	7.0437E+05	0.0003	0.3151	0.0000	0.0000
Zr-97	16.740	h	0.07	3.7873E+18	1177.	0.1800	0.7020	0.0000	0.0000
Nb-95m	3.6090	d	0.92	3.6435E+19	2189.	0.0712	0.1710	0.0000	0.0000
Sr-89	50.570	d	0.06	3.6097E+22	1.5477E+05	0.0010	0.5830	0.0000	0.0000
Sb-125	2.7581	y	0.01	1.5777E+21	339.6	0.4367	0.0870	0.0000	0.0000
Ag-112	3.1310	h	0.29	8.8779E+16	147.6	0.6950	1.3800	0.0000	0.0000
Xe-131m	11.930	d	0.13	2.1901E+20	3980.	0.0200	0.1430	0.0000	0.0000
Sb-124	60.200	d	0.05	9.7706E+18	35.19	1.8500	0.3900	0.0000	0.0000
Ga-72	14.100	h	0.07	5.9642E+16	22.01	2.7080	0.5028	0.0000	0.0000

Point in time = 30.000000 day

Isotope	Half-life +/- pct	Atoms	Curies	Total Energy Release (Mev) per Decay	gamma	beta(-)	beta(+)	alpha
La-140	1.6780 d 0.01	2.3529E+21	3.0404E+05	2.3200	0.5340	0.0000	0.0000	0.0000
Zr-95	64.030 d 0.01	5.4320E+22	1.8395E+05	0.7328	0.1200	0.0000	0.0000	0.0000
Ru-103	39.260 d 0.05	4.3996E+22	2.4298E+05	0.4850	0.1100	0.0000	0.0000	0.0000
Nb-95	34.990 d 0.02	1.5432E+22	9.5629E+04	0.7645	0.0434	0.0000	0.0000	0.0000
Ba-140	12.770 d 0.12	1.5554E+22	2.6409E+05	0.1830	0.3100	0.0000	0.0000	0.0000
I-131	8.0230 d 0.02	3.7449E+21	1.0121E+05	0.3823	0.1920	0.0000	0.0000	0.0000
Ce-141	32.500 d 0.03	3.9981E+22	2.6673E+05	0.0771	0.1710	0.0000	0.0000	0.0000
I-132	2.2950 h 0.57	3.1973E+18	7250.	2.2900	0.4940	0.0000	0.0000	0.0000
Nd-147	10.980 d 0.09	4.6320E+21	9.1469E+04	0.1410	0.2690	0.0000	0.0000	0.0000
Eu-156	15.190 d 0.53	3.0545E+20	4360.	1.3300	0.4250	0.0000	0.0000	0.0000
Xe-133	5.2440 d 0.08	2.1974E+21	9.0858E+04	0.0463	0.1360	0.0000	0.0000	0.0000
Cs-136	13.030 d 0.54	1.1534E+20	1919.	2.1700	0.1350	0.0000	0.0000	0.0000
Rh-106	30.000 s 0.67	3.0068E+16	1.8776E+04	0.2100	1.4110	0.0000	0.0000	0.0000
Te-132	3.2040 d 0.41	1.0393E+20	7033.	0.2340	0.1020	0.0000	0.0000	0.0000
Pr-144	17.280 m 0.12	2.4289E+18	4.3887E+04	0.0320	1.2100	0.0000	0.0000	0.0000
Ba-137m	2.5520 m 0.04	1.3156E+16	1610.	0.5990	0.0652	0.0000	0.0000	0.0000
Sb-127	3.8500 d 1.30	2.3252E+19	1310.	0.6640	0.3140	0.0000	0.0000	0.0000
Ce-144	285.00 d 0.07	5.7684E+22	4.3885E+04	0.0192	0.0918	0.0000	0.0000	0.0000
Y-91	58.510 d 0.10	4.0146E+22	1.4877E+05	0.0046	0.6032	0.0000	0.0000	0.0000
Sn-125	9.6400 d 0.31	9.5246E+19	2142.	0.3140	0.8110	0.0000	0.0000	0.0000
Sb-126	12.400 d 0.81	1.3414E+19	234.6	2.7500	0.3530	0.0000	0.0000	0.0000
Te-129	1.1600 h 0.29	1.8891E+18	8475.	0.0631	0.5420	0.0000	0.0000	0.0000
Te-129m	33.600 d 0.30	2.0816E+21	1.3433E+04	0.0373	0.2660	0.0000	0.0000	0.0000
Mo-99	2.7480 d 0.02	4.3261E+19	3413.	0.1450	0.4080	0.0000	0.0000	0.0000
Tc-99m	6.0110 h 0.17	3.8203E+18	3307.	0.1240	0.0142	0.0000	0.0000	0.0000
Rh-103m	56.120 m 0.00	4.3193E+19	2.4031E+05	0.0017	0.0375	0.0000	0.0000	0.0000
Sb-125	2.7581 y 0.01	1.8596E+21	400.3	0.4367	0.0870	0.0000	0.0000	0.0000
Nb-95m	3.6090 d 0.92	3.4890E+19	2096.	0.0712	0.1710	0.0000	0.0000	0.0000
Ag-111	7.4500 d 0.13	1.6040E+20	4668.	0.0270	0.3550	0.0000	0.0000	0.0000
Sr-89	50.570 d 0.06	2.7442E+22	1.1766E+05	0.0010	0.5830	0.0000	0.0000	0.0000
Pr-143	13.560 d 0.07	1.6024E+22	2.5623E+05	0.0003	0.3151	0.0000	0.0000	0.0000
Xe-131m	11.930 d 0.13	1.6335E+20	2969.	0.0200	0.1430	0.0000	0.0000	0.0000
Sb-124	60.200 d 0.05	7.7608E+18	27.95	1.8500	0.3900	0.0000	0.0000	0.0000
Te-127m	109.00 d 1.84	7.2140E+20	1435.	0.0111	0.0821	0.0000	0.0000	0.0000
Eu-155	4.7531 y 0.29	1.7971E+21	224.5	0.0613	0.0650	0.0000	0.0000	0.0000
Te-127	9.3500 h 0.64	4.7104E+18	2622.	0.0050	0.2245	0.0000	0.0000	0.0000
Cd-115m	44.590 d 0.67	7.1604E+19	348.2	0.0339	0.6020	0.0000	0.0000	0.0000
Y-89m	15.660 s 0.03	9.8357E+12	11.77	0.9014	0.0077	0.0000	0.0000	0.0000
Pr-144m	6.9000 m 10.14	1.3384E+16	605.6	0.0121	0.0460	0.0000	0.0000	0.0000
Cs-134	2.0650 y 0.03	1.0510E+19	3.021	1.5500	0.1640	0.0000	0.0000	0.0000
Sn-119m	293.10 d 0.44	4.6052E+20	340.7	0.0114	0.0783	0.0000	0.0000	0.0000
Tb-161	6.8900 d 0.44	2.5072E+18	78.90	0.0339	0.1970	0.0000	0.0000	0.0000
Cs-137	30.041 y 0.10	8.6282E+22	1705.	0.0015	0.2500	0.0000	0.0000	0.0000
Pm-148m	41.050 d 0.34	2.1849E+17	1.154	1.9910	0.1690	0.0000	0.0000	0.0000
Sn-123	129.20 d 0.31	1.7615E+20	295.6	0.0077	0.5232	0.0000	0.0000	0.0000
Y-90	2.6710 d 0.12	1.2742E+19	1034.	0.0020	0.9336	0.0000	0.0000	0.0000

Cd-115	2.2280	d	0.19	9.1888E+16	8.942	0.2020	0.4930	0.0000	0.0000
Pm-149	2.2120	d	0.09	1.5459E+18	151.5	0.0119	0.3670	0.0000	0.0000
In-115m	4.4860	h	0.09	8.4450E+15	9.796	0.1625	0.0174	0.0000	0.0000
Xe-133m	2.1880	d	0.50	3.5584E+17	35.26	0.0414	0.1920	0.0000	0.0000

Point in time = 100.000000 day

Isotope	Half-life +/-	pct		Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Nb-95	34.990	d	0.02	1.8177E+22	1.1264E+05	0.7645	0.0434	0.0000	0.0000
Zr-95	64.030	d	0.01	2.5460E+22	8.6217E+04	0.7328	0.1200	0.0000	0.0000
Ru-103	39.260	d	0.05	1.2784E+22	7.0606E+04	0.4850	0.1100	0.0000	0.0000
La-140	1.6780	d	0.01	5.2661E+19	6805.	2.3200	0.5340	0.0000	0.0000
Ce-141	32.500	d	0.03	8.9842E+21	5.9939E+04	0.0771	0.1710	0.0000	0.0000
Rh-106	30.000	s	0.67	2.6397E+16	1.6484E+04	0.2100	1.4110	0.0000	0.0000
Pr-144	17.280	m	0.12	2.0487E+18	3.7017E+04	0.0320	1.2100	0.0000	0.0000
Ba-140	12.770	d	0.12	3.4810E+20	5911.	0.1830	0.3100	0.0000	0.0000
Ba-137m	2.5520	m	0.04	1.3098E+16	1602.	0.5990	0.0652	0.0000	0.0000
Ce-144	285.00	d	0.07	4.8654E+22	3.7015E+04	0.0192	0.0918	0.0000	0.0000
Y-91	58.510	d	0.10	1.7518E+22	6.4919E+04	0.0046	0.6032	0.0000	0.0000
Eu-156	15.190	d	0.53	1.2523E+19	178.8	1.3300	0.4250	0.0000	0.0000
Sb-125	2.7581	y	0.01	1.8631E+21	401.0	0.4367	0.0870	0.0000	0.0000
Nd-147	10.980	d	0.09	5.5800E+19	1102.	0.1410	0.2690	0.0000	0.0000
Te-129	1.1600	h	0.29	4.4577E+17	2000.	0.0631	0.5420	0.0000	0.0000
Te-129m	33.600	d	0.30	4.9118E+20	3170.	0.0373	0.2660	0.0000	0.0000
Rh-103m	56.120	m	0.00	1.2551E+19	6.9830E+04	0.0017	0.0375	0.0000	0.0000
Cs-136	13.030	d	0.54	2.7848E+18	46.34	2.1700	0.1350	0.0000	0.0000
I-131	8.0230	d	0.02	8.8508E+18	239.2	0.3823	0.1920	0.0000	0.0000
Nb-95m	3.6090	d	0.92	1.6424E+19	986.8	0.0712	0.1710	0.0000	0.0000
Sr-89	50.570	d	0.06	1.0513E+22	4.5076E+04	0.0010	0.5830	0.0000	0.0000
Sb-124	60.200	d	0.05	3.4664E+18	12.48	1.8500	0.3900	0.0000	0.0000
Eu-155	4.7531	y	0.29	1.7476E+21	218.3	0.0613	0.0650	0.0000	0.0000
Sb-126	12.400	d	0.81	2.6808E+17	4.688	2.7500	0.3530	0.0000	0.0000
Te-127m	109.00	d	1.84	4.6477E+20	924.5	0.0111	0.0821	0.0000	0.0000
Pr-144m	6.9000	m	10.14	1.1289E+16	510.8	0.0121	0.0460	0.0000	0.0000
Te-127	9.3500	h	0.64	1.6271E+18	905.6	0.0050	0.2245	0.0000	0.0000
Cs-134	2.0650	y	0.03	9.8552E+18	2.833	1.5500	0.1640	0.0000	0.0000
Sn-125	9.6400	d	0.31	6.2079E+17	13.96	0.3140	0.8110	0.0000	0.0000
Y-89m	15.660	s	0.03	3.7680E+12	4.508	0.9014	0.0077	0.0000	0.0000
Cd-115m	44.590	d	0.67	2.4119E+19	117.3	0.0339	0.6020	0.0000	0.0000
Sn-119m	293.10	d	0.44	3.9026E+20	288.7	0.0114	0.0783	0.0000	0.0000
Cs-137	30.041	y	0.10	8.5901E+22	1698.	0.0015	0.2500	0.0000	0.0000
Te-125m	57.400	d	0.26	1.6730E+19	63.20	0.0360	0.1110	0.0000	0.0000
Pr-143	13.560	d	0.07	4.4750E+20	7155.	0.0003	0.3151	0.0000	0.0000
Y-90	2.6710	d	0.12	1.2688E+19	1030.	0.0020	0.9336	0.0000	0.0000
Xe-131m	11.930	d	0.13	4.6379E+18	84.29	0.0200	0.1430	0.0000	0.0000
Sn-123	129.20	d	0.31	1.2100E+20	203.1	0.0077	0.5232	0.0000	0.0000
Pm-148m	41.050	d	0.34	6.7004E+16	0.3539	1.9910	0.1690	0.0000	0.0000
Tb-160	72.300	d	0.28	1.5228E+17	0.4567	1.1300	0.2540	0.0000	0.0000
Xe-133	5.2440	d	0.08	2.1072E+17	8.713	0.0463	0.1360	0.0000	0.0000
Kr-85	10.750	y	0.21	3.0095E+21	166.2	0.0022	0.2507	0.0000	0.0000
Ag-111	7.4500	d	0.13	2.3809E+17	6.929	0.0270	0.3550	0.0000	0.0000
Ag-110m	249.80	d	0.01	6.7866E+16	5.8908E-02	2.7400	0.0755	0.0000	0.0000
Pm-147	2.6231	y	0.01	2.8880E+22	6536.	0.0000	0.0620	0.0000	0.0000
Sr-90	28.791	y	0.21	4.9939E+22	1030.	0.0001	0.1958	0.0000	0.0000
Eu-154	8.5942	y	0.04	1.0433E+18	7.2067E-02	1.2500	0.2790	0.0000	0.0000
Rb-86	18.630	d	0.11	7.1279E+16	0.8296	0.0957	0.6670	0.0000	0.0000
Sn-117m	13.600	d	0.29	1.3965E+16	0.2226	0.1580	0.1610	0.0000	0.0000
Pm-148	5.3680	d	0.15	5.0425E+14	2.0368E-02	0.5740	0.7275	0.0000	0.0000

Point in time = 180.000000 day

Isotope	Half-life +/-	pct		Atoms	Curies	Total Energy Release (Mev) per Decay			
						gamma	beta(-)	beta(+)	alpha
Nb-95	34.990	d	0.02	1.0341E+22	6.4081E+04	0.7645	0.0434	0.0000	0.0000
Zr-95	64.030	d	0.01	1.0709E+22	3.6264E+04	0.7328	0.1200	0.0000	0.0000
Ru-103	39.260	d	0.05	3.1137E+21	1.7196E+04	0.4850	0.1100	0.0000	0.0000
Rh-106	30.000	s	0.67	2.2746E+16	1.4204E+04	0.2100	1.4110	0.0000	0.0000
Pr-144	17.280	m	0.12	1.6864E+18	3.0472E+04	0.0320	1.2100	0.0000	0.0000
Ba-137m	2.5520	m	0.04	1.3032E+16	1594.	0.5990	0.0652	0.0000	0.0000
Ce-141	32.500	d	0.03	1.6311E+21	1.0882E+04	0.0771	0.1710	0.0000	0.0000
Ce-144	285.00	d	0.07	4.0051E+22	3.0471E+04	0.0192	0.0918	0.0000	0.0000
La-140	1.6780	d	0.01	6.8491E+17	88.50	2.3200	0.5340	0.0000	0.0000
Sb-125	2.7581	y	0.01	1.7639E+21	379.7	0.4367	0.0870	0.0000	0.0000
Y-91	58.510	d	0.10	6.7905E+21	2.5164E+04	0.0046	0.6032	0.0000	0.0000
Nb-95m	3.6090	d	0.92	6.9084E+18	415.0	0.0712	0.1710	0.0000	0.0000
Rh-103m	56.120	m	0.00	3.0569E+18	1.7007E+04	0.0017	0.0375	0.0000	0.0000
Te-129	1.1600	h	0.29	8.5581E+16	383.9	0.0631	0.5420	0.0000	0.0000
Te-129m	33.600	d	0.30	9.4298E+19	608.5	0.0373	0.2660	0.0000	0.0000
Sr-89	50.570	d	0.06	3.5116E+21	1.5057E+04	0.0010	0.5830	0.0000	0.0000
Ba-140	12.770	d	0.12	4.5274E+18	76.87	0.1830	0.3100	0.0000	0.0000
Eu-155	4.7531	y	0.29	1.6927E+21	211.4	0.0613	0.0650	0.0000	0.0000
Sb-124	60.200	d	0.05	1.3799E+18	4.970	1.8500	0.3900	0.0000	0.0000
Eu-156	15.190	d	0.53	3.2531E+17	4.644	1.3300	0.4250	0.0000	0.0000
Te-127m	109.00	d	1.84	2.7945E+20	555.9	0.0111	0.0821	0.0000	0.0000
Pr-144m	6.9000	m	10.14	9.2928E+15	420.5	0.0121	0.0460	0.0000	0.0000
Cs-134	2.0650	y	0.03	9.1567E+18	2.632	1.5500	0.1640	0.0000	0.0000
Te-125m	57.400	d	0.26	2.0628E+19	77.92	0.0360	0.1110	0.0000	0.0000
Sn-119m	293.10	d	0.44	3.2299E+20	238.9	0.0114	0.0783	0.0000	0.0000
Te-127	9.3500	h	0.64	9.7831E+17	544.5	0.0050	0.2245	0.0000	0.0000
Cs-137	30.041	y	0.10	8.5468E+22	1689.	0.0015	0.2500	0.0000	0.0000

Y-90	2.6710	d	0.12	1.2621E+19	1025.	0.0020	0.9336	0.0000	0.0000
Cs-136	13.030	d	0.54	3.9497E+16	0.6573	2.1700	0.1350	0.0000	0.0000
Y-89m	15.660	s	0.03	1.2586E+12	1.506	0.9014	0.0077	0.0000	0.0000
Cd-115m	44.590	d	0.67	6.9547E+18	33.82	0.0339	0.6020	0.0000	0.0000
Sn-123	129.20	d	0.31	7.8776E+19	132.2	0.0077	0.5232	0.0000	0.0000
Nd-147	10.980	d	0.09	3.5755E+17	7.061	0.1410	0.2690	0.0000	0.0000
Kr-85	10.750	y	0.21	2.9673E+21	163.9	0.0022	0.2507	0.0000	0.0000
Tb-160	72.300	d	0.28	7.0722E+16	0.2121	1.1300	0.2540	0.0000	0.0000
Pm-148m	41.050	d	0.34	1.7356E+16	9.1673E-02	1.9910	0.1690	0.0000	0.0000
Sb-126	12.400	d	0.81	3.1156E+15	5.4479E-02	2.7500	0.3530	0.0000	0.0000
Ag-110m	249.80	d	0.01	5.4356E+16	4.7181E-02	2.7400	0.0755	0.0000	0.0000
Pm-147	2.6231	y	0.01	2.7309E+22	6181.	0.0000	0.0620	0.0000	0.0000
Sr-90	28.791	y	0.21	4.9676E+22	1024.	0.0001	0.1958	0.0000	0.0000
I-131	8.0230	d	0.02	8.8168E+15	0.2383	0.3823	0.1920	0.0000	0.0000
Eu-154	8.5942	y	0.04	1.0250E+18	7.0805E-02	1.2500	0.2790	0.0000	0.0000
Pr-143	13.560	d	0.07	7.4955E+18	119.9	0.0003	0.3151	0.0000	0.0000
Xe-131m	11.930	d	0.13	4.6959E+16	0.8535	0.0200	0.1430	0.0000	0.0000
Sn-125	9.6400	d	0.31	1.9714E+15	4.4341E-02	0.3140	0.8110	0.0000	0.0000
Sb-126m	19.100	m	1.05	4.0677E+11	6.6495E-03	1.5500	0.6320	0.0000	0.0000
Sn-121m	55.011	y	9.09	8.7258E+19	0.9416	0.0050	0.0351	0.0000	0.0000
Y-88	106.60	d	0.02	7.7842E+14	1.5833E-03	2.6900	0.0054	0.0008	0.0000
Rb-86	18.630	d	0.11	3.6333E+15	4.2286E-02	0.0957	0.6670	0.0000	0.0000
Ce-139	137.60	d	0.01	1.5488E+16	2.4406E-02	0.1600	0.0331	0.0000	0.0000