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HTGR SPENT FUEL ELEMENT DECAY HEAT AND SOURCE TERM ANALYSIS

by
R. E. SUND, D. E. STRONG, and B. A. ENGHOLM

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ABSTRACT

Decay heat, gamma dose rates, and neutron source strengths were determined for spent fuel elements from a High-Temperature Gas-Cooled Reactor (HTGR). The calculations were based on curie values reported in General Atomic Report GA-A13886 for the earlier commercial version of a 3000-MW(t) HTGR utilizing the thorium-uranium four-year fuel cycle. The reactor core was designed for an average thermal power density of 8.5 watts per cm³ and a carbon-to-thorium atom ratio which varies between 210:1 and 240:1.

Calculations of decay heat, gamma dose rates, and neutron source strengths were made for spent fuel elements from the initial core and from representative nonrecycle and recycle reloads. The study was performed for decay times from 180 days to 10 years. Tables of the isotopic results are given for both the fertile and fissile particles in the fuel elements. In addition, ordered tables of the important isotopic contributors are presented. Graphical presentations of the results are shown and discussed; in addition, comparisons are made with previous determinations.

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1. INTRODUCTION

As part of the Thorium Utilization Program (contract number EY-76-C-03-0167, Project Agreement Number 53), the decay heat, gamma dose rates, and neutron source strengths were calculated for spent fuel elements from the earlier commercial version of a 3000-MW(t) High-Temperature Gas-Cooled Reactor (HTGR). For the initial core, uranium enriched to 93% in U-235 is used as the feed fissile material, and thorium fertile material is used for the production of bred U-233. The bred U-233 and unburned U-235, along with other accompanying uranium isotopes, can be recycled and used as fissile material, with enriched uranium added as makeup fuel. The fissile and fertile materials that are loaded into the core are segregated into two different types of fuel particles. Partial refueling is utilized, with approximately one-fourth of the core reloaded annually. More information on the fuel cycle is given in Report GA-A13886 (Ref. 1).

The present study is based on the curie values given in Ref. 1 for four selected reloads. The calculations in Ref. 1 assumed a 3000-MW(t) reactor, 3944 fuel elements, 8.5 watts per cm³ average power density, an 80% load factor, and a carbon-to-thorium atom ratio which varies between 210:1 and 240:1. The types of spent fuel and their designations are given below.

1. IS (Initial, Spent) fuel elements - spent initial-core fuel elements with the initial fissile and fertile materials described above.
2. MS (Makeup, Spent) fuel elements - spent makeup fuel elements which are used to reload the core after the initial operation and which are made from uranium enriched to 93% in U-235 for the fissile particles and from thorium for the fertile particles.

3. 23RS (U-233 Recycle, Spent) fuel elements - spent recycle fuel elements which are made primarily from recovered U-233 material for the fissile particles and from thorium for the fertile particles.
4. 25RS (U-235 Recycle, Spent) fuel elements - spent recycle fuel elements which are made from recovered U-235 material for the fissile particles and from thorium for the fertile particles.

The four reloads reported in Ref. 1 are:

1. Reload 1 - IS-type fuel elements discharged at the beginning of reload 1 after one year of operation at full power and 80% load factor.
2. Reload 5 - MS-type fuel elements (and IS-type elements) discharged at the beginning of reload 5 after four years of operation at full power and 80% load factor. Representative of makeup type fuel elements for nonrecycle reloads.
3. Reload 10 - only 23RS and 25RS fuel elements (no M-type elements used) discharged at the beginning of reload 10 after four years of operation at full power and 80% load factor.
4. Reload 13 - MS, 23RS, and 25RS elements discharged at the beginning of reload 13 after four years of operation at full power and 80% load factor. Typical for an HTGR operating at equilibrium recycle.

Computations were performed separately for the fissile-particle inventory in a fuel element and for the fertile-particle inventory therein. In each case, results were obtained for each isotope that made a significant contribution. (See Sections A.1.1. and A.1.2. in Appendix A.) Results for each isotope were summed to obtain values for each chemical element.

Calculations were performed for the five decay times given in Ref. 1, namely, 180 days, 1 year, 3 years, 5 years, and 10 years.

The method of calculation and basic data derivation are described in Sections 2 and 3, respectively. The results are described and depicted graphically in Section 4. Conclusions are presented in Section 5.

The appendices include Appendix A, a discussion of certain differences between Ref. 1 curie values and the values input to the computations for this report, and a list of all the curie values used in the present study; Appendix B, tabulations of pertinent energies and neutron-yield values for the important isotopes; and Appendix C, a description of the SFUEL code. In addition, detailed tabulations of the results are given in Appendix D, including a list of the most important isotopes for each case.

2. METHODS OF CALCULATION

2.1. DECAY HEAT

The decay heat in units of watts per fuel element was calculated for representative cases. To obtain the decay heat, the isotope curie values given in Ref. 1 were multiplied by the number of MeV per disintegration for the alpha particles, beta particles, and gamma rays, and the results were then multiplied by appropriate conversion factors. (See Appendix A for changes in some curie values.) Decay-heat results for the isotopes were summed to obtain values for the chemical elements and the totals for the fuel elements. In addition, total alpha, beta, and gamma values were obtained for the fuel elements.

2.2. GAMMA DOSE RATES

Typical gamma dose rates were determined for the various cases. In this analysis, the curie values for the isotopes were combined with the number of MeV per disintegration for different gamma energy groups. The MeV per cm²-sec at one meter from the source was computed, and the appropriate conversion factors were used to calculate the dose rates for the different gamma energy groups.

2.3. NEUTRON SOURCE STRENGTHS

The neutron yields in neutrons per sec per fuel element were determined by multiplying the curie value for each isotope by the number of neutrons per curie-sec. The derivation of the neutron yield data is discussed in Section 3.3.

3. BASIC DATA DERIVATION

3.1. DECAY ENERGIES FOR DECAY HEAT

The alpha, beta, and gamma energies used in the decay-heat calculations are given in Table B-1 in Appendix B. In most cases, the decay energies for the fission fragments were obtained from the information prepared by the Task Force on Fission-Product Data, as reported in Ref. 2. For a number of isotopes of interest, the decay energies in Ref. 2 were based on theory rather than experiment. In these cases, the Ref. 2 values were not used; instead the results usually were obtained from the compilation by Tobias (Ref. 3). Except for U-232, the decay energies in Table B-1 in Appendix B for all isotopes with atomic numbers equal to or greater than 92 were obtained from C. W. Reich (Ref. 4). The isotopes in Table A-3 that were not available from Refs. 2, 3, or 4 were almost always obtained from Ref. 5. In a number of cases, information from Nuclear Data was used.

For the Ref. 2 and Ref. 3 compilations, the energies for the internal-conversion electrons are included with the gamma energies; this procedure was also followed in the calculations with data from Ref. 5 and from Nuclear Data. The energies for the internal-conversion electrons are included in the beta energies for the data from Ref. 4. The latter data were not modified to the form of the other data, since the internal-conversion electron energies from Ref. 4 were not listed separately. This difference in the input data should not affect the results significantly, because the energies for the internal-conversion electrons are typically small compared with the beta or gamma energies.

In the calculation of the average beta energy (excluding neutrino energy) from the end-point energy for the data given in Ref. 5 and in Nuclear Data, the data given in Ref. 6 were used for isotopes with atomic numbers less than 30. These data include the effect of the atomic number.

For isotopes with higher atomic numbers, the method described in Ref. 7 was used. (This method may be more readily available to the reader from Ref. 8.) The method gives a conservative result for isotopes with relatively high atomic numbers.

The alpha energies in Table B-1 in Appendix B include the nuclear recoil energies, which amount to roughly 2% of the values listed in the table.

Except for a number of the isotopes discussed in Appendix A.4., the half-lives listed in Table B-1 in Appendix B were those used in the calculation of the curie values given in Ref. 1. The half-lives are included here, since they were not given in Ref. 1, and since they are often important in identifying a particular isotope. In practically all of the cases, the half-lives are the same or close to the values given in the Eleventh Edition of the Chart of the Nuclides (Ref. 9). For Eu-154 and Eu-155, the half-life values used in Ref. 1 correspond to those given in Ref. 10.

3.2. GAMMA ENERGY SPECTRA

The gamma energy spectra for use in the gamma dose rate calculations are listed in Table B-2 in Appendix B. The break points between the gamma energy intervals are midway between the energies given at the top of Table B-2. The data in the table do not include the energy from internal conversion electrons; in this respect, they differ from the total gamma energies in Table B-1 in Appendix B. Most of the data on the gamma spectra were taken directly from the PATH gamma-shielding code (Ref. 11), which in turn had been derived from Refs. 3 and 5. Some new gamma spectra were added, utilizing data in Refs. 3 and 5 and in Nuclear Data. Isotopes with small values for the total gamma energy or with very low-energy spectra are generally not included in the PATH code. In some cases, small differences in the values in Tables B-1 and B-2 are caused by the use of different references for the two sets of data.

3.3. NEUTRON EMISSION

The most important sources of neutrons in the fuel are (1) spontaneous fission and (2) alpha decay followed by (α, n) reactions with carbon and oxygen. To obtain a list of important isotopes for neutron emission, the requirement of either alpha emission or spontaneous-fission decay was applied to the list which results from the criterion in Appendix A.1.1. on curie values. In addition, a number of isotopes were eliminated because their decay is predominantly by beta particles and, consequently, their (α, n) yields are relatively small. Also, Cm-243 was not included, since its neutron contribution is small relative to the other curium isotopes. The resulting list of isotopes is given in Table B-3 in Appendix B.

The calculations of the (α, n) yields were performed for the compositions of the fuel kernels. These are $UC_{30.5}$ for the fissile kernels and UO_2 for the fertile kernels. Other compositions in the vicinity of the alpha emitter would result in different yields. In the calculations, the thick-target carbon yields from Ref. 12 were used. The thick-target oxygen yields were determined from the expression $1.77 \times 10^{-11} E^{4.84}$ neutrons per alpha particle, where E is the alpha energy in MeV. This expression is 0.81 of that given in Ref. 13, which, in turn is based on the results of Ref. 14. The factor of 0.81 was obtained from the ratio of the new $C(\alpha, n)$ yield from Ref. 12 at 5.5 MeV to the $C(\alpha, n)$ yield in Ref. 14.

The method given in Ref. 15 was used to convert from thick-target (α, n) yields to the yields for the fuel kernels. In these computations, the stopping power was taken to be proportional to $Z(Z + 7)^{-1/2}$ (Ref. 13), where Z is the atomic number. This expression, together with a stopping power of 0.60 for Be and 4.6 for Pu (Ref. 15), results in a stopping power equal to 0.83 for carbon and 1.03 for oxygen. The resulting neutron yield for $UC_{30.5}$ is 0.37 of the yield for a thick carbon target, and the neutron yield for UO_2 is 0.31 of the yield for a thick oxygen target.

The neutron yields from (α, n) reactions are given in Table B-3 in Appendix B for the important isotopes.

The (α, n) yields calculated for the kernels are somewhat high because of fission fragments in the kernel in place of some of the uranium atoms. For the case of typical fission fragments entirely replacing the U in $UC_3O_{0.5}$, the correction factor to get the neutron yield from the yield for a thick carbon target is 0.30, as compared with 0.37 for $UC_3O_{0.5}$. On the other hand, for unprocessed fuel, the (α, n) yields in Table B-3 are somewhat low because of alpha particles that escape the kernel, which has a radius of 1.55×10^{-2} cm, and lose energy in the carbon coating. For instance, the range of alpha particles in going from 5.5 MeV to the (α, n) threshold at ~ 2.0 MeV is 0.16 of the radius for the $UC_3O_{0.5}$ kernel.

The neutron yields from spontaneous fission are also given in Table B-3. The spontaneous-fission yields are given only when they are significant with respect to the (α, n) yields.

The total neutron yields are given in Tables B-1 and B-3.

4. SUMMARY RESULTS

Tables D-1 through D-15 in Appendix D give the results. Figures are presented and discussed in this section, so that the results may be understood more clearly. In this report, time after discharge and decay time are considered to be synonymous with the time interval after shutdown for refueling. Also, when "reload 5" is used, it refers to fuel that is discharged at the beginning of reload 5. A similar meaning applies to other reloads.

4.1. DECAY HEAT

4.1.1. Decay Heat Versus Time After Discharge

The decay-heat results versus time after discharge for the four different reloads are shown in Figs. 1 and 2.

The decay heat for fertile particles which have been in the reactor for four years (reloads 5, 9, or 13) is much greater than that for fertile particles which have been in the reactor for one year (reload 1). The difference in the results is consistent with (1) the significantly larger amount of U-233 and the resultant larger fission rate in the fertile particles near the end of four years of operation, as compared with the conditions near the end of one year of operation and (2) the expected greater buildup of isotopes with long half-lives in the four-year fuel, as compared with the buildup in the one-year fuel.

At 180 days after discharge, the decay heat for U-235 fissile particles from reload 5 (for four-year operation) is lower than that from reload 1 (for one-year operation). The reasons for this are (1) the half-lives of the important isotopes for this decay time are typically much less than four years and (2) the U-235 in the fissile particles is mostly burned up

after four years of operation, so that the fission rate near the end of the four-year operation is considerably lower than that near the end of the one-year operation. At ten years after discharge, isotopes that decay with long half-lives compared to four years are important. As expected, at this time after discharge, the decay heat for the U-235 fissile particles from reload 5 is considerably greater than that from reload 1.

The decay heat for the different types of fissile particles varies considerably at long times after discharge, as shown for reload 13 in Fig. 2. The variations are caused mainly by the differences in the decay heat from Pu-238.

For fuel that was in the reactor for four years, the fertile-particle decay-heat values at 180 days after discharge are typically greater than the corresponding fissile-particle results. This again is caused by the large burnup of the U-235 in the fissile particles after four years of operation, so that the power near shutdown is lower than that for the fertile particles (with the bred U-233). At times greater than roughly one year after discharge, the fissile-particle results for four-year operation are greater than the fertile-particle results, as expected.

4.1.2. Comparison of Present Total Decay Heat Values With Those from GA-LTR-4 (Ref. 16)

The sum of the fertile and fissile decay-heat results for reload 5 of this study are compared with those from GA-LTR-4 (Ref 16) in Fig. 3. To obtain the decay-heat rates in percent, as shown in the figure, the decay-heat values were divided by the average operating powers of the fuel elements. The two calculations have a number of differences which affect the results. In Ref. 16 the higher of the decay-heat rates from U-233 and U-235 fission fragments was used in determining the total decay-heat rates. Also, the decay-heat determinations for the fission fragments in Ref. 16 were based on operation of the fuel at constant power; in the present study, the power of the fuel originally loaded at reload 1 and discharged at the beginning of reload 5 decreases over the period that it is in the

reactor. In addition, a number of differences exist in the calculations for the actinide nuclei. Because of the differences, the results of Ref. 16 should be somewhat higher than those of the present study at relatively short times after discharge. Also, the deviation between the results in percent should decrease for longer decay times. The results in Fig. 3 are consistent with these expectations.

In the above presentation, the reload 5 data were used to show a comparison between results of Ref. 16 and results that are representative of makeup fuel elements for non-recycle reloads. The MS results for reload 13, which is typical for an HTGR operating at equilibrium recycle, are three to five percent higher than those from reload 5. Consequently, the agreement between the MS results for reload 13 and the results from Ref. 16 is slightly better than the agreement shown in Fig. 3.

4.1.3. Alpha, Beta, and Gamma Decay Heat Versus Time

The alpha, beta, and gamma decay-heat results for reload 5 are given in Fig. 4. The alpha decay heat for the fertile particles increases with time after discharge for the time interval given in the figure. This is caused by the buildup of the Th-228 (with a 1.9-year half-life) from the decay of U-232 (with a 72-year half-life). The U-232 is produced in the reactor primarily from U-233(n,2n) reactions. Th-228 has five daughters with significant alpha yields and with relatively short half-lives.

4.1.4. Isotopic Contributors to the Decay Heat

The major isotopic contributors to the decay heat for reloads 1 and 13 are shown in circular diagrams in Figs. 5, 6, and 7. The times given on the figures are the times after discharge. The percent contributions for the important isotopes in the fertile and fissile particles of reloads 5 and 10 are similar to the values for the corresponding particles in reload 13. Figures 5, 6, and 7 were drawn starting from a line corresponding to the positive x axis and proceeding counterclockwise according to the most important isotopes. Isotopes that are mothers and daughters are shown next

to each other and are separated by dashed lines; also, the mother isotope is always shown first. For instance, Pr-144 (with a half-life of 17.3 minutes) is a daughter of Ce-144 (with a half-life of 284 days). After a chemical separation of the two elements, the Pr-144 would soon grow back into the cerium sample. The decay-heat results show that Pr-144 is the most important isotope at 180 days after discharge. Ce-144, with a much smaller percent contribution, is given first in the figures, and Pr-144 is given second in a counterclockwise direction.

As shown in Figs. 6 and 7 for reload 13, Pu-238 contributes 64%, 16%, and 2.4% of the decay heat at 10 years after discharge for 25RS, MS, and 23RS fissile particles, respectively. The Pu-238 is produced mainly from U-235 and U-236; differences in the amounts of U-235 and U-236 in the three types of fissile particles loaded into the reactor explain the variations in the importance of Pu-238.

4.2. GAMMA DOSE RATES

4.2.1. Gamma Dose Rate Versus Time After Discharge

The gamma dose rates versus time after discharge are shown in Figs. 8 and 9. The calculations assume that all of the isotopes from one fuel element are concentrated into a point source in a vacuum, with the detector one meter away. The characteristics of the curves in Figs. 8 and 9 are generally similar to the decay-heat curves in Figs. 1 and 2. There is a difference, however, in the fissile-particle curves. For the decay-heat results, the fissile-particle curves for reload 13 have different shapes because of differences in the Pu-238 contributions, as discussed above. For the gamma dose rates, the Pu-238 contributions are negligible, and the fissile-particle curves for reload 13 have similar shapes.

4.2.2. Comparison of Present Total Gamma Dose Rates to Those from GA-LTR-4 Data

In Fig. 10 the sum of the fertile and fissile gamma dose rates for a fuel element from reload 5 of this study are compared with those derived from the GA-LTR-4 data (Ref. 16) on U-235 fission fragments. Both sets of data in the figure assume a point source in a vacuum, with the detector one meter away. Before plotting the Ref. 16 results, they were divided by 1.05 to account for the difference in the power per fuel elements. Because there were only two Ref. 16 data points in the time region covered in Fig. 10, the shape of the curve was drawn approximately like that for the present results. The differences in the power of the fuel versus operating time, as described in Section 4.1.2, should cause the Ref. 16 results for relatively short times after discharge to be slightly higher than the present results; at longer times, the two results should approach each other. The data in Fig. 10 are generally consistent with these expectations. The slightly lower Ref. 16 result at approximately 3 years after discharge is probably caused by differences in the important fission-fragment yields for U-233 and U-235 and by differences in the calculational procedures.

4.2.3. Gamma Dose Rate by Source Energy Group Versus Time After Discharge

The gamma dose rates for various energy groups are shown versus time after discharge in Figs. 11 and 12. The data are for a fuel element from Reload 5.

Note that the gamma source spectrum for fissile particles appreciably softens with decay time and also decreases in absolute magnitude. In the case of the fertile particles, buildup of U-232 daughter products, as indicated by the 2.2- to 2.65-MeV curve in Fig. 11, counteracts any softening of the spectrum.

4.2.4. Isotopic Contributors to Gamma Dose Rate

The important isotopic contributors to the gamma dose rates are shown in Figs. 13 and 14 for reloads 1 and 13. The fissile-particle results for the 23RS and 25RS fuel from reloads 10 and 13 and for the MS fuel from reload 5 are similar to the MS fissile-particle results shown in Fig. 14 for reload 13. Also, the fertile-particle results for reloads 5 and 10 are similar to the fertile-particle results shown in Fig. 14 for reload 13.

The Cs-134 contributions for the three types of fissile particles in reload 13 (for four-year operation) are much greater than the Cs-134 contribution for the fissile particles in reload 1 (for one-year operation). These changes in the contributions are expected for the different operating times, because Cs-134 is produced in a two-step process, namely, the production of Cs-133 from fission and the subsequent neutron capture to produce Cs-134.

4.3. NEUTRON SOURCE STRENGTHS

4.3.1. Neutron Source Versus Decay Time

The neutron yields versus time are shown in Figs. 15 and 16. Because some of the important isotopes for neutron yields are produced in the reactor after many neutron captures, the curie values for these isotopes have large uncertainties. In particular, the time steps used in Ref. 1 give rise to inaccurate curie values for those isotopes in reload 1 that are produced after a number of neutron captures (as, for instance, the curium isotopes); consequently, no figure is shown in this report on the neutron data for reload 1. In addition, the values given in Appendix D Tables D-11 and D-12 for 25RS fissile particles have a high degree of uncertainty; therefore, neutron source strengths for these particles are not shown in the figures. If one considers the locations of the 25RS fuel elements in the reactor as well as the other relevant input information, the 25RS fissile particles are expected to have neutron yields that are a factor of two or more higher than those from MS fissile particles.

Very large differences occur in the neutron yields for the different types of particles in the spent fuel, because the curie values for the important isotopes vary greatly with the composition of the fuel before it is loaded into the reactor. These effects are discussed in Section 4.3.2.

4.3.2. Isotopic Contributors to Neutron Source Strength

The important isotopic contributors are given in Figs. 17 and 18 for reload 13. The 25RS fissile data on important isotopic contributors have a relatively high uncertainty. The percent contributions for the important isotopes in the fertile and fissile particles of reloads 5 and 10 are similar to the values for the corresponding particles in reload 13. Depending upon the type of fuel and the time after discharge, the important isotopes are Cm-244, Cm-242, Pu-238, and U-232 along with the daughters of U-232. The curium isotopes are produced mainly from U-238; Pu-238 is produced mainly from U-235 and U-236; and U-232 is produced mainly from U-233. Because of the relatively large amount of U-236 and U-238 in the recycle U-235 fissile particles that are loaded into the core, the 25RS fissile particles that are discharged from the core are expected to have relatively large curie values for Pu-238, Cm-242, and Cm-244, and the total neutron yield for the 25RS fissile particles is expected to be relatively high compared with the yield for MS fissile particles. Of the three isotopes, the data indicate that Cm-244 is by far the most important for the neutron production in the 25RS fissile particles. Also, the Pu-238, Cm-242, and Cm-244 curie values and the resultant neutron yields for the MS fissile particles are higher than those for the 23RS fissile particles. For the MS fissile particles, Cm-244 contributes 75% of the yield at 180 days after discharge and 80% of the yield at 10 years after discharge. For the 23RS fissile particles, Pu-238 and the daughters of U-232 are important contributors. The fertile particles have no uranium when the fuel is loaded into the core; consequently, the Pu-238, Cm-242, and Cm-244 curie values at discharge are small. For the fertile particles, U-232 and the daughter isotopes of U-232 are the major neutron sources.

5. CONCLUSIONS

The present study has produced a large collection of data on decay heat, gamma dose rates, and neutron sources from spent HTGR fuel of various types and operational modes. The reader will draw many of his own conclusions from the detailed information presented in Tables D-1 through D-15¹ in Appendix D. The safety analyst may be interested in cases where such nuclides as Pu-238 or Sr-90 are the predominant contributors. Radiation protection and shielding engineers will utilize the gamma dose rates and neutron source strengths. Those involved with process design and heat removal systems will have the most interest in decay-heat values.

An extensive assortment of graphical and pictorial material has been prepared to complement the detailed tabular data. Perusal of Figs. 1 through 18 leads to the following conclusions:

1. The decay heat rate from spent fuel after four-year operation, as determined in this study, displays good agreement with results published in licensing report GA-LTR-4 (Ref. 16). Considering the different assumptions, agreement with proposed ANSI Standard 18.6 (Ref. 17) is also satisfactory, even for 10 years decay.
2. For decay times exceeding approximately one year, the fissile particles in a fuel element always produced more decay heat than the fertile particles.
3. Spent U-235 recycle fissile particles generate significantly more decay heat than spent U-233 recycle fissile or spent non-recycle fissile particles at long decay times.

4. For time after discharge from one to five years the percent decay heat for a non-recycle fuel element can be approximately fit by the expression $0.024t^{-0.8}$, where t is the decay time in years.
5. Beta particles produce the largest share of the decay heat -- about two-thirds, for one-year decay time.
6. For all spent, four-year particles except U-235 recycle fissile, major isotopic contributors to decay heat are Pr-144 at 180 days, Cs-134 at 3 years, and Y-90 at 10 years. For spent U-235 recycle fissile particles, Pu-238 is the most important isotope at decay times of 3 and 10 years.
7. Gamma dose rates also display good agreement with corresponding Ref. 16 calculations. The gamma dose rate very roughly drops a factor of 10 from a decay time of 180 days to a decay time of 10 years.
8. Unshielded gamma dose rates after one-year decay are caused mainly by cesium -- Cs-134 or Cs-137/Ba-137m. With heavy shielding, it is probable that Pr-144, which emits a hard gamma ray, would become increasingly important.
9. The neutron yields vary considerably for the different types of spent fissile particles. Decay time has little effect on reducing the neutron level. Cm-244 is the major contributor for spent non-recycle fissile particles and for spent U-235 recycle fissile particles. Pu-238 and the daughters of U-232 are important contributors for spent U-233 recycle fissile particles.

The Ref. 1 methods, SFUEL code, and the physics input data could be utilized for future studies in several areas. Decay times longer than 10 years should be studied. Two- and three-year fuel that is loaded into the initial core should be evaluated. Plutonium feed or recycle fuel could be treated. The methods could be extended to LWR fuel for use by Barnwell. Even if no new fuel types are investigated, one- or two-year updates of the present study are recommended, to incorporate new physics data as they become available.

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Fig. 1. Decay heat vs. time after discharge: (left) fuel elements discharged at the beginning of reload 1 and originally loaded at reload 0 and (right) fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1

Fig. 2. Decay heat vs. time after discharge: (top) fuel elements discharged at the beginning of reload 10 and originally loaded at reload 6 and (bottom) fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

Fig. 3. Total decay-heat rate vs. time after discharge for fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1 compared with the result from LTR-4 (Ref. 16)

Fig. 4. Decay heat for alpha particles, beta particles, and gamma rays vs. time after discharge for fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1

RELOAD 1

Fig. 5. Important isotopic contributors to decay heat for IS fertile particles and IS fissile particles in fuel elements discharged at the beginning of reload 1 and originally loaded at reload 0

Fig. 6. Important isotopic contributors to decay heat for MS, 23RS, and 25RS fertile particles and MS fissile particles in fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

RELOAD 13

Fig. 7. Important isotopic contributors to decay heat for 23RS fissile particles and 25RS fissile particles in fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

Fig. 8. Gamma dose rate vs. time after discharge: (left) fuel elements discharged at the beginning of reload 1 and originally loaded at reload 0 and (right) fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1

Fig. 9. Gamma dose rate vs. time after discharge: (top) fuel elements discharged at the beginning of reload 10 and originally loaded at reload 6 and (bottom) fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

Fig. 10. Total gamma dose rate vs. time after discharge for fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1 compared with the result from LTR-4 (Ref. 16)

Fig. 11. Gamma dose rates by source energy group vs. time after discharge for MS fertile particles in fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1

Fig. 12. Gamma dose rates by source energy group vs. time after discharge for MS fissile particles in fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1

RELOAD 1

Fig. 13. Important isotopic contributors to gamma dose rate for IS fertile particles and IS fissile particles in fuel elements discharged at the beginning of reload 1 and originally loaded at reload 0

RELOAD 13

Fig. 14. Important isotopic contributors to gamma dose rate for MS, 23RS, and 25RS fertile particles and MS fissile particles in fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

Fig. 15. Neutron source strength vs. time after discharge: (top) fuel elements discharged at the beginning of reload 5 and originally loaded at reload 1 and (bottom) fuel elements discharged at the beginning of reload 10 and originally loaded at reload 6. (See text for comments on 25RS particles.)

Fig. 16. Neutron source strength vs. time after discharge for fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9. (See text for comments on 25RS particles.)

RELOAD 13

Fig. 17. Important isotopic contributors to neutron source strength for MS, 23RS, and 25RS fertile particles and MS fissile particles in fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

RELOAD 13

Fig. 18. Important isotopic contributors to neutron source strength for 23RS fissile particles and 25RS fissile particles in fuel elements discharged at the beginning of reload 13 and originally loaded at reload 9

APPENDIX A
DEPARTURES FROM DATA PRESENTED IN REF. 1

APPENDIX A

DEPARTURES FROM DATA PRESENTED IN REF. 1

As discussed in Section 1 and 2, curie values as printed in Ref. 1 were directly entered into the SFUEL code for conversion to decay heat, gamma dose rates, and neutron sources. Exceptions to this procedure, detailed in this appendix, fall into four main categories: omission of data, addition of data, simplification of data, and correction of data.

A.1. OMISSION OF DATA

A.1.1. Many isotopes were found to have insignificant curie values relative to other isotopes of the same chemical element, for all fuel types and decay times. The criterion adopted was that any isotope would be dropped if its curie value was always less than 10^{-3} of the largest isotopic contributor in an element. A complete list of such omitted isotopes is given in Table A-1.

A.1.2. Very low curie values of remaining isotopes, for any fuel types or decay times, were, in many cases, set equal to zero. The criterion was generally taken as $<10^{-10}$ curie. In the cases of bromine, phosphorous, oxygen, nitrogen, boron, and lithium isotopes, the entire elements were eliminated because the curie values in Ref. 1 were zero for all their isotopes.

A.2. ADDITION OF DATA

A.2.1. The isotope "In-114" listed in Ref. 1 was intended to be In-114m. Its short-lived daughter, In-114, was added to the list.

A.3. SIMPLIFICATION OF DATA

A.3.1. There are several decay chains comprising long-lived parents and short-lived daughters which, by 180 days decay time, are in radioactive equilibrium, i.e., the curie values of each isotope in the chain are equal. Well-known examples include major parts of the thorium, actinium, and neptunium series.

The stepping method used in Ref. 1 for solving the decay equations could not provide accuracy in curie values of some daughters better than $\pm 5\%$. Hence, it is noticed that the curie values of some short-lived daughters are not exactly equal to those of their long-lived parents. It was felt that, for the present study, simplification and increased accuracy could be achieved by intentionally setting some daughter curie values equal to their parents. The cases in which this procedure was followed are listed in Table A-2. (The same procedure was followed for several other cases; these are listed separately in Section A.4, since the curie values sometimes differed by a large factor.)

A.3.2. Only four significant figures are carried in the decay heat, gamma-ray dose rate, and neutron source values printed here (as compared with five significant figures in Ref. 1). Even though four significant figures are given, in most cases the data are not accurate to this extent.

A.3.3. Several columns of data in Ref. 1 are all zero, i.e., for spent recycle fuel discharged at the beginning of reload 1 or 5 or spent makeup fuel discharged at the beginning of reload 10. These columns were omitted from the present report.

A.4. CORRECTION OF DATA

Errata sheets to Ref. 1 were issued for A.4.2. below. By the time this report is issued, errata sheets to Ref. 1 may have been issued for other statements below.

A.4.1. Because of the decay chain Am-242m (152 years) $\rightarrow$ Am-242 (16 hours) $\rightarrow$ Cm-242 (163 days), the curie value of Cm-242 for the times of interest in the present study should always be equal to or greater than the curie value of Am-242m. For a number of relatively long decay times, however, this was not true for the data in Ref. 1. Therefore, the curie value of Cm-242 was set equal to the curie value of Am-242m in these cases.

A.4.2. Curie values for U-232 were all low by a factor of 10^6 in Ref. 1. These were therefore multiplied by 10^6 for the present study.

A.4.3. The curie value for Pa-234 should equal that for Th-234 for the decay times in this study. In some cases, the curie values in Ref. 1 for these isotopes differed by a factor of 10. Therefore, the Pa-234 curie values were corrected for the present study.

A.4.4. Curie values for Ra-228 were all high by a factor of 10 in Ref. 1. These were therefore multiplied by 10^{-1} for the present study.

A.4.5. The Ac-228 curie values in Ref. 1 were sometimes incorrect. For this study, the Ac-228 curie values were set equal to the corrected Ra-228 curie values.

A.4.6. Curie values for Th-227 were all high by a factor of 10 in Ref. 1. After multiplying these by 10^{-1} it was found that the criterion of Section A.1.1. applied; Th-227 was therefore dropped from consideration.

A.4.7. After the U-232 curie values in Ref. 1 were corrected (see Section A.4.2), it was found that some of the curie values for the Th-228 daughter must be in error for the U-233 fissile particles. Corrections were made using the following formulas:

$$Ci_B(T) = Ci_A(0) \frac{\lambda_B}{\lambda_B^* - \lambda_A^*} \left(e^{-\lambda_A^* T} - e^{-\lambda_B^* T} \right) + Ci_B(0) e^{-\lambda_B^* T} \quad (1)$$

$$Ci_B(t_s) = Ci_A(T) \frac{\lambda_B}{\lambda_B - \lambda_A} \left(e^{-\lambda_A t_s} - e^{-\lambda_B t_s} \right) + Ci_B(T) e^{-\lambda_B t_s} \quad (2)$$

where $Ci_A(0)$ = curies of U-232 loaded,
 $Ci_B(0)$ = curies of Th-228 loaded,
 $Ci_A(T)$ = curies of U-232 discharged,
 $Ci_B(T)$ = curies of Th-228 discharged,
 $Ci_B(t_s)$ = curies of Th-228 at decay time t_s ,
 T = 4 years
 $\lambda_A = 3.05 (-10) \text{ sec}^{-1}$,
 $\lambda_B = 1.15 (-8) \text{ sec}^{-1}$,
 $\lambda_A^* = 7.608 (-9) \text{ sec}^{-1}$,
 $\lambda_B^* = 1.88 (-8) \text{ sec}^{-1}$.

A.4.8. The curie values for Bi-213, Po-213, and Pb-209 in Ref. 1 were incorrect. These were therefore set equal to the curie values for At-217. (The curie value for Po-213 should equal 0.978 of that for Bi-213, but in this calculation, we approximated 0.978 with 1.0.)

A.4.9. An incorrect branching ratio used in Ref. 1 resulted in substantial Pb-206m activities when they should have been negligible. This correction qualified Pb-206m to be eliminated on the basis of Section A.1.1.

A.4.10. The La-137 curie values in Ref. 1 are too high by a factor of 10. These were therefore multiplied by 10^{-1} for the present study.

A.4.11. Curie values of Tc-99 were low by a factor of 5.695 in Ref. 1. These were therefore multiplied by 5.695 for the present study.

A.4.12. The isotope "Ag-108" in Ref. 1 was intended to be Ag-108m. Ag-108 was not added to the list, since the decay-heat values and gamma dose rates in this study for Ag-108 are small relative to those for Ag-108m.

A complete list of the curie values used in the present study, with all of the changes given above except for the change discussed in A.1.2., is given in Table A-3. The change discussed in A.1.2. was performed in the calculations.

TABLE A-1
ISOTOPES OMITTED FROM PRESENT STUDY ON BASIS OF CURIE-VALUE
CRITERION GIVEN IN SECTION A.1.1.

Cm-245	Pb-206	Sm-147	Xe-131	Ag-109m	Y-92
Am-244	Pb-207m	Sm-148	Xe-132	Ag-109	Y-93
Pu-236	Pb-207	Sm-149	Xe-133m	Ag-111m	Sr-86
Pu-242	Pb-208	Sm-150	Xe-133	Ag-111	Sr-87
Pu-243	Pb-210	Sm-152	Xe-134	Ag-112	Sr-88
Pu-244	Pb-214	Sm-153	Xe-135m	Pd-104	Sr-91
Np-236	Tl-205	Sm-154	Xe-135	Pd-105	Rb-85
Np-238	Tl-206	Sm-156	Xe-136	Pd-106	Kr-82
Np-239	Tl-207m	Pm-144	I-127	Pd-108	Kr-83m
Np-240	Tl-209	Pm-145	I-132	Pd-109	Kr-83
Np-241	Tl-210	Pm-146	I-133	Pd-110	Kr-84
U-230	Dy-156	Pm-148	I-135	Pd-111m	Kr-85m
U-239	Dy-157	Pm-149	Te-125	Pd-111	Kr-86
U-240	Dy-158	Pm-151	Te-128	Pd-112	Br-79
Pa-230	Dy-160	Nd-142	Te-130	Rh-103	Br-81
Pa-232	Dy-161	Nd-143	Te-131m	Rh-105m	Br-82
Pa-234m	Dy-162	Nd-144	Te-131	Rh-105	Br-83
Pa-235	Dy-163	Nd-145	Te-132	Ru-99	Se-80
Th-226	Dy-164	Nd-146	Sb-121	Ru-100	Se-82
Th-227	Tb-155	Nd-148	Sb-122	Ru-101	Ni-58
Th-233	Tb-156	Nd-150	Sb-123	Ru-102	Ni-60
Th-235	Tb-159	Pr-141	Sb-127	Ru-104	Ni-61
Ac-229	Tb-161	Pr-142	Sb-128	Ru-105	Ni-62
Ra-222	Tb-162	Pr-143	Sb-129	Mo-95	Ni-64
Ra-226	Tb-163	Pr-145	Sn-115	Mo-96	Cl-35
Ra-227	Gd-152	Ce-136	Sn-117m	Mo-97	Cl-37
Ra-229	Gd-154	Ce-137	Sn-117	Mo-98	S-32
Fr-224	Gd-155	Ce-138	Sn-119	Mo-99	S-33
Rn-218	Gd-156	Ce-139	Sn-120	Mo-100	S-34
Rn-222	Gd-157	Ce-140	Sn-121	Nb-93	S-36
Rn-223	Gd-158	Ce-142	Sn-125	Nb-96	P-33
Rn-224	Gd-159	Ce-143	In-113	Nb-97m	O-16
At-219	Gd-160	La-138	In-115m	Nb-97	O-17
Po-209	Gd-162	La-139	In-115	Zr-90	N-14
Po-211	Eu-149	Ba-135	Cd-110	Zr-91	N-15
Po-214	Eu-150	Ba-136	Cd-111	Zr-92	C-12
Po-218	Eu-151	Ba-137	Cd-112	Zr-94	C-13
Bi-209	Eu-153	Ba-138	Cd-113	Zr-96	B-10
Bi-210	Eu-157	Cs-133	Cd-114	Zr-97	B-11
Bi-214	Sm-144	Cs-135	Cd-115	Y-89	Li-6
Pb-206m	Sm-146	Cs-136	Ag-107	Y-91m	Li-7

TABLE A-2
DECAY CHAINS IN WHICH CURIE VALUE OF
DAUGHTER WAS SET EQUAL TO THAT OF PARENT

Parent (Curie value from Ref. 1)	Daughter(s) (Curie value(s) set equal to parent curie value)
Am-242m	Am-242
U-235	Th-231
Th-228	Ra-224, Rn-220, Po-216, Pb-212 Bi-212, Po-212(a) Tl-208(a)
Th-229	Ra-225, Ac-225, Fr-221, At-217, Bi-213, Po-213, Pb-209
Ra-223	Rn-219, Po-215, Pb-211, Bi-211, Tl-207
Ce-144	Pr-144
Ba-140	La-140
Cs-137	Ba-137m
Te-129m	Te-129
Te-127m	Te-127
In-114m	In-114
Ru-103	Rh-103m
Sr-90	Y-90

(a) Because of branching for Bi-212, curie values for Po-212 and Tl-208 were set equal to 0.64 and 0.36, respectively, of curie values for Th-228.

TABLE A-3
LIST OF CURIE VALUES USED IN PRESENT CALCULATIONS

NOTE: Table A-3 consists of 45 pages of
computer print-out (pages A-11 through
A-55).

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

CURIE VALUES USED PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	3.176-07	7.994-01	4.668-03	1.553+01
CM-243	2.011-07	9.866-05	1.011-06	6.755-03
CM-244	9.618-03	1.222-01	4.949-03	7.735+00
AM-241	1.562-07	1.580-02	5.476-05	7.965-02
AM-242M	7.033-08	3.243-04	8.883-06	3.049-03
AM-242	7.033-08	3.243-04	8.883-06	3.049-03
AM-243	8.204-05	2.027-03	8.222-06	3.786-02
PU-238	1.120-03	4.262+00	4.849-01	1.088+02
PU-239	1.567-07	2.805-02	1.396-04	8.100-02
PU-240	1.768-07	4.576-02	1.719-04	1.402-01
PU-241	7.765-05	1.453+01	4.779-02	5.808+01
NP-237	4.633-07	1.180-03	7.734-05	8.649-03
U-232	5.415-01	5.797-05	2.564+00	4.178-04
U-233	1.287+00	1.245-08	2.009+00	2.544-08
U-234	6.166-02	1.660-02	2.796-01	1.418-02
U-235	1.608-06	4.236-04	2.028-05	9.677-05
U-236	2.070-06	2.696-03	1.047-04	6.609-03
U-237	6.356-08	8.580-05	3.449-06	1.893-04
U-238	1.222-13	8.341-06	2.578-11	1.114-05
PA-231	1.869-03	1.853-07	2.626-03	4.032-07
PA-233	5.074+03	3.886-07	4.168+03	5.086-06
PA-234	4.324-01	8.342-06	3.014-01	1.114-05
TH-228	1.329-01	1.434-05	1.124+00	1.874-04
TH-229	8.931-05	1.194-10	2.798-04	7.329-09
TH-230	1.362-02	4.525-07	5.572-03	6.405-07
TH-231	1.608-06	4.236-04	2.028-05	9.677-05
TH-232	1.026-03	1.374-13	8.709-04	1.003-12
TH-234	4.324-01	8.342-06	3.014-01	1.114-05
AC-225	8.931-05	1.194-10	2.798-04	7.329-09
AC-227	1.475-04	5.409-09	2.334-04	1.788-08
AC-228	2.917-04	5.145-13	3.782-04	4.039-12
RA-223	1.458-04	4.995-09	2.306-04	1.699-08
RA-224	1.329-01	1.434-05	1.124+00	1.874-04
RA-225	8.931-05	1.194-10	2.798-04	7.329-09
RA-228	2.917-04	5.145-13	3.782-04	4.039-12
FR-221	8.931-05	1.194-10	2.798-04	7.329-09
FR-223	2.065-06	7.077-11	3.267-06	2.407-10
RN-219	1.458-04	4.995-09	2.306-04	1.699-08
RN-220	1.329-01	1.434-05	1.124+00	1.874-04
AT-217	8.931-05	1.194-10	2.798-04	7.329-09
AT-218	3.884-09	1.290-13	3.415-09	3.925-13
PO-210	6.548-04	7.233-08	7.164-04	1.488-07
PO-212	7.839-02	8.454-06	6.957-01	1.160-04
PO-213	8.931-05	1.194-10	2.798-04	7.329-09
PO-215	1.458-04	4.995-09	2.306-04	1.699-08
PO-216	1.329-01	1.434-05	1.124+00	1.874-04
BI-211	1.458-04	4.995-09	2.306-04	1.699-08

BI-212	1.329-01	1.434-05	1.124+00	1.874-04
BI-213	8.931-05	1.194-10	2.798-04	7.329-09
PB-209	8.931-05	1.194-10	2.798-04	7.329-09
PB-211	1.458-04	4.995-09	2.306-04	1.699-08
PB-212	1.329-01	1.434-05	1.124+00	1.874-04
TL-207	1.458-04	4.995-09	2.306-04	1.699-08
TL-208	4.409-02	4.756-06	3.914-01	6.524-05
OY-159	1.813-03	7.974-05	7.786-04	6.907-05
TB-157	4.833-07	2.104-08	1.836-06	1.442-07
TB-158	1.650-08	6.963-09	1.446-07	2.105-08
TB-160	4.362-01	1.059-01	4.396-01	4.682-01
GD-153	2.427-02	2.467-02	6.792-03	9.844-03
EU-152	6.814-02	1.120-01	5.897-02	7.768-02
EU-154	9.771-01	6.344+00	1.863+01	4.285+01
EU-155	1.854+00	1.214+01	2.581+01	5.829+01
EU-156	4.006-02	2.348-01	4.402-01	9.979-01
SM-145	1.446-03	1.446-03	2.177-03	2.177-03
SM-151	8.627-01	2.890+00	2.961+00	3.028+00
PM-147	3.111+02	1.414+03	1.229+03	8.136+02
PM-148M	3.134+00	1.604+01	1.530+01	1.070+01
ND-147	5.267-02	1.145-01	8.845-02	2.451-02
PR-144	2.079+03	9.065+03	8.955+03	6.275+03
CE-141	3.009+02	5.399+02	5.432+02	1.121+02
CE-144	2.079+03	9.065+03	8.955+03	6.275+03
LA-137	6.340-07	2.758-08	2.534-06	1.830-07
LA-140	8.827-01	1.496+00	1.464+00	3.018-01
BA-137M	1.480+02	5.923+02	1.245+03	1.625+03
BA-140	8.827-01	1.496+00	1.464+00	3.018-01
CS-134	4.904+01	4.092+02	1.405+03	3.194+03
CS-137	1.480+02	5.923+02	1.245+03	1.625+03
XE-131M	4.019-03	5.561-03	6.627-03	1.144-03
I-129	6.607-05	1.174-04	5.453-04	3.143-04
I-131	1.594-03	2.159-03	2.600-03	4.453-04
TE-125M	2.475+01	2.558+01	1.715+02	4.737+01
TE-127M	4.862+01	2.795+01	1.237+02	7.875+00
TE-127	4.862+01	2.795+01	1.237+02	7.875+00
TE-129M	8.127+01	7.224+01	1.450+02	1.481+01
TE-129	8.127+01	7.224+01	1.450+02	1.481+01
SB-124	4.379-02	2.006-02	1.371-01	8.712-02
SB-125	2.497+01	2.506+01	1.646+02	4.475+01
SN-119M	2.801-01	9.413-01	1.121+00	5.642-01
SN-121M	1.270-05	5.781-06	8.049-05	7.553-05
SN-123	7.505+00	1.176+01	2.070+01	3.494+00
IN-114M	5.580-01	2.467-03	4.316-01	3.469-03
IN-114	5.580-01	2.467-03	4.316-01	3.469-03
CD-115M	5.940-02	1.121-01	1.165-01	3.599-02
AG-108M	1.362-04	6.648-06	4.689-04	3.738-05
AG-110M	1.036-01	3.854-01	1.315+00	1.534+00
PD-107	1.077-05	6.639-05	9.087-05	1.806-04
RH-103M	1.511+02	5.927+02	2.912+02	1.201+02
RH-106	1.032+02	6.007+02	5.060+02	5.417+02
RU-103	1.511+02	5.927+02	2.912+02	1.201+02
RU-106	1.032+02	6.007+02	5.060+02	5.417+02
TC-99	1.517-02	8.007-02	1.208-01	1.962-01
NB-93M	1.849-04	8.492-04	3.530-03	6.991-03
NB-95M	1.707+03	4.490+03	3.641+03	9.401+02
NB-95	3.189+03	8.624+03	6.947+03	1.817+03

ZR-93	4.904-03	1.938-02	4.197-02	5.487-02
ZR-95	1.609+03	4.233+03	3.433+03	8.863+02
Y-90	1.602+02	6.039+02	1.340+03	1.642+03
Y-91	3.742+02	8.270+02	7.666+02	1.719+02
SR-89	1.097+03	2.003+03	2.174+03	4.070+02
SR-90	1.602+02	6.039+02	1.340+03	1.642+03
RB-86	1.893-02	5.117-03	4.292-02	1.344-02
RB-87	5.526-08	1.524-07	4.657-07	4.235-07
KR-85	5.472+01	1.334+02	3.462+02	2.127+02
SE-79	1.344-03	1.969-03	8.945-03	3.520-03
NI-59	5.849-04	1.267-05	2.023-03	7.284-05
NI-63	7.881-02	1.723-03	2.676-01	9.640-03
CO-58	1.271-03	2.753-05	1.141-03	4.109-05
CO-60	1.858-04	4.004-06	5.500-04	1.991-05
CL-36	4.078-04	0.000	1.321-03	0.000
S-35	1.044+00	1.131-03	9.636-01	1.745-03
C-14 FROM C	7.710-03	0.000	2.709-02	0.000
C-14 FROM N	1.236-03	4.846-06	4.352-03	2.901-05
C-14 FROM O	6.277-04	6.968-06	2.252-03	4.080-05
H-3 FROM LI6	2.537+01	1.710-01	3.277+01	3.669-01
H-3 FROM B10	1.043-02	0.000	5.302-02	0.000
H-3 FISS YLD	5.180-01	2.230+00	4.212+00	5.724+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

CURIE VALUES USED PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	1.766-07	3.638-01	2.127-03	7.064+00
CM-243	1.989-07	9.758-05	1.000-06	6.681-03
CM-244	9.431-03	1.198-01	4.852-03	7.585+00
AM-241	2.183-07	2.745-02	9.305-05	1.262-01
AM-242M	7.017-08	3.236-04	8.863-06	3.042-03
AM-242	7.017-08	3.236-04	8.863-06	3.042-03
AM-243	8.204-05	2.027-03	8.221-06	3.785-02
PU-238	1.115-03	4.244+00	4.829-01	1.084+02
PU-239	1.567-07	2.805-02	1.396-04	8.099-02
PU-240	1.768-07	4.576-02	1.719-04	1.402-01
PU-241	7.585-05	1.420+01	4.668-02	5.674+01
NP-237	4.633-07	1.180-03	7.734-05	8.649-03
U-232	5.389-01	5.768-05	2.552+00	4.158-04
U-233	1.289+00	1.245-08	2.011+00	2.544-08
U-234	6.166-02	1.660-02	2.796-01	1.418-02
U-235	1.608-06	4.236-04	2.028-05	9.677-05
U-236	2.070-06	2.696-03	1.047-04	6.609-03
U-237	3.481-16	4.699-13	1.889-14	1.037-12
U-238	1.222-13	8.341-06	2.578-11	1.114-05
PA-231	1.869-03	1.899-07	2.626-03	4.043-07
PA-233	4.365+01	3.343-09	3.586+01	4.376-08
PA-234	2.099-03	8.341-06	1.463-03	1.114-05
TH-228	2.014-01	2.165-05	1.365+00	2.259-04
TH-229	1.510-04	1.200-10	3.761-04	7.330-09
TH-230	1.362-02	5.254-07	5.573-03	7.029-07
TH-231	1.608-06	4.236-04	2.028-05	9.677-05
TH-232	1.026-03	2.051-13	8.709-04	1.169-12
TH-234	2.099-03	8.341-06	1.463-03	1.114-05
AC-225	1.510-04	1.200-10	3.761-04	7.330-09
AC-227	1.451-04	8.350-09	2.296-04	2.411-08
AC-228	3.292-04	4.970-13	4.034-04	3.888-12
RA-223	1.435-04	7.934-09	2.269-04	2.323-08
RA-224	2.014-01	2.165-05	1.365+00	2.259-04
RA-225	1.510-04	1.200-10	3.761-04	7.330-09
RA-228	3.292-04	4.970-13	4.034-04	3.888-12
FR-221	1.510-04	1.200-10	3.761-04	7.330-09
FR-223	2.032-06	1.124-10	3.214-06	3.291-10
RN-219	1.435-04	7.934-09	2.269-04	2.323-08
RN-220	2.014-01	2.165-05	1.365+00	2.259-04
AT-217	1.510-04	1.200-10	3.761-04	7.330-09
AT-218	4.436-09	1.712-13	3.640-09	4.591-13
PO-210	2.611-04	3.277-08	2.945-04	6.944-08
PO-212	1.276-01	1.372-05	8.691-01	1.439-04
PO-213	1.510-04	1.200-10	3.761-04	7.330-09
PO-215	1.435-04	7.934-09	2.269-04	2.323-08
PO-216	2.014-01	2.165-05	1.365+00	2.259-04
BI-211	1.435-04	7.934-09	2.269-04	2.323-08

BI-212	2.014-01	2.165-05	1.365+00	2.259-04
BI-213	1.510-04	1.200-10	3.761-04	7.330-09
PB-209	1.510-04	1.200-10	3.761-04	7.330-09
PB-211	1.435-04	7.934-09	2.269-04	2.323-08
PB-212	2.014-01	2.165-05	1.365+00	2.259-04
TL-207	1.435-04	7.934-09	2.269-04	2.323-08
TL-208	7.178-02	7.716-06	4.889-01	8.092-05
OY-159	7.431-04	3.269-05	3.192-04	2.831-05
TB-157	4.821-07	2.099-08	1.832-06	1.438-07
TB-158	1.647-08	6.947-09	1.442-07	2.100-08
TB-160	7.332-02	1.780-02	7.389-02	7.870-02
GD-153	1.428-02	1.451-02	3.995-03	5.791-03
EU-152	6.628-02	1.089-01	5.737-02	7.556-02
EU-154	9.559-01	8.162+00	1.822+01	4.192+01
EU-155	1.527+00	1.000+01	2.125+01	4.800+01
EU-156	9.587-06	5.619-05	1.053-04	2.388-04
SM-145	9.910-04	9.910-04	1.493-03	1.493-03
SM-151	8.593-01	2.878+00	2.949+00	3.016+00
PM-147	2.720+02	1.236+03	1.075+03	7.115+02
PM-148M	1.452-01	7.432-01	7.089-01	4.958-01
ND-147	4.781-07	1.039-06	8.030-07	2.225-07
PR-144	1.323+03	5.768+03	5.698+03	3.993+03
CE-141	5.788+00	1.039+01	1.045+01	2.156+00
CE-144	1.323+03	5.768+03	5.698+03	3.993+03
LA-137	6.340-07	2.758-08	2.534-06	1.830-07
LA-140	3.885-05	6.583-05	6.446-05	1.329-05
BA-137M	1.463+02	5.854+02	1.230+03	1.606+03
BA-140	3.885-05	6.583-05	6.446-05	1.329-05
CS-134	4.130+01	3.447+02	1.183+03	2.690+03
CS-137	1.463+02	5.854+02	1.230+03	1.606+03
XE-131M	7.614-08	1.053-07	1.255-07	2.168-08
I-129	6.654-05	1.178-04	5.461-04	3.143-04
I-131	1.889-10	2.560-10	3.082-10	5.279-11
TE-125M	2.311+01	2.326+01	1.532+02	4.174+01
TE-127M	1.497+01	8.607+00	3.810+01	2.425+00
TE-127	1.497+01	8.607+00	3.810+01	2.425+00
TE-129M	1.884+00	1.675+00	3.361+00	3.433-01
TE-129	1.884+00	1.675+00	3.361+00	3.433-01
SB-124	5.194-03	2.379-03	1.626-02	1.033-02
SB-125	2.194+01	2.201+01	1.446+02	3.931+01
SN-119M	1.676-01	5.633-01	6.709-01	3.377-01
SN-121M	1.264-05	5.754-06	8.012-05	7.518-05
SN-123	2.687+00	4.210+00	7.411+00	1.251+00
IN-114M	4.174-02	1.845-04	3.228-02	2.595-04
IN-114	4.174-02	1.845-04	3.228-02	2.595-04
CO-115M	3.002-03	5.667-03	5.886-03	1.819-03
AG-108M	1.358-04	6.630-06	4.676-04	3.728-05
AG-110M	6.265-02	2.330-01	7.947-01	9.271-01
PD-107	1.077-05	6.639-05	9.087-05	1.806-04
RH-103M	5.996+00	2.352+01	1.156+01	4.768+00
RH-106	7.279+01	4.238+02	3.570+02	3.822+02
RU-103	5.996+00	2.352+01	1.156+01	4.768+00
RU-106	7.279+01	4.238+02	3.570+02	3.822+02
TC-99	1.517-02	8.007-02	1.208-01	1.962-01
NB-93M	2.991-04	1.297-03	4.457-03	8.143-03
NB-95M	2.406+02	6.330+02	5.134+02	1.325+02
NB-95	5.043+02	1.333+03	1.080+03	2.793+02

ZR-93	4.904-03	1.938-02	4.197-02	5.487-02
ZR-95	2.269+02	5.967+02	4.840+02	1.250+02
Y-90	1.582+02	5.963+02	1.323+03	1.621+03
Y-91	4.090+01	9.040+01	8.380+01	1.879+01
SR-89	9.600+01	1.753+02	1.902+02	3.562+01
SR-90	1.582+02	5.963+02	1.323+03	1.621+03
RB-86	1.942-05	5.249-06	4.402-05	1.378-05
RB-87	5.526-08	1.524-07	4.657-07	4.235-07
KR-85	5.296+01	1.291+02	3.351+02	2.059+02
SE-79	1.344-03	1.969-03	8.945-03	3.520-03
NI-59	5.849-04	1.267-05	2.023-03	7.284-05
NI-63	7.851-02	1.717-03	2.666-01	9.603-03
CO-58	2.103-04	4.556-06	1.888-04	6.798-06
CO-60	1.738-04	3.746-06	5.145-04	1.863-05
CL-36	4.078-04	0.000	1.321-03	0.000
S-35	2.394-01	2.593-04	2.210-01	4.002-04
C-14 FROM C	7.709-03	0.000	2.708-02	0.000
C-14 FROM N	1.236-03	4.845-06	4.351-03	2.901-05
C-14 FROM O	6.277-04	6.967-06	2.252-03	4.079-05
H-3 FROM LI6	2.466+01	1.662-01	3.185+01	3.566-01
H-3 FROM B10	1.014-02	0.000	5.153-02	0.000
H-3 FISS YLD	5.034-01	2.167+00	4.093+00	5.563+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

CURIE VALUES USED PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	6.953-08	1.654-02	1.023-04	3.185-01
CM-243	1.905-07	9.345-05	9.579-07	6.398-03
CM-244	8.728-03	1.108-01	4.491-03	7.019+00
AM-241	4.492-07	7.070-02	2.353-04	2.990-01
AM-242M	6.958-08	3.206-04	8.782-06	3.015-03
AM-242	6.958-08	3.206-04	8.782-06	3.015-03
AM-243	8.202-05	2.027-03	8.220-06	3.785-02
PU-238	1.098-03	4.178+00	4.754-01	1.067+02
PU-239	1.567-07	2.805-02	1.396-04	8.099-02
PU-240	1.767-07	4.575-02	1.718-04	1.402-01
PU-241	6.915-05	1.294+01	4.256-02	5.173+01
NP-237	4.633-07	1.180-03	7.734-05	8.649-03
U-232	5.286-01	5.659-05	2.503+00	4.079-04
U-233	1.289+00	1.245-08	2.011+00	2.544-08
U-234	6.166-02	1.660-02	2.796-01	1.418-02
U-235	1.608-06	4.236-04	2.028-05	9.677-05
U-236	2.070-06	2.696-03	1.047-04	6.609-03
U-237	0.000	0.000	0.000	0.000
U-238	1.222-13	8.341-06	2.578-11	1.114-05
PA-231	1.869-03	2.080-07	2.625-03	4.084-07
PA-233	3.125-07	2.393-17	2.567-07	3.133-16
PA-234	1.573-12	8.341-06	1.096-12	1.114-05
TH-228	3.726-01	3.993-05	1.963+00	3.217-04
TH-229	3.944-04	1.223-10	7.558-04	7.334-09
TH-230	1.362-02	8.130-07	5.578-03	9.486-07
TH-231	1.608-06	4.236-04	2.028-05	9.677-05
TH-232	1.026-03	4.721-13	8.709-04	1.823-12
TH-234	1.573-12	8.341-06	1.096-12	1.114-05
AC-225	3.944-04	1.223-10	7.558-04	7.334-09
AC-227	1.361-04	2.020-08	2.153-04	4.787-08
AC-228	4.595-04	4.682-13	4.908-04	3.443-12
RA-223	1.345-04	1.978-08	2.128-04	4.705-08
RA-224	3.726-01	3.993-05	1.963+00	3.217-04
RA-225	3.944-04	1.223-10	7.558-04	7.334-09
RA-228	4.595-04	4.682-13	4.908-04	3.443-12
FR-221	3.944-04	1.223-10	7.558-04	7.334-09
FR-223	1.906-06	2.801-10	3.015-06	6.664-10
RN-219	1.345-04	1.978-08	2.128-04	4.705-08
RN-220	3.726-01	3.993-05	1.963+00	3.217-04
AT-217	3.944-04	1.223-10	7.558-04	7.334-09
AT-218	6.612-09	3.947-13	4.529-09	7.703-13
PO-210	1.022-05	1.437-09	2.486-05	6.567-09
PO-212	2.379-01	2.549-05	1.255+00	2.055-04
PO-213	3.944-04	1.223-10	7.558-04	7.334-09
PO-215	1.345-04	1.978-08	2.128-04	4.705-08
PO-216	3.726-01	3.993-05	1.963+00	3.217-04
BI-211	1.345-04	1.978-08	2.128-04	4.705-08

BI-212	3.726-01	3.993-05	1.963+00	3.217-04
BI-213	3.944-04	1.223-10	7.558-04	7.334-09
PB-209	3.944-04	1.223-10	7.558-04	7.334-09
PB-211	1.345-04	1.978-08	2.128-04	4.705-08
PB-212	3.726-01	3.993-05	1.963+00	3.217-04
TL-207	1.345-04	1.978-08	2.128-04	4.705-08
TL-208	1.338-01	1.434-05	7.057-01	1.156-04
DY-159	2.206-05	9.705-07	9.476-06	8.406-07
TB-157	4.777-07	2.080-08	1.815-06	1.425-07
TB-158	1.631-08	6.883-09	1.429-07	2.081-08
TB-160	6.470-05	1.571-05	6.521-05	6.945-05
GD-153	1.761-03	1.790-03	4.929-04	7.144-04
EU-152	5.943-02	9.766-02	5.144-02	6.775-02
EU-154	8.766-01	7.485+00	1.671+01	3.845+01
EU-155	7.100-01	4.651+00	9.885+00	2.233+01
EU-156	5.032-20	2.949-19	5.529-19	1.253-18
SH-145	2.235-04	2.235-04	3.366-04	3.366-04
SH-151	8.457-01	2.833+00	2.903+00	2.968+00
PM-147	1.603+02	7.286+02	6.334+02	4.193+02
PM-148M	7.955-07	4.072-06	3.884-06	2.717-06
ND-147	6.250-27	1.359-26	1.050-26	2.909-27
PR-144	2.225+02	9.699+02	9.581+02	6.714+02
CE-141	9.903-07	1.777-06	1.788-06	3.688-07
CE-144	2.225+02	9.699+02	9.581+02	6.714+02
LA-137	6.339-07	2.758-08	2.534-06	1.830-07
LA-140	2.567-22	4.350-22	4.259-22	8.778-23
BA-137M	1.396+02	5.590+02	1.175+03	1.534+03
BA-140	2.567-22	4.350-22	4.259-22	8.778-23
CS-134	2.098+01	1.751+02	6.011+02	1.367+03
CS-137	1.396+02	5.590+02	1.175+03	1.534+03
XE-131M	1.776-26	2.457-26	2.928-26	5.055-27
I-129	6.655-05	1.178-04	5.461-04	3.143-04
I-131	0.000	0.000	0.000	0.000
TE-125M	1.397+01	1.402+01	9.210+01	2.504+01
TE-127M	1.439-01	8.272-02	3.662-01	2.330-02
TE-127	1.439-01	8.272-02	3.662-01	2.330-02
TE-129M	6.724-07	5.977-07	1.200-06	1.225-07
TE-129	6.724-07	5.977-07	1.200-06	1.225-07
SB-124	1.159-06	5.311-07	3.630-06	2.306-06
SB-125	1.315+01	1.320+01	8.670+01	2.357+01
SN-119M	2.213-02	7.436-02	8.856-02	4.457-02
SN-121M	1.241-05	5.650-06	7.867-05	7.382-05
SN-123	4.680-02	7.331-02	1.291-01	2.179-02
IN-114M	1.513-06	6.686-09	1.170-06	9.403-09
IN-114	1.513-06	6.686-09	1.170-06	9.403-09
CD-115M	2.317-08	4.374-08	4.544-08	1.404-08
AG-108M	1.344-04	6.560-06	4.626-04	3.688-05
AG-110M	8.605-03	3.200-02	1.092-01	1.274-01
PD-107	1.077-05	6.639-05	9.087-05	1.806-04
RH-103M	1.785-05	7.000-05	3.440-05	1.419-05
RH-106	1.840+01	1.071+02	9.023+01	9.660+01
RU-103	1.785-05	7.000-05	3.440-05	1.419-05
RU-106	1.840+01	1.071+02	9.023+01	9.660+01
TC-99	1.517-02	8.007-02	1.208-01	1.962-01
NB-93M	7.216-04	2.956-03	7.889-03	1.241-02
NB-95M	1.062-01	2.793-01	2.265-01	5.849-02
NB-95	2.279-01	5.994-01	4.862-01	1.255-01

ZR-93	4.904-03	1.938-02	4.197-02	5.487-02
ZR-95	1.001-01	2.633-01	2.136-01	5.514-02
Y-90	1.505+02	5.672+02	1.259+03	1.542+03
Y-91	6.616-03	1.462-02	1.355-02	3.039-03
SR-89	6.458-03	1.179-02	1.280-02	2.396-03
SR-90	1.505+02	5.672+02	1.259+03	1.542+03
RB-86	3.169-17	8.564-18	7.183-17	2.249-17
RB-87	5.526-08	1.524-07	4.657-07	4.235-07
KR-85	4.656+01	1.135+02	2.946+02	1.180+02
SE-79	1.344-03	1.969-03	8.945-03	3.520-03
NI-59	5.849-04	1.267-05	2.023-03	7.284-05
NI-63	7.734-02	1.691-03	2.626-01	9.460-03
CO-58	1.744-07	3.779-09	1.566-07	5.639-09
CO-60	1.335-04	2.877-06	3.952-04	1.431-05
CL-36	4.078-04	0.000	1.321-03	0.000
S-35	7.193-04	7.792-07	6.639-04	1.202-06
C-14 FROM C	7.707-03	0.000	2.708-02	0.000
C-14 FROM N	1.235-03	4.844-06	4.350-03	2.900-05
C-14 FROM O	6.275-04	6.966-06	2.251-03	4.078-05
H-3 FROM LI6	2.203+01	1.485-01	2.846+01	3.186-01
H-3 FROM B10	9.061-03	0.000	4.605-02	0.000
H-3 FISS YLD	4.499-01	1.937+00	3.658+00	4.971+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

CURIE VALUES USED PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	6.890-08	9.959-04	1.158-05	1.666-02
CM-243	1.824-07	8.948-05	9.173-07	6.127-03
CM-244	8.078-03	1.026-01	4.156-03	6.496+00
AM-241	6.589-07	1.100-01	3.645-04	4.560-01
AM-242M	6.890-08	3.177-04	8.703-06	2.987-03
AM-242	6.890-08	3.177-04	8.703-06	2.987-03
AM-243	8.201-05	2.027-03	8.218-06	3.784-02
PU-238	1.081-03	4.113+00	4.679-01	1.050+02
PU-239	1.567-07	2.805-02	1.396-04	8.099-02
PU-240	1.767-07	4.574-02	1.718-04	1.402-01
PU-241	6.305-05	1.180+01	3.881-02	4.716+01
NP-237	4.633-07	1.180-03	7.734-05	8.649-03
U-232	5.185-01	5.551-05	2.456+00	4.001-04
U-233	1.289+00	1.245-08	2.011+00	2.544-08
U-234	6.166-02	1.660-02	2.796-01	1.418-02
U-235	1.608-06	4.236-04	2.028-05	9.677-05
U-236	2.070-06	2.696-03	1.047-04	6.609-03
U-237	0.000	0.000	0.000	0.000
U-238	1.222-13	8.341-06	2.578-11	1.114-05
PA-231	1.868-03	2.261-07	2.625-03	4.125-07
PA-233	2.241-15	1.716-25	1.841-15	2.246-24
PA-234	1.180-21	8.341-06	8.225-22	1.114-05
TH-228	4.502-01	4.821-05	2.228+00	3.639-04
TH-229	6.378-04	1.247-10	1.136-03	7.337-09
TH-230	1.362-02	1.101-06	5.583-03	1.194-06
TH-231	1.608-06	4.236-04	2.028-05	9.677-05
TH-232	1.026-03	7.391-13	8.709-04	2.477-12
TH-234	1.180-21	8.341-06	8.225-22	1.114-05
AC-225	6.378-04	1.247-10	1.136-03	7.337-09
AC-227	1.277-04	3.245-08	2.019-04	7.041-08
AC-228	5.654-04	4.947-13	5.619-04	3.203-12
RA-223	1.262-04	3.201-08	1.996-04	6.963-08
RA-224	4.502-01	4.821-05	2.228+00	3.639-04
RA-225	6.378-04	1.247-10	1.136-03	7.337-09
RA-228	5.654-04	4.947-13	5.619-04	3.203-12
FR-221	6.378-04	1.247-10	1.136-03	7.337-09
FR-223	1.787-06	4.534-10	2.827-06	9.863-10
RN-219	1.262-04	3.201-08	1.996-04	6.963-08
RN-220	4.502-01	4.821-05	2.228+00	3.639-04
AT-217	6.378-04	1.247-10	1.136-03	7.337-09
AT-218	8.785-09	7.099-13	5.418-09	1.159-12
PO-210	3.540-06	0.000	1.679-05	0.000
PO-212	2.879-01	3.083-05	1.425+00	2.328-04
PO-213	6.378-04	1.247-10	1.136-03	7.337-09
PO-215	1.262-04	3.201-08	1.996-04	6.963-08
PO-216	4.502-01	4.821-05	2.228+00	3.639-04
BI-211	1.262-04	3.201-08	1.996-04	6.963-08

BI-212	4.502-01	4.821-05	2.228+00	3.639-04
BI-213	6.378-04	1.247-10	1.136-03	7.337-09
PB-209	6.378-04	1.247-10	1.136-03	7.337-09
PB-211	1.262-04	3.201-08	1.996-04	6.963-08
PB-212	4.502-01	4.821-05	2.228+00	3.639-04
TL-207	1.262-04	3.201-08	1.996-04	6.963-08
TL-208	1.619-01	1.734-05	8.017-01	1.309-04
OY-159	6.552-07	2.882-08	2.814-07	2.496-08
TB-157	4.733-07	2.061-08	1.798-06	1.412-07
TB-158	1.616-08	6.820-09	1.416-07	2.061-08
TB-160	5.713-08	1.387-08	5.757-08	6.132-08
GD-153	2.173-04	2.209-04	6.082-05	8.815-05
EU-152	5.329-02	8.757-02	4.612-02	6.075-02
EU-154	8.039-01	6.865+00	1.532+01	3.526+01
EU-155	3.303-01	2.163+00	4.598+00	1.039+01
EU-156	0.000	0.000	0.000	0.000
SH-145	5.041-05	5.041-05	7.592-05	7.592-05
SH-151	8.323-01	2.788+00	2.857+00	2.921+00
PM-147	9.448+01	4.294+02	3.733+02	2.471+02
PM-148M	4.362-12	2.233-11	2.130-11	1.490-11
ND-147	0.000	0.000	0.000	0.000
PR-144	3.742+01	1.631+02	1.611+02	1.129+02
CE-141	1.696-13	3.044-13	3.062-13	6.318-14
CE-144	3.742+01	1.631+02	1.611+02	1.129+02
LA-137	6.337-07	2.757-08	2.533-06	1.829-07
LA-140	0.000	0.000	0.000	0.000
BA-137M	1.334+02	5.338+02	1.122+03	1.465+03
BA-140	0.000	0.000	0.000	0.000
CS-134	1.066+01	8.894+01	3.053+02	6.943+02
CS-137	1.334+02	5.338+02	1.122+03	1.465+03
XE-131M	0.000	0.000	0.000	0.000
I-129	6.655-05	1.178-04	5.461-04	3.143-04
I-131	0.000	0.000	0.000	0.000
TE-125M	8.378+00	8.405+00	5.523+01	1.501+01
TE-127M	1.383-03	7.951-04	3.520-03	2.240-04
TE-127	1.383-03	7.951-04	3.520-03	2.240-04
TE-129M	2.402-13	2.135-13	4.287-13	4.378-14
TE-129	2.402-13	2.135-13	4.287-13	4.378-14
SB-124	2.589-10	1.186-10	8.106-10	5.150-10
SB-125	7.887+00	7.913+00	5.199+01	1.413+01
SN-119M	2.921-03	9.817-03	1.169-02	5.885-03
SN-121M	1.219-05	5.548-06	7.725-05	7.249-05
SN-123	8.153-04	1.277-03	2.249-03	3.796-04
IN-114M	5.485-11	2.425-13	4.243-11	3.410-13
IN-114	5.485-11	2.425-13	4.243-11	3.410-13
CD-115M	1.790-13	3.379-13	3.510-13	1.085-13
AG-108M	1.329-04	6.490-06	4.577-04	3.649-05
AG-110M	1.182-03	4.397-03	1.500-02	1.750-02
PD-107	1.077-05	6.639-05	9.087-05	1.806-04
RH-103M	5.315-11	2.085-10	1.025-10	4.227-11
RH-106	4.650+00	2.708+01	2.281+01	2.442+01
RU-103	5.315-11	2.085-10	1.025-10	4.227-11
RU-106	4.650+00	2.708+01	2.281+01	2.442+01
TC-99	1.517-02	8.007-02	1.208-01	1.962-01
NB-93M	1.103-03	4.453-03	1.099-02	1.625-02
NB-95M	4.689-05	1.233-04	1.000-04	2.582-05
NB-95	1.006-04	2.647-04	2.147-04	5.542-05

ZR-93	4.904-03	1.938-02	4.197-02	5.487-02
ZR-95	4.420-05	1.163-04	9.430-05	2.435-05
Y-90	1.431+02	5.395+02	1.197+03	1.467+03
Y-91	1.071-06	2.367-06	2.194-06	4.918-07
SR-89	4.347-07	7.936-07	8.615-07	1.613-07
SR-90	1.431+02	5.395+02	1.197+03	1.467+03
RB-86	0.000	0.000	0.000	0.000
RB-87	5.526-08	1.524-07	4.657-07	4.235-07
KR-85	4.093+01	9.979+01	2.590+02	1.591+02
SE-79	1.344-03	1.969-03	8.945-03	3.520-03
NI-59	5.849-04	1.267-05	2.023-03	7.284-05
NI-63	7.618-02	1.666-03	2.587-01	9.318-03
CO-58	1.448-10	3.136-12	1.300-10	4.681-12
CO-60	1.025-04	2.210-06	3.036-04	1.099-05
CL-36	4.078-04	0.000	1.320-03	0.000
S-35	2.162-06	2.342-09	1.996-06	3.614-09
C-14 FROM C	7.705-03	0.000	2.707-02	0.000
C-14 FROM N	1.235-03	4.843-06	4.349-03	2.899-05
C-14 FROM O	6.274-04	6.964-06	2.250-03	4.077-05
H-3 FROM LI6	1.969+01	1.327-01	2.543+01	2.847-01
H-3 FROM B10	8.097-03	0.000	4.115-02	0.000
H-3 FISS YLD	4.020-01	1.731+00	3.269+00	4.442+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

CURIE VALUES USED PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CH-242	6.735-08	3.106-04	8.506-06	2.920-03
CH-243	1.637-07	8.030-05	8.231-07	5.498-03
CH-244	6.656-03	8.453-02	3.424-03	5.353+00
AM-241	1.102-06	1.931-01	6.378-04	7.880-01
AM-242M	6.735-08	3.106-04	8.506-06	2.920-03
AM-242	6.735-08	3.106-04	8.506-06	2.920-03
AM-243	8.197-05	2.026-03	8.214-06	3.782-02
PU-238	1.039-03	3.953+00	4.498-01	1.010+02
PU-239	1.567-07	2.804-02	1.396-04	8.097-02
PU-240	1.766-07	4.572-02	1.717-04	1.401-01
PU-241	5.004-05	9.365+00	3.080-02	3.743+01
NP-237	4.633-07	1.180-03	7.734-05	8.649-03
U-232	4.942-01	5.290-05	2.340+00	3.813-04
U-233	1.289+00	1.245-08	2.011+00	2.544-08
U-234	6.166-02	1.660-02	2.796-01	1.418-02
U-235	1.608-06	4.236-04	2.028-05	9.677-05
U-236	2.070-06	2.696-03	1.047-04	6.609-03
U-237	0.000	0.000	0.000	0.000
U-238	1.222-13	8.341-06	2.578-11	1.114-05
PA-231	1.868-03	2.712-07	2.625-03	4.228-07
PA-233	0.000	0.000	0.000	0.000
PA-234	0.000	8.341-06	0.000	1.114-05
TH-228	4.944-01	5.293-05	2.357+00	3.842-04
TH-229	1.246-03	1.305-10	2.084-03	7.346-09
TH-230	1.362-02	1.820-06	5.594-03	1.809-06
TH-231	1.608-06	4.236-04	2.028-05	9.677-05
TH-232	1.026-03	1.406-12	8.709-04	4.114-12
TH-234	0.000	8.341-06	0.000	1.114-05
AC-225	1.246-03	1.305-10	2.084-03	7.346-09
AC-227	1.087-04	6.458-08	1.720-04	1.219-07
AC-228	7.515-04	7.390-13	6.867-04	3.267-12
RA-223	1.075-04	6.412-08	1.700-04	1.212-07
RA-224	4.944-01	5.293-05	2.357+00	3.842-04
RA-225	1.246-03	1.305-10	2.084-03	7.346-09
RA-228	7.515-04	7.390-13	6.867-04	3.267-12
FR-221	1.246-03	1.305-10	2.084-03	7.346-09
FR-223	1.522-06	9.082-10	2.408-06	1.717-09
RN-219	1.075-04	6.412-08	1.700-04	1.212-07
RN-220	4.944-01	5.293-05	2.357+00	3.842-04
AT-217	1.246-03	1.305-10	2.084-03	7.346-09
AT-218	1.421-08	1.898-12	7.640-09	2.470-12
PO-210	2.844-06	0.000	1.402-05	0.000
PO-212	3.164-01	3.387-05	1.508+00	2.459-04
PO-213	1.246-03	1.305-10	2.084-03	7.346-09
PO-215	1.075-04	6.412-08	1.700-04	1.212-07
PO-216	4.944-01	5.293-05	2.357+00	3.842-04
BI-211	1.075-04	6.412-08	1.700-04	1.212-07

BI-212	4.944-01	5.293-05	2.357+00	3.842-04
BI-213	1.246-03	1.305-10	2.084-03	7.346-09
PB-209	1.246-03	1.305-10	2.084-03	7.346-09
PB-211	1.075-04	6.412-08	1.700-04	1.212-07
PB-212	4.944-01	5.293-05	2.357+00	3.842-04
TL-207	1.075-04	6.412-08	1.700-04	1.212-07
TL-208	1.780-01	1.905-05	8.485-01	1.383-04
DY-159	9.960-11	4.381-12	4.278-11	3.794-12
TB-157	4.625-07	2.014-08	1.757-06	1.380-07
TB-158	1.579-08	6.664-09	1.384-07	2.014-08
TB-160	1.324-15	3.214-16	1.334-15	1.421-15
GO-153	1.162-06	1.181-06	3.253-07	4.715-07
EU-152	4.057-02	6.667-02	3.511-02	4.625-02
EU-154	6.475-01	5.529+00	1.234+01	2.840+01
EU-155	4.874-02	3.193-01	6.785-01	1.533+00
EU-156	0.000	0.000	0.000	0.000
SM-145	1.218-06	1.218-06	1.834-06	1.834-06
SM-151	7.998-01	2.679+00	2.745+00	2.807+00
PM-147	2.519+01	1.145+02	9.953+01	6.589+01
PM-148M	3.074-25	1.574-24	1.501-24	1.050-24
ND-147	0.000	0.000	0.000	0.000
PR-144	4.340-01	1.892+00	1.869+00	1.310+00
CE-141	0.000	0.000	0.000	0.000
CE-144	4.340-01	1.892+00	1.869+00	1.310+00
LA-137	6.333-07	2.755-08	2.532-06	1.828-07
LA-140	0.000	0.000	0.000	0.000
BA-137M	1.188+02	4.756+02	9.994+02	1.305+03
BA-140	0.000	0.000	0.000	0.000
CS-134	1.961+00	1.636+01	5.617+01	1.277+02
CS-137	1.188+02	4.756+02	9.994+02	1.305+03
XE-131M	0.000	0.000	0.000	0.000
I-129	6.655-05	1.178-04	5.461-04	3.143-04
I-131	0.000	0.000	0.000	0.000
TE-125M	2.333+00	2.340+00	1.538+01	4.180+00
TE-127M	1.254-08	7.206-09	3.190-08	2.030-09
TE-127	1.254-08	7.206-09	3.190-08	2.030-09
TE-129M	0.000	0.000	0.000	0.000
TE-129	0.000	0.000	0.000	0.000
SB-124	1.930-19	8.843-20	6.044-19	3.840-19
SB-125	2.196+00	2.203+00	1.448+01	3.935+00
SN-119M	1.851-05	6.219-05	7.407-05	3.728-05
SN-121M	1.164-05	5.301-06	7.381-05	6.926-05
SN-123	3.266-08	5.117-08	9.009-08	1.521-08
IN-114M	4.347-22	1.922-24	3.362-22	2.702-24
IN-114	4.347-22	1.922-24	3.362-22	2.702-24
CO-115M	2.972-26	5.610-26	5.828-26	1.801-26
AG-108M	1.294-04	6.319-06	4.457-04	3.553-05
AG-110M	8.272-06	3.076-05	1.049-04	1.224-04
PD-107	1.077-05	6.639-05	9.087-05	1.806-04
RH-103M	8.147-25	3.196-24	1.570-24	6.479-25
RH-106	1.494-01	8.698-01	7.327-01	7.844-01
RU-103	8.147-25	3.196-24	1.570-24	6.479-25
RU-106	1.494-01	8.698-01	7.327-01	7.844-01
YC-99	1.517-02	8.007-02	1.208-01	1.962-01
NB-93M	1.903-03	7.593-03	1.748-02	2.432-02
NB-95M	1.922-13	5.054-13	4.099-13	1.058-13
NB-95	4.124-13	1.085-12	8.797-13	2.271-13

ZR-93	4.904-03	1.938-02	4.197-02	5.487-02
ZR-95	1.812-13	4.765-13	3.865-13	9.978-14
Y-90	1.263+02	4.760+02	1.056+03	1.294+03
Y-91	3.571-16	7.892-16	7.315-16	1.640-16
SR-89	1.617-17	2.952-17	3.205-17	6.000-18
SR-90	1.263+02	4.760+02	1.056+03	1.294+03
RB-86	0.000	0.000	0.000	0.000
RB-87	5.526-08	1.524-07	4.657-07	4.235-07
KR-85	2.965+01	7.230+01	1.876+02	1.153+02
SE-79	1.344-03	1.969-03	8.944-03	3.520-03
NI-59	5.849-04	1.267-05	2.023-03	7.283-05
NI-63	7.336-02	1.604-03	2.491-01	8.974-03
CO-58	2.874-18	6.227-20	2.581-18	9.292-20
CO-60	5.305-05	1.143-06	1.570-04	5.686-06
CL-36	4.078-04	0.000	1.320-03	0.000
S-35	1.071-12	1.161-15	9.888-13	1.791-15
C-14 FROM C	7.700-03	0.000	2.705-02	0.000
C-14 FROM N	1.234-03	4.839-06	4.346-03	2.897-05
C-14 FROM O	6.269-04	6.959-06	2.249-03	4.074-05
H-3 FROM LI6	1.486+01	1.002-01	1.920+01	2.150-01
H-3 FROM B10	6.112-03	0.000	3.106-02	0.000
H-3 FISS YLD	3.034-01	1.306+00	2.467+00	3.353+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

CURIE VALUES USED PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-233 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	3.301-03	3.269-01	3.301-03	7.089+01
CM-243	6.270-07	8.863-05	6.270-07	2.910-02
CM-244	9.312-03	6.037-02	9.312-03	2.867+01
AM-241	4.146-05	2.885-03	4.146-05	3.851-01
AM-242M	6.735-06	9.202-05	6.734-06	1.511-02
AM-242	6.735-06	9.202-05	6.734-06	1.511-02
AM-243	1.491-05	4.017-04	1.491-05	1.555-01
PU-238	3.965-01	1.333+01	3.965-01	5.738+02
PU-239	1.120-04	4.491-03	1.120-04	3.841-01
PU-240	1.337-04	6.668-03	1.337-04	6.674-01
PU-241	3.594-02	2.274+00	3.594-02	2.752+02
NP-237	6.650-05	1.272-03	6.650-05	3.996-02
U-232	2.566+00	2.281+00	2.566+00	9.683-04
U-233	2.051+00	3.291-01	2.051+00	8.423-08
U-234	2.684-01	5.080-01	2.684-01	3.742-02
U-235	1.912-05	6.792-05	1.912-05	9.601-05
U-236	9.240-05	9.851-04	9.240-05	2.826-02
U-237	2.980-06	3.234-05	2.980-06	7.599-04
U-238	2.136-11	5.083-10	2.136-11	4.377-05
PA-231	2.785-03	5.757-05	2.785-03	1.041-06
PA-233	4.088+03	8.399-06	4.088+03	4.424-05
PA-234	2.775-01	1.081-09	2.775-01	4.377-05
TH-228	1.126+00	2.140+00	1.126+00	4.256-04
TH-229	2.902-04	2.833-04	2.902-04	1.525-08
TH-230	5.923-03	9.376-05	5.923-03	1.689-06
TH-231	1.912-05	6.792-05	1.912-05	9.601-05
TH-232	8.727-04	1.928-12	8.727-04	7.966-12
TH-234	2.775-01	1.081-09	2.775-01	4.377-05
AC-225	2.902-04	2.833-04	2.902-04	1.525-08
AC-227	2.387-04	2.356-06	2.387-04	4.638-08
AC-228	3.805-04	2.613-10	3.805-04	1.070-11
RA-223	2.359-04	2.204-06	2.359-04	4.409-08
RA-224	1.126+00	2.140+00	1.126+00	4.256-04
RA-225	2.902-04	2.833-04	2.902-04	1.525-08
RA-228	3.805-04	2.613-10	3.805-04	1.070-11
FR-221	2.902-04	2.833-04	2.902-04	1.525-08
FR-223	3.342-06	3.123-08	3.342-06	6.245-10
RN-219	2.359-04	2.204-06	2.359-04	4.409-08
RN-220	1.126+00	2.140+00	1.126+00	4.256-04
AT-217	2.902-04	2.833-04	2.902-04	1.525-08
AT-218	3.593-09	5.688-11	3.593-09	1.025-12
PO-210	6.783-04	1.301-04	6.783-04	3.436-07
PO-212	6.968-01	1.370+00	6.968-01	2.635-04
PO-213	2.902-04	2.833-04	2.902-04	1.525-08
PO-215	2.359-04	2.204-06	2.359-04	4.409-08
PO-216	1.126+00	2.140+00	1.126+00	4.256-04
BI-211	2.359-04	2.204-06	2.359-04	4.409-08
BI-212	1.126+00	2.140+00	1.126+00	4.256-04
BI-213	2.902-04	2.833-04	2.902-04	1.525-08

PB-209	2.902-04	2.833-04	2.902-04	1.525-08
PB-211	2.359-04	2.204-06	2.359-04	4.409-08
PB-212	1.126+00	2.140+00	1.126+00	4.256-04
TL-207	2.359-04	2.204-06	2.359-04	4.409-08
TL-208	3.919-01	7.704-01	3.919-01	1.482-04
DY-159	7.835-04	1.028-04	7.835-04	2.152-04
TB-157	1.813-06	5.856-07	1.813-06	4.316-07
TB-158	1.380-07	1.958-07	1.380-07	1.889-08
TB-160	4.281-01	4.528-01	4.281-01	4.887-01
GD-153	7.321-03	1.238-02	7.321-03	2.103-02
EU-152	6.106-02	7.318-02	6.106-02	7.141-02
EU-154	1.777+01	3.655+01	1.777+01	3.613+01
EU-155	2.464+01	4.967+01	2.464+01	4.911+01
EU-156	3.962-01	7.996-01	3.962-01	7.904-01
SM-145	2.143-03	3.164-03	2.143-03	6.635-03
SM-151	2.958+00	2.804+00	2.958+00	2.628+00
PM-147	1.200+03	8.465+02	1.200+03	7.263+02
PM-148M	1.530+01	1.131+01	1.530+01	9.776+00
ND-147	8.511-02	3.039-02	8.511-02	2.209-02
PR-144	8.596+03	6.592+03	8.596+03	5.372+03
CE-141	5.238+02	1.681+02	5.238+02	1.005+02
CE-144	8.596+03	6.592+03	8.596+03	5.372+03
LA-137	2.497-06	1.101-06	2.497-06	5.375-07
LA-140	1.411+00	4.370-01	1.411+00	2.728-01
BA-137M	1.183+03	1.925+03	1.183+03	1.326+03
BA-140	1.411+00	4.370-01	1.411+00	2.728-01
CS-134	1.302+03	3.083+03	1.302+03	2.547+03
CS-137	1.183+03	1.925+03	1.183+03	1.326+03
XE-131M	6.389-03	1.877-03	6.389-03	1.026-03
I-129	5.200-04	7.940-04	5.200-04	2.560-04
I-131	2.506-03	7.316-04	2.506-03	3.993-04
TE-125M	1.639+02	1.962+02	1.639+02	3.846+01
TE-127M	1.196+02	3.733+01	1.196+02	6.488+00
TE-127	1.196+02	3.733+01	1.196+02	6.488+00
TE-129M	1.400+02	3.633+01	1.400+02	1.291+01
TE-129	1.400+02	3.633+01	1.400+02	1.291+01
SB-124	1.292-01	1.756-01	1.292-01	7.619-02
SB-125	1.573+02	1.853+02	1.573+02	3.634+01
SN-119M	1.078+00	7.273-01	1.078+00	4.851-01
SN-121M	7.661-05	8.974-05	7.661-05	6.776-05
SN-123	1.997+01	7.618+00	1.997+01	3.050+00
IN-114M	4.225-01	5.015-03	4.225-01	1.052-02
IN-114	4.225-01	5.015-03	4.225-01	1.052-02
CD-115M	1.123-01	4.905-02	1.123-01	3.120-02
AG-108M	4.530-04	5.333-05	4.530-04	1.118-04
AG-110M	1.234+00	2.039+00	1.234+00	1.245+00
PD-107	8.640-05	1.469-04	8.640-05	1.478-04
RH-103M	2.799+02	1.224+02	2.799+02	1.065+02
RH-106	4.846+02	4.585+02	4.846+02	4.593+02
RU-103	2.799+02	1.224+02	2.799+02	1.065+02
RU-106	4.846+02	4.585+02	4.846+02	4.593+02
TC-99	1.153-01	1.820-01	1.153-01	1.583-01
NB-93M	3.326-03	8.376-03	3.326-03	5.495-03
NB-95M	3.510+03	1.269+03	3.510+03	8.263+02
NB-95	6.697+03	2.446+03	6.697+03	1.596+03
ZR-93	3.990-02	6.593-02	3.990-02	4.380-02
ZR-95	3.309+03	1.197+03	3.309+03	7.791+02

Y-90	1.275+03	2.053+03	1.275+03	1.311+03
Y-91	7.391+02	2.522+02	7.391+02	1.504+02
SR-89	2.097+03	6.638+02	2.097+03	3.554+02
SR-90	1.275+03	2.053+03	1.275+03	1.311+03
RB-86	4.050-02	2.711-02	4.050-02	9.977-03
RB-87	4.433-07	7.064-07	4.433-07	3.380-07
KR-85	3.353+02	3.876+02	3.353+02	1.767+02
SE-79	8.664-03	1.038-02	8.664-03	2.899-03
NI-59	1.893-03	1.006-04	1.893-03	2.110-04
NI-63	2.506-01	1.333-02	2.506-01	2.796-02
CO-58	1.101-03	5.852-05	1.101-03	1.227-04
CO-60	5.154-04	2.756-05	5.154-04	5.779-05
CL-36	1.243-03	0.000	1.243-03	0.000
S-35	9.093-01	2.432-03	9.093-01	5.100-03
C-14 FROM C	2.530-02	0.000	2.530-02	0.000
C-14 FROM N	4.079-03	4.016-05	4.079-03	8.421-05
C-14 FROM O	2.091-03	5.629-05	2.091-03	1.180-04
H-3 FROM LI6	3.269+01	5.406-01	3.269+01	1.133+00
H-3 FROM B10	6.380-02	0.000	6.380-02	0.000
H-3 FISS YLD	4.006+00	6.335+00	4.006+00	4.580+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

CURIE VALUES USED PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-233 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	1.504-03	1.487-01	1.504-03	3.225+01
CM-243	6.201-07	8.766-05	6.201-07	2.879-02
CM-244	9.131-03	5.920-02	9.131-03	2.811+01
AM-241	7.025-05	4.707-03	7.025-05	6.056-01
AM-242M	6.719-06	9.181-05	6.719-06	1.507-02
AM-242	6.719-06	9.181-05	6.719-06	1.507-02
AM-243	1.491-05	4.016-04	1.491-05	1.555-01
PU-238	3.949-01	1.328+01	3.949-01	5.715+02
PU-239	1.120-04	4.491-03	1.120-04	3.841-01
PU-240	1.337-04	6.668-03	1.337-04	6.673-01
PU-241	3.510-02	2.221+00	3.510-02	2.689+02
NP-237	6.650-05	1.272-03	6.650-05	3.996-02
U-232	2.553+00	2.270+00	2.553+00	9.635-04
U-233	2.053+00	3.291-01	2.052+00	8.425-08
U-234	2.684-01	5.080-01	2.684-01	3.742-02
U-235	1.912-05	6.792-05	1.912-05	9.601-05
U-236	9.240-05	9.851-04	9.240-05	2.826-02
U-237	1.633-14	1.771-13	1.633-14	4.162-12
U-238	2.136-11	5.083-10	2.136-11	4.377-05
PA-231	2.785-03	5.757-05	2.785-03	1.043-06
PA-233	3.517+01	7.225-08	3.517+01	3.805-07
PA-234	1.347-03	5.111-10	1.347-03	4.377-05
TH-228	1.367+00	2.140+00	1.367+00	5.164-04
TH-229	3.885-04	2.991-04	3.885-04	1.525-08
TH-230	5.924-03	9.599-05	5.924-03	1.854-06
TH-231	1.912-05	6.792-05	1.912-05	9.601-05
TH-232	8.727-04	1.953-12	8.727-04	8.676-12
TH-234	1.347-03	5.111-10	1.347-03	4.377-05
AC-225	3.885-04	2.991-04	3.885-04	1.525-08
AC-227	2.349-04	3.248-06	2.349-04	6.245-08
AC-228	4.057-04	2.480-10	4.057-04	1.058-11
RA-223	2.321-04	3.013-06	2.321-04	6.020-08
RA-224	1.367+00	2.140+00	1.367+00	5.164-04
RA-225	3.885-04	2.991-04	3.885-04	1.525-08
RA-228	4.057-04	2.480-10	4.057-04	1.058-11
FR-221	3.885-04	2.991-04	3.885-04	1.525-08
FR-223	3.288-06	4.268-08	3.288-06	8.526-10
RN-219	2.321-04	3.013-06	2.321-04	6.020-08
RN-220	1.367+00	2.140+00	1.367+00	5.164-04
AT-217	3.885-04	2.991-04	3.885-04	1.525-08
AT-218	3.833-09	6.211-11	3.833-09	1.199-12
PO-210	2.799-04	5.369-05	2.799-04	1.611-07
PO-212	8.701-01	1.370+00	8.701-01	3.288-04
PO-213	3.885-04	2.991-04	3.885-04	1.525-08
PO-215	2.321-04	3.013-06	2.321-04	6.020-08
PO-216	1.367+00	2.140+00	1.367+00	5.164-04
BI-211	2.321-04	3.013-06	2.321-04	6.020-08
BI-212	1.367+00	2.140+00	1.367+00	5.164-04
BI-213	3.885-04	2.991-04	3.885-04	1.525-08

PB-209	3.885-04	2.991-04	3.885-04	1.525-08
PB-211	2.321-04	3.013-06	2.321-04	6.020-08
PB-212	1.367+00	2.140+00	1.367+00	5.164-04
TL-207	2.321-04	3.013-06	2.321-04	6.020-08
TL-208	4.894-01	7.704-01	4.894-01	1.850-04
DY-159	3.212-04	4.215-05	3.212-04	8.822-05
TB-157	1.808-06	5.843-07	1.808-06	4.306-07
TB-158	1.377-07	1.953-07	1.377-07	1.885-08
TB-160	7.195-02	7.610-02	7.195-02	8.213-02
GD-153	4.306-03	7.280-03	4.306-03	1.237-02
EU-152	5.939-02	7.118-02	5.939-02	6.946-02
EU-154	1.739+01	3.575+01	1.739+01	3.535+01
EU-155	2.029+01	4.091+01	2.029+01	4.045+01
EU-156	9.481-05	1.914-04	9.481-05	1.891-04
SM-145	1.469-03	2.169-03	1.469-03	4.548-03
SM-151	2.946+00	2.793+00	2.946+00	2.617+00
PM-147	1.049+03	7.403+02	1.049+03	6.352+02
PM-148M	7.088-01	5.241-01	7.088-01	4.529-01
ND-147	7.726-07	2.758-07	7.726-07	2.005-07
PR-144	5.469+03	4.194+03	5.469+03	3.418+03
CE-141	1.008+01	3.233+00	1.008+01	1.932+00
CE-144	5.469+03	4.194+03	5.469+03	3.418+03
LA-137	2.497-06	1.101-06	2.497-06	5.375-07
LA-140	6.210-05	1.923-05	6.210-05	1.201-05
BA-137M	1.170+03	1.902+03	1.170+03	1.310+03
BA-140	6.210-05	1.923-05	6.210-05	1.201-05
CS-134	1.096+03	2.596+03	1.096+03	2.145+03
CS-137	1.170+03	1.902+03	1.170+03	1.310+03
XE-131M	1.210-07	3.556-08	1.210-07	1.944-08
I-129	5.208-04	7.942-04	5.208-04	2.561-04
I-131	2.971-10	8.673-11	2.971-10	4.733-11
TE-125M	1.464+02	1.728+02	1.464+02	3.389+01
TE-127M	3.682+01	1.150+01	3.682+01	1.998+00
TE-127	3.682+01	1.150+01	3.682+01	1.998+00
TE-129M	3.245+00	8.420-01	3.245+00	2.991-01
TE-129	3.245+00	8.420-01	3.245+00	2.991-01
SB-124	1.533-02	2.083-02	1.533-02	9.036-03
SB-125	1.382+02	1.627+02	1.382+02	3.192+01
SN-119M	6.449-01	4.352-01	6.449-01	2.903-01
SN-121M	7.625-05	8.933-05	7.625-05	6.745-05
SN-123	7.151+00	2.728+00	7.151+00	1.092+00
IN-114M	3.160-02	3.751-04	3.160-02	7.866-04
IN-114	3.160-02	3.751-04	3.160-02	7.866-04
CD-115M	5.677-03	2.479-03	5.677-03	1.577-03
AG-108M	4.518-04	5.319-05	4.518-04	1.115-04
AG-110M	7.461-01	1.233+00	7.461-01	7.525-01
PD-107	8.640-05	1.469-04	8.640-05	1.478-04
RH-103M	1.111+01	4.859+00	1.111+01	4.228+00
RH-106	3.419+02	3.235+02	3.419+02	3.241+02
RU-103	1.111+01	4.859+00	1.111+01	4.228+00
RU-106	3.419+02	3.235+02	3.419+02	3.241+02
TC-99	1.153-01	1.820-01	1.153-01	1.583-01
NB-93M	4.208-03	9.761-03	4.208-03	6.417-03
NB-95M	4.948+02	1.789+02	4.948+02	1.165+02
NB-95	1.041+03	3.769+02	1.041+03	2.455+02
ZR-93	3.990-02	6.593-02	3.990-02	4.380-02
ZR-95	4.665+02	1.687+02	4.665+02	1.098+02

Y-90	1.259+03	2.027+03	1.259+03	1.295+03
Y-91	8.079+01	2.756+01	8.079+01	1.644+01
SR-89	1.835+02	5.809+01	1.835+02	3.110+01
SR-90	1.259+03	2.027+03	1.259+03	1.295+03
RB-86	4.154-05	2.781-05	4.154-05	1.023-05
RB-87	4.433-07	7.064-07	4.433-07	3.380-07
KR-85	3.246+02	3.751+02	3.246+02	1.710+02
SE-79	8.664-03	1.038-02	8.664-03	2.899-03
NI-59	1.893-03	1.006-04	1.893-03	2.110-04
NI-63	2.496-01	1.328-02	2.496-01	2.785-02
CO-58	1.821-04	9.683-06	1.821-04	2.030-05
CO-60	4.821-04	2.578-05	4.821-04	5.405-05
CL-36	1.243-03	0.000	1.243-03	0.000
S-35	2.085-01	5.577-04	2.085-01	1.169-03
C-14 FROM C	2.530-02	0.000	2.530-02	0.000
C-14 FROM N	4.078-03	4.016-05	4.078-03	8.420-05
C-14 FROM O	2.090-03	5.628-05	2.090-03	1.180-04
H-3 FROM LI6	3.177+01	5.254-01	3.177+01	1.102+00
H-3 FROM B10	6.201-02	0.000	6.201-02	0.000
H-3 FISS YLD	3.894+00	6.156+00	3.894+00	4.451+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

CURIE VALUES USED PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-233 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	7.268-05	6.729-03	7.268-05	1.455+00
CM-243	5.938-07	8.394-05	5.938-07	2.757-02
CM-244	8.450-03	5.479-02	8.450-03	2.601+01
AM-241	1.772-04	1.147-02	1.772-04	1.425+00
AM-242M	6.658-06	9.098-05	6.658-06	1.493-02
AM-242	6.658-06	9.098-05	6.658-06	1.493-02
AM-243	1.491-05	4.016-04	1.491-05	1.555-01
PU-238	3.888-01	1.307+01	3.888-01	5.626+02
PU-239	1.120-04	4.491-03	1.120-04	3.841-01
PU-240	1.337-04	6.666-03	1.337-04	6.672-01
PU-241	3.200-02	2.025+00	3.200-02	2.451+02
NP-237	6.650-05	1.272-03	6.650-05	3.996-02
U-232	2.505+00	2.227+00	2.505+00	9.452-04
U-233	2.053+00	3.291-01	2.053+00	8.425-08
U-234	2.684-01	5.080-01	2.684-01	3.742-02
U-235	1.912-05	6.792-05	1.912-05	9.601-05
U-236	9.240-05	9.851-04	9.240-05	2.826-02
U-237	0.000	0.000	0.000	0.000
U-238	2.136-11	5.083-10	2.136-11	4.377-05
PA-231	2.785-03	5.757-05	2.785-03	1.047-06
PA-233	2.518-07	5.174-16	2.518-07	2.725-15
PA-234	1.009-12	5.083-10	1.009-12	4.377-05
TH-228	1.965+00	2.220+00	1.965+00	7.419-04
TH-229	7.761-04	3.612-04	7.761-04	1.527-08
TH-230	5.928-03	1.048-04	5.928-03	2.502-06
TH-231	1.912-05	6.792-05	1.912-05	9.601-05
TH-232	8.727-04	2.050-12	8.727-04	1.147-11
TH-234	1.009-12	5.083-10	1.009-12	4.377-05
AC-225	7.761-04	3.612-04	7.761-04	1.527-08
AC-227	2.202-04	6.625-06	2.202-04	1.235-07
AC-228	4.930-04	2.020-10	4.930-04	1.049-11
RA-223	2.177-04	6.347-06	2.177-04	1.214-07
RA-224	1.965+00	2.220+00	1.965+00	7.419-04
RA-225	7.761-04	3.612-04	7.761-04	1.527-08
RA-228	4.930-04	2.020-10	4.930-04	1.049-11
FR-221	7.761-04	3.612-04	7.761-04	1.527-08
FR-223	3.083-06	8.990-08	3.083-06	1.720-09
RN-219	2.177-04	6.347-06	2.177-04	1.214-07
RN-220	1.965+00	2.220+00	1.965+00	7.419-04
AT-217	7.761-04	3.612-04	7.761-04	1.527-08
AT-218	4.778-09	8.446-11	4.778-09	2.017-12
PO-210	2.525-05	4.844-06	2.525-05	1.629-08
PO-212	1.256+00	1.421+00	1.256+00	4.740-04
PO-213	7.761-04	3.612-04	7.761-04	1.527-08
PO-215	2.177-04	6.347-06	2.177-04	1.214-07
PO-216	1.965+00	2.220+00	1.965+00	7.419-04
BI-211	2.177-04	6.347-06	2.177-04	1.214-07
BI-212	1.965+00	2.220+00	1.965+00	7.419-04
BI-213	7.761-04	3.612-04	7.761-04	1.527-08

PB-209	7.761-04	3.612-04	7.761-04	1.527-08
PB-211	2.177-04	6.347-06	2.177-04	1.214-07
PB-212	1.965+00	2.220+00	1.965+00	7.419-04
TL-207	2.177-04	6.347-06	2.177-04	1.214-07
TL-208	7.063-01	7.992-01	7.063-01	2.666-04
DY-159	9.535-06	1.252-06	9.535-06	2.619-06
TB-157	1.792-06	5.789-07	1.792-06	4.266-07
TB-158	1.364-07	1.935-07	1.364-07	1.867-08
TB-160	6.350-05	6.716-05	6.350-05	7.248-05
GD-153	5.313-04	8.981-04	5.313-04	1.526-03
EU-152	5.326-02	6.382-02	5.326-02	6.228-02
EU-154	1.595+01	3.279+01	1.595+01	3.242+01
EU-155	9.439+00	1.903+01	9.439+00	1.881+01
EU-156	4.976-19	1.004-18	4.976-19	9.927-19
SM-145	3.312-04	4.891-04	3.312-04	1.026-03
SM-151	2.899+00	2.749+00	2.899+00	2.576+00
PM-147	6.185+02	4.363+02	6.185+02	3.743+02
PM-148M	3.884-06	2.872-06	3.884-06	2.482-06
ND-147	1.010-26	0.000	1.010-26	0.000
PR-144	9.197+02	7.053+02	9.197+02	5.748+02
CE-141	1.724-06	5.531-07	1.724-06	3.306-07
CE-144	9.197+02	7.053+02	9.197+02	5.748+02
LA-137	2.496-06	1.100-06	2.496-06	5.373-07
LA-140	4.104-22	1.271-22	4.104-22	7.933-23
BA-137M	1.117+03	1.816+03	1.117+03	1.251+03
BA-140	4.104-22	1.271-22	4.104-22	7.933-23
CS-134	5.570+02	1.319+03	5.570+02	1.090+03
CS-137	1.117+03	1.816+03	1.117+03	1.251+03
XE-131M	2.823-26	8.294-27	2.823-26	0.000
I-129	5.209-04	7.942-04	5.209-04	2.561-04
I-131	0.000	0.000	0.000	0.000
TE-125M	8.802+01	1.036+02	8.802+01	2.033+01
TE-127M	3.538-01	1.105-01	3.538-01	1.920-02
TE-127	3.538-01	1.105-01	3.538-01	1.920-02
TE-129M	1.158-06	3.005-07	1.158-06	1.068-07
TE-129	1.158-06	3.005-07	1.158-06	1.068-07
SB-124	3.421-06	4.648-06	3.421-06	2.017-06
SB-125	8.286+01	9.758+01	8.286+01	1.914+01
SN-119M	8.513-02	5.745-02	8.513-02	3.832-02
SN-121M	7.488-05	8.772-05	7.488-05	6.623-05
SN-123	1.245-01	4.751-02	1.245-01	1.902-02
IN-114M	1.145-06	1.360-08	1.145-06	2.851-08
IN-114	1.145-06	1.360-08	1.145-06	2.851-08
CD-115M	4.382-08	1.914-08	4.382-08	1.217-08
AG-108M	4.470-04	5.262-05	4.470-04	1.103-04
AG-110M	1.025-01	1.693-01	1.025-01	1.034-01
PD-107	8.640-05	1.469-04	8.640-05	1.478-04
RH-103M	3.306-05	1.446-05	3.306-05	1.258-05
RH-106	8.642+01	8.177+01	8.642+01	8.191+01
RU-103	3.306-05	1.446-05	3.306-05	1.258-05
RU-106	8.642+01	8.177+01	8.642+01	8.191+01
TC-99	1.153-01	1.820-01	1.153-01	1.583-01
NB-93M	7.474-03	1.488-02	7.474-03	9.827-03
NB-95M	2.184-01	7.896-02	2.184-01	5.141-02
NB-95	4.686-01	1.695-01	4.686-01	1.103-01
ZR-93	3.990-02	6.593-02	3.990-02	4.380-02
ZR-95	2.059-01	7.445-02	2.059-01	4.847-02

Y-90	1.197+03	1.928+03	1.197+03	1.231+03
Y-91	1.307-02	4.459-03	1.307-02	2.659-03
SR-89	1.234-02	3.908-03	1.234-02	2.092-03
SR-90	1.197+03	1.928+03	1.197+03	1.231+03
RB-86	6.778-17	4.537-17	6.778-17	1.670-17
RB-87	4.433-07	7.064-07	4.433-07	3.380-07
KR-85	2.853+02	3.297+02	2.853+02	1.503+02
SE-79	8.664-03	1.037-02	8.664-03	2.898-03
NI-59	1.893-03	1.006-04	1.893-03	2.110-04
NI-63	2.459-01	1.308-02	2.459-01	2.743-02
CO-58	1.511-07	8.033-09	1.511-07	1.684-08
CO-60	3.703-04	1.980-05	3.703-04	4.152-05
CL-36	1.243-03	0.000	1.243-03	0.000
S-35	6.265-04	1.676-06	6.265-04	3.514-06
C-14 FROM C	2.529-02	0.000	2.529-02	0.000
C-14 FROM N	4.077-03	4.015-05	4.077-03	8.418-05
C-14 FROM O	2.090-03	5.627-05	2.090-03	1.180-04
H-3 FROM LI6	2.839+01	4.695-01	2.839+01	9.844-01
H-3 FROM B10	5.541-02	0.000	5.541-02	0.000
H-3 FISS YLD	3.479+00	5.502+00	3.479+00	3.978+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

CURIE VALUES USED PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-233 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	8.561-06	3.737-04	8.561-06	7.705-02
CM-243	5.686-07	8.038-05	5.686-07	2.640-02
CM-244	7.820-03	5.070-02	7.820-03	2.408-01
AM-241	2.744-04	1.762-02	2.744-04	2.169-00
AM-242M	6.597-06	9.015-05	6.597-06	1.480-02
AM-242	6.597-06	9.015-05	6.597-06	1.480-02
AM-243	1.491-05	4.015-04	1.491-05	1.554-01
PU-238	3.827-01	1.287-01	3.827-01	5.538-02
PU-239	1.120-04	4.490-03	1.120-04	3.841-01
PU-240	1.337-04	6.665-03	1.337-04	6.670-01
PU-241	2.918-02	1.846-00	2.918-02	2.235-02
NP-237	6.650-05	1.272-03	6.650-05	3.996-02
U-232	2.457-00	2.184-00	2.457-00	9.271-04
U-233	2.052-00	3.291-01	2.052-00	8.425-08
U-234	2.684-01	5.079-01	2.684-01	3.742-02
U-235	1.912-05	6.792-05	1.912-05	9.601-05
U-236	9.240-05	9.851-04	9.240-05	2.826-02
U-237	0.000	0.000	0.000	0.000
U-238	2.136-11	5.083-10	2.136-11	4.377-05
PA-231	2.785-03	5.757-05	2.785-03	1.051-06
PA-233	1.805-15	3.709-24	1.805-15	1.954-23
PA-234	7.572-22	5.083-10	7.572-22	4.377-05
TH-228	2.230-00	2.220-00	2.230-00	8.416-04
TH-229	1.163-03	4.233-04	1.163-03	1.528-08
TH-230	5.933-03	1.136-04	5.933-03	3.150-06
TH-231	1.912-05	6.792-05	1.912-05	9.601-05
TH-232	8.727-04	2.148-12	8.727-04	1.427-11
TH-234	7.572-22	5.083-10	7.572-22	4.377-05
AC-225	1.163-03	4.233-04	1.163-03	1.528-08
AC-227	2.066-04	9.792-06	2.066-04	1.810-07
AC-228	5.640-04	1.647-10	5.640-04	1.095-11
RA-223	2.042-04	9.683-06	2.042-04	1.790-07
RA-224	2.230-00	2.220-00	2.230-00	8.416-04
RA-225	1.163-03	4.233-04	1.163-03	1.528-08
RA-228	5.640-04	1.647-10	5.640-04	1.095-11
FR-221	1.163-03	4.233-04	1.163-03	1.528-08
FR-223	2.892-06	1.371-07	2.892-06	2.536-09
RN-219	2.042-04	9.683-06	2.042-04	1.790-07
RN-220	2.230-00	2.220-00	2.230-00	8.416-04
AT-217	1.163-03	4.233-04	1.163-03	1.528-08
AT-218	5.723-09	1.096-10	5.723-09	3.039-12
PO-210	1.752-05	0.000	1.752-05	0.000
PO-212	1.426-00	1.421-00	1.426-00	5.383-04
PO-213	1.163-03	4.233-04	1.163-03	1.528-08
PO-215	2.042-04	9.683-06	2.042-04	1.790-07
PO-216	2.230-00	2.220-00	2.230-00	8.416-04
BI-211	2.042-04	9.683-06	2.042-04	1.790-07
BI-212	2.230-00	2.220-00	2.230-00	8.416-04
BI-213	1.163-03	4.233-04	1.163-03	1.528-08

PB-209	1.163-03	4.233-04	1.163-03	1.528-08
PB-211	2.042-04	9.683-06	2.042-04	1.790-07
PB-212	2.230+00	2.220+00	2.230+00	8.416-04
TL-207	2.042-04	9.683-06	2.042-04	1.790-07
TL-208	8.022-01	7.992-01	8.022-01	3.028-04
DY-159	2.832-07	3.717-08	2.832-07	7.778-08
TB-157	1.775-06	5.736-07	1.775-06	4.227-07
TB-158	1.351-07	1.916-07	1.351-07	1.850-08
TB-160	5.606-08	5.930-08	5.606-08	6.399-08
GO-153	6.556-05	1.108-04	6.556-05	1.883-04
EU-152	4.775-02	5.723-02	4.775-02	5.584-02
EU-154	1.462+01	3.007+01	1.462+01	2.973+01
EU-155	4.391+00	8.851+00	4.391+00	8.750+00
EU-156	0.000	0.000	0.000	0.000
SM-145	7.470-05	1.103-04	7.470-05	2.313-04
SM-151	2.854+00	2.705+00	2.854+00	2.535+00
PM-147	3.645+02	2.571+02	3.645+02	2.206+02
PM-148M	2.130-11	1.575-11	2.130-11	1.361-11
ND-147	0.000	0.000	0.000	0.000
PR-144	1.547+02	1.186+02	1.547+02	9.667+01
CE-141	2.953-13	9.474-14	2.953-13	5.663-14
CE-144	1.547+02	1.186+02	1.547+02	9.667+01
LA-137	2.496-06	1.100-06	2.496-06	5.372-07
LA-140	0.000	0.000	0.000	0.000
BA-137M	1.066+03	1.734+03	1.066+03	1.195+03
BA-140	0.000	0.000	0.000	0.000
CS-134	2.830+02	6.700+02	2.830+02	5.537+02
CS-137	1.066+03	1.734+03	1.066+03	1.195+03
XE-131M	0.000	0.000	0.000	0.000
I-129	5.209-04	7.942-04	5.209-04	2.561-04
I-131	0.000	0.000	0.000	0.000
TE-125M	5.278+01	6.216+01	5.278+01	1.219+01
TE-127M	3.401-03	1.062-03	3.401-03	1.846-04
TE-127	3.401-03	1.062-03	3.401-03	1.846-04
TE-129M	4.138-13	1.074-13	4.138-13	3.815-14
TE-129	4.138-13	1.074-13	4.138-13	3.815-14
SB-124	7.639-10	1.038-09	7.639-10	4.504-10
SB-125	4.969+01	5.851+01	4.969+01	1.148+01
SN-119M	1.124-02	7.585-03	1.124-02	5.059-03
SN-121M	7.352-05	8.613-05	7.352-05	6.503-05
SN-123	2.169-03	8.276-04	2.169-03	3.314-04
IN-114M	4.153-11	4.930-13	4.153-11	1.034-12
IN-114	4.153-11	4.930-13	4.153-11	1.034-12
CD-115M	3.385-13	1.478-13	3.385-13	9.404-14
AG-108M	4.423-04	5.207-05	4.423-04	1.092-04
AG-110M	1.408-02	2.326-02	1.408-02	1.420-02
PD-107	8.640-05	1.469-04	8.640-05	1.478-04
RH-103M	9.849-11	4.308-11	9.849-11	3.748-11
RH-106	2.184+01	2.067+01	2.184+01	2.070+01
RU-103	9.849-11	4.308-11	9.849-11	3.748-11
RU-106	2.184+01	2.067+01	2.184+01	2.070+01
TC-99	1.153-01	1.820-01	1.153-01	1.583-01
NB-93M	1.042-02	1.951-02	1.042-02	1.291-02
NB-95M	9.641-05	3.486-05	9.641-05	2.270-05
NB-95	2.069-04	7.482-05	2.069-04	4.871-05
ZR-93	3.990-02	6.593-02	3.990-02	4.380-02
ZR-95	9.090-05	3.287-05	9.090-05	2.140-05

Y-90	1.139+03	1.834+03	1.139+03	1.171+03
Y-91	2.115-06	7.216-07	2.115-06	4.304-07
SR-89	8.310-07	2.631-07	8.310-07	1.408-07
SR-90	1.139+03	1.834+03	1.139+03	1.171+03
RB-86	0.000	0.000	0.000	0.000
RB-87	4.433-07	7.064-07	4.433-07	3.380-07
KR-85	2.508+02	2.898+02	2.508+02	1.321+02
SE-79	8.664-03	1.037-02	8.664-03	2.898-03
NI-59	1.893-03	1.006-04	1.893-03	2.110-04
NI-63	2.422-01	1.289-02	2.422-01	2.702-02
CO-58	1.254-10	6.667-12	1.254-10	1.398-11
CO-60	2.845-04	1.521-05	2.845-04	3.190-05
CL-36	1.243-03	0.000	1.243-03	0.000
S-35	1.883-06	5.037-09	1.883-06	1.056-08
C-14 FROM C	2.529-02	0.000	2.529-02	0.000
C-14 FROM N	4.076-03	4.013-05	4.076-03	8.415-05
C-14 FROM O	2.089-03	5.625-05	2.089-03	1.179-04
H-3 FROM LI6	2.537+01	4.196-01	2.537+01	8.797-01
H-3 FROM B10	4.952-02	0.000	4.952-02	0.000
H-3 FISS YLD	3.109+00	4.916+00	3.109+00	3.555+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

CURIE VALUES USED PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-233 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	6.449-06	8.812-05	6.449-06	1.447-02
CM-243	5.103-07	7.213-05	5.103-07	2.369-02
CM-244	6.443-03	4.178-02	6.443-03	1.984+01
AM-241	4.798-04	3.062-02	4.798-04	3.742+00
AM-242M	6.449-06	8.812-05	6.449-06	1.447-02
AM-242	6.449-06	8.812-05	6.449-06	1.447-02
AM-243	1.490-05	4.013-04	1.490-05	1.554-01
PU-238	3.678-01	1.237+01	3.678-01	5.323+02
PU-239	1.120-04	4.490-03	1.120-04	3.840-01
PU-240	1.336-04	6.661-03	1.336-04	6.667-01
PU-241	2.316-02	1.465+00	2.316-02	1.774+02
NP-237	6.650-05	1.272-03	6.650-05	3.996-02
U-232	2.342+00	2.081+00	2.342+00	8.836-04
U-233	2.052+00	3.291-01	2.052+00	8.425-08
U-234	2.684-01	5.079-01	2.684-01	3.742-02
U-235	1.912-05	6.792-05	1.912-05	9.601-05
U-236	9.240-05	9.851-04	9.240-05	2.826-02
U-237	0.000	0.000	0.000	0.000
U-238	2.136-11	5.083-10	2.136-11	4.377-05
PA-231	2.785-03	5.757-05	2.785-03	1.061-06
PA-233	0.000	0.000	0.000	0.000
PA-234	0.000	5.083-10	0.000	4.377-05
TH-228	2.358+00	2.120+00	2.358+00	8.899-04
TH-229	2.132-03	5.784-04	2.132-03	1.531-08
TH-230	5.944-03	1.356-04	5.944-03	4.771-06
TH-231	1.912-05	6.792-05	1.912-05	9.601-05
TH-232	8.727-04	2.392-12	8.727-04	2.127-11
TH-234	0.000	5.083-10	0.000	4.377-05
AC-225	2.132-03	5.784-04	2.132-03	1.531-08
AC-227	1.759-04	1.687-05	1.759-04	3.107-07
AC-228	6.887-04	9.908-11	6.887-04	1.382-11
RA-223	1.739-04	1.678-05	1.739-04	3.090-07
RA-224	2.358+00	2.120+00	2.358+00	8.899-04
RA-225	2.132-03	5.784-04	2.132-03	1.531-08
RA-228	6.887-04	9.908-11	6.887-04	1.382-11
FR-221	2.132-03	5.784-04	2.132-03	1.531-08
FR-223	2.463-06	2.377-07	2.463-06	4.377-09
RN-219	1.739-04	1.678-05	1.739-04	3.090-07
RN-220	2.358+00	2.120+00	2.358+00	8.899-04
AT-217	2.132-03	5.784-04	2.132-03	1.531-08
AT-218	8.084-09	1.844-10	8.084-09	6.489-12
PO-210	1.464-05	0.000	1.464-05	0.000
PO-212	1.509+00	1.357+00	1.509+00	5.696-04
PO-213	2.132-03	5.784-04	2.132-03	1.531-08
PO-215	1.739-04	1.678-05	1.739-04	3.090-07
PO-216	2.358+00	2.120+00	2.358+00	8.899-04
BI-211	1.739-04	1.678-05	1.739-04	3.090-07
BI-212	2.358+00	2.120+00	2.358+00	8.899-04
BI-213	2.132-03	5.784-04	2.132-03	1.531-08

PB-209	2.132-03	5.784-04	2.132-03	1.531-08
PB-211	1.739-04	1.678-05	1.739-04	3.090-07
PB-212	2.358+00	2.120+00	2.358+00	8.899-04
TL-207	1.739-04	1.678-05	1.739-04	3.090-07
TL-208	8.490-01	7.632-01	8.490-01	3.204-04
DY-159	4.304-11	5.650-12	4.304-11	1.182-11
TB-157	1.735-06	5.605-07	1.735-06	4.130-07
TB-158	1.321-07	1.874-07	1.321-07	1.808-08
TB-160	1.299-15	1.374-15	1.299-15	1.483-15
GO-153	3.507-07	5.928-07	3.507-07	1.007-06
EU-152	3.635-02	4.357-02	3.635-02	4.251-02
EU-154	1.178+01	2.422+01	1.178+01	2.394+01
EU-155	6.479-01	1.306+00	6.479-01	1.291+00
EU-156	0.000	0.000	0.000	0.000
SM-145	1.805-06	2.665-06	1.805-06	5.589-06
SM-151	2.742+00	2.600+00	2.742+00	2.436+00
PM-147	9.719+01	6.856+01	9.719+01	5.882+01
PM-148M	1.501-24	1.110-24	1.501-24	9.592-25
ND-147	0.000	0.000	0.000	0.000
PR-144	1.794+00	1.376+00	1.794+00	1.121+00
CE-141	0.000	0.000	0.000	0.000
CE-144	1.794+00	1.376+00	1.794+00	1.121+00
LA-137	2.494-06	1.099-06	2.494-06	5.369-07
LA-140	0.000	0.000	0.000	0.000
BA-137M	9.502+02	1.545+03	9.502+02	1.064+03
BA-140	0.000	0.000	0.000	0.000
CS-134	5.206+01	1.233+02	5.206+01	1.019+02
CS-137	9.502+02	1.545+03	9.502+02	1.064+03
XE-131M	0.000	0.000	0.000	0.000
I-129	5.209-04	7.942-04	5.209-04	2.561-04
I-131	0.000	0.000	0.000	0.000
TE-125M	1.470+01	1.731+01	1.470+01	3.395+00
TE-127M	3.082-08	9.625-09	3.082-08	1.673-09
TE-127	3.082-08	9.625-09	3.082-08	1.673-09
TE-129M	0.000	0.000	0.000	0.000
TE-129	0.000	0.000	0.000	0.000
SB-124	5.696-19	7.740-19	5.696-19	3.358-19
SB-125	1.384+01	1.629+01	1.384+01	3.196+00
SN-119M	7.120-05	4.805-05	7.120-05	3.205-05
SN-121M	7.025-05	8.229-05	7.025-05	6.213-05
SN-123	8.692-08	3.316-08	8.692-08	1.328-08
IN-114M	3.292-22	3.907-24	3.292-22	8.193-24
IN-114	3.292-22	3.907-24	3.292-22	8.193-24
CO-115M	5.621-26	2.454-26	5.621-26	1.561-26
AG-108M	4.307-04	5.070-05	4.307-04	1.063-04
AG-110M	9.851-05	1.628-04	9.851-05	9.937-05
PD-107	8.640-05	1.469-04	8.640-05	1.478-04
RH-103M	1.509-24	6.602-25	1.509-24	5.745-25
RH-106	7.017-01	6.640-01	7.017-01	6.651-01
RU-103	1.509-24	6.602-25	1.509-24	5.745-25
RU-106	7.017-01	6.640-01	7.017-01	6.651-01
TC-99	1.153-01	1.820-01	1.153-01	1.583-01
NB-93M	1.661-02	2.921-02	1.661-02	1.936-02
NB-95M	3.951-13	1.429-13	3.951-13	9.302-14
NB-95	8.479-13	3.066-13	8.479-13	1.996-13
ZR-93	3.990-02	6.593-02	3.990-02	4.380-02
ZR-95	3.725-13	1.347-13	3.725-13	8.770-14

Y-90	1.005+03	1.618+03	1.005+03	1.033+03
Y-91	7.053-16	2.406-16	7.053-16	1.435-16
SR-89	3.091-17	9.786-18	3.091-17	5.238-18
SR-90	1.005+03	1.618+03	1.005+03	1.033+03
RB-86	0.000	0.000	0.000	0.000
RB-87	4.433-07	7.064-07	4.433-07	3.380-07
KR-85	1.817+02	2.100+02	1.817+02	9.574+01
SE-79	8.663-03	1.037-02	8.663-03	2.898-03
NI-59	1.893-03	1.006-04	1.893-03	2.110-04
NI-63	2.332-01	1.241-02	2.332-01	2.602-02
CO-58	2.489-18	1.324-19	2.489-18	2.775-19
CO-60	1.471-04	7.869-06	1.471-04	1.650-05
CL-36	1.243-03	0.000	1.243-03	0.000
S-35	9.331-13	2.496-15	9.331-13	5.233-15
C-14 FROM C	2.527-02	0.000	2.527-02	0.000
C-14 FROM N	4.073-03	4.011-05	4.073-03	8.410-05
C-14 FROM O	2.088-03	5.621-05	2.088-03	1.179-04
H-3 FROM LI6	1.915+01	3.167-01	1.915+01	6.640-01
H-3 FROM B10	3.738-02	0.000	3.738-02	0.000
H-3 FISS YLD	2.347+00	3.711+00	2.347+00	2.683+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

CURIE VALUES USED PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	2.877-03	1.787+01	2.877-03	3.676-01	2.877-03	1.442+02
CM-243	5.637-07	7.547-03	5.637-07	9.898-05	5.637-07	6.016-02
CM-244	8.192-03	7.274+00	8.192-03	5.810-02	8.192-03	5.684+01
AM-241	3.704-05	9.182-02	3.704-05	3.248-03	3.704-05	7.400-01
AM-242M	5.876-06	3.639-03	5.876-06	1.027-04	5.876-06	2.950-02
AM-242	5.876-06	3.639-03	5.876-06	1.027-04	5.876-06	2.950-02
AM-243	9.914-06	3.013-02	9.914-06	4.388-04	9.914-06	3.096-01
PU-238	3.650-01	1.172+02	3.650-01	1.487+01	3.650-01	9.125+02
PU-239	1.025-04	9.108-02	1.025-04	5.038-03	1.025-04	7.068-01
PU-240	1.215-04	1.575-01	1.215-04	7.523-03	1.215-04	1.246+00
PU-241	3.239-02	6.540+01	3.239-02	2.574+00	3.239-02	5.253+02
NP-237	6.216-05	9.928-03	6.216-05	1.371-03	6.216-05	6.432-02
U-232	2.594+00	4.242-04	2.594+00	2.535+00	2.594+00	1.759-03
U-233	2.052+00	3.151-08	2.052+00	3.124-01	2.052+00	1.689-07
U-234	2.647-01	1.677-02	2.647-01	4.989-01	2.647-01	6.955-02
U-235	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
U-236	8.794-05	7.445-03	8.794-05	1.040-03	8.794-05	6.820-02
U-237	2.850-06	2.205-04	2.850-06	3.435-05	2.850-06	1.927-03
U-238	1.986-11	1.261-05	1.986-11	5.514-10	1.986-11	9.411-05
PA-231	2.794-03	4.667-07	2.794-03	3.085-04	2.794-03	1.944-06
PA-233	4.117+03	5.432-06	4.117+03	4.293-05	4.117+03	1.088-04
PA-234	2.838-01	1.262-05	2.838-01	3.523-09	2.838-01	9.412-05
TH-228	1.131+00	1.837-04	1.131+00	2.340+00	1.131+00	7.598-04
TH-229	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
TH-230	6.033-03	7.491-07	6.033-03	4.716-04	6.033-03	3.145-06
TH-231	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
TH-232	8.736-04	1.091-12	8.736-04	9.699-12	8.736-04	1.945-11
TH-234	2.838-01	1.262-05	2.838-01	3.523-09	2.838-01	9.412-05
AC-225	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
AC-227	2.435-04	2.077-08	2.435-04	1.286-05	2.435-04	8.647-08
AC-228	3.815-04	3.915-12	3.815-04	1.353-09	3.815-04	2.071-11
RA-223	2.406-04	1.975-08	2.406-04	1.205-05	2.406-04	8.219-08
RA-224	1.131+00	1.837-04	1.131+00	2.340+00	1.131+00	7.598-04
RA-225	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
RA-228	3.815-04	3.915-12	3.815-04	1.353-09	3.815-04	2.071-11
FR-221	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
FR-223	3.408-06	2.797-10	3.408-06	1.707-07	3.408-06	1.164-09
RN-219	2.406-04	1.975-08	2.406-04	1.205-05	2.406-04	8.219-08
RN-220	1.131+00	1.837-04	1.131+00	2.340+00	1.131+00	7.598-04
AT-217	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
AT-218	3.655-09	4.538-13	3.655-09	2.857-10	3.655-09	1.906-12
PO-210	6.811-04	1.533-07	6.811-04	6.981-04	6.811-04	6.400-07
PO-212	6.995-01	1.137-04	6.995-01	1.498+00	6.995-01	4.701-04
PO-213	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
PO-215	2.406-04	1.975-08	2.406-04	1.205-05	2.406-04	8.219-08
PO-216	1.131+00	1.837-04	1.131+00	2.340+00	1.131+00	7.598-04
BI-211	2.406-04	1.975-08	2.406-04	1.205-05	2.406-04	8.219-08
BI-212	1.131+00	1.837-04	1.131+00	2.340+00	1.131+00	7.598-04
BI-213	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08

PB-209	2.906-04	6.458-09	2.906-04	1.253-03	2.906-04	2.658-08
PB-211	2.406-04	1.975-08	2.406-04	1.205-05	2.406-04	8.219-08
PB-212	1.131+00	1.837-04	1.131+00	2.340+00	1.131+00	7.598-04
TL-207	2.406-04	1.975-08	2.406-04	1.205-05	2.406-04	8.219-08
TL-208	3.935-01	6.395-05	3.935-01	8.424-01	3.935-01	2.644-04
DY-159	7.869-04	1.292-04	7.869-04	1.916-04	7.869-04	7.353-04
TB-157	1.806-06	2.612-07	1.806-06	7.080-07	1.806-06	1.461-06
TB-158	1.355-07	2.402-08	1.355-07	1.706-07	1.355-07	2.671-08
TB-160	4.237-01	5.208-01	4.237-01	4.689-01	4.237-01	8.895-01
GO-153	7.439-03	1.660-02	7.439-03	1.910-02	7.439-03	6.203-02
EU-152	6.021-02	9.832-02	6.021-02	6.697-02	6.021-02	7.736-02
EU-154	1.724+01	4.869+01	1.724+01	3.229+01	1.724+01	3.704+01
EU-155	2.394+01	6.620+01	2.394+01	4.393+01	2.394+01	5.042+01
EU-156	3.906-01	1.081+00	3.906-01	7.177-01	3.906-01	8.238-01
SM-145	2.138-03	3.956-03	2.138-03	5.863-03	2.138-03	2.252-02
SM-151	2.926+00	3.623+00	2.926+00	2.539+00	2.926+00	2.736+00
PM-147	1.197+03	1.042+03	1.197+03	7.932+02	1.197+03	7.830+02
PM-148M	1.516+01	1.392+01	1.516+01	1.052+01	1.516+01	1.046+01
ND-147	8.624-02	3.326-02	8.624-02	2.994-02	8.624-02	2.546-02
PR-144	8.575+03	7.637+03	8.575+03	6.107+03	8.575+03	5.729+03
CE-141	5.311+02	1.528+02	5.311+02	1.651+02	5.311+02	1.159+02
CE-144	8.575+03	7.637+03	8.575+03	6.107+03	8.575+03	5.729+03
LA-137	2.486-06	3.293-07	2.486-06	1.201-06	2.486-06	1.815-06
LA-140	1.431+00	4.154-01	1.431+00	4.312-01	1.431+00	3.166-01
BA-137M	1.160+03	1.800+03	1.160+03	1.690+03	1.160+03	1.343+03
BA-140	1.431+00	4.154-01	1.431+00	4.312-01	1.431+00	3.166-01
CS-134	1.262+03	3.423+03	1.262+03	2.687+03	1.262+03	2.553+03
CS-137	1.160+03	1.800+03	1.160+03	1.690+03	1.160+03	1.343+03
XE-131M	6.477-03	1.568-03	6.477-03	1.845-03	6.477-03	1.189-03
I-129	5.103-04	3.505-04	5.103-04	6.922-04	5.103-04	2.599-04
I-131	2.541-03	6.104-04	2.541-03	7.192-04	2.541-03	4.629-04
TE-125M	1.615+02	5.367+01	1.615+02	1.719+02	1.615+02	3.943+01
TE-127M	1.209+02	1.040+01	1.209+02	3.570+01	1.209+02	7.363+00
TE-127	1.209+02	1.040+01	1.209+02	3.570+01	1.209+02	7.363+00
TE-129M	1.420+02	2.021+01	1.420+02	3.550+01	1.420+02	1.496+01
TE-129	1.420+02	2.021+01	1.420+02	3.550+01	1.420+02	1.496+01
SB-124	1.276-01	9.635-02	1.276-01	1.577-01	1.276-01	1.007-01
SB-125	1.552+02	5.076+01	1.552+02	1.624+02	1.552+02	3.728+01
SN-119M	1.077+00	6.960-01	1.077+00	6.757-01	1.077+00	5.214-01
SN-121M	7.479-05	8.065-05	7.479-05	8.202-05	7.479-05	9.495-05
SN-123	2.015+01	4.619+00	2.015+01	7.299+00	2.015+01	3.435+00
IN-114M	4.275-01	6.358-03	4.275-01	9.422-03	4.275-01	3.620-02
IN-114	4.275-01	6.358-03	4.275-01	9.422-03	4.275-01	3.620-02
CB-115M	1.135-01	4.553-02	1.135-01	4.656-02	1.135-01	3.465-02
AG-108M	4.456-04	6.573-05	4.456-04	9.739-05	4.456-04	3.741-04
AG-110M	1.210+00	1.695+00	1.210+00	1.800+00	1.210+00	1.273+00
PD-107	8.469-05	2.005-04	8.469-05	1.301-04	8.469-05	1.498-04
RH-103M	2.836+02	1.642+02	2.836+02	1.216+02	2.836+02	1.230+02
RH-106	4.817+02	6.445+02	4.817+02	4.225+02	4.817+02	4.834+02
RU-103	2.836+02	1.642+02	2.836+02	1.216+02	2.836+02	1.230+02
RU-106	4.817+02	6.445+02	4.817+02	4.225+02	4.817+02	4.834+02
TC-99	1.132-01	2.202-01	1.132-01	1.613-01	1.132-01	1.607-01
NB-93M	3.216-03	7.499-03	3.216-03	7.232-03	3.216-03	5.459-03
NB-95M	3.556+03	1.285+03	3.556+03	1.250+03	3.556+03	9.524+02
NB-95	6.785+03	2.483+03	6.785+03	2.408+03	6.785+03	1.839+03
ZR-93	3.910-02	6.073-02	3.910-02	5.783-02	3.910-02	4.424-02
ZR-95	3.353+03	1.212+03	3.353+03	1.178+03	3.353+03	8.979+02

Y-90	1.250+03	1.820+03	1.250+03	1.801+03	1.250+03	1.325+03
Y-91	7.492+02	2.346+02	7.492+02	2.478+02	7.492+02	1.734+02
SR-89	2.126+03	5.574+02	2.126+03	6.523+02	2.126+03	4.108+02
SR-90	1.250+03	1.820+03	1.250+03	1.801+03	1.250+03	1.325+03
RB-86	4.080-02	1.424-02	4.080-02	2.437-02	4.080-02	1.020-02
RB-87	4.347-07	4.702-07	4.347-07	6.173-07	4.347-07	3.418-07
KR-85	3.317+02	2.524+02	3.317+02	3.470+02	3.317+02	1.834+02
SE-79	8.562-03	4.152-03	8.562-03	9.220-03	8.562-03	2.999-03
NI-59	1.825-03	1.216-04	1.825-03	1.802-04	1.825-03	6.923-04
NI-63	2.418-01	1.612-02	2.418-01	2.389-02	2.418-01	9.176-02
CO-58	1.111-03	7.404-05	1.111-03	1.097-04	1.111-03	4.215-04
CO-60	4.988-04	3.342-05	4.988-04	4.953-05	4.988-04	1.903-04
CL-36	1.202-03	0.000	1.202-03	0.000	1.202-03	0.000
S-35	9.188-01	3.079-03	9.188-01	4.563-03	9.188-01	1.753-02
C-14 FROM C	2.438-02	0.000	2.438-02	0.000	2.438-02	0.000
C-14 FROM N	3.939-03	4.859-05	3.939-03	7.201-05	3.939-03	2.766-04
C-14 FROM O	2.008-03	6.796-05	2.008-03	1.007-04	2.008-03	3.869-04
H-3 FROM LI6	3.265+01	6.765-01	3.265+01	1.002+00	3.265+01	3.851+00
H-3 FROM B10	6.387-02	0.000	6.387-02	0.000	6.387-02	0.000
H-3 FISS YLD	3.931+00	6.362+00	3.931+00	5.578+00	3.931+00	4.636+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

CURIE VALUES USED PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	1.311-03	8.129+00	1.311-03	1.672-01	1.311-03	6.559+01
CM-243	5.576-07	7.465-03	5.576-07	9.790-05	5.576-07	5.950-02
CM-244	8.033-03	7.133+00	8.033-03	5.698-02	8.033-03	5.574+01
AM-241	6.300-05	1.442-01	6.300-05	5.309-03	6.300-05	1.161+00
AM-242M	5.863-06	3.631-03	5.863-06	1.024-04	5.863-06	2.943-02
AM-242	5.863-06	3.631-03	5.863-06	1.024-04	5.863-06	2.943-02
AM-243	9.914-06	3.913-02	9.914-06	4.387-04	9.914-06	3.096-01
PU-238	3.635-01	1.168+02	3.635-01	1.481+01	3.635-01	9.089+02
PU-239	1.025-04	9.107-02	1.025-04	5.037-03	1.025-04	7.068-01
PU-240	1.215-04	1.574-01	1.215-04	7.522-03	1.215-04	1.246+00
PU-241	3.164-02	6.389+01	3.164-02	2.514+00	3.164-02	5.131+02
NP-237	6.216-05	9.928-03	6.216-05	1.371-03	6.216-05	6.432-02
U-232	2.581+00	4.221-04	2.581+00	2.523+00	2.581+00	1.750-03
U-233	2.054+00	3.151-08	2.054+00	3.124-01	2.054+00	1.689-07
U-234	2.647-01	1.677-02	2.647-01	4.989-01	2.647-01	6.955-02
U-235	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
U-236	8.794-05	7.445-03	8.794-05	1.040-03	8.794-05	6.820-02
U-237	1.561-14	1.208-12	1.561-14	1.882-13	1.561-14	1.055-11
U-238	1.986-11	1.261-05	1.986-11	5.514-10	1.986-11	9.411-05
PA-231	2.794-03	4.682-07	2.794-03	3.085-04	2.794-03	1.945-06
PA-233	3.542+01	4.672-08	3.542+01	3.693-07	3.542+01	9.356-07
PA-234	1.377-03	1.261-05	1.377-03	5.659-10	1.377-03	9.411-05
TH-228	1.375+00	2.240-04	1.375+00	2.350+00	1.375+00	9.270-04
TH-229	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
TH-230	6.034-03	8.228-07	6.034-03	4.738-04	6.034-03	3.451-06
TH-231	1.862-05	1.405-05	1.862-05	6.819-05	1.862-05	1.099-04
TH-232	8.736-04	1.278-12	8.736-04	9.725-12	8.736-04	2.117-11
TH-234	1.377-03	1.261-05	1.377-03	5.659-10	1.377-03	9.411-05
AC-225	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
AC-227	2.395-04	2.799-08	2.395-04	1.763-05	2.395-04	1.165-07
AC-228	4.067-04	3.776-12	4.067-04	1.285-09	4.067-04	2.069-11
RA-223	2.368-04	2.697-08	2.368-04	1.638-05	2.368-04	1.123-07
RA-224	1.375+00	2.240-04	1.375+00	2.350+00	1.375+00	9.270-04
RA-225	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
RA-228	4.067-04	3.776-12	4.067-04	1.285-09	4.067-04	2.069-11
FR-221	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
FR-223	3.353-06	3.820-10	3.353-06	2.320-07	3.353-06	1.590-09
RN-219	2.368-04	2.697-08	2.368-04	1.638-05	2.368-04	1.123-07
RN-220	1.375+00	2.240-04	1.375+00	2.350+00	1.375+00	9.270-04
AT-217	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
AT-218	3.899-09	5.316-13	3.899-09	3.062-10	3.899-09	2.230-12
PO-210	2.814-04	7.197-08	2.814-04	2.885-04	2.814-04	3.005-07
PO-212	8.757-01	1.426-04	8.757-01	1.504+00	8.757-01	5.902-04
PO-213	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
PO-215	2.368-04	2.697-08	2.368-04	1.638-05	2.368-04	1.123-07
PO-216	1.375+00	2.240-04	1.375+00	2.350+00	1.375+00	9.270-04
BI-211	2.368-04	2.697-08	2.368-04	1.638-05	2.368-04	1.123-07
BI-212	1.375+00	2.240-04	1.375+00	2.350+00	1.375+00	9.270-04
BI-213	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08

PB-209	3.889-04	6.459-09	3.889-04	1.268-03	3.889-04	2.659-08
PB-211	2.368-04	2.697-08	2.368-04	1.638-05	2.368-04	1.123-07
PB-212	1.375+00	2.240-04	1.375+00	2.350+00	1.375+00	9.270-04
TL-207	2.368-04	2.697-08	2.368-04	1.638-05	2.368-04	1.123-07
TL-208	4.926-01	8.021-05	4.926-01	8.460-01	4.926-01	3.320-04
DY-159	3.225-04	5.294-05	3.225-04	7.853-05	3.225-04	3.014-04
TB-157	1.802-06	2.606-07	1.802-06	7.063-07	1.802-06	1.457-06
TB-158	1.351-07	2.396-08	1.351-07	1.702-07	1.351-07	2.665-08
TB-160	7.121-02	8.754-02	7.121-02	7.882-02	7.121-02	1.495-01
GO-153	4.376-03	9.764-03	4.376-03	1.123-02	4.376-03	3.649-02
EU-152	5.856-02	9.564-02	5.856-02	6.514-02	5.856-02	7.525-02
EU-154	1.687+01	4.763+01	1.687+01	3.159+01	1.687+01	3.624+01
EU-155	1.972+01	5.452+01	1.972+01	3.618+01	1.972+01	4.153+01
EU-156	9.346-05	2.587-04	9.346-05	1.717-04	9.346-05	1.971-04
SM-145	1.466-03	2.712-03	1.466-03	4.019-03	1.465-03	1.544-02
SM-151	2.915+00	3.608+00	2.915+00	2.529+00	2.915+00	2.725+00
PM-147	1.047+03	9.112+02	1.047+03	6.937+02	1.047+03	6.847+02
PM-148M	7.026-01	6.450-01	7.026-01	4.874-01	7.026-01	4.844-01
ND-147	7.829-07	3.020-07	7.829-07	2.718-07	7.829-07	2.311-07
PR-144	5.456+03	4.860+03	5.456+03	3.886+03	5.456+03	3.645+03
CE-141	1.022+01	2.939+00	1.022+01	3.175+00	1.022+01	2.230+00
CE-144	5.456+03	4.860+03	5.456+03	3.886+03	5.456+03	3.645+03
LA-137	2.486-06	3.293-07	2.486-06	1.201-06	2.486-06	1.815-06
LA-140	6.296-05	1.828-05	6.296-05	1.898-05	6.296-05	1.393-05
BA-137M	1.147+03	1.779+03	1.147+03	1.670+03	1.147+03	1.327+03
BA-140	6.296-05	1.828-05	6.296-05	1.898-05	6.296-05	1.393-05
CS-134	1.063+03	2.883+03	1.063+03	2.263+03	1.063+03	2.150+03
CS-137	1.147+03	1.779+03	1.147+03	1.670+03	1.147+03	1.327+03
XE-131M	1.227-07	2.971-08	1.227-07	3.496-08	1.227-07	2.253-08
I-129	5.111-04	3.506-04	5.111-04	6.924-04	5.111-04	2.600-04
I-131	3.012-10	7.235-11	3.012-10	8.526-11	3.012-10	5.487-11
TE-125M	1.444+02	4.733+01	1.444+02	1.514+02	1.444+02	3.476+01
TE-127M	3.722+01	3.204+00	3.722+01	1.099+01	3.722+01	2.267+00
TE-127	3.722+01	3.204+00	3.722+01	1.099+01	3.722+01	2.267+00
TE-129M	3.292+00	4.685-01	3.292+00	8.229-01	3.292+00	3.468-01
TE-129	3.292+00	4.685-01	3.292+00	8.229-01	3.292+00	3.468-01
SB-124	1.513-02	1.143-02	1.513-02	1.870-02	1.513-02	1.195-02
SB-125	1.363+02	4.458+01	1.363+02	1.426+02	1.363+02	3.274+01
SN-119M	6.446-01	4.165-01	6.446-01	4.044-01	6.446-01	3.120-01
SN-121M	7.444-05	8.028-05	7.444-05	8.164-05	7.444-05	9.451-05
SN-123	7.216+00	1.654+00	7.216+00	2.613+00	7.216+00	1.230+00
IN-114M	3.198-02	4.756-04	3.198-02	7.048-04	3.198-02	2.708-03
IN-114	3.198-02	4.756-04	3.198-02	7.048-04	3.198-02	2.708-03
CO-115M	5.737-03	2.301-03	5.737-03	2.353-03	5.737-03	1.751-03
AG-108M	4.444-04	6.555-05	4.444-04	9.712-05	4.444-04	3.731-04
AG-110M	7.316-01	1.025+00	7.316-01	1.088+00	7.316-01	7.696-01
PD-107	8.469-05	2.005-04	8.469-05	1.301-04	8.469-05	1.498-04
RH-103M	1.126+01	6.519+00	1.126+01	4.827+00	1.126+01	4.881+00
RH-106	3.399+02	4.547+02	3.399+02	2.981+02	3.399+02	3.411+02
RU-103	1.126+01	6.519+00	1.126+01	4.827+00	1.126+01	4.881+00
RU-106	3.399+02	4.547+02	3.399+02	2.981+02	3.399+02	3.411+02
TC-99	1.132-01	2.202-01	1.132-01	1.613-01	1.132-01	1.607-01
NB-93M	4.082-03	8.780-03	4.082-03	8.449-03	4.082-03	6.393-03
NB-95M	5.014+02	1.812+02	5.014+02	1.762+02	5.014+02	1.343+02
NB-95	1.054+03	3.819+02	1.054+03	3.712+02	1.054+03	2.829+02
ZR-93	3.910-02	6.073-02	3.910-02	5.763-02	3.910-02	4.424-02
ZR-95	4.727+02	1.709+02	4.727+02	1.661+02	4.727+02	1.266+02

Y-90	1.234+03	1.797+03	1.234+03	1.779+03	1.234+03	1.309+03
Y-91	8.189+01	2.564+01	8.189+01	2.709+01	8.189+01	1.895+01
SR-89	1.861+02	4.878+01	1.861+02	5.708+01	1.861+02	3.595+01
SR-90	1.234+03	1.797+03	1.234+03	1.779+03	1.234+03	1.309+03
RB-86	4.185-05	1.460-05	4.185-05	2.500-05	4.185-05	1.646-05
RB-87	4.347-07	4.702-07	4.347-07	6.173-07	4.347-07	3.418-07
KR-85	3.211+02	2.443+02	3.211+02	3.359+02	3.211+02	1.775+02
SE-79	8.562-03	4.152-03	8.562-03	9.220-03	8.562-03	2.999-03
NI-59	1.825-03	1.216-04	1.825-03	1.802-04	1.825-03	6.923-04
NI-63	2.409-01	1.606-02	2.409-01	2.380-02	2.409-01	9.141-02
CO-58	1.839-04	1.225-05	1.839-04	1.815-05	1.839-04	6.974-05
CO-60	4.665-04	3.126-05	4.665-04	4.632-05	4.665-04	1.779-04
CL-36	1.202-03	0.000	1.202-03	0.000	1.202-03	0.000
S-35	2.107-01	7.061-04	2.107-01	1.046-03	2.107-01	4.020-03
C-14 FROM C	2.438-02	0.000	2.438-02	0.000	2.438-02	0.000
C-14 FROM N	3.939-03	4.859-05	3.939-03	7.201-05	3.939-03	2.766-04
C-14 FROM O	2.008-03	6.795-05	2.008-03	1.007-04	2.008-03	3.868-04
H-3 FROM LI6	3.174+01	6.575-01	3.174+01	9.743-01	3.174+01	3.743+00
H-3 FROM B10	6.208-02	0.000	6.208-02	0.000	6.208-02	0.000
H-3 FISS YLD	3.820+00	6.183+00	3.820+00	5.421+00	3.820+00	4.506+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

CURIE VALUES USED PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	6.335-05	3.667-01	6.335-05	7.567-03	6.335-05	2.959+00
CM-243	5.339-07	7.148-03	5.339-07	9.375-05	5.339-07	5.698-02
CM-244	7.434-03	6.601+00	7.434-03	5.273-02	7.434-03	5.158+01
AM-241	1.594-04	3.388-01	1.594-04	1.297-02	1.594-04	2.724+00
AM-242M	5.809-06	3.598-03	5.809-06	1.015-04	5.809-06	2.916-02
AM-242	5.809-06	3.598-03	5.809-06	1.015-04	5.809-06	2.916-02
AM-243	9.912-06	3.913-02	9.912-06	4.387-04	9.912-06	3.095-01
PU-238	3.578-01	1.149+02	3.578-01	1.458+01	3.578-01	8.547+02
PU-239	1.025-04	9.107-02	1.025-04	5.037-03	1.025-04	7.068-01
PU-240	1.215-04	1.574-01	1.215-04	7.521-03	1.215-04	1.246+00
PU-241	2.885-02	5.825+01	2.885-02	2.292+00	2.885-02	4.678+02
NP-237	6.216-05	9.928-03	6.216-05	1.371-03	6.216-05	6.432-02
U-232	2.532+00	4.141-04	2.532+00	2.474+00	2.532+00	1.717-03
U-233	2.054+00	3.151-08	2.054+00	3.124-01	2.054+00	1.689-07
U-234	2.647-01	1.677-02	2.647-01	4.989-01	2.647-01	6.555-02
U-235	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
U-236	8.794-05	7.445-03	8.794-05	1.040-03	8.794-05	6.820-02
U-237	0.000	0.000	0.000	0.000	0.000	0.000
U-238	1.986-11	1.261-05	1.986-11	5.514-10	1.986-11	9.411-05
PA-231	2.794-03	4.742-07	2.794-03	3.085-04	2.794-03	1.950-06
PA-233	2.536-07	3.346-16	2.536-07	2.644-15	2.536-07	6.699-15
PA-234	1.032-12	1.261-05	1.032-12	5.514-10	1.032-12	9.411-05
TH-228	1.984+00	3.239-04	1.984+00	2.430+00	1.984+00	1.342-03
TH-229	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
TH-230	6.038-03	1.113-06	6.038-03	4.824-04	6.038-03	4.656-06
TH-231	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
TH-232	8.736-04	2.015-12	8.736-04	9.828-12	8.736-04	2.792-11
TH-234	1.032-12	1.261-05	1.032-12	5.514-10	1.032-12	9.411-05
AC-225	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
AC-227	2.246-04	5.554-08	2.246-04	3.572-05	2.246-04	2.303-07
AC-228	4.940-04	3.380-12	4.940-04	1.046-09	4.940-04	2.143-11
RA-223	2.220-04	5.459-08	2.220-04	3.423-05	2.220-04	2.264-07
RA-224	1.984+00	3.239-04	1.984+00	2.430+00	1.984+00	1.342-03
RA-225	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
RA-228	4.940-04	3.380-12	4.940-04	1.046-09	4.940-04	2.143-11
FR-221	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
FR-223	3.145-06	7.732-10	3.145-06	4.848-07	3.145-06	3.206-09
RN-219	2.220-04	5.459-08	2.220-04	3.423-05	2.220-04	2.264-07
RN-220	1.984+00	3.239-04	1.984+00	2.430+00	1.984+00	1.342-03
AT-217	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
AT-218	4.861-09	8.963-13	4.861-09	3.884-10	4.861-09	3.748-12
PO-210	2.583-05	7.401-09	2.583-05	2.648-05	2.583-05	3.090-08
PO-212	1.267+00	2.070-04	1.267+00	1.555+00	1.267+00	8.576-04
PO-213	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
PO-215	2.220-04	5.459-08	2.220-04	3.423-05	2.220-04	2.264-07
PO-216	1.984+00	3.239-04	1.984+00	2.430+00	1.984+00	1.342-03
BI-211	2.220-04	5.459-08	2.220-04	3.423-05	2.220-04	2.264-07
BI-212	1.984+00	3.239-04	1.984+00	2.430+00	1.984+00	1.342-03
BI-213	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08

PB-209	7.767-04	6.464-09	7.767-04	1.327-03	7.767-04	2.662-08
PB-211	2.220-04	5.459-08	2.220-04	3.423-05	2.220-04	2.264-07
PB-212	1.984+00	3.239-04	1.984+00	2.430+00	1.984+00	1.342-03
TL-207	2.220-04	5.459-08	2.220-04	3.423-05	2.220-04	2.264-07
TL-208	7.129-01	1.164-04	7.129-01	8.748-01	7.129-01	4.824-04
DY-159	9.576-06	1.572-06	9.576-06	2.332-06	9.576-06	8.948-06
TB-157	1.785-06	2.582-07	1.785-06	6.998-07	1.785-06	1.444-06
TB-158	1.339-07	2.374-08	1.339-07	1.686-07	1.339-07	2.640-08
TB-160	6.284-05	7.725-05	6.284-05	6.955-05	6.284-05	1.319-04
GO-153	5.399-04	1.205-03	5.399-04	1.386-03	5.399-04	4.502-03
EU-152	5.251-02	8.576-02	5.251-02	5.841-02	5.251-02	6.747-02
EU-154	1.547+01	4.368+01	1.547+01	2.897+01	1.547+01	3.323+01
EU-155	9.171+00	2.536+01	9.171+00	1.683+01	9.171+00	1.932+01
EU-156	4.905-19	1.358-18	4.905-19	9.014-19	4.905-19	1.035-18
SM-145	3.305-04	6.116-04	3.305-04	9.063-04	3.305-04	3.482-03
SM-151	2.869+00	3.551+00	2.869+00	2.489+00	2.869+00	2.682+00
PM-147	6.170+02	5.369+02	6.170+02	4.088+02	6.170+02	4.035+02
PM-148M	3.850-06	3.534-06	3.850-06	2.671-06	3.850-06	2.654-06
ND-147	1.023-26	0.000	1.023-26	0.000	1.023-26	0.000
PR-144	9.175+02	8.172+02	9.175+02	6.535+02	9.175+02	6.130+02
CE-141	1.748-06	5.028-07	1.748-06	5.432-07	1.748-06	3.816-07
CE-144	9.175+02	8.172+02	9.175+02	6.535+02	9.175+02	6.130+02
LA-137	2.485-06	3.292-07	2.485-06	1.201-06	2.485-06	1.814-06
LA-140	4.160-22	1.208-22	4.160-22	1.254-22	4.160-22	9.208-23
BA-137M	1.095+03	1.699+03	1.095+03	1.595+03	1.095+03	1.267+03
BA-140	4.160-22	1.208-22	4.160-22	1.254-22	4.160-22	9.208-23
CS-134	5.402+02	1.465+03	5.402+02	1.150+03	5.402+02	1.092+03
CS-137	1.095+03	1.699+03	1.095+03	1.595+03	1.095+03	1.267+03
XE-131M	2.862-26	6.930-27	2.862-26	8.154-27	2.862-26	0.000
I-129	5.111-04	3.507-04	5.111-04	6.924-04	5.111-04	2.600-04
I-131	0.000	0.000	0.000	0.000	0.000	0.000
TE-125M	8.682+01	2.840+01	8.682+01	9.085+01	8.682+01	2.086+01
TE-127M	3.576-01	3.079-02	3.576-01	1.057-01	3.576-01	2.179-02
TE-127	3.576-01	3.079-02	3.576-01	1.057-01	3.576-01	2.179-02
TE-129M	1.175-06	1.672-07	1.175-06	2.937-07	1.175-06	1.238-07
TE-129	1.175-06	1.672-07	1.175-06	2.937-07	1.175-06	1.238-07
SB-124	3.376-06	2.550-06	3.376-06	4.174-06	3.376-06	2.666-06
SB-125	8.174+01	2.673+01	8.174+01	8.552+01	8.174+01	1.563+01
SN-119M	8.510-02	5.498-02	8.510-02	5.338-02	8.510-02	4.119-02
SN-121M	7.310-05	7.883-05	7.310-05	8.017-05	7.310-05	9.281-05
SN-123	1.257-01	2.880-02	1.257-01	4.551-02	1.257-01	2.142-02
IN-114M	1.159-06	1.724-08	1.159-06	2.554-08	1.159-06	9.812-08
IN-114	1.159-06	1.724-08	1.159-06	2.554-08	1.159-06	9.812-08
CD-115M	4.428-08	1.776-08	4.428-08	1.816-08	4.428-08	1.352-08
AG-108M	4.397-04	6.485-05	4.397-04	9.609-05	4.397-04	3.691-04
AG-110M	1.005-01	1.408-01	1.005-01	1.495-01	1.005-01	1.057-01
PD-107	8.469-05	2.005-04	8.469-05	1.301-04	8.469-05	1.498-04
RH-103M	3.350-05	1.940-05	3.350-05	1.437-05	3.350-05	1.453-05
RH-106	8.590+01	1.149+02	8.590+01	7.534+01	8.590+01	8.621+01
RU-103	3.350-05	1.940-05	3.350-05	1.437-05	3.350-05	1.453-05
RU-106	8.590+01	1.149+02	8.590+01	7.534+01	8.590+01	8.621+01
TC-99	1.132-01	2.202-01	1.132-01	1.613-01	1.132-01	1.607-01
NB-93M	7.286-03	1.352-02	7.286-03	1.296-02	7.286-03	9.846-03
NB-95M	2.213-01	7.998-02	2.213-01	7.776-02	2.213-01	5.525-02
NB-95	4.748-01	1.716-01	4.748-01	1.669-01	4.748-01	1.272-01
ZR-93	3.910-02	6.073-02	3.910-02	5.783-02	3.910-02	4.424-02
ZR-95	2.086-01	7.540-02	2.086-01	7.331-02	2.086-01	5.586-02

Y-90	1.174+03	1.709+03	1.174+03	1.692+03	1.174+03	1.245+03
Y-91	1.325-02	4.147-03	1.325-02	4.382-03	1.325-02	3.066-03
SR-89	1.252-02	3.281-03	1.252-02	3.840-03	1.252-02	2.418-03
SR-90	1.174+03	1.709+03	1.174+03	1.692+03	1.174+03	1.245+03
RB-86	6.828-17	2.382-17	6.828-17	4.079-17	6.828-17	1.708-17
RB-87	4.347-07	4.702-07	4.347-07	6.173-07	4.347-07	3.418-07
KR-85	2.822+02	2.147+02	2.822+02	2.953+02	2.822+02	1.560+02
SE-79	8.562-03	4.152-03	8.562-03	9.220-03	8.562-03	2.999-03
NI-59	1.825-03	1.216-04	1.825-03	1.802-04	1.825-03	6.922-04
NI-63	2.373-01	1.582-02	2.373-01	2.344-02	2.373-01	9.005-02
CO-58	1.526-07	1.016-08	1.526-07	1.506-08	1.526-07	5.786-08
CO-60	3.584-04	2.401-05	3.584-04	3.558-05	3.584-04	1.367-04
CL-36	1.202-03	0.000	1.202-03	0.000	1.202-03	0.000
S-35	6.330-04	2.121-06	6.330-04	3.144-06	6.330-04	1.208-05
C-14 FROM C	2.437-02	0.000	2.437-02	0.000	2.437-02	0.000
C-14 FROM N	3.938-03	4.858-05	3.938-03	7.199-05	3.938-03	2.765-04
C-14 FROM O	2.007-03	6.793-05	2.007-03	1.007-04	2.007-03	3.867-04
H-3 FROM LI6	2.836+01	5.875-01	2.836+01	8.707-01	2.836+01	3.345+00
H-3 FROM B10	5.547-02	0.000	5.547-02	0.000	5.547-02	0.000
H-3 FISS YLD	3.414+00	5.525+00	3.414+00	4.844+00	3.414+00	4.027+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

CURIE VALUES USED PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	7.467-06	1.928-02	7.467-06	4.196-04	7.467-06	1.557-01
CM-243	5.113-07	6.845-03	5.113-07	8.977-05	5.113-07	5.456-02
CM-244	6.880-03	6.109+00	6.880-03	4.880-02	6.880-03	4.774+01
AM-241	2.470-04	5.156-01	2.470-04	1.992-02	2.470-04	4.143+00
AM-242M	5.757-06	3.565-03	5.757-06	1.006-04	5.757-06	2.890-02
AM-242	5.757-06	3.565-03	5.757-06	1.006-04	5.757-06	2.890-02
AM-243	9.910-06	3.912-02	9.910-06	4.386-04	9.910-06	3.095-01
PU-238	3.522-01	1.131+02	3.522-01	1.435+01	3.522-01	8.806+02
PU-239	1.025-04	9.106-02	1.025-04	5.037-03	1.025-04	7.067-01
PU-240	1.215-04	1.574-01	1.215-04	7.519-03	1.215-04	1.246+00
PU-241	2.630-02	5.311+01	2.630-02	2.090+00	2.630-02	4.265+02
NP-237	6.216-05	9.928-03	6.216-05	1.371-03	6.216-05	6.432-02
U-232	2.484+00	4.062-04	2.484+00	2.427+00	2.484+00	1.684-03
U-233	2.054+00	3.151-08	2.054+00	3.124-01	2.054+00	1.689-07
U-234	2.647-01	1.677-02	2.647-01	4.989-01	2.647-01	6.955-02
U-235	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
U-236	8.794-05	7.445-03	8.794-05	1.040-03	8.794-05	6.820-02
U-237	0.000	0.000	0.000	0.000	0.000	0.000
U-238	1.986-11	1.261-05	1.986-11	5.514-10	1.986-11	9.411-05
PA-231	2.794-03	4.802-07	2.794-03	3.085-04	2.794-03	1.954-06
PA-233	1.818-15	2.399-24	1.818-15	1.896-23	1.818-15	4.803-23
PA-234	7.745-22	1.261-05	7.745-22	5.514-10	7.745-22	9.411-05
TH-228	2.253+00	3.682-04	2.253+00	2.430+00	2.253+00	1.526-03
TH-229	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
TH-230	6.043-03	1.404-06	6.043-03	4.911-04	6.043-03	5.861-06
TH-231	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
TH-232	8.736-04	2.752-12	8.736-04	9.931-12	8.736-04	3.467-11
TH-234	7.745-22	1.261-05	7.745-22	5.514-10	7.745-22	9.411-05
AC-225	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
AC-227	2.107-04	8.176-08	2.107-04	5.268-05	2.107-04	3.373-07
AC-228	5.650-04	3.196-12	5.650-04	8.524-10	5.650-04	2.330-11
RA-223	2.082-04	8.085-08	2.082-04	5.209-05	2.082-04	3.336-07
RA-224	2.253+00	3.682-04	2.253+00	2.430+00	2.253+00	1.526-03
RA-225	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
RA-228	5.650-04	3.196-12	5.650-04	8.524-10	5.650-04	2.330-11
FR-221	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
FR-223	2.949-06	1.145-09	2.949-06	7.378-07	2.949-06	4.726-09
RN-219	2.082-04	8.085-08	2.082-04	5.209-05	2.082-04	3.336-07
RN-220	2.253+00	3.682-04	2.253+00	2.430+00	2.253+00	1.526-03
AT-217	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
AT-218	5.824-09	1.353-12	5.824-09	4.733-10	5.824-09	5.648-12
PO-210	1.804-05	0.000	1.804-05	0.000	1.804-05	0.000
PO-212	1.441+00	2.355-04	1.441+00	1.555+00	1.441+00	9.762-04
PO-213	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
PO-215	2.082-04	8.085-08	2.082-04	5.209-05	2.082-04	3.336-07
PO-216	2.253+00	3.682-04	2.253+00	2.430+00	2.253+00	1.526-03
BI-211	2.082-04	8.085-08	2.082-04	5.209-05	2.082-04	3.336-07
BI-212	2.253+00	3.682-04	2.253+00	2.430+00	2.253+00	1.526-03
BI-213	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08

PB-209	1.165-03	6.469-09	1.165-03	1.386-03	1.165-03	2.664-08
PB-211	2.082-04	8.085-08	2.082-04	5.209-05	2.082-04	3.336-07
PB-212	2.253+00	3.682-04	2.253+00	2.430+00	2.253+00	1.526-03
TL-207	2.082-04	8.085-08	2.082-04	5.209-05	2.082-04	3.336-07
TL-208	8.105-01	1.325-04	8.105-01	8.748-01	8.105-01	5.490-04
DY-159	2.844-07	4.668-08	2.844-07	6.924-08	2.844-07	2.657-07
TB-157	1.768-06	2.558-07	1.768-06	6.934-07	1.768-06	1.430-06
TB-158	1.327-07	2.353-08	1.327-07	1.671-07	1.327-07	2.616-08
TB-160	5.549-08	6.820-08	5.549-08	6.141-08	5.549-08	1.165-07
GD-153	6.662-05	1.487-04	6.662-05	1.710-04	6.662-05	5.555-04
EU-152	4.708-02	7.689-02	4.708-02	5.237-02	4.708-02	6.650-02
EU-154	1.419+01	4.006+01	1.419+01	2.657+01	1.419+01	3.647+01
EU-155	4.266+00	1.179+01	4.266+00	7.828+00	4.266+00	8.984+00
EU-156	0.000	0.000	0.000	0.000	0.000	0.000
SM-145	7.454-05	1.379-04	7.454-05	2.044-04	7.454-05	7.853-04
SM-151	2.823+00	3.495+00	2.823+00	2.450+00	2.823+00	2.640+00
PM-147	3.636+02	3.165+02	3.636+02	2.409+02	3.636+02	2.378+02
PM-148M	2.111-11	1.938-11	2.111-11	1.465-11	2.111-11	1.455-11
ND-147	0.000	0.000	0.000	0.000	0.000	0.000
PR-144	1.543+02	1.374+02	1.543+02	1.099+02	1.543+02	1.631+02
CE-141	2.994-13	8.611-14	2.994-13	9.304-14	2.994-13	6.536-13
CE-144	1.543+02	1.374+02	1.543+02	1.099+02	1.543+02	1.631+02
LA-137	2.484-06	3.291-07	2.484-06	1.200-06	2.484-06	1.814-06
LA-140	0.000	0.000	0.000	0.000	0.000	0.000
BA-137M	1.045+03	1.622+03	1.045+03	1.523+03	1.045+03	1.210+03
BA-140	0.000	0.000	0.000	0.000	0.000	0.000
CS-134	2.744+02	7.441+02	2.744+02	5.840+02	2.744+02	5.548+02
CS-137	1.045+03	1.622+03	1.045+03	1.523+03	1.045+03	1.210+03
XE-131M	0.000	0.000	0.000	0.000	0.000	0.000
I-129	5.111-04	3.507-04	5.111-04	6.924-04	5.111-04	2.600-04
I-131	0.000	0.000	0.000	0.000	0.000	0.000
TE-125M	5.206+01	1.703+01	5.206+01	5.447+01	5.206+01	1.251+01
TE-127M	3.438-03	2.960-04	3.438-03	1.016-03	3.438-03	2.695-04
TE-127	3.438-03	2.960-04	3.438-03	1.016-03	3.438-03	2.695-04
TE-129M	4.199-13	5.975-14	4.199-13	1.050-13	4.199-13	4.423-14
TE-129	4.199-13	5.975-14	4.199-13	1.050-13	4.199-13	4.423-14
SB-124	7.540-10	5.695-10	7.540-10	9.322-10	7.540-10	5.653-10
SB-125	4.901+01	1.603+01	4.901+01	5.128+01	4.901+01	1.177+01
SN-119M	1.124-02	7.259-03	1.124-02	7.048-03	1.124-02	5.438-03
SN-121M	7.178-05	7.740-05	7.178-05	7.872-05	7.178-05	9.113-05
SN-123	2.189-03	5.018-04	2.189-03	7.928-04	2.189-03	3.731-04
IN-114M	4.202-11	6.250-13	4.202-11	9.263-13	4.202-11	3.558-12
IN-114	4.202-11	6.250-13	4.202-11	9.263-13	4.202-11	3.558-12
CD-115M	3.421-13	1.372-13	3.421-13	1.403-13	3.421-13	1.644-13
AG-108M	4.350-04	6.416-05	4.350-04	9.507-05	4.350-04	3.652-04
AG-110M	1.381-02	1.934-02	1.381-02	2.054-02	1.381-02	1.453-02
PD-107	8.469-05	2.005-04	8.469-05	1.301-04	8.469-05	1.498-04
RH-103M	9.978-11	5.779-11	9.978-11	4.279-11	9.978-11	4.327-11
RH-106	2.171+01	2.905+01	2.171+01	1.904+01	2.171+01	2.179+01
RU-103	9.978-11	5.779-11	9.978-11	4.279-11	9.978-11	4.327-11
RU-106	2.171+01	2.905+01	2.171+01	1.904+01	2.171+01	2.179+01
TC-99	1.132-01	2.262-01	1.132-01	1.613-01	1.132-01	1.607-01
NB-93M	1.018-02	1.780-02	1.018-02	1.702-02	1.018-02	1.297-02
NB-95M	9.769-05	3.531-05	9.769-05	3.433-05	9.769-05	2.616-05
NB-95	2.096-04	7.578-05	2.096-04	7.367-05	2.096-04	5.614-05
ZR-93	3.910-02	6.073-02	3.910-02	5.783-02	3.910-02	4.424-02
ZR-95	9.210-05	3.329-05	9.210-05	3.237-05	9.210-05	2.466-05

Y-90	1.116+03	1.626+03	1.116+03	1.609+03	1.116+03	1.184+03
Y-91	2.144-06	6.713-07	2.144-06	7.093-07	2.144-06	4.663-07
SR-89	8.426-07	2.209-07	8.426-07	2.585-07	8.426-07	1.628-07
SR-90	1.116+03	1.626+03	1.116+03	1.609+03	1.116+03	1.184+03
RB-86	0.000	0.000	0.000	0.000	0.000	0.000
RB-87	4.347-07	4.702-07	4.347-07	6.173-07	4.347-07	3.418-07
KR-85	2.481+02	1.888+02	2.481+02	2.596+02	2.481+02	1.372+02
SE-79	8.562-03	4.152-03	8.562-03	9.220-03	8.562-03	2.999-03
NI-59	1.825-03	1.216-04	1.825-03	1.802-04	1.825-03	6.922-04
NI-63	2.337-01	1.558-02	2.337-01	2.309-02	2.337-01	8.870-02
CO-58	1.266-10	8.434-12	1.266-10	1.250-11	1.266-10	4.802-11
CO-60	2.753-04	1.845-05	2.753-04	2.733-05	2.753-04	1.650-04
CL-36	1.202-03	0.000	1.202-03	0.000	1.202-03	0.000
S-35	1.903-06	6.376-09	1.903-06	9.450-09	1.903-06	3.630-08
C-14 FROM C	2.437-02	0.000	2.437-02	0.000	2.437-02	0.000
C-14 FROM N	3.936-03	4.856-05	3.936-03	7.197-05	3.936-03	2.765-04
C-14 FROM O	2.007-03	6.791-05	2.007-03	1.006-04	2.007-03	3.866-04
H-3 FROM LI6	2.534+01	5.250-01	2.534+01	7.781-01	2.534+01	2.589+00
H-3 FROM B10	4.957-02	0.000	4.957-02	0.000	4.957-02	0.000
H-3 FISS YLD	3.050+00	4.937+00	3.050+00	4.329+00	3.050+00	3.598+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

CURIE VALUES USED PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	5.627-06	3.485-03	5.627-06	9.829-05	5.627-06	2.825-02
CM-243	4.588-07	6.142-03	4.588-07	8.056-05	4.588-07	4.896-02
CM-244	5.669-03	5.034+00	5.669-03	4.021-02	5.669-03	3.933+01
AM-241	4.322-04	8.894-01	4.322-04	3.464-02	4.322-04	7.146+00
AM-242M	5.627-06	3.485-03	5.627-06	9.829-05	5.627-06	2.825-02
AM-242	5.627-06	3.485-03	5.627-06	9.829-05	5.627-06	2.825-02
AM-243	9.905-06	3.910-02	9.905-06	4.384-04	9.905-06	3.093-01
PU-238	3.386-01	1.087+02	3.386-01	1.380+01	3.386-01	8.466+02
PU-239	1.025-04	9.105-02	1.025-04	5.036-03	1.025-04	7.066-01
PU-240	1.214-04	1.573-01	1.214-04	7.515-03	1.214-04	1.245+00
PU-241	2.088-02	4.215+01	2.088-02	1.659+00	2.088-02	3.385+02
NP-237	6.216-05	9.928-03	6.216-05	1.371-03	6.216-05	6.432-02
U-232	2.367+00	3.871-04	2.367+00	2.313+00	2.367+00	1.605-03
U-233	2.054+00	3.151-08	2.054+00	3.124-01	2.054+00	1.689-07
U-234	2.647-01	1.677-02	2.647-01	4.989-01	2.647-01	6.555-02
U-235	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
U-236	8.794-05	7.445-03	8.794-05	1.040-03	8.794-05	6.820-02
U-237	0.000	0.000	0.000	0.000	0.000	0.000
U-238	1.986-11	1.261-05	1.986-11	5.514-10	1.986-11	9.411-05
PA-231	2.794-03	4.951-07	2.794-03	3.085-04	2.794-03	1.966-06
PA-233	0.000	0.000	0.000	0.000	0.000	0.000
PA-234	0.000	1.261-05	0.000	5.514-10	0.000	9.411-05
TH-228	2.384+00	3.898-04	2.384+00	2.320+00	2.384+00	1.616-03
TH-229	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
TH-230	6.054-03	2.130-06	6.054-03	5.127-04	6.054-03	8.873-06
TH-231	1.862-05	1.405-04	1.862-05	6.819-05	1.862-05	1.099-04
TH-232	8.736-04	4.596-12	8.736-04	1.019-11	8.736-04	5.155-11
TH-234	0.000	1.261-05	0.000	5.514-10	0.000	9.411-05
AC-225	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
AC-227	1.794-04	1.420-07	1.794-04	9.060-05	1.794-04	5.779-07
AC-228	6.896-04	3.419-12	6.896-04	5.122-10	6.896-04	3.157-11
RA-223	1.774-04	1.412-07	1.774-04	9.011-05	1.774-04	5.748-07
RA-224	2.384+00	3.898-04	2.384+00	2.320+00	2.384+00	1.616-03
RA-225	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
RA-228	6.896-04	3.419-12	6.896-04	5.122-10	6.896-04	3.157-11
FR-221	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
FR-223	2.512-06	2.000-09	2.512-06	1.276-06	2.512-06	8.141-09
RN-219	1.774-04	1.412-07	1.774-04	9.011-05	1.774-04	5.748-07
RN-220	2.384+00	3.898-04	2.384+00	2.320+00	2.384+00	1.616-03
AT-217	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
AT-218	8.229-09	2.895-12	8.229-09	6.968-10	8.229-09	1.206-11
PO-210	1.507-05	0.000	1.507-05	0.000	1.507-05	0.000
PO-212	1.526+00	2.495-04	1.526+00	1.485+00	1.526+00	1.034-03
PO-213	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
PO-215	1.774-04	1.412-07	1.774-04	9.011-05	1.774-04	5.748-07
PO-216	2.384+00	3.898-04	2.384+00	2.320+00	2.384+00	1.616-03
BI-211	1.774-04	1.412-07	1.774-04	9.011-05	1.774-04	5.748-07
BI-212	2.384+00	3.898-04	2.384+00	2.320+00	2.384+00	1.616-03
BI-213	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08

PB-209	2.133-03	6.481-09	2.133-03	1.532-03	2.133-03	2.671-08
PB-211	1.774-04	1.412-07	1.774-04	9.011-05	1.774-04	5.748-07
PB-212	2.384+00	3.898-04	2.384+00	2.320+00	2.384+00	1.616-03
TL-207	1.774-04	1.412-07	1.774-04	9.011-05	1.774-04	5.748-07
TL-208	8.582-01	1.403-04	8.582-01	8.352-01	8.582-01	5.818-04
DY-159	4.323-11	7.096-12	4.323-11	1.053-11	4.323-11	4.639-11
TB-157	1.728-06	2.500-07	1.728-06	6.776-07	1.728-06	1.398-06
TB-158	1.296-07	2.299-08	1.296-07	1.632-07	1.296-07	2.556-08
TB-160	1.286-15	1.581-15	1.286-15	1.423-15	1.286-15	2.700-15
GD-153	3.563-07	7.951-07	3.563-07	9.147-07	3.563-07	2.571-06
EU-152	3.585-02	5.854-02	3.585-02	3.987-02	3.585-02	4.606-02
EU-154	1.143+01	3.226+01	1.143+01	2.140+01	1.143+01	2.454+01
EU-155	6.295-01	1.741+00	6.295-01	1.155+00	6.295-01	1.326+00
EU-156	0.000	0.000	0.000	0.000	0.000	0.000
SM-145	1.801-06	3.333-06	1.801-06	4.939-06	1.801-06	1.897-05
SM-151	2.713+00	3.359+00	2.713+00	2.354+00	2.713+00	2.537+00
PM-147	9.696+01	8.438+01	9.696+01	6.424+01	9.696+01	6.341+01
PM-148M	1.488-24	1.366-24	1.488-24	1.032-24	1.488-24	1.026-24
ND-147	0.000	0.000	0.000	0.000	0.000	0.000
PR-144	1.790+00	1.594+00	1.790+00	1.275+00	1.790+00	1.196+00
CE-141	0.000	0.000	0.000	0.000	0.000	0.000
CE-144	1.790+00	1.594+00	1.790+00	1.275+00	1.790+00	1.196+00
LA-137	2.483-06	3.289-07	2.483-06	1.200-06	2.483-06	1.813-06
LA-140	0.000	0.000	0.000	0.000	0.000	0.000
BA-137M	9.315+02	1.446+03	9.315+02	1.357+03	9.315+02	1.078+03
BA-140	0.000	0.000	0.000	0.000	0.000	0.000
CS-134	5.048+01	1.369+02	5.048+01	1.074+02	5.048+01	1.021+02
CS-137	9.315+02	1.446+03	9.315+02	1.357+03	9.315+02	1.078+03
XE-131M	0.000	0.000	0.000	0.000	0.000	0.000
I-129	5.111-04	3.507-04	5.111-04	6.924-04	5.111-04	2.600-04
I-131	0.000	0.000	0.000	0.000	0.000	0.000
TE-125M	1.450+01	4.741+00	1.450+01	1.517+01	1.450+01	3.482+00
TE-127M	3.116-08	2.682-09	3.116-08	9.204-09	3.116-08	1.898-09
TE-127	3.116-08	2.682-09	3.116-08	9.204-09	3.116-08	1.898-09
TE-129M	0.000	0.000	0.000	0.000	0.000	0.000
TE-129	0.000	0.000	0.000	0.000	0.000	0.000
SB-124	5.622-19	4.242-19	5.622-19	6.950-19	5.622-19	4.439-19
SB-125	1.365+01	4.464+00	1.365+01	1.428+01	1.365+01	3.278+00
SN-119M	7.117-05	4.598-05	7.117-05	4.464-05	7.117-05	3.445-05
SN-121M	6.858-05	7.395-05	6.858-05	7.521-05	6.858-05	8.707-05
SN-123	8.772-08	2.010-08	8.772-08	3.177-08	8.772-08	1.495-08
IN-114M	3.331-22	4.954-24	3.331-22	7.341-24	3.331-22	2.820-23
IN-114	3.331-22	4.954-24	3.331-22	7.341-24	3.331-22	2.820-23
CD-115M	5.680-26	2.278-26	5.680-26	2.330-26	5.680-26	1.734-26
AG-108M	4.236-04	6.248-05	4.236-04	9.258-05	4.236-04	3.556-04
AG-110M	9.660-05	1.353-04	9.660-05	1.437-04	9.660-05	1.016-04
PD-107	8.469-05	2.005-04	8.469-05	1.301-04	8.469-05	1.498-04
RH-103M	1.529-24	8.857-25	1.529-24	6.559-25	1.529-24	6.632-25
RH-106	6.975-01	9.333-01	6.975-01	6.118-01	6.975-01	7.000-01
RU-103	1.529-24	8.857-25	1.529-24	6.559-25	1.529-24	6.632-25
RU-106	6.975-01	9.333-01	6.975-01	6.118-01	6.975-01	7.000-01
TC-99	1.132-01	2.262-01	1.132-01	1.613-01	1.132-01	1.607-01
NB-93M	1.625-02	2.678-02	1.625-02	2.555-02	1.625-02	1.950-02
NB-95M	4.004-13	1.447-13	4.004-13	1.407-13	4.004-13	1.072-13
NB-95	8.592-13	3.106-13	8.592-13	3.019-13	8.592-13	2.301-13
ZR-93	3.910-02	6.073-02	3.910-02	5.783-02	3.910-02	4.424-02
ZR-95	3.774-13	1.364-13	3.774-13	1.326-13	3.774-13	1.011-13

Y-90	9.851+02	1.435+03	9.851+02	1.420+03	9.851+02	1.045+03
Y-91	7.149-16	2.238-16	7.149-16	2.365-16	7.149-16	1.655-16
SR-89	3.135-17	8.217-18	3.135-17	9.615-18	3.135-17	6.C56-18
SR-90	9.851+02	1.435+03	9.851+02	1.420+03	9.851+02	1.C45+03
RB-86	0.000	0.000	0.000	0.000	0.000	0.C00
RB-87	4.347-07	4.702-07	4.347-07	6.173-07	4.347-07	3.418-07
KR-85	1.798+02	1.368+02	1.798+02	1.881+02	1.798+02	9.938+01
SE-79	8.561-03	4.152-03	8.561-03	9.219-03	8.561-03	2.999-03
NI-59	1.825-03	1.216-04	1.825-03	1.802-04	1.825-03	6.922-04
NI-63	2.251-01	1.500-02	2.251-01	2.224-02	2.251-01	8.542-02
CO-58	2.514-18	1.675-19	2.514-18	2.482-19	2.514-18	9.533-19
CO-60	1.424-04	9.541-06	1.424-04	1.414-05	1.424-04	5.431-05
CL-36	1.202-03	0.000	1.202-03	0.000	1.202-03	0.C00
S-35	9.428-13	3.160-15	9.428-13	4.682-15	9.428-13	1.799-14
C-14 FROM C	2.435-02	0.000	2.435-02	0.000	2.435-02	0.C00
C-14 FROM N	3.934-03	4.853-05	3.934-03	7.192-05	3.934-03	2.763-04
C-14 FROM O	2.005-03	6.787-05	2.005-03	1.006-04	2.005-03	3.864-04
H-3 FROM LI6	1.913+01	3.963-01	1.913+01	5.873-01	1.913+01	2.256+00
H-3 FROM B10	3.742-02	0.000	3.742-02	0.000	3.742-02	0.C00
H-3 FISS YLD	2.303+00	3.727+00	2.303+00	3.268+00	2.303+00	2.716+00

APPENDIX B
PERTINENT ENERGIES AND NEUTRON-YIELD VALUES

TABLE B-1
HALF-LIVES, DECAY ENERGIES, AND NEUTRON YIELDS FOR IMPORTANT ISOTOPES^(a)

NUCLIDE	HALF LIFE	DECAY CONST. (1/SEC)	ALPHA ENERGY (MEV)	BETA AVERAGE ENERGY (MEV)	GAMMA ENERGY (MEV)	NEUTRONS PER SEC-CI (FERTILE PTL)	NEUTRONS PER SEC-CI (FISSILE PTL)
CM-242	1.630+02 D	4.921-08	6.207+00	6.300-03	1.720-03	8.230+03	9.410+03
CM-243	3.200+01 Y	6.862-10	5.929+00	9.530-02	1.960-01		
CM-244	1.790+01 Y	1.227-09	5.839+00	5.550-03	1.520-03	1.460+05	1.470+05
AM-241	4.330+02 Y	5.072-11	5.567+00	1.470-02	2.620-02	7.800+02	1.510+03
AM-242M	1.520+02 Y	1.445-10	2.500-02	3.020-02	4.660-03		
AM-242	1.602+01 H	1.202-05	0.000	1.730-01	8.600-02		
AM-243	7.370+03 Y	2.980-12	5.348+00	1.250-02	5.510-02	6.500+02	1.230+03
PU-238	8.780+01 Y	2.501-10	5.577+00	6.700-03	1.540-03	9.300+02	1.660+03
PU-239	2.439+04 Y	9.004-13	5.235+00	3.100-03	6.500-04	5.900+02	1.120+03
PU-240	6.540+03 Y	3.358-12	5.250+00	6.800-03	1.470-03	5.080+03	5.610+03
PU-241	1.500+01 Y	1.464-09	1.200-04	5.230-03	1.000-04		
NP-237	2.140+06 Y	1.026-14	4.865+00	3.760-02	3.180-02	4.020+02	7.700+02
U-232	7.200+01 Y	3.050-10	5.390+00	0.000	2.000-02	6.500+02	1.230+03
U-233	1.580+05 Y	1.390-13	4.893+00	3.170-03	9.100-04	4.020+02	7.700+02
U-234	2.440+05 Y	9.000-14	4.856+00	1.220-02	1.880-03	4.020+02	7.700+02
U-235	7.040+08 Y	3.119-17	4.471+00	2.110-02	1.520-01	5.380+02	9.040+02
U-236	2.342+07 Y	9.377-16	4.570+00	8.200-03	1.350-03	3.820+02	7.270+02
U-237	6.750+00 D	1.188-06	0.000	1.650-01	1.430-01		
U-238	4.470+09 Y	4.913-18	4.266+00	7.000-03	1.140-03	4.510+04	4.550+04
PA-231	3.250+04 Y	6.757-13	5.050+00	0.000	8.800-02	4.900+02	8.800+02
PA-233	2.700+01 D	2.971-07	0.000	6.336-02	3.499-01		
PA-234	6.750+00 H	2.852-05	0.000	2.042-01	1.591+00		

^(a) See Appendix C for method of conversion to decay heat and neutron source strengths.

TABLE B-1 (Continued)

NUCLIDE	HALF LIFE	DECAY CONST. (1/SEC)	ALPHA ENERGY (MEV)	BETA AVERAGE ENERGY (MEV)	GAMMA ENERGY (MEV)	NEUTRONS PER SEC-CI (FERTILE PTL)	NEUTRONS PER SEC-CI (FISSILE PTL)
TH-228	1.910+00 Y	1.150-08	5.500+00	0.000	2.400-02	7.100+02	1.370+03
TH-229	7.340+03 Y	2.992-12	4.900+00	0.000	2.100-01	4.450+02	8.100+02
TH-230	8.000+04 Y	2.745-13	4.750+00	0.000	1.600-02	3.630+02	7.300+02
TH-231	2.552+01 H	7.543-06	0.000	8.200-02	9.900-02		
TH-232	1.400+10 Y	1.569-18	4.060+00	0.000	1.400-02	1.660+02	5.800+02
TH-234	2.410+01 D	3.328-07	0.000	4.453-02	3.043-02		
AC-225	1.000+01 D	8.021-07	5.900+00	0.000	3.400-02	1.010+03	1.920+03
AC-227	2.160+01 Y	1.017-09	7.100-02	9.680-03	5.705-03		
AC-228	6.130+00 H	3.140-05	0.000	4.118-01	1.048+00		
RA-223	1.143+01 D	7.017-07	5.770+00	0.000	2.060-01	9.200+02	1.780+03
RA-224	3.640+00 D	2.204-06	5.770+00	0.000	1.300-02	9.200+02	1.780+03
RA-225	1.480+01 D	5.419-07	0.000	1.084-01	2.520-02		
RA-228	6.700+00 Y	3.278-09	0.000	1.419-02	0.000		
FR-221	4.800+00 M	2.406-03	6.420+00	0.000	3.600-02	1.500+03	3.010+03
FR-223	2.200+01 M	5.250-04	0.000	3.745-01	9.866-02		
RN-219	4.000+00 S	1.733-01	6.880+00	0.000	6.200-02	2.020+03	3.830+03
RN-220	5.530+01 S	1.253-02	6.400+00	0.000	4.000-03	1.500+03	3.010+03
AT-217	3.200-02 S	2.166+01	7.200+00	0.000	0.000	2.680+03	4.930+03
AT-218	1.500+00 S	4.620-01	6.820+00	1.000-03	3.000-03	2.020+03	3.830+03
PO-210	1.383+02 D	5.800-08	5.410+00	0.000	0.000	6.500+02	1.230+03
PO-212	3.040-07 S	2.280+06	8.950+00	0.000	0.000	7.600+03	1.140+04
PO-213	4.200-06 S	1.650+05	8.540+00	0.000	0.000	6.040+03	1.000+04

TABLE B-1 (Continued)

NUCLIDE	HALF LIFE	DECAY CONST. (1/SEC)	ALPHA ENERGY (MEV)	BETA AVERAGE ENERGY (MEV)	GAMMA ENERGY (MEV)	NEUTRONS PER SEC-CI (FERTILE PTL)	NEUTRONS PER SEC-CI (FISSILE PTL)
PO-215	1.780-03 S	3.893+02	7.520+00	0.000	0.000	3.270+03	6.020+03
PO-216	1.450-01 S	4.779+00	6.910+00	0.000	0.000	2.170+03	4.110+03
BI-211	2.160+00 M	5.347-03	6.670+00	0.000	5.600-02	1.880+03	3.560+03
BI-212	6.060+01 M	1.906-04	2.225+00	5.333-01	1.220-01	4.610+02	8.900+02
BI-213	4.700+01 M	2.457-04	1.287-01	4.662-01	1.519-01		
PB-209	3.300+00 M	5.833-05	0.000	2.078-01	0.000		
PB-211	3.610+01 M	3.199-04	0.000	4.870-01	6.289-02		
PB-212	1.064+01 M	1.809-05	0.000	1.095-01	2.143-01		
TL-207	4.790+00 M	2.411-03	0.000	5.398-01	1.435-03		
TL-208	3.100+00 M	3.726-03	0.000	6.084-01	3.415+00		
OY-159	1.440+02 D	5.570-08	0.000	0.000	6.508-02		
TB-157	1.500+02 Y	1.464-10	0.000	0.000	5.000-02		
TB-158	1.500+02 Y	1.464-10	0.000	3.989-02	7.960-01		
TB-160	7.200+01 D	1.114-07	0.000	2.100-01	1.191+00		
GO-153	2.420+02 D	3.314-08	0.000	0.000	1.408-01		
EU-152	1.270+01 Y	1.729-09	0.000	8.900-02	1.195+00		
EU-154	1.600+01 Y	1.372-09	0.000	2.470-01	1.250+00		
EU-155	1.810+00 Y	1.213-08	0.000	4.470-02	8.150-02		
EU-156	1.540+01 D	5.208-07	0.000	4.300-01	1.318+00		
SM-145	3.400+02 D	2.359-08	0.000	0.000	1.011-01		
SM-151	8.710+01 Y	2.521-10	0.000	1.950-02	4.000-04		
PM-147	2.622+00 Y	8.375-09	0.000	6.300-02	1.000-04		

TABLE B-1 (Continued)

NUCLIDE	HALF LIFE	DECAY CONST. (1/SEC)	ALPHA ENERGY (MEV)	BETA AVERAGE ENERGY (MEV)	GAMMA ENERGY (MEV)	NEUTRONS PER SEC-CI (FERTILE PTL)	NEUTRONS PER SEC-CI (FISSILE PTL)
PM-148M	4.180+01 D	1.919-07	0.000	1.470-01	2.009+00		
ND-147	1.110+01 D	7.226-07	0.000	2.420-01	1.190-01		
PR-144	1.727+01 M	6.688-04	0.000	1.263+00	3.100-02		
CE-141	3.250+01 D	2.468-07	0.000	1.590-01	7.170-02		
CE-144	2.840+02 D	2.824-08	0.000	8.300-02	2.890-02		
LA-137	6.000+04 Y	3.660-13	0.000	0.000	3.700-02		
LA-140	4.020+01 M	4.789-06	0.000	5.170-01	2.300+00		
BA-137M	2.550+00 M	4.529-03	0.000	0.000	6.620-01		
BA-140	1.280+01 D	6.266-07	0.000	2.800-01	2.170-01		
CS-134	2.050+00 Y	1.071-08	0.000	1.610-01	1.580+00		
CS-137	3.000+01 Y	7.320-10	0.000	1.740-01	0.000		
XE-131M	1.180+01 D	6.797-07	0.000	0.000	1.680-01		
I-129	1.600+07 Y	1.372-15	0.000	6.240-02	4.000-02		
I-131	8.050+00 D	9.964-07	0.000	1.860-01	3.890-01		
TE-125M	5.800+01 D	1.383-07	0.000	0.000	1.440-01		
TE-127M	1.090+02 D	7.359-08	0.000	6.100-03	8.800-02		
TE-127	9.400+00 M	2.048-05	0.000	2.270-01	5.170-03		
TE-129M	3.410+01 D	2.352-07	0.000	2.140-01	9.660-02		
TE-129	6.870+01 M	1.681-04	0.000	5.340-01	7.290-02		
SB-124	6.020+01 D	1.332-07	0.000	3.720-01	1.879+00		
SB-125	2.710+00 Y	8.103-09	0.000	8.690-02	4.520-01		
SN-119M	2.500+02 D	3.208-08	0.000	0.000	8.900-02		

TABLE B-1 (Continued)

NUCLIDE	HALF LIFE	DECAY CONST. (1/SEC)	ALPHA ENERGY (MEV)	BETA AVERAGE ENERGY (MEV)	GAMMA ENERGY (MEV)	NEUTRONS PER SEC-CI (FERTILE PTL)	NEUTRONS PER SEC-CI (FISSILE PTL)
BN-121M	7.600+01 Y	2.889-10	0.000	1.060-01	3.700-02		
BN-125	1.250+02 D	6.417-08	0.000	5.160-01	6.800-03		
IN-114M	4.950+01 D	1.620-07	0.000	0.000	2.298-01		
IN-114	7.190+01 S	9.638-03	0.000	7.790-01	2.598-03		
CD-115M	4.300+01 D	1.865-07	0.000	5.800-01	3.300-02		
AG-108M	1.300+02 Y	1.689-10	0.000	0.000	1.720+00		
AG-110M	2.550+02 D	3.145-08	0.000	6.800-02	2.790+00		
PD-107	7.000+06 Y	3.137-15	0.000	1.030-02	1.000-02		
RH-103M	5.700+01 M	2.026-04	0.000	0.000	3.980-02		
RH-106	2.990+01 S	2.318-02	0.000	1.446+00	1.990-01		
RU-105	3.980+01 D	2.015-07	0.000	6.750-02	4.900-01		
RU-106	3.692+02 D	2.172-08	0.000	9.700-03	0.000		
TC-99	2.130+05 Y	1.031-13	0.000	1.020-01	0.000		
NB-93M	1.360+01 Y	1.615-09	0.000	0.000	3.040-02		
NB-95M	3.750+00 D	2.139-06	0.000	0.000	2.350-01		
NB-95	3.500+01 D	2.292-07	0.000	4.360-02	7.660-01		
ZK-93	9.500+05 Y	2.312-14	0.000	9.000-03	0.000		
ZK-95	6.550+01 D	1.225-07	0.000	1.160-01	7.360-01		
Y-90	6.400+01 M	3.008-06	0.000	9.310-01	2.800-04		
Y-91	5.800+01 D	1.383-07	0.000	6.060-01	2.660-03		
SR-89	5.270+01 D	1.522-07	0.000	5.820-01	0.000		
SR-90	2.770+01 Y	7.928-10	0.000	1.980-01	0.000		

TABLE B-1 (Continued)

NUCLIDE	HALF LIFE	DECAY CONST. (1/SEC)	ALPHA ENERGY (MEV)	BETA AVERAGE ENERGY (MEV)	GAMMA ENERGY (MEV)	NEUTRONS PER SEC-CI (FERTILE PTL)	NEUTRONS PER SEC-CI (FISSILE PTL)
RB-86	1.866+01 D	4.298-07	0.000	6.700-01	9.430-02		
RB-87	4.800+10 Y	4.575-19	0.000	7.851-02	0.000		
KR-85	1.076+01 Y	2.041-09	0.000	2.510-01	2.230-03		
SE-79	6.500+04 Y	3.378-13	0.000	4.200-02	1.000-04		
NI-59	8.000+04 Y	2.745-13	0.000	0.000	8.000-03		
NI-63	9.200+01 Y	2.387-10	0.000	1.760-02	0.000		
CO-58	7.140+01 D	1.123-07	0.000	3.020-02	9.816-01		
CO-60	5.260+00 Y	4.175-09	0.000	9.450-02	2.505+00		
CL-36	3.070+05 Y	7.153-14	0.000	2.730-01	0.000		
S-35	8.720+01 D	9.198-08	0.000	4.920-02	0.000		
C-14	5.000+03 Y	4.392-12	0.000	4.930-02	0.000		
H-3	1.233+01 Y	1.781-09	0.000	5.690-03	0.000		

TABLE B-2
GAMMA ENERGY SPECTRA

GAMMA ENERGY RELEASE TABLE (MEV PER DISINTEGRATION)

ISOTOPE	HALF LIFE	PHOTON ENERGY (MEV) ^(a)											TOTAL
		0.1	0.3	0.6	0.8	1.0	1.25	1.6	2.0	2.4	2.9	3.5	
U-235	7.040+08 Y	.0400	.1000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.1400
PA-233	2.700+01 D	.0484	.3015	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.3499
PA-234	6.750+00 H	.0000	.0800	.0800	.0400	.7800	.0600	.1500	.0000	.0000	.0000	.0000	1.1900
AC-228	6.130+00 H	.0000	.0400	.0200	.0500	.4700	.0000	.1600	.0400	.0000	.0000	.0000	.7800
RA-223	1.143+01 D	.0200	.0500	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0700
RN-219	4.000+00 S	.0000	.0500	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0500
BI-211	2.160+00 M	.0000	.0500	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0500
BI-212	6.060+01 M	.0000	.0000	.0000	.0600	.0100	.0000	.0300	.0000	.0000	.0000	.0000	.1000
BI-213	4.700+01 M	.0000	.1400	.0000	.0000	.0100	.0000	.0000	.0000	.0000	.0000	.0000	.1500
PB-211	3.610+01 M	.0000	.0300	.0000	.0300	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0600
PB-212	1.064+01 H	.0000	.1200	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.1200
TL-208	3.100+00 M	.0000	.0200	.6200	.1200	.0000	.0000	.0000	.0000	2.6100	.0000	.0000	3.3700
TB-158	1.500+02 Y	.0000	.0090	.0000	.0770	.6150	.0200	.0000	.0000	.0000	.0000	.0000	.7210
TB-160	7.200+01 D	.0000	.1200	.0000	.2900	.3100	.2400	.0000	.0000	.0000	.0000	.0000	.9600
EU-152	1.270+01 Y	.0556	.1384	.0222	.1432	.4296	.3492	.0134	.0000	.0000	.0000	.0000	1.1516
EU-154	1.600+01 Y	.0505	.0206	.0532	.2943	.2911	.4621	.0376	.0000	.0000	.0000	.0000	1.2094
EU-156	1.540+01 D	.0000	.0000	.0500	.1500	.1400	.3800	.0000	.4800	.0500	.0000	.0000	1.2500
PM-148M	4.180+01 D	.0057	.1539	1.2056	.2235	.3687	.0000	.0000	.0000	.0000	.0000	.0000	1.9574
ND-147	1.110+01 D	.0264	.0157	.0685	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.1106
PR-144	1.727+01 M	.0000	.0000	.0105	.0002	.0000	.0001	.0043	.0162	.0000	.0000	.0000	.0313

(a) The break points between the gamma energy intervals are mid-way between the photon energy values.

TABLE B-2 (Continued)

ISOTOPE	HALF LIFE	0.1	0.3	0.6	0.8	1.0	1.25	1.6	2.0	2.4	2.9	3.5	TOTAL
LA-140	4.020+01 M	.0016	.0846	.2243	.2627	.0966	.0027	1.5281	.0000	.1078	.0028	.0001	2.3113
BA-137M	2.550+00 M	.0023	.0000	.5597	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.5620
BA-140	1.280+01 D	.0166	.0340	.1319	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.1825
CS-134	2.050+00 Y	.0000	.0001	.7252	.7649	.0109	.0686	.0004	.0000	.0000	.0000	.0000	1.5701
I-131	8.050+00 D	.0039	.3186	.0459	.0123	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.3807
TE-129M	3.410+01 D	.0006	.0000	.0718	.0222	.0013	.0003	.0000	.0000	.0000	.0000	.0000	.0962
TE-129	6.870+01 M	.0064	.0054	.0578	.0033	.0125	.0005	.0000	.0000	.0000	.0000	.0000	.0859
SB-124	6.020+01 D	.0000	.0000	.6300	.1100	.0400	.0600	.8400	.1200	.0000	.0000	.0000	1.8000
SB-125	2.710+00 Y	.0156	.1390	.2735	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.4281
CD-115M	4.300+01 D	.0000	.0000	.0000	.0000	.0200	.0100	.0000	.0000	.0000	.0000	.0000	.0300
AG-108M	1.300+02 Y	.0050	.3800	.5590	.6440	.0090	.0000	.0000	.0000	.0000	.0000	.0000	1.9970
AG-110M	2.550+02 D	.0002	.0158	.7617	1.0315	.3195	.3642	.2932	.0020	.0022	.0000	.0000	2.7903
RH-106	2.990+01 S	.0000	.0006	.1709	.0038	.0160	.0055	.0040	.0016	.0017	.0003	.0000	.2044
RU-103	3.980+01 D	.0002	.0025	.4828	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.4855
NB-95	3.500+01 D	.0000	.0000	.0000	.7651	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.7651
ZR-95	6.550+01 D	.0000	.0014	.0000	.7347	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.7361
RB-86	1.866+01 D	.0000	.0000	.0000	.0000	.0900	.0000	.0000	.0000	.0000	.0000	.0000	.0900
CU-58	7.140+01 D	.0000	.0000	.1530	.8062	.0000	.0000	.0104	.0000	.0000	.0000	.0000	.9696
CO-60	5.260+00 Y	.0000	.0000	.0000	.0000	.0000	2.5000	.0000	.0000	.0000	.0000	.0000	2.5000

TABLE B-3
NEUTRON YIELDS FOR IMPORTANT ISOTOPES

Isotope	Approximate Energy of Main Alpha Particle (MeV)	Intensity of Alpha Particles Per Disintegration (%)	Total Half-Life (a) (years)	Spontaneous Fission Half-Life (b) (years)	Number of Neutrons Per Spontaneous Fission (b)	Yield From (α,n) Reactions (neutrons per sec-curie)		Yield from Spontaneous Fission (neutrons per sec-curie)	Total Neutron Yield (neutrons per sec-curie)	
						Fertile Particles (UO ₂) (c)	Fissile Particles (UC ₃ O ₈) (c)		Fertile Particles (UO ₂) (c)	Fissile Particles (UC ₃ O ₈) (c)
Cm-242	6.1	100	4.46-1	7.2 +6	~3	1.28+3	2.46+3	6.95+3(d)	8.23+3	9.41+3
Cm-244	5.8	100	1.79+1	~1.4 +7	~3	1.01+3	1.92+3	1.45+5(d)	1.46+5	1.47+5
Am-241	5.5	100	4.33+2	2 +14	2.3	7.80+2	1.51+3	Small	7.80+2	1.51+3
Am-243	5.3	100	7.37+3	?		6.50+2	1.23+3	Assumed small	6.50+2	1.23+3
Pu-238	5.5	100	8.78+1	4.9 +10	2.26	7.80+2	1.51+3	1.5 +2(d)	9.30+2	1.66+3
Pu-239	5.2	100	2.44+4	5.5 +15		5.90+2	1.12+3	Small	5.90+2	1.12+3
Pu-240	5.2	100	6.54+3	1.17+11(e)	2.17	5.90+2	1.12+3	4.49+3	5.08+3	5.61+3
Np-237	4.8	100	2.14+6	>1 +18		4.02+2	7.70+2	Small	4.02+2	7.70+2
U-232	5.3	100	7.2 +1	8 +13		6.50+2	1.23+3	Small	6.50+2	1.23+3
U-233	4.8	100	1.58+5	≥3 +17(f)		4.02+2	7.70+2	Small	4.02+2	7.70+2
U-234	4.8	100	2.44+5	2 +16	~2	4.02+2	7.70+2	Small	4.02+2	7.70+2
U-235	4.4	100	7.04+8	1.9 +17	~2	2.64+2	6.30+2	2.74+2	5.38+2	9.04+2
U-236	4.5	100	2.34+7	2 +16	~2	2.95+2	6.40+2	8.66+1	3.82+2	7.27+2
U-238	4.2	100	4.47+9	7.19+15(g)	1.95	2.11+2	5.90+2	4.49+4	4.51+4	4.55+4
Pa-231	5.0	100	3.25+4	≥1 +16(f)		4.90+2	8.80+2	Small	4.90+2	8.80+2
Th-228	5.4	100	1.91			7.10+2	1.37+3	Assumed small	7.10+2	1.37+3
Th-229	4.9	100	7.34+3			4.45+2	8.10+2	Assumed small	4.45+2	8.10+2
Th-230	4.7	100	7.7 +4	≥1.5 +17		3.63+2	7.30+2	Small	3.63+2	7.30+2
Th-232	4.0	100	1.40+10	≥1 +21		1.66+2	5.80+2	Small	1.66+2	5.80+2
Ac-225	5.8	100	2.74-2			1.01+3	1.92+3	Assumed small	1.01+3	1.92+3
Ra-223	5.7	100	3.13-2			9.20+2	1.78+3	Assumed small	9.20+2	1.78+3
Ra-224	5.7	100	9.97-3			9.20+2	1.78+3	Assumed small	9.20+2	1.78+3
Fr-221	6.3	100	9.13-6			1.50+3	3.01+3	Assumed small	1.50+3	3.01+3
Rn-219	6.7	100	1.25-7			2.02+3	3.83+3	Assumed small	2.02+3	3.83+3
Rn-220	6.3	100	1.76-6			1.50+3	3.01+3	Assumed small	1.50+3	3.01+3
At-217	7.1	100	1.01-9			2.68+3	4.93+3	Assumed small	2.68+3	4.93+3
At-218	6.7	~100	6. -8			2.02+3	3.83+3	Assumed small	2.02+3	3.83+3
Po-210	5.3	100	3.79-1			6.50+2	1.23+3	Assumed small	6.50+2	1.23+3
Po-212	8.8	100	9.5 -15			7.60+3	1.14+4	Assumed small	7.60+2	1.14+4
Po-213	8.4	100	1.3 -13			6.04+3	1.00+4	Assumed small	6.04+3	1.00+4
Po-215	7.4	~100	5.6 -11			3.27+3	6.02+3	Assumed small	3.27+3	6.02+3
Po-216	6.8	100	4.9 -9			2.17+3	4.11+3	Assumed small	2.17+3	4.11+3
Bi-211	6.6	~100	4.07-6			1.88+3	3.56+3	Assumed small	1.88+3	3.56+3
Bi-212	6.1	36	1.15-4			4.61+2	8.90+2	Assumed small	4.61+2	8.90+2

(a) From Ref. 9.

(b) Information is given in these columns for some of the isotopes to evaluate the neutron yields from spontaneous fission. The spontaneous fission half-lives are obtained from Ref. 5 except where noted. Except for the curium isotopes, the number of neutrons per spontaneous fission were obtained from Ref. 18.

(c) Or for another heavy nuclide in place of uranium.

(d) From Ref. 19.

(e) From Ref. 18.

(f) From Ref. 20.

(g) From Ref. 13.

APPENDIX C
DESCRIPTION OF SFUEL CODE

APPENDIX C
DESCRIPTION OF SFUEL CODE

The SFUEL computer code was developed to calculate decay heat, gamma dose rates, and neutron source terms from the curie values for the contributing isotopes and from other basic input information. The code was designed to provide versatility while keeping input easy and to a minimum.

SFUEL will handle up to seven fuel types made up of two particle types each, 53 different chemical elements with 129 isotopes, and five decay times. Specific information on fuel types, elements, and decay times is given in Table C-1.

Basic input information for each isotope includes half-life, disintegration energies, neutron conversion factors, gamma energy spectra, and curie values. Using this information, SFUEL will calculate and print out a variety of information for the individual isotopes and chemical elements in a fuel element: decay heat in watts, gamma dose rates in rad per hr at one meter away, neutron source terms in neutrons per sec, and the 10 highest contributing isotopes and elements for each case, as well as the input data.

C.1. MAIN PROGRAM - SFUEL

The main program serves as a block-data routine for the chemical element names and their corresponding symbols, and reads in data and calls the subroutines needed for the desired calculations noted on an option card. The main program calculates the decay constant for each isotope, using the half-life, converting it to seconds, and using the expression

$$\frac{0.693}{\text{half-life in seconds}}$$

C.2. SUBROUTINE - WATTS

If the heating rate in watts is desired, this subroutine is called. Subroutine iterations are done for each decay time. For each isotope in the fertile or fissile particles of a fuel element, the heating rate is first calculated according to disintegration type (alpha particle, beta particle, and gamma ray) by using the appropriate curie values, the alpha, gamma, and beta decay energies in MeV/disintegration, and the equation

$$\frac{\text{watts}}{\text{fuel element}} = \frac{\text{curies}}{\text{fuel element}} \times \frac{\text{MeV}}{\text{disintegration}} \\ \times \left(3.7 \times 10^{10} \frac{\text{disintegrations}}{\text{sec-curie}} \div 6.25 \times 10^{12} \frac{\text{MeV/sec}}{\text{watt}} \right) .$$

The watts for each disintegration type are then summed to find total watts for each isotope.

After the heating rate is found for each isotope, the results for like disintegration types are summed to determine the alpha, beta, and gamma heating rates for both the fertile and the fissile particles in a fuel element. Total heating rates for the fertile and fissile particles are then found by summing the total of each disintegration type. A percent contribution from gamma rays is determined by dividing the total gamma heating by the total heating and multiplying by 100.

The decay heat in watts is then printed. A calculation is performed to determine if any isotope has a curie value less than or equal to 10^{-10} at a particular decay time for all fuel and particle types. For any of these isotopes, printing is suppressed to eliminate negligible values. In conjunction with the printing, SFUEL determines which isotopes are associated with each chemical element, sums the heating rate from the associated isotopes, and determines the percent contribution from gamma rays for the element. After each group of isotopes associated with an element is printed, the element name, element heating, and percent contribution by gamma rays are printed. Elements are not printed unless at least one associated isotope

has a sufficient curie value to be printed. For any type of fuel, after all isotopes and associated elements at a given time are printed, the grand total heating rate for that fuel and particle type is printed along with the total alpha, beta, and gamma heating rates.

After heating rates for all fuel and particle types at a given decay time are calculated, SFUEL reorders the isotopes and elements into separate tables according to their contribution to the heating rate for that time, fuel type, and particle type. The 10 highest contributors by isotope and by element, their heating rates, and their percent contributions to the total heating rates are then stored for later use by SFUEL.

C.3. SUBROUTINE - DOSE

If the gamma dose rate in rad/hr at one meter away from the isotopes in a fuel element is desired, this subroutine is called. Iterations of the entire subroutine are done for each decay time. For each isotope that has a gamma energy spectrum input to SFUEL, the dose rate for each fuel and particle type and for each decay time is calculated at each of 11 gamma energy groups (E_i) using the equation

$$\frac{\frac{\text{rad}}{\text{hr}} (E_i)}{\text{fuel element}} = \frac{\left(\frac{\text{curies}}{\text{fuel element}} \times 3.7 \times 10^{10} \frac{\text{disintegration}}{\text{sec-curie}} \right) \left(\frac{\text{MeV}}{\text{disintegration}} (E_i) \right)}{\frac{\text{MeV/cm}^2\text{-sec}}{\text{rad/hr}} (E_i) \times 4\pi 100^2 \text{ cm}^2},$$

where $\text{MeV/disintegration}(E_i)$ is the gamma energy spectrum input to SFUEL. The accepted energy groups and their corresponding conversion factors of $\text{MeV/cm}^2\text{-sec}$ to rad/hr are given in Table C-2.

The total rad/hr for the isotope is then found from

$$\sum_{i=1}^{11} \frac{\frac{\text{rad}}{\text{hr}} (E_i)}{\text{fuel element}}.$$

The gamma dose rates are then printed. If an isotope has a curie value greater than 10^{-10} for any fuel or particle type at a given decay time and has a gamma energy spectrum with at least one non-zero value, the isotope and the corresponding dose rates are printed. Only energy groups with non-zero values are printed. In conjunction with the printing, SFUEL determines which isotopes are associated with each chemical element and then sums the dose rates from these isotopes. After information for the isotopes of an element is printed, the element name, element dose rate by gamma energy group, and total dose rate for the element are printed. An element is included in the table only if at least one associated isotope is printed. Gamma energy groups with zero values for the elements are not printed.

At the conclusion of each decay time for each fuel and particle type, the isotopic dose rates for the gamma groups are summed to obtain total dose rates for that fuel and particle type. These numbers are printed if they are non-zero values.

The total dose rates from isotopes and elements are then reordered in their respective tables to reflect their contribution to the dose rate for that time and fuel type. The percent each contributes to the total is then determined. The 10 highest isotope contributors, 10 highest element contributors, their dose rates, and their percent contributions to the dose rates are then stored for later use by SFUEL.

C.4. SUBROUTINE - NEUTRO

If the neutron source in n/sec is desired, this subroutine is called. Iterations of this subroutine are done for each decay time. For each fuel and particle type, and each isotope that has a neutron source associated with it for fertile and/or fissile particles, the neutron yield is calculated using the equation

$$\frac{\text{neutrons}}{\text{sec-fuel element}} = \frac{\text{curies}}{\text{fuel element}} \times \frac{\text{neutrons}}{\text{sec-curie}} \quad .$$

These resultant source terms are summed by fuel and particle type to find the total neutron yields for the fertile and fissile particles for each fuel type.

The neutron source strengths are then printed. If an isotope has a curie value greater than 10^{-10} for any fuel and particle type at a given decay time and has a non-zero value for the fertile or fissile particle neutron yield, the isotope and the neutron source strengths are printed. In conjunction with the printing, SFUEL determines which isotopes are associated with each chemical element, sums the neutron source strengths from these isotopes, and prints the element name and element neutron source strength. An element is included in the table only if at least one associated isotope is printed.

SFUEL then calculates the percent each isotope and each element contribute to the total neutron source for each fuel and particle type. It then reorders the isotopes and elements in separate tables according to their contribution to the neutron source for each fuel and particle type. The 10 highest isotope contributors, 10 highest element contributors, their neutron yields, and their percent contributions to the total neutron yields for each decay time are then stored for later use by SFUEL.

C.5. SUBROUTINE - TABLE

This subroutine is called if any of the auxiliary tables are desired.

The first table to be printed by TABLE is entitled "Gamma Energy Release Table." It prints the data read in without any calculations. The isotope name, half-life, and its gamma energy spectrum are printed. Only isotopes with a non-zero entry in the input spectrum are printed.

The second table to be printed by TABLE is entitled "Half-Lives and Energies of Radioactive Nuclides in HTGR Spent Fuel Elements." The only item printed in this table that is calculated by SFUEL is the decay constant, which is determined in the main program. For each isotope input

to the code, this table lists the name of the isotope, half-life, decay constant, alpha, beta, and gamma energies, and the fertile and fissile particle conversion from curies to neutrons per second.

The third table to be printed in TABLE gives the 10 isotopes and 10 elements with the highest contributions to each of the three main SFUEL areas: decay heat, gamma dose rate, and neutron yield for each decay time, fuel, and particle type. The percent each contributes to the total is given, along with the individual heating rate, dose rate, or neutron yield.

The last table to be printed gives the isotope name and curie values input to SFUEL for each isotope, decay time, fuel, and particle type. No calculations were involved to print any of the information in this table.

C.6. MAP

SFUEL is segmented and mapped to reduce the storage requirements of the code. Only the main program and a sorting routine are always available during program execution. The remaining subroutines are available only while being used, with the exception of NEUTRO and TABLE, which are available concurrently with each other.

C.7. RUN INSTRUCTIONS

Detailed input instructions are found in Table C-3.

TABLE C-1
FUEL TYPES ACCEPTED BY SFUEL

Fuel Types, Fissile & Fertile	Discharged at Beginning of Reload	Originally Loaded at Reload
IS Fresh U-235	1	0
MS Fresh U-235	5	1
23RS Recycle U-233	10	6
25RS Recycle U-235	10	6
MS Fresh U-235	13	9
23RS Recycle U-233	13	9
25RS Recycle U-235	13	9

TABLE C-2
GAMMA ENERGY GROUPS AND CORRESPONDING MEV/CM²-SEC
TO RAD/HR CONVERSION FACTORS

Midpoint of Energy Group (MeV)	Conversion Factor ($\frac{\text{MeV/cm}^2\text{-sec}}{\text{rad/hr}}$)
0.1	5.9×10^5
0.3	5.54×10^5
0.6	5.44×10^5
0.8	5.53×10^5
1.0	5.77×10^5
1.25	5.96×10^5
1.6	6.28×10^5
2.0	6.81×10^5
2.4	7.24×10^5
2.9	7.78×10^5
3.5	8.15×10^5

TABLE C-3
SFUEL INPUT INSTRUCTIONS

Card	Format	Cols.	Name	Description
1	12A6	1-72	TITLE	Problem Title
2	4I1	1	IWA	Calculate heating rate in watts 0 = Yes, 1 = No
		2	IDO	Calculate dose rate in rad/hr 0 = Yes, 1 = No
		3	INE	Calculate neutron source in η /sec 0 = Yes, 1 = No
		4	ITA	Print out auxiliary tables 0 = Yes, 1 = No
Repeat cards 3 thru 8 for each isotope				
3	2A6	1-12	ISO	Isotope name
	E11.5	13-23	HALIFE	Numeric portion of half-life
	A1	24	SYM	Half-life unit (S, M, H, D, Y)
	3E12.6	25-36	TALPHA	Total alpha disintegration energy
		37-38	TBETA	Average beta disintegration energy
		49-60	TGAMMA	Total gamma disintegration energy
4	2E12.6	1-12	FENEUT	Neutrons/sec-curies for fertile particles
		13-24	FINEUT	Neutrons/sec-curies for fissile particles
5	11F6.4		GSPECT	Gamma energy spectrum in MeV/disintegration using the following MeV energy ranges:
		1-6		0 - 0.2
		7-12		0.2 - 0.45
		13-18		0.45 - 0.7
		19-24		0.7 - 0.9
		25-30		0.9 - 1.125
		31-36		1.125 - 1.425
		37-42		1.425 - 1.8
		43-48		1.8 - 2.2

TABLE C-3 (Continued)

Card	Format	Cols.	Name	Description
(5 cont.)		49-54		2.2 - 2.65
		55-60		2.65 - 3.2
		61-66		E > 3.2

Repeat cards 6 through 8 for each desired decay time. Decay times accepted by SFUEL are (in order): 180 days, 1 year, 3 years, 5 years, and 10 years. There must be a minimum of one decay time. The maximum number of times accepted are five.

6	6E12.6	1-12	CURIES	Curies from IS fresh U-235 discharged at reload 1 - fertile particle
		13-24	CURIES	Curies from IS fresh U-235 discharged at reload 1 - fissile particle
		25-36	CURIES	Curies from MS fresh U-235 discharged at reload 5 - fertile particle
		37-48	CURIES	Curies from MS fresh U-235 discharged at reload 5 - fissile particle
		49-60	CURIES	Curies from 23RS recycle U-233 discharged at reload 13 - fertile particle
		61-72	CURIES	Curies from 23RS recycle U-233 discharged at reload 13 - fissile particle
7	6E12.6	1-12	CURIES	Curies from 25RS recycle U-235 discharged at reload 10 - fertile particle
		13-24	CURIES	Curies from 25RS recycle U-235 discharged at reload 10 - fissile particle
		25-36	CURIES	Curies from MS fresh U-235 discharged at reload 13 - fertile particle
		37-48	CURIES	Curies from MS fresh U-235 discharged at reload 13 - fissile particle
		49-60	CURIES	Curies from 23RS recycle U-233 discharged at reload 13 - fertile particle
		61-72	CURIES	Curies from 23RS recycle U-233 discharged at reload 13 - fissile particle
8	2E12.6	1-12	CURIES	Curies from 25RS recycle U-235 discharged at reload 13 - fertile particle
		13-24	CURIES	Curies from 25RS recycle U-235 discharged at reload 13, fissile particle

TABLE C-3 (Continued)

Card	Format	Cols.	Name	Description
(8 cont.)	I1	25	FLAG1	Indicates this is last decay time to be given for this isotope: 0 = No, 1 = Yes
9 (two)				Two blank cards follow last data card for entire deck

APPENDIX D
TABULATION OF RESULTS

DECAY HEAT

TABLE D-1
DECAY HEAT FOR FUEL ELEMENTS DISCHARGED AT
BEGINNING OF RELOAD 1 AND ORIGINALLY LOADED AT RELOAD 0

and

TABLE D-2
DECAY HEAT FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF
RELOAD 5 AND ORIGINALLY LOADED AT RELOAD 1

NOTE: Tables D-1 and D-2 consist of 29 pages
of computer print-out, with the two
tables appearing side by side (pages
D-3 through D-31).

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
CM-242	1.169-08	2.941-02	1.718-04	5.712-01
CM-243	7.405-09	3.633-06	3.724-08	2.488-04
CM-244	3.329-04	4.227-03	1.713-04	2.677-01
CURIUM	3.329-04(0)	3.364-02(0)	3.431-04(0)	6.392-01(0)
AM-241	5.184-09	5.247-04	1.818-06	2.644-03
AM-242M	2.492-11	1.149-07	3.148-09	1.081-06
AM-242	1.078-10	4.973-07	1.362-08	4.676-06
AM-243	2.630-06	6.500-05	2.636-07	1.214-03
AMERICIUM	2.636-06(1)	5.903-04(0)	2.098-06(0)	3.864-03(0)
PU-238	3.703-05	1.409-01	1.603-02	3.599-00
PU-239	4.861-09	8.699-04	4.331-06	2.512-03
PU-240	5.503-09	1.425-03	5.350-06	4.366-03
PU-241	2.505-09	4.689-04	1.542-06	1.874-03
PLUTONIUM	3.705-05(0)	1.437-01(0)	1.604-02(0)	3.608-00(0)
NP-237	1.353-08	3.446-05	2.259-06	2.527-04
NEPTUNIUM	1.353-08(0)	3.446-05(0)	2.259-06(0)	2.527-04(0)
U-232	1.734-02	1.857-06	8.213-02	1.338-05
U-233	3.730-02	3.608-10	5.825-02	7.376-10
U-234	1.778-03	4.787-04	8.062-03	4.090-04
U-235	4.422-08	1.165-05	5.575-07	2.661-06
U-236	5.612-08	7.309-05	2.840-06	1.792-04
U-237	1.159-10	1.564-07	6.289-09	3.451-07
U-238	0.000	2.111-07	0.000	2.818-07
URANIUM	5.642-02(0)	5.656-04(0)	1.484-01(0)	6.048-04(0)
PA-231	5.684-05	5.637-09	7.987-09	1.226-08
PA-233	1.241-01	9.507-10	1.020-01	1.244-08
PA-234	4.596-03	8.865-08	3.203-03	1.184-07
PROTACTINIUM	1.242-01(84)	9.524-08(83)	1.020-01(84)	1.431-07(80)
TH-228	4.347-03	4.688-07	3.676-02	6.128-06
TH-229	2.702-06	3.613-12	8.463-06	2.217-10
TH-230	3.842-04	1.277-08	1.572-04	1.807-08
TH-231	1.724-09	4.539-07	2.173-08	1.037-07
TH-232	2.475-05	0.000	2.100-05	0.000
TH-234	1.919-04	3.702-09	1.338-04	4.942-09
THURIUM	4.951-03(1)	9.392-07(26)	3.708-02(0)	6.255-06(1)
AC-225	3.137-06	4.195-12	9.826-06	2.575-10

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN KALIS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		45 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AC=227	7.544=08	2.766=12	1.193=07	9.144=12
AC=228	2.521=08	0.000	3.269=06	0.000
ACTINIUM	5.734=06(31)	8.961=12(2)	1.322=05(18)	2.666=10(0)
RA=223	5.157=06	1.767=10	8.160=06	6.012=10
RA=224	4.551=03	4.908=07	3.848=02	6.415=06
RA=225	7.064=04	9.447=14	2.213=07	5.797=12
RA=226	2.450=08	0.000	3.177=08	0.000
RADIUM	4.557=03(0)	4.910=07(0)	3.849=02(0)	6.416=06(0)
FR=221	3.413=05	4.565=12	1.069=05	2.801=10
FR=223	5.765=04	0.000	9.151=09	6.742=13
FRANCIUM	3.419=06(0)	4.565=12(0)	1.070=05(0)	2.806=10(0)
RN=219	5.991=06	2.053=10	9.479=06	6.984=10
RN=220	5.040=03	5.435=07	4.261=02	7.104=06
RADON	5.046=03(0)	5.437=07(0)	4.262=02(0)	7.105=06(0)
AT=217	3.607=06	5.091=12	1.192=05	3.124=10
AT=218	1.969=10	0.000	1.379=10	0.000
ASTATINE	3.607=06(0)	5.091=12(0)	1.192=05(0)	3.124=10(0)
PU=210	2.097=05	2.317=09	2.294=05	4.764=09
PU=212	4.153=03	4.479=07	3.686=02	6.146=06
PU=213	4.515=06	6.036=12	1.414=05	3.706=10
PU=215	6.490=06	2.224=10	1.027=05	7.565=10
PU=216	5.038=03	5.865=07	4.598=02	7.665=06
POLONIUM	9.023=03(0)	1.037=06(0)	4.289=02(0)	1.382=05(0)
BI=211	5.805=06	1.989=10	9.184=06	6.766=10
BI=212	2.267=03	2.445=07	1.917=02	3.195=06
BI=213	3.946=07	5.286=13	1.237=06	3.240=11
BISMUTH	2.273=03(4)	2.447=07(4)	1.918=02(4)	3.196=06(4)
PB=209	1.099=07	1.469=13	3.441=07	9.016=12
PB=211	4.746=07	1.626=11	7.516=07	5.532=11
PB=212	2.546=04	2.746=06	2.155=03	3.592=07
LEAD	2.554=04(66)	2.751=06(66)	2.156=03(66)	3.593=07(66)
TL=207	4.671=07	1.601=11	1.390=07	5.445=11
TL=208	1.050=03	1.133=07	9.322=03	1.554=06
THALLIUM	1.051=03(84)	1.133=07(84)	9.322=03(84)	1.554=06(84)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
DY-159 DYSPROSIUM	6.985-07 6.985-07(100)	3.072-08 3.072-08(100)	3.000-07 3.000-07(100)	2.661-08 2.661-08(100)
TB-157 TB-158 TB-160 TERBIUM	1.430-10 8.167-11 3.618-03 3.618-03(85)	6.229-12 3.446-11 8.785-04 8.785-04(85)	5.434-10 7.154-10 3.646-03 3.646-03(85)	4.267-11 1.042-10 3.883-03 3.883-03(85)
GD-153 GADOLINIUM	2.023-05 2.023-05(100)	2.056-05 2.056-05(100)	5.661-06 5.661-06(100)	8.205-06 8.205-06(100)
EU-152 EU-154 EU-156 EU-156 EUROPIUM	5.180-04 8.660-03 1.365-03 4.146-04 1.098-02(81)	8.511-04 7.394-02 9.071-03 2.430-03 8.629-02(81)	4.483-04 1.651-01 1.926-02 4.556-03 1.894-01(81)	5.905-04 3.798-01 4.355-02 1.033-02 4.342-01(81)
SM-145 SM-151 SAMARIUM	8.656-07 1.016-04 1.025-04(2)	8.656-07 3.405-04 3.413-04(2)	1.304-06 3.489-04 3.502-04(2)	1.304-06 3.567-04 3.580-04(2)
PM-147 PM-148M PROMETHIUM	1.162-01 3.999-02 1.562-01(23)	5.281-01 2.048-01 7.329-01(26)	4.591-01 1.953-01 6.544-01(27)	3.039-01 1.366-01 4.405-01(29)
ND-147 NEODYMIUM	1.126-04 1.126-04(32)	2.447-04 2.447-04(32)	1.890-04 1.890-04(32)	5.239-05 5.239-05(32)
PR-144 PRASEODYMIUM	1.593-01 1.593-01(2)	6.945-01 6.945-01(2)	6.860-01 6.860-01(2)	4.807-01 4.807-01(2)
CE-141 CE-144 CERIUM	4.110-01 1.377-00 1.788-00(27)	7.374-01 6.005-00 6.743-00(26)	7.419-01 5.932-00 6.674-00(26)	1.531-01 4.157-00 4.310-00(26)
LA-137 LA-140 LANTHANUM	1.389-10 1.472-02 1.472-02(81)	6.042-12 2.494-02 2.494-02(81)	5.551-10 2.442-02 2.442-02(81)	4.009-11 5.034-03 5.034-03(81)
BA-137M BA-140 BARIUM	5.749-01 2.597-03 5.825-01(99)	2.321-00 4.401-03 2.326-00(99)	4.878-00 4.309-03 4.883-00(99)	6.370-00 8.881-04 6.371-00(99)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	1S FRESH U-235 F.E.		4S FRESH U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
CS=134	5.054=01	4.218+00	1.448+01	3.292+01
CS=137	1.524=01	6.101=01	1.282+00	1.674+00
CESIUM	6.578=01(69)	4.828+00(79)	1.576+01(83)	3.460+01(86)
XE=131M	3.997=06	5.530=06	6.591=06	1.138=06
XENON	3.997=06(100)	5.530=06(100)	6.591=06(100)	1.138=06(100)
I=129	4.005=08	7.115=08	3.306=07	1.905=07
I=131	5.425=06	7.350=06	8.851=06	1.516=06
IODINE	5.465=06(67)	7.421=06(67)	9.182=06(66)	1.706=06(64)
TE=125M	2.110=02	2.181=02	1.462=01	4.038=02
TE=127M	2.706=02	1.557=02	6.893=02	4.387=03
TE=127	6.683=02	3.842=02	1.701=01	1.082=02
TE=129M	1.494=01	1.328=01	2.666=01	2.723=02
TE=129	2.920=01	2.596=01	5.210=01	5.321=02
TELLURIUM	5.564=01(23)	4.682=01(23)	1.173+00(30)	1.360=01(43)
SB=124	5.836=04	2.673=04	1.827=03	1.161=03
SB=125	7.968=02	7.993=02	5.252=01	1.428=01
ANTIMONY	8.026=02(83)	8.020=02(83)	5.270=01(83)	1.439=01(83)
SN=119M	1.476=04	4.959=04	5.906=04	2.973=04
SN=121M	1.075=08	4.894=09	6.814=08	6.394=08
SN=123	2.323=02	3.639=02	6.406=02	1.082=02
TIN	2.338=02(1)	3.688=02(2)	6.465=02(2)	1.111=02(3)
IN=114M	7.589=04	3.355=06	5.870=04	4.718=06
IN=114	2.582=03	1.141=03	1.997=03	1.605=03
INDIUM	3.341=03(22)	1.477=03(22)	2.584=03(22)	2.077=03(22)
CD=115M	2.155=04	4.069=04	4.227=04	1.306=04
CADMIUM	2.155=04(5)	4.069=04(5)	4.227=04(5)	1.306=04(5)
AG=108M	1.386=06	6.769=08	4.774=06	3.806=07
AG=110M	1.754=03	6.521=03	2.224=02	2.595=02
SILVER	1.755=03(97)	6.521=03(97)	2.225=02(97)	2.595=02(97)
PD=107	1.294=09	7.979=09	1.092=08	2.170=08
PALLADIUM	1.294=09(49)	7.979=09(49)	1.092=08(49)	2.170=08(49)
RH=103M	3.560=02	1.396=01	6.862=02	2.831=02
RH=106	1.005=00	5.849=00	4.927=00	5.275=00
RHODIUM	1.040=00(15)	5.989=00(14)	4.996=00(15)	5.304=00(12)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
RU-103	4.966+01	1.956+00	9.612+01	3.965+01
RU-106	5.924+03	3.449+02	2.905+02	3.111+02
RUTHENIUM	5.045+01(86)	1.991+00(86)	9.903+01(85)	4.276+01(81)
TC-99	9.160+06	4.835+05	7.294+05	1.185+04
TECHNETIUM	9.160+06(0)	4.835+05(0)	7.294+05(0)	1.185+04(0)
NB-93M	3.328+08	1.528+07	6.353+07	1.258+06
NB-95M	2.375+00	6.246+00	5.066+00	1.308+00
NB-95	1.528+01	4.133+01	3.330+01	8.708+00
NIUBIUM	1.766+01(95)	4.758+01(95)	3.836+01(95)	1.002+01(95)
ZR-93	2.613+07	1.033+06	2.236+06	2.923+06
ZR-95	8.117+00	2.135+01	1.732+01	4.471+00
ZIRCONIUM	8.117+00(86)	2.135+01(86)	1.732+01(86)	4.471+00(86)
Y-90	8.853+01	3.330+00	7.389+00	9.052+00
Y-91	1.348+00	2.980+00	2.762+00	6.193+01
YTIRIUM	2.232+00(0)	6.309+00(0)	1.015+01(0)	9.671+00(0)
SR-89	3.780+00	6.901+00	7.491+00	1.402+00
SR-90	1.878+01	7.079+01	1.571+00	1.924+00
STRONTIUM	3.968+00(0)	7.608+00(0)	9.062+00(0)	3.327+00(0)
RB-86	8.567+05	2.315+05	1.942+04	6.080+05
RB-87	2.569+11	7.085+11	2.164+10	1.968+10
RUBIDIUM	8.567+05(12)	2.315+05(12)	1.942+04(12)	6.080+05(12)
KR-85	8.203+02	2.000+01	5.191+01	3.189+01
KRYPTON	8.203+02(0)	2.000+01(0)	5.191+01(0)	3.189+01(0)
SE-79	3.351+07	4.907+07	2.229+06	8.773+07
SELENIUM	3.351+07(0)	4.907+07(0)	2.229+06(0)	8.773+07(0)
NI-59	2.770+08	6.002+10	9.582+08	3.450+09
NI-63	8.211+06	1.795+07	2.788+05	1.004+06
NICKEL	8.239+06(0)	1.801+07(0)	2.798+05(0)	1.008+06(0)
CU-58	7.611+06	1.649+07	6.836+06	2.461+07
CU-60	2.859+06	6.163+08	8.464+06	3.065+07
COPALT	1.047+05(96)	2.265+07(96)	1.530+05(96)	5.526+07(96)
CL-36	6.591+07	0.000	2.154+06	0.000
CHLORINE	6.591+07(0)	0.000 (0)	2.154+06(0)	0.000 (0)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
S-35	3.041-04	3.294-07	2.807-04	5.083-07
SULFUR	3.041-04(0)	3.294-07(0)	2.807-04(0)	5.083-07(0)
C-14 FROM C	2.250-06	0.000	7.905-06	0.000
C-14 FROM N	3.606-07	1.414-09	1.270-06	8.467-09
C-14 FROM U	1.832-07	2.034-09	6.572-07	1.191-08
CARBON	2.794-06(0)	3.448-09(0)	9.832-06(0)	2.037-08(0)
H-3 FROM Li6	8.546-04	5.759-06	1.104-03	1.236-05
H-3 FROM B10	3.515-07	0.000	1.786-06	0.000
H-3 FROM YLD	1.745-05	7.511-05	1.419-04	1.928-04
TRITIUM	8.724-04(0)	8.087-05(0)	1.248-03(0)	2.052-04(0)
ALL ELEMENTS				
TOTAL BETA	2.870+01	9.937+01	1.059+02	7.444+01
TOTAL GAMMA	3.713+01	7.644+01	8.432+01	5.365+01
TOTAL ALPHA	8.247+02	1.778+01	3.800+01	4.443+00
GRAND TOTAL	6.591+01(56)	1.760+02(43)	1.906+02(44)	1.325+02(40)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		M3 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM-242	6.499-09	1.338-02	7.828-05	2.599-01
CM-243	7.324-09	3.593-06	3.684-08	2.460-04
CM-244	3.264-04	4.145-03	1.679-04	2.625-01
CURIUM	3.264-04(0)	1.753-02(0)	2.462-04(0)	5.226-01(0)
AM-241	7.248-09	9.112-04	3.089-06	4.189-03
AM-242M	2.487-11	1.147-07	3.141-09	1.078-06
AM-242	1.076-10	4.961-07	1.359-08	4.665-06
AM-243	2.630-06	6.500-05	2.636-07	1.214-03
AMERICIUM	2.638-06(1)	9.768-04(0)	3.369-06(0)	5.408-03(0)
PU-238	3.688-05	1.403-01	1.597-02	3.584-00
PU-239	4.861-09	8.699-04	4.331-06	2.512-03
PU-240	5.503-09	1.425-03	5.350-06	4.366-03
PU-241	2.447-09	4.580-04	1.506-06	1.831-03
PLUTONIUM	3.690-05(0)	1.431-01(0)	1.598-02(0)	3.593-00(0)
NP-237	1.353-08	3.446-05	2.259-06	2.527-04
NEPTUNIUM	1.353-08(0)	3.446-05(0)	2.259-06(0)	2.527-04(0)
U-232	1.726-02	1.847-06	8.173-02	1.332-05
U-233	3.737-02	3.608-10	5.831-02	7.376-10
U-234	1.778-03	4.787-04	8.062-03	4.090-04
U-235	4.422-08	1.165-05	5.575-07	2.661-06
U-236	5.612-08	7.309-05	2.840-06	1.792-04
U-238	0.000	2.111-07	0.000	2.818-07
URANIUM	5.641-02(0)	5.654-04(0)	1.481-01(0)	6.044-04(0)
PA-231	5.684-05	5.776-09	7.986-05	1.230-08
PA-233	1.068-01	8.178-12	8.772-02	1.070-10
PA-234	2.230-05	8.865-08	1.555-05	1.183-07
PROTACTINIUM	1.069-01(84)	9.443-08(83)	8.781-02(84)	1.308-07(80)
TH-228	6.586-03	7.079-07	4.464-02	7.389-06
TH-229	4.568-06	3.631-12	1.138-05	2.218-10
TH-230	3.843-04	1.482-08	1.572-04	1.983-08
TH-231	1.724-09	4.539-07	2.173-08	1.037-07
TH-232	2.475-05	0.000	2.100-05	0.000
TH-234	9.313-07	3.701-09	6.491-07	4.942-09
THORIUM	7.001-03(0)	1.180-06(21)	4.483-02(0)	7.518-06(1)
AC-225	5.305-06	4.216-12	1.321-05	2.575-10
AC-227	7.422-08	4.270-12	1.174-07	1.233-11

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AC-228	2.845-06	0.000	3.487-06	0.000
ACTINIUM	8.224-06(25)	8.487-12(3)	1.681-05(15)	2.698-10(0)
RA-223	5.075-06	2.807-10	8.028-06	8.220-10
RA-224	6.895-03	7.411-07	4.673-02	7.735-06
RA-225	1.194-07	9.493-14	2.974-07	5.798-12
RA-226	2.765-08	0.000	3.388-08	0.000
RADIUM	6.900-03(0)	7.414-07(0)	4.674-02(0)	7.736-06(0)
FR-221	5.772-06	4.587-12	1.437-05	2.802-10
FR-223	5.692-09	3.148-13	9.003-09	9.218-13
FRANCIUM	5.777-06(0)	4.902-12(1)	1.438-05(0)	2.811-10(0)
RN-219	5.896-06	3.261-10	9.326-06	9.548-10
RN-220	7.635-03	8.207-07	5.175-02	8.566-06
RADON	7.641-03(0)	8.210-07(0)	5.176-02(0)	8.567-06(0)
AT-217	6.437-06	5.116-12	1.603-05	3.124-10
AT-218	1.792-10	0.000	1.471-10	0.000
ASTATINE	6.437-06(0)	5.116-12(0)	1.603-05(0)	3.124-10(0)
PO-210	8.361-06	1.050-09	9.432-06	2.224-09
PO-212	6.761-03	7.268-07	4.605-02	7.622-06
PO-213	7.635-06	6.068-12	1.901-05	3.706-10
PO-215	6.387-06	3.532-10	1.010-05	1.034-09
PO-216	8.239-03	8.856-07	5.584-02	9.243-06
POLONIUM	1.502-02(0)	1.614-06(0)	1.019-01(0)	1.687-05(0)
BI-211	5.712-06	3.159-10	9.036-06	9.251-10
BI-212	3.434-03	3.692-07	2.328-02	3.853-06
BI-213	6.676-07	5.306-13	1.662-06	3.240-11
BISMUTH	3.441-03(4)	3.695-07(4)	2.329-02(4)	3.854-06(4)
PB-209	1.858-07	1.476-13	4.626-07	9.017-12
PB-211	4.670-07	2.583-11	7.387-07	7.563-11
PB-212	3.861-04	4.150-08	2.617-03	4.331-07
LEAD	3.867-04(66)	4.153-08(66)	2.618-03(66)	4.332-07(66)
TL-207	4.597-07	2.542-11	7.271-07	7.444-11
TL-208	1.710-03	1.838-07	1.164-02	1.927-06
THALLIUM	1.710-03(84)	1.838-07(84)	1.164-02(84)	1.927-06(84)
DY-159	2.863-07	1.259-08	1.230-07	1.091-08
DYSPROSIUM	2.863-07(100)	1.259-08(100)	1.230-07(100)	1.091-08(100)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TB-157	1.427-10	6.214-12	5.422-10	4.258-11
TB-158	8.148-11	3.438-11	7.137-10	1.039-10
TB-160	6.081-04	1.476-04	6.128-04	6.527-04
TERBIUM	6.081-04(85)	1.476-04(85)	6.128-04(85)	6.527-04(85)
GD-153	1.190-05	1.209-05	3.330-06	4.827-06
GADOLINIUM	1.190-05(100)	1.209-05(100)	3.330-06(100)	4.827-06(100)
EU-152	5.038-04	8.279-04	4.361-04	5.744-04
EU-154	8.472-03	7.234-02	1.615-01	3.715-01
EU-155	1.140-03	7.471-03	1.588-02	3.586-02
EU-156	9.921-08	5.814-07	1.090-06	2.471-06
EUROPIUM	1.012-02(81)	8.064-02(81)	1.778-01(81)	4.080-01(81)
SM-145	5.933-07	5.933-07	8.936-07	8.936-07
SM-151	1.012-04	3.391-04	3.475-04	3.553-04
SAMARIUM	1.018-04(2)	3.397-04(2)	3.484-04(2)	3.562-04(2)
PM-147	1.016-01	4.619-01	4.015-01	2.658-01
PM-148M	1.853-03	9.486-03	9.048-03	6.328-03
PROMETHIUM	1.035-01(1)	4.713-01(2)	4.105-01(2)	2.721-01(2)
ND-147	1.022-09	2.221-09	1.716-09	4.756-10
NEODYMIUM	1.022-09(32)	2.221-09(32)	1.716-09(32)	4.756-10(32)
PR-144	1.014-01	4.419-01	4.365-01	3.059-01
PRASEODYMIUM	1.014-01(2)	4.419-01(2)	4.365-01(2)	3.059-01(2)
CE-141	7.905-03	1.418-02	1.427-02	2.944-03
CE-144	8.765-01	3.821-00	3.774-00	2.645-00
CERIUM	8.844-01(25)	3.835-00(25)	3.789-00(25)	2.648-00(25)
LA-137	1.389-10	6.042-12	5.551-10	4.009-11
LA-140	6.479-07	1.098-06	1.075-06	2.215-07
LANTHANUM	6.480-07(81)	1.098-06(81)	1.075-06(81)	2.216-07(81)
BA-137M	5.732-01	2.294-00	4.822-00	6.296-00
BA-140	1.143-07	1.937-07	1.897-07	3.909-08
BARIUM	5.732-01(99)	2.294-00(99)	4.822-00(99)	6.296-00(100)
CS-134	4.257-01	3.552-00	1.219-01	2.773-01
CS-137	1.507-01	6.030-01	1.267-00	1.655-00
CESIUM	5.763-01(67)	4.155-00(77)	1.346-01(82)	2.938-01(85)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
XE=131M XENON	7.572-11 7.572-11(100)	1.048-10 1.048-10(100)	1.249-10 1.249-10(100)	2.156-11 2.156-11(100)
I=129 I=131 IODINE	4.033-08 6.432-13 4.034-08(39)	7.140-08 6.714-13 7.140-08(39)	3.311-07 1.049-12 3.311-07(39)	1.906-07 0.000 1.906-07(39)
TE=125M TE=127M TE=127 TE=129M TE=129 TELLURIUM	1.970-02 6.340-03 2.058-02 3.464-03 6.768-03 5.885-02(50)	1.983-02 4.795-03 1.183-02 3.079-03 6.016-03 4.555-02(57)	1.306-01 2.123-02 5.237-02 6.180-03 1.208-02 2.225-01(69)	3.558-02 1.351-03 3.333-03 6.312-04 1.233-03 4.213-02(88)
SB=124 SB=125 ANTIMONY	6.922-05 6.999-02 7.005-02(83)	3.171-05 7.021-02 7.024-02(83)	2.167-04 4.613-01 4.615-01(83)	1.377-04 1.254-01 1.255-01(83)
SN=119M SN=121M SN=123 TIN	8.831-05 1.070-08 8.317-03 8.405-03(2)	2.968-04 4.871-09 1.303-02 1.333-02(3)	3.535-04 6.763-08 2.294-02 2.329-02(2)	1.779-04 6.364-08 3.872-03 4.050-03(5)
IN=114M IN=114 INDIUM	5.677-05 1.931-04 2.499-04(22)	2.510-07 6.537-07 1.105-06(22)	4.391-05 1.494-04 1.933-04(22)	3.529-07 1.200-06 1.553-06(22)
CD=115M CADMIUM	1.089-05 1.089-05(5)	2.056-05 2.056-05(5)	2.136-05 2.136-05(5)	6.601-06 6.601-06(5)
AG=108M AG=110M SILVER	1.383-06 1.060-03 1.061-03(97)	6.751-08 3.942-03 3.942-03(97)	4.761-06 1.345-02 1.345-02(97)	3.796-07 1.569-02 1.569-02(97)
PD=107 PALLADIUM	1.294-09 1.294-09(49)	7.979-09 7.979-09(49)	1.092-08 1.092-08(49)	2.170-08 2.170-08(49)
RH=103M RH=106 RHODIUM	1.413-03 7.089-01 7.103-01(12)	5.542-03 4.127-00 4.133-00(12)	2.723-03 3.477-00 3.479-00(12)	1.124-03 3.722-00 3.723-00(12)
RU=103 RU=106 RUTHENIUM	1.979-02 4.180-03 2.397-02(72)	7.763-02 2.434-02 1.020-01(66)	3.815-02 2.050-02 5.865-02(57)	1.574-02 2.195-02 3.769-02(36)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TC-99	9.160+06	4.835+05	7.294+05	1.185+04
TECHNETIUM	9.160+06(0)	4.835+05(0)	7.294+05(0)	1.185+04(0)
NB-93M	3.382+08	2.335+07	8.022+07	1.465+06
NB-95M	3.348+01	8.806+01	7.142+01	1.844+01
NB-95	2.417+00	8.387+00	5.175+00	1.339+00
NIUBIUM	2.752+00(95)	7.268+00(95)	5.889+00(95)	1.523+00(95)
ZR-93	2.613+07	1.033+06	2.236+06	2.923+06
ZR-95	1.144+00	3.010+00	2.441+00	6.303+01
ZIRCUNIUM	1.144+00(86)	3.010+00(86)	2.441+00(86)	6.303+01(86)
Y-90	8.721+01	3.288+00	7.296+00	8.937+00
Y-91	1.474+01	3.257+01	3.019+01	6.769+02
YTRIUM	1.020+00(0)	3.613+00(0)	7.598+00(0)	9.005+00(0)
SR-89	3.308+01	6.038+01	6.555+01	1.227+01
SR-90	1.854+01	6.990+01	1.551+00	1.900+00
STRONTIUM	5.162+01(0)	1.303+00(0)	2.207+00(0)	2.023+00(0)
RB-86	8.787+08	2.375+08	1.992+07	6.236+08
RB-87	2.569+11	7.085+11	2.164+10	1.968+10
RUBIDIUM	8.789+08(12)	2.382+08(12)	1.994+07(12)	6.256+08(12)
KR-85	7.940+02	1.936+01	5.024+01	3.087+01
KRYPTON	7.940+02(0)	1.936+01(0)	5.024+01(0)	3.087+01(0)
SE-79	3.351+07	4.907+07	2.229+06	8.773+07
SELENIUM	3.351+07(0)	4.907+07(0)	2.229+06(0)	8.773+07(0)
NI-59	2.770+08	6.002+10	9.582+08	3.450+09
NI-63	8.180+06	1.788+07	2.777+05	1.001+06
NICKEL	8.208+06(0)	1.794+07(0)	2.787+05(0)	1.004+06(0)
CU-58	1.259+06	2.729+08	1.131+06	4.072+08
CU-60	2.674+06	5.764+08	7.917+06	2.866+07
COBALT	3.934+06(96)	8.493+08(96)	9.048+06(96)	3.274+07(96)
CL-36	6.591+07	0.000	2.134+06	0.000
CHLORINE	6.591+07(0)	0.000 (0)	2.134+06(0)	0.000 (0)
S-35	6.973+05	7.554+08	6.436+05	1.166+07
SULFUR	6.973+05(0)	7.554+08(0)	6.436+05(0)	1.166+07(0)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E.		M8 FRESH U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
C-14 FROM C	2.250-06	0.000	7.905-06	0.000
C-14 FROM N	3.606-07	1.414-09	1.270-06	8.466-09
C-14 FROM U	1.832-07	2.034-09	6.571-07	1.191-08
CARBON	2.794-06(0)	3.448-09(0)	9.832-06(0)	2.037-08(0)
H-3 FROM Li6	8.306-04	5.597-06	1.073-03	1.201-05
H-3 FROM B10	3.416-07	0.000	1.736-06	0.000
H-3 FISS YLD	1.696-05	7.300-05	1.379-04	1.874-04
TRITIUM	8.479-04(0)	7.860-05(0)	1.212-03(0)	1.994-04(0)
ALL ELEMENTS				
TOTAL BETA	1.344+01	5.695+01	6.242+01	5.120+01
TOTAL GAMMA	5.341+00	1.783+01	2.690+01	3.584+01
TOTAL ALPHA	9.592-02	1.615-01	4.270-01	4.114+00
GRAND TOTAL	1.887+01(28)	7.494+01(23)	8.974+01(29)	9.115+01(39)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER P.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM-242	2.558-09	6.085-04	3.763-06	1.172-02
CM-243	7.014-09	3.441-06	3.527-08	2.356-04
CM-244	3.021-04	3.836-03	1.554-04	2.429-01
CURIUM	3.021-04(0)	4.448-03(0)	1.592-04(0)	2.549-01(0)
AM-241	1.491-08	2.347-03	7.811-06	9.927-03
AM-242M	2.466-11	1.136-07	3.112-09	1.068-06
AM-242	1.067-10	4.916-07	1.347-08	4.623-06
AM-243	2.630-06	6.498-05	2.635-07	1.213-03
AMERICIUM	2.645-06(1)	2.413-03(0)	6.091-06(0)	1.115-02(0)
PU-238	3.631-05	1.381-01	1.572-02	3.528-00
PU-239	4.861-09	8.698-04	4.331-06	2.512-03
PU-240	5.501-09	1.424-03	5.349-06	4.365-03
PU-241	2.231-09	4.176-04	1.373-06	1.669-03
PLUTONIUM	3.632-05(0)	1.409-01(0)	1.573-02(0)	3.537-00(0)
NP-237	1.353-08	3.446-05	2.259-06	2.527-04
NEPTUNIUM	1.353-08(0)	3.446-05(0)	2.259-06(0)	2.527-04(0)
U-232	1.693-02	1.812-06	6.017-02	1.306-05
U-233	3.737-02	3.608-10	5.831-02	7.376-10
U-234	1.778-03	4.786-04	8.062-03	4.090-04
U-235	4.422-08	1.165-05	5.575-07	2.661-06
U-236	5.612-08	7.309-05	2.840-06	1.792-04
U-238	0.000	2.111-07	0.000	2.818-07
URANIUM	5.608-02(0)	5.654-04(0)	1.465-01(0)	6.042-04(0)
PA-231	5.684-05	6.326-09	7.986-05	1.242-08
PA-233	7.646-10	0.000	6.281-10	0.000
PA-234	0.000	8.865-08	0.000	1.183-07
PROTACTINIUM	5.684-05(1)	9.497-08(82)	7.986-05(1)	1.308-07(80)
TH-228	1.219-02	1.306-06	6.421-02	1.052-05
TH-229	1.193-05	3.701-12	2.286-05	2.219-10
TH-230	3.843-04	2.294-08	1.574-04	2.677-08
TH-231	1.724-09	4.539-07	2.173-08	1.037-07
TH-232	2.475-05	0.000	2.100-05	0.000
TH-234	0.000	3.701-09	0.000	4.942-09
THORIUM	1.261-02(0)	1.786-06(14)	6.441-02(0)	1.065-05(0)
AC-225	1.386-05	4.298-12	2.655-05	2.576-10
AC-227	6.961-08	1.033-11	1.101-07	2.448-11

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AC-228	3.971-06	0.000	4.242-06	0.000
ACTINIUM	1.790-05(16)	1.463-11(4)	3.090-05(10)	2.821-10(1)
RA-223	4.760-06	6.997-10	7.529-06	1.664-09
RA-224	1.276-02	1.367-06	6.722-02	1.101-05
RA-225	3.120-07	9.678-14	5.978-07	5.801-12
RA-226	3.859-08	0.000	4.122-08	0.000
RADIUM	1.276-02(0)	1.368-06(0)	6.723-02(0)	1.101-05(0)
FR-221	1.508-05	4.676-12	2.889-05	2.803-10
FR-223	5.338-09	7.846-13	8.443-09	1.866-12
FRANCIUM	1.508-05(0)	5.461-12(3)	2.890-05(0)	2.822-10(0)
RN-219	5.529-06	8.128-10	8.747-06	1.933-09
RN-220	1.413-02	1.514-06	7.444-02	1.219-05
RADON	1.413-02(0)	1.515-06(0)	7.445-02(0)	1.220-05(0)
AT-217	1.681-05	5.215-12	3.222-05	3.126-10
AT-218	2.671-10	0.000	1.830-10	0.000
ASTATINE	1.681-05(0)	5.215-12(0)	3.222-05(0)	3.126-10(0)
PO-210	3.273-07	4.603-11	7.962-07	2.103-10
PO-212	1.260-02	1.351-06	6.647-02	1.089-05
PO-213	1.994-05	6.186-12	3.821-05	3.708-10
PO-215	5.990-06	8.804-10	9.475-06	2.094-09
PO-216	1.524-02	1.633-06	8.032-02	1.316-05
POLONIUM	2.787-02(0)	2.985-06(0)	1.468-01(0)	2.405-05(0)
BI-211	5.357-06	7.875-10	8.474-06	1.873-09
BI-212	6.354-03	6.809-07	3.348-02	5.485-06
BI-213	1.744-06	5.409-13	3.341-06	3.242-11
BISMUTH	6.361-03(4)	6.817-07(4)	3.350-02(4)	5.487-06(4)
PB-209	4.852-07	1.505-13	9.298-07	9.021-12
PB-211	4.380-07	6.438-11	6.928-07	1.531-10
PB-212	7.143-04	7.654-08	3.764-03	6.166-07
LEAD	7.152-04(66)	7.661-08(66)	3.766-03(66)	6.168-07(66)
TL-207	4.311-07	6.337-11	6.819-07	1.507-10
TL-208	3.187-03	3.415-07	1.681-02	2.753-06
THALLIUM	3.187-03(84)	3.416-07(84)	1.681-02(84)	2.753-06(84)
DY-159	8.501-09	3.739-10	3.651-09	3.238-10
DYSPROSIUM	8.501-09(100)	3.739-10(100)	3.651-09(100)	3.238-10(100)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E.		M8 FRESH U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
TB-157	1.414-10	6.157-12	5.372-10	4.218-11
TB-158	8.073-11	3.406-11	7.071-10	1.030-10
TB-160	5.366-07	1.303-07	5.408-07	5.760-07
TERBIUM	5.369-07(85)	1.303-07(85)	5.421-07(85)	5.761-07(85)
GD-153	1.468-06	1.492-06	4.109-07	5.955-07
GADOLINIUM	1.468-06(100)	1.492-06(100)	4.109-07(100)	5.955-07(100)
EU-152	4.518-04	7.423-04	3.910-04	5.150-04
EU-154	7.769-03	6.634-02	1.481-01	3.407-01
EU-155	5.305-04	3.475-03	7.385-03	1.668-02
EUROPIUM	8.751-03(82)	7.055-02(82)	1.559-01(82)	3.579-01(82)
SM-145	1.338-07	1.338-07	2.015-07	2.015-07
SM-151	9.963-05	3.337-04	3.420-04	3.497-04
SAMARIUM	9.976-05(2)	3.338-04(2)	3.422-04(2)	3.499-04(2)
PM-147	5.989-02	2.722-01	2.366-01	1.566-01
PM-148M	1.015-08	5.198-08	4.958-08	3.467-08
PROMETHIUM	5.989-02(0)	2.722-01(0)	2.366-01(0)	1.566-01(0)
PR-144	1.704+00	7.430+00	7.340+00	5.143+00
PRASEODYMIUM	1.704+00(2)	7.430+00(2)	7.340+00(2)	5.143+00(2)
CE-141	1.352-09	2.427-09	2.442-09	5.038-10
CE-144	1.474-01	6.425-01	6.347-01	4.448-01
CERIUM	1.474-01(25)	6.425-01(25)	6.347-01(25)	4.448-01(25)
LA-137	1.388-10	6.040-12	5.550-10	4.008-11
LANTHANUM	1.388-10(100)	6.040-12(100)	5.550-10(100)	4.008-11(100)
BA-137M	5.473-01	2.191+00	4.604+00	6.011+00
BARIUM	5.473-01(100)	2.191+00(100)	4.604+00(100)	6.011+00(100)
CS-134	2.162-01	1.805+00	6.195+00	1.409+01
CS-137	1.439-01	5.758-01	1.210+00	1.580+00
CESIUM	3.601-01(54)	2.380+00(68)	7.405+00(75)	1.567+01(81)
I-129	4.034-08	7.141-08	3.311-07	1.906-07
IODINE	4.034-08(39)	7.141-08(39)	3.311-07(39)	1.906-07(39)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
TE-125M	1.191-02	1.195-02	7.852-02	2.134-02
TE-127M	8.015-05	4.608-05	2.040-04	1.298-05
TE-127	1.978-04	1.137-04	5.033-04	3.204-05
TE-129M	1.236-09	1.099-09	2.206-09	2.253-10
TE-129	2.416-09	2.147-09	4.310-09	4.402-10
TELLURIUM	1.219-02(98)	1.211-02(99)	7.922-02(99)	2.139-02(99)
SB-124	1.545-08	7.077-09	4.837-08	3.073-08
SB-125	4.197-02	4.210-02	2.766-01	7.520-02
ANTIMONY	4.197-02(83)	4.210-02(83)	2.766-01(83)	7.520-02(83)
SN-119M	1.166-05	3.918-05	4.666-05	2.348-05
SN-121M	1.051-08	4.783-09	6.660-08	6.249-08
SN-123	1.448-04	2.269-04	3.995-04	6.744-05
TIN	1.565-04(8)	2.661-04(15)	4.462-04(11)	9.099-05(26)
IN-114M	2.057-09	9.095-12	1.591-09	1.279-11
IN-114	6.998-09	3.094-11	5.413-09	4.351-11
INDIUM	9.055-09(22)	4.003-11(22)	7.004-09(22)	5.629-11(22)
CD-115M	8.409-11	1.587-10	1.649-10	5.095-11
CADMIUM	8.409-11(5)	1.587-10(5)	1.649-10(5)	5.095-11(5)
AG-108M	1.368-06	6.679-08	4.711-06	3.756-07
AG-110M	1.456-04	5.414-04	1.847-03	2.155-03
SILVER	1.470-04(97)	5.415-04(97)	1.852-03(97)	2.155-03(97)
PD-107	1.294-09	7.979-09	1.092-08	2.170-08
PALLADIUM	1.294-09(49)	7.979-09(49)	1.092-08(49)	2.170-08(49)
RH-103M	4.205-09	1.649-08	8.105-09	3.344-09
RH-106	1.792-01	1.043+00	8.787-01	9.407-01
RHODIUM	1.792-01(12)	1.043+00(12)	8.787-01(12)	9.407-01(12)
RU-103	5.890-08	2.310-07	1.135-07	4.684-08
RU-106	1.056-03	6.151-03	5.181-03	5.547-03
RUTHENIUM	1.057-03(0)	6.151-03(0)	5.181-03(0)	5.547-03(0)
TC-99	9.160-06	4.835-05	7.294-05	1.185-04
TECHNETIUM	9.160-06(0)	4.835-05(0)	7.294-05(0)	1.185-04(0)
NB-93M	1.299-07	5.319-07	1.420-06	2.233-06
NB-95M	1.477-04	3.886-04	3.152-04	8.137-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE *****	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. *****		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
NB-95	1.092-03	2.873-03	2.330-03	6.016-04
NIUBIUM	1.240-03(95)	3.262-03(95)	2.647-03(95)	6.852-04(95)
ZR-93	2.613-07	1.033-06	2.236-06	2.923-06
ZR-95	5.050-04	1.328-03	1.077-03	2.781-04
ZIRCONIUM	5.053-04(86)	1.329-03(86)	1.080-03(86)	2.811-04(85)
Y-90	8.296-01	3.127-00	6.940-00	8.501-00
Y-91	2.384-05	5.269-05	4.884-05	1.095-05
YTTRIUM	8.296-01(0)	3.127-00(0)	6.940-00(0)	8.501-00(0)
SR-89	2.225-05	4.062-05	4.409-05	8.255-06
SR-90	1.764-01	6.648-01	1.476-00	1.807-00
STRONTIUM	1.764-01(0)	6.649-01(0)	1.476-00(0)	1.807-00(0)
RB-87	2.569-11	7.085-11	2.164-10	1.968-10
RUBIDIUM	2.569-11(0)	7.085-11(0)	2.164-10(0)	1.968-10(0)
KR-85	6.979-02	1.702-01	4.416-01	1.769-01
KRYPTON	6.979-02(0)	1.702-01(0)	4.416-01(0)	1.769-01(0)
SE-79	3.350-07	4.907-07	2.229-06	8.773-07
SELENIUM	3.350-07(0)	4.907-07(0)	2.229-06(0)	8.773-07(0)
NI-59	2.770-08	6.002-10	9.582-08	3.450-09
NI-63	8.058-06	1.762-07	2.736-05	9.856-07
NICKEL	8.085-06(0)	1.768-07(0)	2.745-05(0)	9.891-07(0)
CU-58	1.045-09	2.263-11	9.383-10	3.378-11
CO-60	2.054-06	4.428-08	6.081-06	2.202-07
CUBACT	2.055-06(96)	4.430-08(96)	6.082-06(96)	2.202-07(96)
CL-36	6.591-07	0.000	2.134-06	0.000
CHLORINE	6.591-07(0)	0.000 (0)	2.134-06(0)	0.000 (0)
S-35	2.095-07	2.270-10	1.934-07	3.502-10
SULFUR	2.095-07(0)	2.270-10(0)	1.934-07(0)	3.502-10(0)
C-14 FROM C	2.249-06	0.000	7.902-06	0.000
C-14 FROM N	3.605-07	1.414-09	1.270-06	8.464-09
C-14 FROM U	1.832-07	2.033-09	6.570-07	1.190-08
CARBON	2.793-06(0)	3.447-09(0)	9.829-06(0)	2.037-08(0)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELUAD 1 AND WAS
ORIGINALLY LOADED AT RELUAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELUAD 5 AND WAS
ORIGINALLY LOADED AT RELUAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
H-3 FROM LI6	7.422-04	5.002-06	9.587-04	1.073-05
H-3 FROM B10	3.052-07	0.000	1.551-06	0.000
H-3 FISSION YLD	1.515-05	6.523-05	1.232-04	1.674-04
TRITIUM	7.577-04(0)	7.024-05(0)	1.084-03(0)	1.782-04(0)
ALL ELEMENTS				
TOTAL BETA	3.242+00	1.365+01	1.937+01	1.978+01
TOTAL GAMMA	9.049+01	4.412+00	1.114+01	1.953+01
TOTAL ALPHA	1.286+01	1.477+01	5.405+01	3.798+00
GRAND TOTAL	4.275+00(21)	1.821+01(24)	3.105+01(35)	4.311+01(45)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATIS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CM-242	2.535-04	3.664-05	4.261-07	6.130-04
CM-243	6.716-09	3.295-06	3.378-08	2.256-04
CM-244	2.796-04	3.551-03	1.438-04	2.248-01
CURNIUM	2.796-04(0)	3.590-03(0)	1.443-04(0)	2.257-01(0)
AM-241	2.188-08	3.652-03	1.210-05	1.514-02
AM-242M	2.442-11	1.126-07	3.084-09	1.059-06
AM-242	1.056-10	4.872-07	1.334-08	4.581-06
AM-243	2.629-06	6.497-05	2.635-07	1.213-03
AMERICIUM	2.651-06(1)	3.717-03(0)	1.238-05(0)	1.636-02(0)
PU-238	3.574-05	1.360-01	1.547-02	3.473-00
PU-239	4.860-09	8.698-04	4.330-06	2.512-03
PU-240	5.500-09	1.424-03	5.348-06	4.364-03
PU-241	2.034-09	3.807-04	1.252-06	1.522-03
PLUTONIUM	3.575-05(0)	1.387-01(0)	1.548-02(0)	3.481-00(0)
NP-237	1.353-08	3.446-05	2.259-06	2.527-04
NEPTUNIUM	1.353-08(0)	3.446-05(0)	2.259-06(0)	2.527-04(0)
U-232	1.661-02	1.778-06	7.864-02	1.281-05
U-233	3.737-02	3.608-10	5.831-02	7.376-10
U-234	1.778-03	4.786-04	8.062-03	4.090-04
U-235	4.422-08	1.165-05	5.575-07	2.661-06
U-236	5.612-08	7.309-05	2.840-06	1.792-04
U-238	0.000	2.111-07	0.000	2.818-07
URANIUM	5.575-02(0)	5.654-04(0)	1.450-01(0)	6.039-04(0)
PA-231	5.683-05	6.876-09	7.986-05	1.255-08
PA-234	0.000	8.865-08	0.000	1.183-07
PROTACTINIUM	5.683-05(1)	9.552-08(82)	7.986-05(1)	1.309-07(80)
TH-228	1.472-02	1.577-06	7.287-02	1.190-05
TH-229	1.929-05	3.772-12	3.435-05	2.220-10
TH-230	3.843-04	3.106-08	1.575-04	3.370-08
TH-231	1.724-09	4.539-07	2.173-08	1.037-07
TH-232	2.475-05	0.000	2.100-05	0.000
TH-234	0.000	3.701-09	0.000	4.942-09
THORIUM	1.515-02(0)	2.065-06(12)	7.308-02(0)	1.204-05(0)
AC-225	2.241-05	4.380-12	3.989-05	2.577-10
AC-227	6.528-08	1.659-11	1.033-07	3.601-11
AC-228	4.880-06	0.000	4.856-06	0.000
ACTINIUM	2.736-05(13)	2.097-11(5)	4.485-05(8)	2.936-10(1)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
RA=223	4.464-06	1.132-09	7.061-06	2.463-09
RA=224	1.541-02	1.651-06	7.629-02	1.246-05
RA=225	5.045-07	9.862-14	8.981-07	5.803-12
RA=228	4.749-08	0.000	4.719-08	0.000
RADIUM	1.542-02(0)	1.652-06(0)	7.629-02(0)	1.246-05(0)
FR=221	2.438-05	4.765-12	4.340-05	2.804-10
FR=223	5.006-09	1.270-12	7.919-09	2.763-12
FRANCIUM	2.438-05(0)	6.035-12(4)	4.341-05(0)	2.832-10(0)
RN=219	5.186-06	1.315-09	8.202-06	2.862-09
RN=220	1.707-02	1.828-06	8.448-02	1.380-05
RADON	1.707-02(0)	1.829-06(0)	8.449-02(0)	1.380-05(0)
AT=217	2.719-05	5.314-12	4.840-05	3.127-10
AT=218	3.549-10	0.000	2.189-10	0.000
ASTATINE	2.719-05(0)	5.314-12(0)	4.840-05(0)	3.127-10(0)
PO=210	1.134-07	0.000	5.378-07	0.000
PO=212	1.525-02	1.633-06	7.552-02	1.233-05
PO=213	3.225-05	6.303-12	5.741-05	3.709-10
PU=215	5.617-06	1.425-09	8.885-06	3.100-09
PO=216	1.842-02	1.972-06	9.115-02	1.489-05
POLONIUM	3.371-02(0)	3.607-06(0)	1.667-01(0)	2.722-05(0)
BI=211	5.024-06	1.274-09	7.947-06	2.773-09
BI=212	7.678-03	8.222-07	3.800-02	6.206-06
BI=213	2.820-06	5.512-13	5.020-06	3.243-11
BISMUTH	7.685-03(4)	8.235-07(4)	3.801-02(4)	6.209-06(4)
PB=209	7.846-07	1.534-13	1.397-06	9.023-12
PB=211	4.107-07	1.042-10	6.497-07	2.267-10
PB=212	8.631-04	9.243-08	4.272-03	6.976-07
LEAD	8.643-04(66)	9.253-08(66)	4.274-03(66)	6.979-07(66)
TL=207	4.043-07	1.026-10	6.395-07	2.231-10
TL=208	3.856-03	4.130-07	1.909-02	3.118-06
THALLIUM	3.856-03(84)	4.131-07(84)	1.909-02(84)	3.118-06(84)
UY=159	2.524-10	1.110-11	1.084-10	9.617-12
DYSPRISIUM	2.524-10(100)	1.110-11(100)	1.084-10(100)	9.617-12(100)
TB=157	1.401-10	6.100-12	5.322-10	4.180-11

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E.		M8 FRESH U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
TB-158	7.999-11	3.375-11	7.007-10	1.020-10
TB-160	4.738-10	1.150-10	4.775-10	5.085-10
TERBIUM	6.939-10(89)	1.549-10(87)	1.710-09(93)	6.524-10(87)
GD-153	1.812-07	1.841-07	5.070-08	7.348-08
GADOLINIUM	1.812-07(100)	1.841-07(100)	5.070-08(100)	7.348-08(100)
EU-152	4.051-04	6.656-04	3.506-04	4.618-04
EU-154	7.125-03	6.084-02	1.358-01	3.125-01
EU-155	2.467-04	1.616-03	3.435-03	7.759-03
EUROPIUM	7.777-03(83)	6.312-02(83)	1.396-01(83)	3.207-01(83)
SM-145	3.018-08	3.018-08	4.545-08	4.545-08
SM-151	9.806-05	3.284-04	3.366-04	3.442-04
SAMARIUM	9.809-05(2)	3.285-04(2)	3.366-04(2)	3.442-04(2)
PM-147	3.529-02	1.604-01	1.394-01	9.231-02
PROMETHIUM	3.529-02(0)	1.604-01(0)	1.394-01(0)	9.231-02(0)
PR-144	2.866-01	1.250+00	1.234+00	8.649-01
PRASEODYMIUM	2.866-01(2)	1.250+00(2)	1.234+00(2)	8.649-01(2)
CE-144	2.479-02	1.081-01	1.067-01	7.480-02
CERIUM	2.479-02(25)	1.081-01(25)	1.067-01(25)	7.480-02(25)
LA-137	1.388-10	6.039-12	5.548-10	4.007-11
LANTHANUM	1.388-10(100)	6.039-12(100)	5.548-10(100)	4.007-11(100)
BA-137M	5.226-01	2.092+00	4.396+00	5.740+00
BARIUM	5.226-01(100)	2.092+00(100)	4.396+00(100)	5.740+00(100)
CS-134	1.098-01	9.167-01	3.147+00	7.156+00
CS-137	1.374-01	5.498-01	1.156+00	1.509+00
CESIUM	2.472-01(40)	1.467+00(56)	4.303+00(66)	8.665+00(74)
I-129	4.034-08	7.141-08	3.311-07	1.906-07
IODINE	4.034-08(39)	7.141-08(39)	3.311-07(39)	1.906-07(39)
TE-125M	7.142-03	7.165-03	4.708-02	1.280-02
TE-127M	7.705-07	4.430-07	1.961-06	1.248-07
TE-127	1.901-06	1.093-06	4.838-06	5.079-07

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	IS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.
TELLURIUM	7.145+03(99)	7.167+03(99)	4.709+02(99)	1.280+02(99)
88=124	3.450+12	1.580+12	1.080+11	6.862+12
88=125	2.516+02	2.524+02	1.659+01	4.509+02
ANTIMONY	2.516+02(83)	2.524+02(83)	1.659+01(83)	4.509+02(83)
8N=119M	1.539+06	5.173+06	6.161+06	3.101+06
8N=121M	1.032+08	4.647+09	6.540+08	6.136+08
8N=123	2.523+06	3.953+06	6.959+06	1.175+06
TIN	4.073+06(38)	9.130+06(57)	1.319+05(47)	4.337+06(72)
AG=108M	1.354+06	6.608+08	4.661+06	3.716+07
AG=110M	2.000+05	7.439+05	2.537+04	2.960+04
SILVER	2.136+05(97)	7.445+05(97)	2.584+04(97)	2.964+04(97)
PD=107	1.294+09	7.979+09	1.092+08	2.170+08
PALLADIUM	1.294+09(49)	7.979+09(49)	1.092+08(49)	2.170+08(49)
RH=103M	0.000	4.913+14	2.414+14	0.000
RH=106	4.529+02	2.637+01	2.221+01	2.378+01
RHODIUM	4.529+02(12)	2.637+01(12)	2.221+01(12)	2.378+01(12)
RU=103	0.000	6.882+13	3.382+13	0.000
RU=106	2.670+04	1.555+03	1.310+03	1.402+03
RUTHENIUM	2.670+04(0)	1.555+03(0)	1.310+03(0)	1.402+03(0)
TC=99	9.160+06	4.835+05	7.294+05	1.185+04
TECHNETIUM	9.160+06(0)	4.835+05(0)	7.294+05(0)	1.185+04(0)
NB=93M	1.985+07	6.015+07	1.977+06	2.925+06
NB=95M	6.523+08	1.716+07	1.392+07	3.593+08
NB=95	4.823+07	1.268+06	1.029+06	2.656+07
NIUBIUM	7.460+07(96)	2.242+06(96)	3.145+06(96)	3.227+06(99)
ZR=93	2.613+07	1.033+06	2.236+06	2.923+06
ZR=95	2.230+07	5.864+07	4.756+07	1.228+07
ZIRCONIUM	4.842+07(39)	1.619+06(31)	2.712+06(15)	3.046+06(3)
Y=90	7.890+01	2.974+00	6.601+00	8.086+00
Y=91	3.858+09	8.527+09	7.905+09	1.772+09
YTRIUM	7.890+01(0)	2.974+00(0)	6.601+00(0)	8.086+00(0)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTISES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
SR-89	1.498-09	2.734-09	2.968-09	5.557-10
SR-90	1.678-01	6.324-01	1.403+00	1.719+00
STRONTIUM	1.678-01(0)	6.324-01(0)	1.403+00(0)	1.719+00(0)
RB-87	2.569-11	7.085-11	2.164-10	1.968-10
RUBIDIUM	2.569-11(0)	7.085-11(0)	2.164-10(0)	1.968-10(0)
KR-85	6.135-02	1.496-01	3.862-01	2.385-01
KRYPTON	6.135-02(0)	1.496-01(0)	3.862-01(0)	2.385-01(0)
SE-79	3.350-07	4.907-07	2.229-06	8.773-07
SELENIUM	3.350-07(0)	4.907-07(0)	2.229-06(0)	8.773-07(0)
NI-59	2.770-08	6.001-10	9.582-08	3.450-09
NI-63	7.937-06	1.735-07	2.695-05	9.709-07
NICKEL	7.965-06(0)	1.741-07(0)	2.705-05(0)	9.743-07(0)
CU-58	8.671-13	0.000	7.787-13	0.000
CU-60	1.578-06	3.401-08	4.672-06	1.692-07
CUBALT	1.578-06(96)	3.401-08(96)	4.672-06(96)	1.692-07(96)
CL-36	6.591-07	0.000	2.134-06	0.000
CHLORINE	6.591-07(0)	0.000 (0)	2.134-06(0)	0.000 (0)
S-35	6.297-10	6.822-13	5.812-10	1.053-12
SULFUR	6.297-10(0)	6.822-13(0)	5.812-10(0)	1.053-12(0)
C-14 FROM C	2.249-06	0.000	7.900-06	0.000
C-14 FROM N	3.604-07	1.413-09	1.269-06	8.462-09
C-14 FROM U	1.831-07	2.032-09	6.568-07	1.190-08
CARBON	2.792-06(0)	3.446-09(0)	9.826-06(0)	2.036-08(0)
H-3 FROM LI6	6.633-04	4.470-06	8.567-04	9.592-06
H-3 FROM B10	2.728-07	0.000	1.386-06	0.000
H-3 FISS YLD	1.354-05	5.829-05	1.101-04	1.496-04
TRITIUM	6.771-04(0)	6.276-05(0)	9.662-04(0)	1.592-04(0)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	IS FRESH U-235 F.E.		MS FRESH U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
ALL ELEMENTS				
TOTAL BETA	1.547+00	6.098+00	1.152+01	1.348+01
TOTAL GAMMA	6.810+01	3.097+00	7.606+00	1.263+01
TOTAL ALPHA	1.433+01	1.460+01	5.899+01	3.717+00
GRAND TOTAL	2.371+00(28)	9.341+00(33)	1.977+01(38)	2.982+01(42)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM-242	2.478-09	1.143-05	3.130-07	1.074-04
CM-243	6.027-09	2.957-06	3.031-08	2.025-04
CM-244	2.303-04	2.925-03	1.185-04	1.852-01
CURIUM	2.304-04(0)	2.940-03(0)	1.189-04(0)	1.856-01(0)
AM-241	3.660-08	6.410-03	2.117-05	2.616-02
AM-242M	2.387-11	1.101-07	3.014-09	1.035-06
AM-242	1.033-10	4.762-07	1.304-08	4.477-06
AM-243	2.628-06	6.494-05	2.634-07	1.213-03
AMERICIUM	2.665-06(1)	6.476-03(0)	2.145-05(0)	2.738-02(0)
PU-238	3.435-05	1.307-01	1.487-02	3.339-00
PU-239	4.659-09	8.697-04	4.330-06	2.511-03
PU-240	5.497-09	1.423-03	5.345-06	4.361-03
PU-241	1.615-09	3.022-04	9.937-07	1.208-03
PLUTONIUM	3.437-05(0)	1.333-01(0)	1.488-02(0)	3.347-00(0)
NP-237	1.353-08	3.446-05	2.259-06	2.527-04
NEPTUNIUM	1.353-08(0)	3.446-05(0)	2.259-06(0)	2.527-04(0)
U-232	1.583-02	1.694-06	7.495-02	1.221-05
U-233	3.737-02	3.608-10	5.830-02	7.376-10
U-234	1.778-03	4.786-04	8.062-03	4.090-04
U-235	4.422-08	1.165-05	5.575-07	2.661-06
U-236	5.612-08	7.309-05	2.840-06	1.792-04
U-238	0.000	2.111-07	0.000	2.818-07
URANIUM	5.497-02(0)	5.653-04(0)	1.413-01(0)	6.033-04(0)
PA-231	5.683-05	8.250-09	7.985-05	1.286-08
PA-234	0.000	8.865-08	0.000	1.183-07
PROTACTINIUM	5.683-05(1)	9.690-08(81)	7.985-05(1)	1.312-07(80)
TH-228	1.617-02	1.731-06	7.708-02	1.256-05
TH-229	3.769-05	3.948-12	6.306-05	2.222-10
TH-230	3.843-04	5.134-08	1.578-04	5.103-08
TH-231	1.724-09	4.539-07	2.173-08	1.037-07
TH-232	2.475-05	0.000	2.100-05	0.000
TH-234	0.000	3.701-09	0.000	4.942-09
THURIUM	1.661-02(0)	2.240-06(11)	7.732-02(0)	1.272-05(0)
AC-225	4.377-05	4.584-12	7.322-05	2.580-10
AC-227	5.560-08	3.303-11	8.796-08	6.234-11
AC-228	6.494-06	0.000	5.934-06	0.000
ACTINIUM	5.032-05(9)	3.761-11(5)	7.925-05(5)	3.204-10(1)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
HA-223	3.802-06	2.264-09	6.015-06	4.284-09
HA-224	1.693-02	1.812-06	8.069-02	1.315-05
HA-225	9.856-07	1.032-13	1.649-06	5.810-12
HA-228	6.311-08	0.000	5.767-08	0.000
RADIUM	1.693-02(0)	1.814-06(0)	8.070-02(0)	1.316-05(0)
FR-221	4.762-05	4.988-12	7.966-05	2.807-10
FR-223	4.264-09	2.544-12	6.745-09	4.810-12
FRANCIUM	4.763-05(0)	7.532-12(7)	7.967-05(0)	2.856-10(0)
RN-219	4.417-06	2.635-09	6.987-06	4.982-09
RN-220	1.874-02	2.007-06	8.935-02	1.456-05
RADON	1.875-02(0)	2.009-06(0)	8.936-02(0)	1.457-05(0)
AT-217	5.311-05	5.562-12	8.885-05	3.131-10
AT-218	5.741-10	0.000	3.087-10	0.000
ASTATINE	5.311-05(0)	5.562-12(0)	8.885-05(0)	3.131-10(0)
PU-210	9.108-08	0.000	4.489-07	0.000
PU-212	1.676-02	1.795-06	7.992-02	1.303-05
PU-213	6.299-05	6.598-12	1.054-04	3.714-10
PU-215	4.784-06	2.855-09	7.569-06	5.397-09
PU-216	2.022-02	2.165-06	9.641-02	1.572-05
POLONIUM	3.706-02(0)	3.963-06(0)	1.764-01(0)	2.875-05(0)
BI-211	4.279-06	2.553-09	6.769-06	4.827-09
BI-212	8.431-03	9.025-07	4.019-02	6.551-06
BI-213	5.508-06	5.769-13	9.214-06	3.247-11
BISMUTH	8.441-03(4)	9.051-07(4)	4.021-02(4)	6.556-06(4)
PB-209	1.533-06	1.605-13	2.564-06	9.036-12
PB-211	3.498-07	2.087-10	5.534-07	3.946-10
PB-212	9.478-04	1.015-07	4.518-03	7.365-07
LEAD	9.496-04(66)	1.017-07(66)	4.521-03(66)	7.369-07(66)
TL-207	3.443-07	2.055-10	5.447-07	3.884-10
TL-208	4.239-03	4.537-07	2.021-02	3.294-06
THALLIUM	4.240-03(84)	4.539-07(84)	2.021-02(84)	3.294-06(84)
TE-157	1.369-10	5.961-12	5.201-10	4.084-11
TE-158	7.816-11	3.298-11	6.847-10	9.969-11
TEBBIUM	2.151-10(98)	3.694-11(95)	1.245-09(97)	1.405-10(96)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
GD-153 GADOLINIUM	9.690-10 9.690-10(100)	9.846-10 9.846-10(100)	2.712-10 2.712-10(100)	3.930-10 3.930-10(100)
EU-152	3.064-04	5.067-04	2.669-04	3.516-04
EU-154	5.738-03	4.900-02	1.094-01	2.517-01
EU-155	3.641-05	2.385-04	5.069-04	1.145-03
EUROPIUM	6.083-03(83)	4.974-02(83)	1.102-01(83)	2.531-01(83)
SM-145	7.291-10	7.291-10	1.098-09	1.098-09
SM-151	9.423-05	3.156-04	3.234-04	3.307-04
SAMARIUM	9.423-05(2)	3.156-04(2)	3.234-04(2)	3.307-04(2)
PM-147 PRMETHIUM	9.411-03 9.411-03(0)	4.277-02 4.277-02(0)	3.718-02 3.718-02(0)	2.461-02 2.461-02(0)
PR-144 PRASEODYMIUM	3.325-03 3.325-03(2)	1.450-02 1.450-02(2)	1.432-02 1.432-02(2)	1.003-02 1.003-02(2)
CE-144 CEURIUM	2.875-04 2.875-04(25)	1.253-03 1.253-03(25)	1.238-03 1.238-03(25)	8.677-04 8.677-04(25)
LA-137 LANTHANUM	1.387-10 1.387-10(100)	6.035-12 6.035-12(100)	5.545-10 5.545-10(100)	4.005-11 4.005-11(100)
BA-137M BARIUM	4.656-01 4.656-01(100)	1.864+00 1.864+00(100)	3.917+00 3.917+00(100)	5.114+00 5.114+00(100)
CS-134	2.021-02	1.686-01	5.790-01	1.316+00
CS-137	1.224-01	4.899-01	1.030+00	1.344+00
CESIUM	1.426-01(12)	6.585-01(23)	1.608+00(32)	2.661+00(44)
I-129 IODINE	4.034-08 4.034-08(39)	7.141-08 7.141-08(39)	3.311-07 3.311-07(39)	1.906-07 1.906-07(39)
TE-125M	1.989-03	1.995-03	1.311-02	3.564-03
TE-127M	6.983-12	4.014-12	1.777-11	1.131-12
TE-127	1.723-11	9.905-12	4.385-11	2.790-12
TELLURIUM	1.989-03(100)	1.995-03(100)	1.311-02(100)	3.564-03(100)
SB-125 ANTIMONY	7.007-03 7.007-03(83)	7.029-03 7.029-03(83)	4.619-02 4.619-02(83)	1.256-02 1.256-02(83)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	18 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
SN=119M	9.750-09	3.277-08	3.903-08	1.964-08
SN=121M	9.858-09	4.488-09	6.248-08	5.863-08
SN=123	1.011-10	1.584-10	2.788-10	4.707-11
TIN	1.971-08(62)	3.741-08(90)	1.018-07(54)	7.832-08(44)
AG=108M	1.318-06	6.435-08	4.538-06	3.618-07
AG=110M	1.400-07	5.205-07	1.775-06	2.071-06
SILVER	1.458-06(99)	5.848-07(97)	6.314-06(99)	2.433-06(97)
PD=107	1.294-09	7.979-09	1.092-08	2.170-08
PALLADIUM	1.294-09(49)	7.979-09(49)	1.092-08(49)	2.170-08(49)
RH=106	1.455-03	8.470-03	7.135-03	7.639-03
RHODIUM	1.455-03(12)	8.470-03(12)	7.135-03(12)	7.639-03(12)
RU=106	8.579-06	4.995-05	4.207-05	4.505-05
RUTHENIUM	8.579-06(0)	4.995-05(0)	4.207-05(0)	4.505-05(0)
TC=99	9.160-06	4.835-05	7.294-05	1.185-04
TECHNETIUM	9.160-06(0)	4.835-05(0)	7.294-05(0)	1.185-04(0)
NB=93M	3.424-07	1.366-06	3.147-06	4.377-06
NIUBIUM	3.424-07(100)	1.366-06(100)	3.147-06(100)	4.377-06(100)
ZR=93	2.613-07	1.033-06	2.236-06	2.923-06
ZIRCONIUM	2.613-07(0)	1.033-06(0)	2.236-06(0)	2.923-06(0)
Y=90	6.963-01	2.624-00	5.825-00	7.135-00
YTIPIUM	6.963-01(0)	2.624-00(0)	5.825-00(0)	7.135-00(0)
SR=90	1.480-01	5.580-01	1.238-00	1.517-00
STRONTIUM	1.480-01(0)	5.580-01(0)	1.238-00(0)	1.517-00(0)
RB=87	2.569-11	7.085-11	2.164-10	1.968-10
RUBIDIUM	2.569-11(0)	7.085-11(0)	2.164-10(0)	1.968-10(0)
KR=85	4.445-02	1.084-01	2.813-01	1.728-01
KRYPTON	4.445-02(0)	1.084-01(0)	2.813-01(0)	1.728-01(0)
SE=79	3.350-07	4.907-07	2.229-06	8.773-07
SELENIUM	3.350-07(0)	4.907-07(0)	2.229-06(0)	8.773-07(0)

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
NI-59	2.770-08	6.001-10	9.581-08	3.449-09
NI-63	7.644-06	1.671-07	2.545-05	9.350-07
NICKEL	7.671-06(0)	1.677-07(0)	2.605-05(0)	9.384-07(0)
CO-60	8.163-07	1.759-08	2.417-06	8.749-08
COBALT	8.163-07(96)	1.759-08(96)	2.417-06(96)	8.749-08(96)
CL-36	6.590-07	0.000	2.134-06	0.000
CHLORINE	6.590-07(0)	0.000 (0)	2.134-06(0)	0.000 (0)
C-14 FROM C	2.247-06	0.000	7.895-06	0.000
C-14 FROM N	3.602-07	1.412-09	1.268-06	8.456-09
C-14 FROM O	1.830-07	2.031-09	6.563-07	1.189-08
CARBON	2.790-06(0)	3.443-09(0)	9.819-06(0)	2.035-08(0)
H-3 FROM Li6	5.007-04	3.374-06	6.467-04	7.241-06
H-3 FROM B10	2.059-07	0.000	1.046-06	0.000
H-3 FISSION YLD	1.022-05	4.401-05	8.311-05	1.129-04
TRITIUM	5.111-04(0)	4.738-05(0)	7.309-04(0)	1.202-04(0)
ALL ELEMENTS				
TOTAL BETA	1.032+00	3.870+00	6.520+00	1.038+01
TOTAL GAMMA	5.027+01	2.070+00	4.615+00	6.541+00
TOTAL ALPHA	1.511+01	1.428+01	6.106+01	3.554+00
GRAND TOTAL	1.686+00(29)	6.083+00(34)	1.375+01(33)	2.047+01(31)

TABLE D-3
DECAY HEAT FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF
RELOAD 10 AND ORIGINALLY LOADED AT RELOAD 6

NOTE: Table D-3 consists of 29 pages
of computer print-out (pages D-35
through D-63).

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	238S RECYCLE U-233 F.E.		238S RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
CM=242	1.214=04	1.203=02	1.214=04	2.608+00
CM=243	2.309=08	3.264=06	2.309=08	1.072=03
CM=244	3.223=04	2.089=03	3.223=04	9.921=01
CURIUM	4.437=04(0)	1.412=02(0)	4.437=04(0)	3.601+00(0)
AM=241	1.376=06	9.579=05	1.376=06	1.279=02
AM=242M	2.387=09	3.261=08	2.386=09	3.353=06
AM=242	1.033=08	1.411=07	1.033=08	2.316=05
AM=243	4.781=07	1.288=05	4.781=07	4.985=03
AMERICIUM	1.867=06(0)	1.088=04(0)	1.867=06(0)	1.780=02(0)
PU=238	1.311=02	4.409=01	1.311=02	1.897+01
PU=239	3.474=06	1.393=04	3.474=06	1.191=02
PU=240	4.163=06	2.076=04	4.163=06	2.077=02
PU=241	1.159=06	7.337=05	1.159=06	8.881=03
PLUTONIUM	1.312=02(0)	4.413=01(0)	1.312=02(0)	1.902+01(0)
NP=237	1.942=06	3.717=05	1.942=06	1.167=03
NEPTUNIUM	1.942=06(0)	3.717=05(0)	1.942=06(0)	1.167=03(0)
U=232	8.218=02	7.305=02	8.218=02	3.101=05
U=233	5.945=02	9.542=03	5.945=02	2.442=09
U=234	7.737=03	1.464=02	7.737=03	1.079=03
U=235	5.256=07	1.867=06	5.256=07	2.640=06
U=236	2.505=06	2.671=05	2.505=06	7.662=04
U=237	5.435=09	5.896=08	5.435=09	1.386=06
U=238	0.000	1.286=11	0.000	1.107=06
URANIUM	1.494=01(0)	9.727=02(0)	1.494=01(0)	1.881=03(0)
PA=231	8.472=05	1.751=06	8.472=05	3.168=08
PA=233	1.000+01	2.055=08	1.000+01	1.082=07
PA=234	2.949=03	1.149=11	2.949=03	4.652=07
PROTACTINIUM	1.000+01(84)	1.772=06(2)	1.000+01(84)	6.051=07(83)
TH=228	3.681=02	6.998=02	3.681=02	1.392=05
TH=229	8.779=06	8.570=06	8.779=06	4.613=10
TH=230	1.671=04	2.645=06	1.671=04	4.767=08
TH=231	2.049=08	7.278=08	2.049=08	1.029=07
TH=232	2.105=05	0.000	2.105=05	0.000
TH=234	1.231=04	4.796=13	1.231=04	1.942=08
THURIUM	3.713=02(0)	6.999=02(0)	3.713=02(0)	1.409=05(0)
AC=225	1.019=05	9.952=06	1.019=05	5.357=10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
-----	-----	-----	-----	-----
AC-227	1.221=07	1.205=09	1.221=07	2.372=11
AC-228	3.288=06	2.258=12	3.288=06	0.000
ACTINIUM	1.361=05(17)	9.954=06(0)	1.361=05(17)	5.594=10(0)
RA-223	8.346=06	7.799=08	8.346=06	1.560=09
RA-224	3.854=02	7.326=02	3.854=02	1.457=08
RA-225	2.295=07	2.241=07	2.295=07	1.200=11
RA-226	3.196=08	2.194=14	3.196=08	0.000
RADIUM	3.854=02(0)	7.326=02(0)	3.854=02(0)	1.457=05(0)
FR-221	1.109=05	1.083=05	1.109=05	5.828=10
FR-223	9.360=09	8.747=11	9.360=09	1.749=12
FRANCIUM	1.110=05(0)	1.083=05(0)	1.110=05(0)	5.846=10(0)
RN-219	9.696=06	9.060=08	9.696=06	1.812=09
RN-220	4.267=02	8.113=02	4.267=02	1.613=08
RADON	4.268=02(0)	8.113=02(0)	4.268=02(0)	1.614=08(0)
AT-217	1.237=05	1.208=05	1.237=05	6.500=10
AT-218	1.452=10	0.000	1.452=10	0.000
ASTATINE	1.237=05(0)	1.208=05(0)	1.237=05(0)	6.500=10(0)
PU-210	2.172=05	4.165=06	2.172=05	1.101=08
PU-212	3.692=02	7.259=02	3.692=02	1.396=05
PU-213	1.467=05	1.432=05	1.467=05	7.710=10
PU-215	1.050=05	9.814=08	1.050=05	1.963=09
PU-216	4.605=02	8.754=02	4.605=02	1.741=05
POLONIUM	8.301=02(0)	1.601=01(0)	8.301=02(0)	3.138=05(0)
BI-211	9.394=06	8.778=08	9.394=06	1.755=09
BI-212	1.919=02	3.649=02	1.919=02	7.258=06
BI-213	1.283=06	1.252=06	1.283=06	6.741=11
BISMUTH	1.921=02(4)	3.649=02(4)	1.921=02(4)	7.259=06(4)
PB-209	3.570=07	3.485=07	3.570=07	1.876=11
PB-211	7.680=07	7.176=09	7.680=07	1.435=10
PB-212	2.158=03	4.102=03	2.158=03	8.159=07
LEAD	2.159=03(66)	4.103=03(66)	2.159=03(66)	8.160=07(66)
TL-207	7.559=07	7.063=09	7.559=07	1.413=10
TL-208	9.334=03	1.835=02	9.334=03	3.530=06
THALLIUM	9.334=03(84)	1.835=02(84)	9.334=03(84)	3.530=06(84)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	2388 RECYCLE U-233 F.E. FERTILE PTL.	FISSILE PTL.	25R8 RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----
DY-159 DYSPROSIUM	3.019=07 3.019=07(100)	3.962=08 3.962=08(100)	3.019=07 3.019=07(100)	8.292=08 8.292=08(100)
TB-157	5.365=10	1.734=10	5.365=10	1.278=10
TB-158	6.828=10	9.688=10	6.828=10	9.347=11
TB-160	3.551=03	3.755=03	3.551=03	4.053=03
TERBIUM	3.551=03(85)	3.755=03(85)	3.551=03(85)	4.053=03(85)
GD-153 GADOLINIUM	6.102=06 6.102=06(100)	1.032=05 1.032=05(100)	6.102=06 6.102=06(100)	1.753=05 1.753=05(100)
EU-152	4.641=04	5.562=04	4.641=04	5.428=04
EU-154	1.575=01	3.239=01	1.575=01	3.202=01
EU-155	1.841=02	3.711=02	1.841=02	3.669=02
EU-156	4.100=03	8.275=03	4.100=03	8.179=03
EUROPIUM	1.805=01(81)	3.698=01(81)	1.805=01(81)	3.656=01(81)
SM-145	1.283=06	1.894=06	1.283=06	3.972=06
SM-151	3.485=04	3.304=04	3.485=04	3.096=04
SAMARIUM	3.497=04(2)	3.323=04(2)	3.497=04(2)	3.136=04(3)
PM-147	4.483=01	3.162=01	4.483=01	2.713=01
PM-148M	1.953=01	1.444=01	1.953=01	1.248=01
PROMETHIUM	6.436=01(28)	4.606=01(29)	6.436=01(28)	3.961=01(29)
ND-147 NEODYMIUM	1.819=04 1.819=04(32)	6.494=05 6.494=05(32)	1.819=04 1.819=04(32)	4.720=05 4.720=05(32)
PR-144 PRASEODYMIUM	6.585=01 6.585=01(2)	5.050=01 5.050=01(2)	6.585=01 6.585=01(2)	4.115=01 4.115=01(2)
CE-141	7.154=01	2.295=01	7.154=01	1.372=01
CE-144	5.694=00	4.367=00	5.694=00	3.559=00
CERIUM	6.410=00(26)	4.596=00(26)	6.410=00(26)	3.696=00(26)
LA-137	5.469=10	2.411=10	5.469=10	1.177=10
LA-140	2.353=02	7.288=03	2.353=02	4.549=03
LANTHANUM	2.353=02(81)	7.288=03(81)	2.353=02(81)	4.549=03(81)
BA-137M	4.638=00	7.543=00	4.638=00	5.196=00
BA-140	4.152=03	1.286=03	4.152=03	8.025=04
BARIUM	4.642=00(99)	7.544=00(99)	4.642=00(99)	5.197=00(99)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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CS-134	1.342+01	3.177+01	1.342+01	2.625+01
CS-137	1.219+00	1.983+00	1.219+00	1.366+00
CESIUM	1.464+01(83)	3.376+01(85)	1.464+01(83)	2.762+01(86)
XE-131M	6.354-06	1.867-06	6.354-06	1.020-06
XENON	6.354-06(100)	1.867-06(100)	6.354-06(100)	1.020-06(100)
I-129	3.153-07	4.813-07	3.153-07	1.552-07
I-131	8.531-06	2.490-06	8.531-06	1.359-06
IODINE	8.846-06(66)	2.972-06(63)	8.846-06(66)	1.514-06(64)
TE-125M	1.397-01	1.672-01	1.397-01	3.279-02
TE-127M	6.660-02	2.080-02	6.660-02	3.614-03
TE-127	1.643-01	5.131-02	1.643-01	8.917-03
TE-129M	2.574-01	6.680-02	2.574-01	2.373-02
TE-129	5.030-01	1.305-01	5.030-01	4.637-02
TELLURIUM	1.131+00(30)	4.367-01(51)	1.131+00(30)	1.154+01(42)
SB-124	1.722-03	2.340-03	1.722-03	1.015-03
SB-125	5.019-01	5.911-01	5.019-01	1.159-01
ANTIMONY	5.036-01(83)	5.934-01(83)	5.036-01(83)	1.170-01(83)
SN-119M	5.678-04	3.832-04	5.678-04	2.556-04
SN-121M	6.485-06	7.597-08	6.485-06	5.736-08
SN-123	6.181-02	2.358-02	6.181-02	9.441-03
TIN	6.238-02(2)	2.396-02(2)	6.238-02(2)	9.697-03(3)
IN-114M	5.746-04	6.821-06	5.746-04	1.430-05
IN-114	1.955-03	2.320-05	1.955-03	4.866-05
INDIUM	2.529-03(22)	3.003-05(22)	2.529-03(22)	6.296-05(22)
CD-115M	4.076-04	1.780-04	4.076-04	1.132-04
CADMIUM	4.076-04(5)	1.780-04(5)	4.076-04(5)	1.132-04(5)
AG-108M	4.613-06	5.430-07	4.613-06	1.138-06
AG-110M	2.088-02	3.450-02	2.088-02	2.106-02
SILVER	2.089-02(97)	3.450-02(97)	2.089-02(97)	2.106-02(97)
PD-107	1.038-08	1.765-08	1.038-08	1.776-08
PALLADIUM	1.038-08(49)	1.765-08(49)	1.038-08(49)	1.776-08(49)
RH-103M	6.596-02	2.885-02	6.596-02	2.510-02
RH-106	4.719+00	4.465+00	4.719+00	4.473+00
RHODIUM	4.765+00(13)	4.494+00(12)	4.765+00(13)	4.498+00(12)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER P.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	238S RECYCLE U-233 F.E. FERTILE PTL.	FISSILE PTL.	258S RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
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RU-103	9.239+01	4.041+01	9.239+01	3.516+01
RU-106	2.783+02	2.633+02	2.783+02	2.638+02
RUTHENIUM	9.517+01(85)	4.304+01(82)	9.517+01(85)	3.780+01(81)
TC-99	6.962+05	1.099+04	6.962+05	9.559+05
TECHNETIUM	6.962+05(0)	1.099+04(0)	6.962+05(0)	9.559+05(0)
NB-93M	5.985+07	1.507+06	5.985+07	9.889+07
NB-95M	4.883+00	1.766+00	4.883+00	1.150+00
NB-95	3.210+01	1.172+01	3.210+01	7.652+00
NIUBIUM	3.698+01(95)	1.349+01(95)	3.698+01(95)	8.801+00(95)
ZR-93	2.126+06	3.513+06	2.126+06	2.334+06
ZR-95	1.669+01	6.035+00	1.669+01	3.930+00
ZIRCONIUM	1.669+01(86)	6.035+00(86)	1.669+01(86)	3.930+00(86)
Y-90	7.027+00	1.132+01	7.027+00	7.229+00
Y-91	2.663+00	9.086+01	2.663+00	5.419+01
YTRIUM	9.690+00(0)	1.223+01(0)	9.690+00(0)	7.771+00(0)
SR-89	7.225+00	2.287+00	7.225+00	1.224+00
SR-90	1.494+00	2.407+00	1.494+00	1.537+00
STRONTIUM	8.719+00(0)	4.694+00(0)	8.719+00(0)	2.761+00(0)
RB-86	1.832+04	1.227+04	1.832+04	4.514+05
RB-87	2.061+10	3.284+10	2.061+10	1.571+10
RUBIDIUM	1.832+04(12)	1.227+04(12)	1.832+04(12)	4.514+05(12)
KR-85	5.027+01	5.810+01	5.027+01	2.649+01
KRYPTON	5.027+01(0)	5.810+01(0)	5.027+01(0)	2.649+01(0)
SE-79	2.159+06	2.586+06	2.159+06	7.224+07
SELENIUM	2.159+06(0)	2.586+06(0)	2.159+06(0)	7.224+07(0)
NI-59	8.964+08	4.766+09	8.964+08	9.994+09
NI-63	2.611+05	1.389+06	2.611+05	2.913+06
NICKEL	2.620+05(0)	1.394+06(0)	2.620+05(0)	2.923+06(0)
CO-58	6.593+06	3.505+07	6.593+06	7.350+07
CO-60	7.932+06	4.242+07	7.932+06	8.893+07
COPALT	1.452+05(96)	7.747+07(96)	1.452+05(96)	1.624+06(96)
CL-36	2.009+06	0.000	2.009+06	0.000
CHLORINE	2.009+06(0)	0.000 (0)	2.009+06(0)	0.000 (0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	2388 RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	2588 RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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S-35	2.648+04	7.084+07	2.648+04	1.485+06
SULFUR	2.648+04(0)	7.084+07(0)	2.648+04(0)	1.485+06(0)
C-14 FROM C	7.385+06	0.000	7.385+06	0.000
C-14 FROM N	1.190+06	1.172+08	1.190+06	2.458+08
C-14 FROM U	6.102+07	1.643+08	6.102+07	3.444+08
CARBON	9.185+06(0)	2.815+08(0)	9.185+06(0)	5.902+08(0)
H-3 FROM LI6	1.101+03	1.821+05	1.101+03	3.818+05
H-3 FROM B10	2.149+06	0.000	2.149+06	0.000
H-3 FISS YLD	1.350+04	2.134+04	1.350+04	1.543+04
TRITIUM	1.238+03(0)	2.316+04(0)	1.238+03(0)	1.925+04(0)
ALL ELEMENTS				
TOTAL BETA	1.016+02	8.129+01	1.016+02	6.291+01
TOTAL GAMMA	8.085+01	5.902+01	8.085+01	4.423+01
TOTAL ALPHA	3.785+01	9.640+01	3.785+01	2.260+01
GRAND TOTAL	1.828+02(44)	1.413+02(41)	1.828+02(44)	1.297+02(34)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CM-242	5.535-05	5.472-03	5.535-05	1.187+00
CM-243	2.284-08	3.228-06	2.284-08	1.060-03
CM-244	3.160-04	2.049-03	3.160-04	9.728-01
CURIUM	3.714-04(0)	7.524-03(0)	3.714-04(0)	2.161+00(0)
AM-241	2.332-06	1.563-04	2.332-06	2.011-02
AM-242M	2.381-09	3.254-08	2.381-09	5.341-06
AM-242	1.030-08	1.408-07	1.030-08	2.311-05
AM-243	4.781-07	1.288-05	4.781-07	4.985-03
AMERICIUM	2.823-06(0)	1.693-04(0)	2.823-06(0)	2.512-02(0)
PU-238	1.306-02	4.391-01	1.306-02	1.890+01
PU-239	3.474-06	1.393-04	3.474-06	1.191-02
PU-240	4.163-06	2.076-04	4.163-06	2.077-02
PU-241	1.133-06	7.167-05	1.133-06	8.675-03
PLUTONIUM	1.307-02(0)	4.395-01(0)	1.307-02(0)	1.894+01(0)
NP-237	1.942-06	3.717-05	1.942-06	1.167-03
NEPTUNIUM	1.942-06(0)	3.717-05(0)	1.942-06(0)	1.167-03(0)
U-232	8.178-02	7.270-02	8.178-02	3.086-05
U-233	5.950-02	9.542-03	5.950-02	2.443-09
U-234	7.737-03	1.464-02	7.737-03	1.079-03
U-235	5.256-07	1.867-06	5.256-07	2.640-06
U-236	2.505-06	2.671-05	2.505-06	7.862-04
U-238	0.000	1.286-11	0.000	1.107-06
URANIUM	1.490-01(0)	9.691-02(0)	1.490-01(0)	1.880-03(0)
PA-231	8.472-05	1.751-06	8.472-05	3.171-08
PA-233	8.604-02	1.768-10	8.604-02	9.310-10
PA-234	1.431-05	5.432-12	1.431-05	4.652-07
PROTACTINIUM	8.614-02(84)	1.751-06(1)	8.614-02(84)	4.978-07(83)
TH-228	4.469-02	6.998-02	4.469-02	1.689-05
TH-229	1.175-05	9.047-06	1.175-05	4.614-10
TH-230	1.671-04	2.708-06	1.671-04	5.230-08
TH-231	2.049-08	7.278-08	2.049-08	1.029-07
TH-232	2.105-05	0.000	2.105-05	0.000
TH-234	5.976-07	2.268-13	5.976-07	1.942-08
THURIUM	4.489-02(0)	6.999-02(0)	4.489-02(0)	1.706-05(0)
AC-225	1.365-05	1.051-05	1.365-05	5.358-10
AC-227	1.201-07	1.661-09	1.201-07	3.194-11

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23R8 RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25R8 RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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AC=228 ACTINIUM	3.506=06 1.727=05(15)	2.144=12 1.051=05(0)	3.506=06 1.727=05(15)	0.000 5.678=10(0)
RA=223 RA=224 RA=225 RA=226 RADIUM	8.212=06 4.679=02 3.073=07 3.407=08 4.679=02(0)	1.066=07 7.326=02 2.365=07 2.083=14 7.326=02(0)	8.212=06 4.679=02 3.073=07 3.407=08 4.679=02(0)	2.130=09 1.768=05 1.206=11 0.000 1.768=05(0)
FR=221 FR=223 FRANCIUM	1.485=05 9.209=09 1.486=05(0)	1.143=05 1.195=10 1.143=05(0)	1.485=05 9.209=09 1.486=05(0)	5.830=10 2.388=12 5.854=10(0)
RN=219 RN=220 RADON	9.540=06 5.181=02 5.182=02(0)	1.238=07 8.113=02 8.113=02(0)	9.540=06 5.181=02 5.182=02(0)	2.474=09 1.958=05 1.958=05(0)
AT=217 AT=218 ASTATINE	1.656=05 1.548=10 1.656=05(0)	1.275=05 0.000 1.275=05(0)	1.656=05 1.548=10 1.656=05(0)	6.501=10 0.000 6.501=10(0)
PU=210 PO=212 PU=213 PU=215 PO=216 POLONIUM	8.965=06 4.610=02 1.964=05 1.033=05 5.590=02 1.020=01(0)	1.720=06 7.259=02 1.512=05 1.341=07 8.754=02 1.601=01(0)	8.965=06 4.610=02 1.964=05 1.033=05 5.590=02 1.020=01(0)	5.161=09 1.742=05 7.711=10 2.680=09 2.113=05 3.855=05(0)
BI=211 BI=212 BI=213 BISMUTH	9.243=06 2.330=02 1.717=06 2.332=02(4)	1.200=07 3.649=02 1.322=06 3.649=02(4)	9.243=06 2.330=02 1.717=06 2.332=02(4)	2.397=09 8.807=06 6.743=11 8.809=06(4)
PB=209 PB=211 PB=212 LEAD	4.779=07 7.556=07 2.620=03 2.621=03(66)	3.679=07 9.808=09 4.102=03 4.103=03(66)	4.779=07 7.556=07 2.620=03 2.621=03(66)	1.876=11 1.960=10 9.900=07 9.902=07(66)
TL=207 TL=208 THALLIUM	7.438=07 1.166=02 1.166=02(84)	9.654=09 1.835=02 1.835=02(84)	7.438=07 1.166=02 1.166=02(84)	1.929=10 4.406=06 4.406=06(84)
DY=159 DYSPHOSIUM	1.237=07 1.237=07(100)	1.624=08 1.624=08(100)	1.237=07 1.237=07(100)	3.399=08 3.399=08(100)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	23K8 RECYCLE U-233 F.E.		25K8 RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
TB=157	5.353-10	1.729-10	5.353-10	1.275-10
TB=158	6.813-10	9.665-10	6.813-10	9.325-11
TB=160	5.968-04	6.312-04	5.968-04	6.812-04
TEBBIUM	5.968-04(85)	6.312-04(85)	5.968-04(85)	6.812-04(85)
GD=153	3.590-06	6.068-06	3.590-06	1.061-05
GADOLINIUM	3.590-06(100)	6.068-06(100)	3.590-06(100)	1.031-05(100)
EU=152	4.515-04	5.411-04	4.515-04	5.280-04
EU=154	1.541-01	3.169-01	1.541-01	3.133-01
EU=155	1.516-02	3.056-02	1.516-02	3.022-02
EU=156	9.811-07	1.980-06	9.811-07	1.957-06
EUROPIUM	1.697-01(81)	3.480-01(81)	1.697-01(81)	3.440-01(81)
SM=145	8.792-07	1.299-06	8.792-07	2.723-06
SM=151	3.471-04	3.290-04	3.471-04	3.083-04
SAMARIUM	3.479-04(2)	3.303-04(2)	3.479-04(2)	3.111-04(2)
PM=147	3.920-01	2.765-01	3.920-01	2.373-01
PM=148M	9.047-03	6.690-03	9.047-03	5.781-03
PRIMUMIUM	4.011-01(2)	2.832-01(2)	4.011-01(2)	2.430-01(2)
ND=147	1.651-09	5.895-10	1.651-09	4.285-10
NEODYMIUM	1.651-09(32)	5.895-10(32)	1.651-09(32)	4.285-10(32)
PR=144	4.190+01	3.213+01	4.190+01	2.619+01
PRASEODYMIUM	4.190+01(2)	3.213+01(2)	4.190+01(2)	2.619+01(2)
CE=141	1.376-02	4.415-03	1.376-02	2.639-03
CE=144	3.623+00	2.779+00	3.623+00	2.264+00
CERIUM	3.637+00(25)	2.783+00(25)	3.637+00(25)	2.267+00(25)
LA=137	5.469-10	2.411-10	5.469-10	1.177-10
LA=140	1.036-06	3.207-07	1.036-06	2.002-07
LANTHANUM	1.036-06(81)	3.210-07(81)	1.036-06(81)	2.003-07(81)
BA=137M	4.584+00	7.455+00	4.584+00	5.136+00
BA=140	1.827-07	5.659-08	1.827-07	3.532-08
BARBIUM	4.584+00(99)	7.455+00(100)	4.584+00(99)	5.136+00(100)
CS=134	1.130+01	2.676+01	1.130+01	2.211+01
CS=137	1.205+00	1.960+00	1.205+00	1.350+00
CESIUM	1.251+01(82)	2.872+01(84)	1.251+01(82)	2.346+01(85)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	238S RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	258S RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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XE=131M XENON	1.204=10 1.204=10(100)	3.537=11 3.537=11(100)	1.204=10 1.204=10(100)	1.933=11 1.933=11(100)
I=129 I=131 IODINE	3.157=07 1.011=12 3.157=07(39)	4.814=07 0.000 4.814=07(39)	3.157=07 1.011=12 3.157=07(39)	1.552=07 0.000 1.552=07(39)
TE=125M TE=127M TE=127 TE=129M TE=129 TELLURIUM	1.248=01 2.051=02 5.060=02 5.966=03 1.166=02 2.136=01(69)	1.473=01 6.404=03 1.580=02 1.548=03 3.025=03 1.741=01(88)	1.248=01 2.051=02 5.060=02 5.966=03 1.166=02 2.136=01(69)	2.889=02 1.113=03 2.746=03 5.500=04 1.075=03 3.438=02(88)
SB=124 SB=125 ANTIMONY	2.042=04 4.409=01 4.411=01(83)	2.775=04 5.192=01 5.195=01(83)	2.042=04 4.409=01 4.411=01(83)	1.204=04 1.018=01 1.020=01(83)
SN=119M SN=121M SN=123 IN	3.398=04 6.455=08 2.213=02 2.247=02(2)	2.293=04 7.562=08 8.442=03 8.672=03(3)	3.398=04 6.455=08 2.213=02 2.247=02(2)	1.529=04 5.710=08 3.380=03 3.533=03(5)
IN=114M IN=114 INDIUM	4.299=05 1.462=04 1.892=04(22)	5.103=07 1.736=06 2.246=06(22)	4.299=05 1.462=04 1.892=04(22)	1.070=06 3.639=06 4.709=06(22)
CD=115M CADMIUM	2.060=05 2.060=05(5)	8.996=06 8.996=06(5)	2.060=05 2.060=05(5)	5.722=06 5.722=06(5)
AG=108M AG=110M SILVER	4.601=06 1.262=02 1.263=02(97)	5.416=07 2.085=02 2.085=02(97)	4.601=06 1.262=02 1.263=02(97)	1.135=06 1.273=02 1.273=02(97)
PD=107 PALLADIUM	1.038=08 1.038=08(49)	1.765=08 1.765=08(49)	1.038=08 1.038=08(49)	1.776=08 1.776=08(49)
RH=103M RH=106 RHODIUM	2.618=03 3.330=00 3.332=00(12)	1.145=03 3.151=00 3.152=00(12)	2.618=03 3.330=00 3.332=00(12)	9.963=04 3.156=00 3.157=00(12)
RU=103 RU=106 RUTHENIUM	3.667=02 1.963=02 5.630=02(57)	1.604=02 1.858=02 3.461=02(40)	3.667=02 1.963=02 5.630=02(57)	1.396=02 1.861=02 3.256=02(37)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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TC=99 TECHNETIUM	6.962=05 6.962=05(0)	1.099=04 1.099=04(0)	6.962=05 6.962=05(0)	9.559=05 9.559=05(0)
NB=93M NB=95M NB=95 NIUBIUM	7.573=07 6.884=01 4.988=00 5.676=00(95)	1.757=06 2.489=01 1.807=00 2.056=00(95)	7.573=07 6.884=01 4.988=00 5.676=00(95)	1.155=06 1.621=01 1.177=00 1.339=00(95)
ZR=93 ZR=95 ZIRCONIUM	2.126=06 2.353=00 2.353=00(86)	3.513=06 8.509=01 8.509=01(86)	2.126=06 2.353=00 2.353=00(86)	2.334=06 5.540=01 5.540=01(86)
Y=90 Y=91 YTIRIUM	6.939=00 2.911=01 7.230=00(0)	1.118=01 9.932=02 1.128=01(0)	6.939=00 2.911=01 7.230=00(0)	7.138=00 5.923=02 7.197=00(0)
SR=89 SR=90 STRONTIUM	6.322=01 1.475=00 2.108=00(0)	2.001=01 2.376=00 2.576=00(0)	6.322=01 1.475=00 2.108=00(0)	1.071=01 1.518=00 1.625=00(0)
RB=86 RB=87 RUBIDIUM	1.879=07 2.061=10 1.881=07(12)	1.258=07 3.284=10 1.261=07(12)	1.879=07 2.061=10 1.881=07(12)	4.630=08 1.571=10 4.646=08(12)
KR=85 KRYPTON	4.866=01 4.866=01(0)	5.623=01 5.623=01(0)	4.866=01 4.866=01(0)	2.563=01 2.563=01(0)
SE=79 SELENIUM	2.159=06 2.159=06(0)	2.586=06 2.586=06(0)	2.159=06 2.159=06(0)	7.224=07 7.224=07(0)
NI=59 NI=63 NICKEL	8.964=08 2.601=05 2.610=05(0)	4.766=09 1.384=06 1.389=06(0)	8.964=08 2.601=05 2.610=05(0)	9.994=09 2.902=06 2.912=06(0)
CO=58 CO=60 COBALT	1.091=06 7.419=06 8.509=06(96)	5.800=08 3.967=07 4.547=07(96)	1.091=06 7.419=06 8.509=06(96)	1.216=07 8.318=07 9.534=07(96)
CL=36 CHLORINE	2.009=06 2.009=06(0)	0.000 0.000 (0)	2.009=06 2.009=06(0)	0.000 0.000 (0)
S=35 SULFUR	6.073=05 6.073=05(0)	1.624=07 1.624=07(0)	6.073=05 6.073=05(0)	3.406=07 3.406=07(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	2388 RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	2588 RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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C-14 FROM C	7.384-06	0.000	7.384-06	0.000
C-14 FROM N	1.190-06	1.172-08	1.190-06	2.457-08
C-14 FROM O	6.101-07	1.643-08	6.101-07	3.444-08
CARBON	9.185-06(0)	2.815-08(0)	9.185-06(0)	5.902-08(0)
H-3 FROM Li6	1.070-03	1.770-05	1.070-03	3.711-05
H-3 FROM B10	2.089-06	0.000	2.089-06	0.000
H-3 FISS YLD	1.312-04	2.074-04	1.312-04	1.499-04
TRITIUM	1.204-03(0)	2.251-04(0)	1.204-03(0)	1.870-04(0)
ALL ELEMENTS				
TOTAL BETA	5.980+01	5.573+01	5.980+01	4.300+01
TOTAL GAMMA	2.543+01	3.725+01	2.543+01	2.899+01
TOTAL ALPHA	4.254-01	9.554-01	4.254-01	2.109+01
GRAND TOTAL	8.566+01(29)	9.394+01(39)	8.566+01(29)	9.308+01(31)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	2388 RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	2588 RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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CM-242	2.674=06	2.476=04	2.674=06	5.359=02
CM-243	2.187=08	3.091=06	2.187=08	1.015=03
CM-244	2.924=04	1.896=03	2.924=04	9.003=01
CURIUM	2.951=04(0)	2.147=03(0)	2.951=04(0)	9.549=01(0)
AM-241	5.883=06	3.809=04	5.883=06	4.729=02
AM-242M	2.359=09	3.224=08	2.359=09	5.293=06
AM-242	1.021=08	1.395=07	1.021=08	2.290=05
AM-243	4.780=07	1.287=05	4.780=07	4.984=03
AMERICIUM	6.374=06(0)	3.940=04(0)	6.374=06(0)	5.231=02(0)
PU-238	1.285=02	4.323=01	1.285=02	1.860=01
PU-239	3.474=06	1.393=04	3.474=06	1.191=02
PU-240	4.162=06	2.075=04	4.162=06	2.077=02
PU-241	1.033=06	6.534=05	1.033=06	7.909=03
PLUTONIUM	1.286=02(0)	4.327=01(0)	1.286=02(0)	1.864=01(0)
NP-237	1.942=06	3.717=05	1.942=06	1.167=03
NEPTUNIUM	1.942=06(0)	3.717=05(0)	1.942=06(0)	1.167=03(0)
U-232	8.022=02	7.131=02	8.022=02	3.027=05
U-233	5.950=02	9.542=03	5.950=02	2.443=09
U-234	7.737=03	1.464=02	7.737=03	1.079=03
U-235	5.256=07	1.867=06	5.256=07	2.640=06
U-236	2.505=06	2.671=05	2.505=06	7.662=04
U-238	0.000	1.286=11	0.000	1.107=06
URANIUM	1.475=01(0)	9.553=02(0)	1.475=01(0)	1.879=03(0)
PA-231	8.471=05	1.751=06	8.471=05	3.183=08
PA-233	6.161=10	0.000	6.161=10	0.000
PA-234	0.000	5.402=12	0.000	4.652=07
PROTACTINIUM	8.471=05(1)	1.751=06(1)	8.471=05(1)	4.970=07(83)
TH-228	6.426=02	7.260=02	6.426=02	2.426=05
TH-229	2.348=05	1.093=05	2.348=05	4.618=10
TH-230	1.673=04	2.957=06	1.673=04	7.060=08
TH-231	2.049=08	7.278=08	2.049=08	1.029=07
TH-232	2.105=05	0.000	2.105=05	0.000
TH-234	0.000	2.256=13	0.000	1.942=08
THURIUM	6.447=02(0)	7.261=02(0)	6.447=02(0)	2.445=05(0)
AC-225	2.726=05	1.269=05	2.726=05	5.363=10
AC-227	1.126=07	3.386=09	1.126=07	6.316=11

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	2388 RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	2588 RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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AC=228 ACTINIUM	4.261=06 3.164=05(10)	1.746=12 1.269=05(0)	4.261=06 3.164=05(10)	0.000 5.994=10(1)
RA=223 RA=224 RA=225 RA=226 RADIUM	7.702=06 6.728=02 6.138=07 4.140=08 6.728=02(0)	2.245=07 7.600=02 2.857=07 1.697=14 7.600=02(0)	7.702=06 6.728=02 6.138=07 4.140=08 6.728=02(0)	4.295=09 2.540=05 1.207=11 0.000 2.540=05(0)
FR=221 FR=223 FRANCIUM	2.966=05 8.637=09 2.967=05(0)	1.380=05 2.518=10 1.380=05(0)	2.966=05 8.637=09 2.967=05(0)	5.835=10 4.816=12 5.883=10(0)
RN=219 RN=220 RADON	8.947=06 7.450=02 7.451=02(0)	2.608=07 8.416=02 8.416=02(0)	8.947=06 7.450=02 7.451=02(0)	4.989=09 2.813=05 2.813=05(0)
AT=217 AT=218 ASTATINE	3.308=05 1.930=10 3.308=05(0)	1.539=05 0.000 1.539=05(0)	3.308=05 1.930=10 3.308=05(0)	6.507=10 0.000 6.507=10(0)
PO=210 PO=212 PO=213 PO=215 PO=216 POLONIUM	8.087=07 6.653=02 3.923=05 9.692=06 8.039=02 1.470=01(0)	1.551=07 7.529=02 1.826=05 2.825=07 9.081=02 1.661=01(0)	8.087=07 6.653=02 3.923=05 9.692=06 8.039=02 1.470=01(0)	5.210=10 2.511=05 7.718=10 5.405=09 3.035=05 5.547=05(0)
BI=211 BI=212 BI=213 BISMUTH	8.668=06 3.351=02 3.431=06 3.352=02(4)	2.527=07 3.786=02 1.597=06 3.786=02(4)	8.668=06 3.351=02 3.431=06 3.352=02(4)	4.834=09 1.265=05 6.749=11 1.266=05(4)
PB=209 PB=211 PB=212 LEAD	9.546=07 7.087=07 3.767=03 3.769=03(66)	4.443=07 2.066=08 4.256=03 4.256=03(66)	9.546=07 7.087=07 3.767=03 3.769=03(66)	1.878=11 3.952=10 1.422=06 1.423=06(66)
TL=207 TL=208 THALLIUM	6.975=07 1.682=02 1.682=02(84)	2.034=08 1.903=02 1.903=02(84)	6.975=07 1.682=02 1.682=02(84)	3.890=10 6.349=06 6.350=06(84)
DY=159 DYSPROSIUM	3.674=09 3.674=09(100)	4.822=10 4.822=10(100)	3.674=09 3.674=09(100)	1.009=09 1.009=09(100)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISILE PTL.
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TB=157	5.304=10	1.714=10	5.304=10	1.263=10
TB=158	6.750=10	9.577=10	6.750=10	9.240=11
TB=160	5.266=07	5.570=07	5.266=07	6.012=07
TENNIUM	5.278=07(85)	5.581=07(85)	5.278=07(85)	6.014=07(85)
GD=153	4.429=07	7.486=07	4.429=07	1.272=06
GADOLINIUM	4.429=07(100)	7.486=07(100)	4.429=07(100)	1.272=06(100)
EU=152	4.048=04	4.851=04	4.048=04	4.734=04
EU=154	1.413=01	2.906=01	1.413=01	2.873=01
EU=155	7.052=03	1.422=02	7.052=03	1.405=02
EUROPIUM	1.488=01(82)	3.053=01(82)	1.488=01(82)	3.018=01(82)
SM=145	1.983=07	2.928=07	1.983=07	6.140=07
SM=151	3.416=04	3.238=04	3.416=04	3.035=04
SAMARIUM	3.418=04(2)	3.241=04(2)	3.418=04(2)	3.041=04(2)
PM=147	2.310=01	1.630=01	2.310=01	1.398=01
PM=148M	4.957=08	3.665=08	4.957=08	3.168=08
PROMETHIUM	2.310=01(0)	1.630=01(0)	2.310=01(0)	1.398=01(0)
PR=144	7.045=00	5.403=00	7.045=00	4.403=00
PRASEODYMIUM	7.045=00(2)	5.403=00(2)	7.045=00(2)	4.403=00(2)
CE=141	2.354=09	7.554=10	2.354=09	4.515=10
CE=144	6.093=01	4.672=01	6.093=01	3.808=01
CERIUM	6.093=01(25)	4.672=01(25)	6.093=01(25)	3.808=01(25)
LA=137	5.468=10	2.410=10	5.468=10	1.177=10
LANTHANUM	5.468=10(100)	2.410=10(100)	5.468=10(100)	1.177=10(100)
BA=137M	4.377=00	7.119=00	4.377=00	4.904=00
BARIUM	4.377=00(100)	7.119=00(100)	4.377=00(100)	4.904=00(100)
CS=134	5.741=00	1.359=01	5.741=00	1.123=01
CS=137	1.150=00	1.871=00	1.150=00	1.289=00
CESIUM	6.891=00(75)	1.546=01(79)	6.891=00(75)	1.252=01(81)
I=129	3.157=07	4.814=07	3.157=07	1.552=07
IODINE	3.157=07(39)	4.814=07(39)	3.157=07(39)	1.552=07(39)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	23X3 RECYCLE U-233 F.E.		25X3 RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
TE=125M	7.503=02	8.836=02	7.503=02	1.733=02
TE=127M	1.971=04	6.155=05	1.971=04	1.070=05
TE=127	4.863=04	1.518=04	4.863=04	2.639=05
TE=129M	2.130=09	5.526=10	2.130=09	1.963=10
TE=129	4.161=09	1.080=09	4.161=09	3.836=10
TELLURIUM	7.572=02(99)	8.857=02(99)	7.572=02(99)	1.737=02(99)
SB=124	4.558=08	6.194=08	4.558=08	2.687=08
SB=125	2.644=01	3.113=01	2.644=01	6.107=02
ANTIMONY	2.644=01(83)	3.113=01(83)	2.644=01(83)	6.107=02(83)
SN=119M	4.485=05	3.027=05	4.485=05	2.019=05
SN=121M	6.339=08	7.426=08	6.339=08	3.607=08
SN=123	3.854=04	1.470=04	3.854=04	5.887=05
TIN	4.304=04(11)	1.774=04(18)	4.304=04(11)	7.912=05(26)
IN=114M	1.558=09	1.849=11	1.558=09	3.877=11
IN=114	5.299=09	6.290=11	5.299=09	1.319=10
INDIUM	6.857=09(22)	8.139=11(22)	6.857=09(22)	1.707=10(22)
CD=115M	1.590=10	6.944=11	1.590=10	4.417=11
CADMIUM	1.590=10(5)	6.944=11(5)	1.590=10(5)	4.417=11(5)
AG=108M	4.552=06	5.358=07	4.552=06	1.123=06
AG=110M	1.734=03	2.865=03	1.734=03	1.749=03
SILVER	1.738=03(97)	2.865=03(97)	1.738=03(97)	1.750=03(97)
PD=107	1.038=08	1.765=08	1.038=08	1.776=08
PALLADIUM	1.038=08(49)	1.765=08(49)	1.038=08(49)	1.776=08(49)
RH=103M	7.790=09	3.407=09	7.790=09	2.965=09
RH=106	8.416=01	7.963=01	8.416=01	7.977=01
RHODIUM	8.416=01(12)	7.963=01(12)	8.416=01(12)	7.977=01(12)
RU=103	1.091=07	4.773=08	1.091=07	4.153=08
RU=106	4.962=03	4.696=03	4.962=03	4.703=03
RUTHENIUM	4.963=03(0)	4.696=03(0)	4.963=03(0)	4.704=03(0)
TC=99	6.962=05	1.099=04	6.962=05	9.559=05
TECHNETIUM	6.962=05(0)	1.099=04(0)	6.962=05(0)	9.559=05(0)
NB=93M	1.345=06	2.679=06	1.345=06	1.769=06
NB=95M	3.038=04	1.099=04	3.038=04	7.152=05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	238 RECYCLE U-233 F.E.		258 RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
NB-95 NIOBIUM	2.246-03 2.551-03(95)	8.122-04 9.247-04(95)	2.246-03 2.551-03(95)	5.288-04 6.021-04(95)
ZR-93 ZR-95 ZIRCONIUM	2.126-06 1.038-03 1.041-03(86)	3.513-06 3.755-04 3.790-04(85)	2.126-06 1.038-03 1.041-03(86)	2.334-06 2.445-04 2.468-04(85)
Y-90 Y-91 YTTRIUM	6.600+00 4.709-05 6.600+00(0)	1.063+01 1.607-05 1.063+01(0)	6.600+00 4.709-05 6.600+00(0)	6.789+00 9.581-06 6.789+00(0)
SR-89 SR-90 STRONTIUM	4.253-05 1.403+00 1.403+00(0)	1.346-05 2.260+00 2.260+00(0)	4.253-05 1.403+00 1.403+00(0)	7.208-06 1.443+00 1.443+00(0)
RB-87 RUBIDIUM	2.061-10 2.061-10(0)	3.284-10 3.284-10(0)	2.061-10 2.061-10(0)	1.571-10 1.571-10(0)
KR-85 KRYPTON	4.277-01 4.277-01(0)	4.943-01 4.943-01(0)	4.277-01 4.277-01(0)	2.253-01 2.253-01(0)
SE-79 SELENIUM	2.159-06 2.159-06(0)	2.586-06 2.586-06(0)	2.159-06 2.159-06(0)	7.224-07 7.224-07(0)
NI-59 NI-63 NICKEL	8.964-08 2.562-05 2.571-05(0)	4.766-09 1.363-06 1.368-06(0)	8.964-08 2.562-05 2.571-05(0)	9.994-09 2.858-06 2.868-06(0)
CO-58 CO-60 COBALT	9.049-10 5.699-06 5.700-06(96)	4.811-11 3.047-07 3.048-07(96)	9.049-10 5.699-06 5.700-06(96)	1.009-10 6.390-07 6.391-07(96)
CL-36 CHLORINE	2.009-06 2.009-06(0)	0.000 0.000 (0)	2.009-06 2.009-06(0)	0.000 0.000 (0)
S-35 SULFUR	1.825-07 1.825-07(0)	4.881-10 4.881-10(0)	1.825-07 1.825-07(0)	1.023-09 1.023-09(0)
C-14 FROM C C-14 FROM N C-14 FROM O CARBON	7.382-06 1.190-06 6.099-07 9.182-06(0)	0.000 1.172-08 1.642-08 2.814-08(0)	7.382-06 1.190-06 6.099-07 9.182-06(0)	0.000 2.457-08 3.443-08 5.900-08(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	2388 RECYCLE U-233 F.E. FERTILE PTL.	FISSILE PTL.	2588 RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
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H-3 FROM LI6	9.564-04	1.582-05	9.564-04	3.316-05
H-3 FROM B10	1.867-06	0.000	1.867-06	0.000
H-3 FISS YLD	1.172-04	1.853-04	1.172-04	1.340-04
TRITIUM	1.076-03(0)	2.011-04(0)	1.076-03(0)	1.671-04(0)
ALL ELEMENTS				
TOTAL BETA	1.849+01	2.311+01	1.849+01	1.630+01
TOTAL GAMMA	1.047+01	2.044+01	1.047+01	1.573+01
TOTAL ALPHA	5.391-01	9.574-01	5.391-01	1.962+01
GRAND TOTAL	2.950+01(35)	4.451+01(45)	2.950+01(35)	5.164+01(30)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
CM-242	3.150=07	1.375=05	3.150=07	2.835=03
CM-243	2.094=08	2.960=06	2.094=08	9.721=04
CM-244	2.707=04	1.755=03	2.707=04	8.532=01
CURIUM	2.710=04(0)	1.771=03(1)	2.710=04(0)	8.570=01(0)
AM-241	9.108=06	5.850=04	9.108=06	7.199=02
AM-242M	2.338=09	3.195=08	2.338=09	5.244=06
AM-242	1.012=08	1.382=07	1.012=08	2.269=05
AM-243	4.779=07	1.287=05	4.779=07	4.983=03
AMERICIUM	9.599=06(0)	5.980=04(0)	9.599=06(0)	7.700=02(0)
PU-238	1.265=02	4.255=01	1.265=02	1.831=01
PU-239	3.474=06	1.593=04	3.474=06	1.191=02
PU-240	4.161=06	2.075=04	4.161=06	2.076=02
PU-241	9.414=07	5.957=05	9.414=07	7.211=03
PLUTONIUM	1.266=02(0)	4.259=01(0)	1.266=02(0)	1.835=01(0)
NP-237	1.942=06	3.717=05	1.942=06	1.167=03
NEPTUNIUM	1.942=06(0)	3.717=05(0)	1.942=06(0)	1.167=03(0)
U-232	7.869=02	6.995=02	7.869=02	2.969=05
U-233	5.950=02	9.542=03	5.950=02	2.442=09
U-234	7.737=03	1.464=02	7.737=03	1.079=03
U-235	5.256=07	1.867=06	5.256=07	2.640=06
U-236	2.505=06	2.671=05	2.505=06	7.662=04
U-238	0.000	1.286=11	0.000	1.107=06
URANIUM	1.459=01(0)	9.417=02(0)	1.459=01(0)	1.879=03(0)
PA-231	8.471=05	1.751=06	8.471=05	3.196=08
PA-234	0.000	5.402=12	0.000	4.652=07
PROTACTINIUM	8.471=05(1)	1.751=06(1)	8.471=05(1)	4.971=07(83)
TH-228	7.292=02	7.260=02	7.292=02	2.752=05
TH-229	3.520=05	1.280=05	3.520=05	4.622=10
TH-230	1.674=04	3.205=06	1.674=04	8.889=08
TH-231	2.049=08	7.278=08	2.049=08	1.024=07
TH-232	2.105=05	0.000	2.105=05	0.000
TH-234	0.000	2.256=13	0.000	1.942=08
THORIUM	7.314=02(0)	7.261=02(0)	7.314=02(0)	2.773=05(0)
AC-225	4.087=05	1.487=05	4.087=05	5.367=10
AC-227	1.056=07	5.007=09	1.056=07	9.258=11
AC-228	4.874=06	1.423=12	4.874=06	0.000
ACTINIUM	4.585=05(8)	1.487=05(0)	4.585=05(8)	6.293=10(1)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	238S RECYCLE U-233 F.E.		235S RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
RA-223	7.223-06	3.426-07	7.223-06	6.334-09
RA-224	7.634-02	7.600-02	7.634-02	2.881-05
RA-225	9.203-07	3.348-07	9.203-07	1.209-11
RA-226	4.736-08	1.383-14	4.736-08	0.000
RADIUM	7.635-02(0)	7.600-02(0)	7.635-02(0)	2.882-05(0)
FR-221	4.447-05	1.618-05	4.447-05	5.840-10
FR-223	8.100-09	3.842-10	8.100-09	7.103-12
FRANCIUM	4.448-05(0)	1.618-05(0)	4.448-05(0)	5.911-10(0)
RN-219	8.390-06	3.979-07	8.390-06	7.358-09
RN-220	8.454-02	8.416-02	8.454-02	3.191-05
RADON	8.454-02(0)	8.416-02(0)	8.454-02(0)	3.191-05(0)
AT-217	4.959-05	1.804-05	4.959-05	6.513-10
AT-218	2.312-10	4.426-12	2.312-10	0.000
ASTATINE	4.959-05(0)	1.804-05(0)	4.959-05(0)	6.513-10(0)
PU-210	5.611-07	0.000	5.611-07	0.000
PU-212	7.557-02	7.529-02	7.557-02	2.852-05
PU-213	5.882-05	2.140-05	5.882-05	7.725-10
PQ-215	9.089-06	4.311-07	9.089-06	7.971-09
PU-216	9.121-02	9.081-02	9.121-02	3.443-05
POOLONIUM	1.668-01(0)	1.661-01(0)	1.668-01(0)	6.296-05(0)
BI-211	8.129-06	3.855-07	8.129-06	7.129-09
BI-212	3.802-02	3.786-02	3.802-02	1.435-05
BI-213	5.143-06	1.871-06	5.143-06	6.754-11
BISMUTH	3.804-02(4)	3.786-02(4)	3.804-02(4)	1.436-05(4)
PB-209	1.431-06	5.207-07	1.431-06	1.879-11
PB-211	6.646-07	3.152-08	6.646-07	5.828-10
PB-212	4.275-03	4.256-03	4.275-03	1.613-06
LEAD	4.277-03(66)	4.256-03(66)	4.277-03(66)	1.614-06(66)
TL-207	6.541-07	3.102-08	6.541-07	5.737-10
TL-208	1.911-02	1.903-02	1.911-02	7.212-06
THALLIUM	1.911-02(84)	1.903-02(84)	1.911-02(84)	7.212-06(84)
DY-159	1.091-10	1.432-11	1.091-10	2.997-11
DYSPROSIUM	1.091-10(100)	1.432-11(100)	1.091-10(100)	2.997-11(100)
TH-157	5.255-10	1.698-10	5.255-10	1.251-10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	2388 RECYCLE U-233 F.E.		2548 RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
TB-158	6.688=10	9.480=10	6.688=10	9.153=11
TB-160	4.650=10	4.918=10	4.650=10	5.308=10
TERBIUM	1.659=09(93)	1.610=09(92)	1.659=09(93)	7.474=10(88)
GD-153	5.464=08	9.237=08	5.464=08	1.569=07
GADOLINIUM	5.464=08(100)	9.237=08(100)	5.464=08(100)	1.569=07(100)
EU-152	3.630=04	4.350=04	3.630=04	4.249=04
EU-154	1.296=01	2.665=01	1.296=01	2.635=01
EU-155	3.280=03	6.612=03	3.280=03	6.537=03
EUROPIUM	1.332=01(83)	2.735=01(83)	1.332=01(83)	2.704=01(83)
SM-145	4.472=08	6.605=08	4.472=08	1.385=07
SM-151	3.362=04	3.187=04	3.362=04	2.987=04
SAMARIUM	3.362=04(2)	3.188=04(2)	3.362=04(2)	2.988=04(2)
PM-147	1.362=01	9.604=02	1.362=01	8.241=02
PROMETHIUM	1.362=01(0)	9.604=02(0)	1.362=01(0)	8.241=02(0)
PR-144	1.185=00	9.087=01	1.185=00	7.405=01
PRASEODYMIUM	1.185=00(2)	9.087=01(2)	1.185=00(2)	7.405=01(2)
CE-144	1.025=01	7.858=02	1.025=01	6.404=02
CERIUM	1.025=01(25)	7.858=02(25)	1.025=01(25)	6.404=02(25)
LA-137	5.467=10	2.409=10	5.467=10	1.177=10
LANTHANUM	5.467=10(100)	2.409=10(100)	5.467=10(100)	1.177=10(100)
BA-137M	4.180=00	6.798=00	4.180=00	4.682=00
BARIUM	4.180=00(100)	6.798=00(100)	4.180=00(100)	4.682=00(100)
CS-134	2.916=00	6.906=00	2.916=00	5.706=00
CS-137	1.099=00	1.787=00	1.099=00	1.231=00
CESIUM	4.015=00(65)	8.692=00(72)	4.015=00(65)	6.937=00(74)
I-129	3.157=07	4.814=07	3.157=07	1.552=07
IODINE	3.157=07(39)	4.814=07(39)	3.157=07(39)	1.552=07(39)
TE-125M	4.499=02	5.299=02	4.499=02	1.039=02
TE-127M	1.895=06	5.916=07	1.895=06	1.028=07
TE-127	4.674=06	1.460=06	4.674=06	2.537=07

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL.		2588 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL.	
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TELLURIUM	4.500-02(99)	5.299-02(99)	4.500-02(99)	1.039-02(99)
SB-124	1.018-11	1.383-11	1.018-11	6.001-12
SB-125	1.585-01	1.867-01	1.585-01	3.662-02
ANTIMONY	1.985-01(83)	1.867-01(83)	1.585-01(83)	3.662-02(83)
SN-119M	5.922-06	3.997-06	5.922-06	2.666-06
SN-121M	6.224-06	7.292-06	6.224-06	5.505-06
SN-123	6.715-06	2.561-06	6.715-06	1.026-06
TIN	1.270-05(47)	6.631-06(61)	1.270-05(47)	3.746-06(71)
AG-108M	4.503-06	5.302-07	4.503-06	1.112-06
AG-110M	2.382-04	3.936-04	2.382-04	2.403-04
SILVER	2.427-04(97)	3.941-04(97)	2.427-04(97)	2.414-04(97)
PD-107	1.038-08	1.765-08	1.038-08	1.776-08
PALLADIUM	1.038-08(49)	1.765-08(49)	1.038-08(49)	1.776-08(49)
RH-106	2.127-01	2.013-01	2.127-01	2.016-01
RHODIUM	2.127-01(12)	2.013-01(12)	2.127-01(12)	2.016-01(12)
RU-106	1.254-03	1.187-03	1.254-03	1.189-03
RUTHENIUM	1.254-03(0)	1.187-03(0)	1.254-03(0)	1.189-03(0)
TC-99	6.962-05	1.099-04	6.962-05	9.559-05
TECHNETIUM	6.962-05(0)	1.099-04(0)	6.962-05(0)	9.559-05(0)
NB-93M	1.876-06	3.512-06	1.876-06	2.323-06
NB-95M	1.341-07	4.850-06	1.341-07	3.158-06
NB-95	9.917-07	3.586-07	9.917-07	2.335-07
NIUBIUM	3.002-06(98)	3.919-06(99)	3.002-06(98)	2.586-06(99)
ZR-93	2.126-06	3.513-06	2.126-06	2.334-06
ZR-95	4.585-07	1.658-07	4.585-07	1.079-07
ZIRCONIUM	2.584-06(15)	3.678-06(3)	2.584-06(15)	2.442-06(3)
Y-90	6.278+00	1.011+01	6.278+00	6.458+00
Y-91	7.621-09	2.600-09	7.621-09	1.551-09
YTRIUM	6.278+00(0)	1.011+01(0)	6.278+00(0)	6.458+00(0)
SR-89	2.863-09	9.063-10	2.863-09	4.852-10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	238S RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	258S RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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BR-90 STRONTIUM	1.335+00 1.335+00(0)	2.150+00 2.150+00(0)	1.335+00 1.335+00(0)	1.373+00 1.373+00(0)
RB-87 RUBIDIUM	2.061-10 2.061-10(0)	3.284-10 3.284-10(0)	2.061-10 2.061-10(0)	1.571-10 1.571-10(0)
KR-85 KRYPTON	3.760-01 3.760-01(0)	4.345-01 4.345-01(0)	3.760-01 3.760-01(0)	1.981-01 1.981-01(0)
SE-79 SELENIUM	2.159-06 2.159-06(0)	2.586-06 2.586-06(0)	2.159-06 2.159-06(0)	7.223-07 7.223-07(0)
NI-59 NI-63 NICKEL	8.964-08 2.524-05 2.533-05(0)	4.766-09 1.343-06 1.347-06(0)	8.964-08 2.524-05 2.533-05(0)	9.993-09 2.815-06 2.823-06(0)
CO-58 CU-60 COBALT	7.510-13 4.378-06 4.378-06(96)	0.000 2.341-07 2.341-07(96)	7.510-13 4.378-06 4.378-06(96)	0.000 4.908-07 4.908-07(96)
CL-36 CHLORINE	2.009-06 2.009-06(0)	0.000 0.000 (0)	2.009-06 2.009-06(0)	0.000 0.000 (0)
S-35 SULFUR	5.485-10 5.485-10(0)	1.467-12 1.467-12(0)	5.485-10 5.485-10(0)	3.076-12 3.076-12(0)
C-14 FROM C C-14 FROM N C-14 FROM U CARBON	7.380-06 1.190-06 6.098-07 9.180-06(0)	0.000 1.171-08 1.642-08 2.813-08(0)	7.380-06 1.190-06 6.098-07 9.180-06(0)	0.000 2.456-08 3.442-08 5.898-08(0)
H-3 FROM LI6 H-3 FROM B10 H-3 FISS YLD TRITIUM	8.547-04 1.668-06 1.047-04 9.611-04(0)	1.413-05 0.000 1.656-04 1.797-04(0)	8.547-04 1.668-06 1.047-04 9.611-04(0)	2.963-05 0.000 1.197-04 1.494-04(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
ALL ELEMENTS				
TOTAL BETA	1.097+01	1.642+01	1.097+01	1.090+01
TOTAL GAMMA	7.223+00	1.360+01	7.223+00	1.020+01
TOTAL ALPHA	5.884+01	9.491+01	5.884+01	1.923+01
GRAND TOTAL	1.878+01(38)	3.097+01(43)	1.878+01(38)	4.032+01(25)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE U-233 F.E. FERTILE PTL.	FISSILE PTL.	25RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
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CM=242	2.373=07	3.242=06	2.373=07	5.322=04
CM=243	1.879=08	2.656=06	1.879=08	8.723=04
CM=244	2.230=04	1.446=03	2.230=04	6.665=01
CURIUM	2.233=04(0)	1.452=03(0)	2.233=04(0)	6.679=01(0)
AM=241	1.593=05	1.017=03	1.593=05	1.242=01
AM=242M	2.285=09	3.123=08	2.285=09	5.126=06
AM=242	9.888=09	1.351=07	9.888=09	2.218=05
AM=243	4.777=07	1.287=05	4.777=07	4.981=03
AMERICIUM	1.642=05(0)	1.030=03(0)	1.642=05(0)	1.292=01(0)
PU=238	1.216=02	4.090=01	1.216=02	1.760=01
PU=239	3.473=06	1.392=04	3.473=06	1.191=02
PU=240	4.159=06	2.074=04	4.159=06	2.075=02
PU=241	7.472=07	4.728=05	7.472=07	5.723=03
PLUTONIUM	1.217=02(0)	4.094=01(0)	1.217=02(0)	1.764=01(0)
NP=237	1.942=06	3.717=05	1.942=06	1.167=03
NEPTUNIUM	1.942=06(0)	3.717=05(0)	1.942=06(0)	1.167=03(0)
U=232	7.499=02	6.666=02	7.499=02	2.830=05
U=233	5.950=02	9.542=03	5.950=02	2.442=09
U=234	7.737=03	1.464=02	7.737=03	1.079=03
U=235	5.256=07	1.867=06	5.256=07	2.640=06
U=236	2.505=06	2.671=05	2.505=06	7.662=04
U=238	0.000	1.286=11	0.000	1.107=06
URANIUM	1.422=01(0)	9.088=02(0)	1.422=01(0)	1.877=03(0)
PA=231	8.470=05	1.751=06	8.470=05	3.227=08
PA=234	0.000	5.402=12	0.000	4.652=07
PROTACTINIUM	8.470=05(1)	1.751=06(1)	8.470=05(1)	4.974=07(82)
TH=228	7.712=02	6.933=02	7.712=02	2.910=05
TH=229	6.449=05	1.750=05	6.449=05	4.632=10
TH=230	1.677=04	3.826=06	1.677=04	1.346=07
TH=231	2.049=08	7.278=08	2.049=08	1.029=07
TH=232	2.105=05	0.000	2.105=05	0.000
TH=234	0.000	2.256=13	0.000	1.942=08
THURIUM	7.737=02(0)	6.935=02(0)	7.737=02(0)	2.936=05(0)
AC=225	7.489=05	2.032=05	7.489=05	5.379=10
AC=227	8.998=08	8.629=09	8.998=08	1.589=10
AC=228	5.952=06	0.000	5.952=06	0.000
ACTINIUM	8.093=05(5)	2.033=05(0)	8.093=05(5)	6.968=10(1)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
RA-223	6.152=06	5.937=07	6.152=06	1.093=08
RA-224	8.074=02	7.258=02	8.074=02	3.047=05
RA-225	1.686=06	4.575=07	1.686=06	1.211=11
RA-226	5.784=08	0.000	5.784=08	0.000
RADIUM	8.075=02(0)	7.258=02(0)	8.075=02(0)	3.048=05(0)
FR-221	8.148=05	2.211=05	8.148=05	5.852=10
FR-223	6.899=09	6.658=10	6.899=09	1.226=11
FRANCIUM	8.148=05(0)	2.211=05(0)	8.148=05(0)	5.975=10(0)
RN-219	7.147=06	6.897=07	7.147=06	1.270=08
RN-220	8.941=02	8.037=02	8.941=02	3.374=05
RADON	8.941=02(0)	8.037=02(0)	8.941=02(0)	3.375=05(0)
AT-217	9.087=05	2.466=05	9.087=05	6.527=10
AT-218	3.266=10	7.449=12	3.266=10	0.000
ASTATINE	9.087=05(0)	2.466=05(0)	9.087=05(0)	6.527=10(0)
PO-210	4.688=07	0.000	4.688=07	0.000
PU-212	7.997=02	7.190=02	7.997=02	3.018=05
PU-213	1.078=04	2.924=05	1.078=04	7.741=10
PO-215	7.742=06	7.472=07	7.742=06	1.376=08
PU-216	9.647=02	8.672=02	9.647=02	3.640=05
POLONIUM	1.766=01(0)	1.587=01(0)	1.766=01(0)	6.660=05(0)
BI-211	6.924=06	6.683=07	6.924=06	1.230=08
BI-212	4.022=02	3.615=02	4.022=02	1.518=05
BI-213	9.424=06	2.557=06	9.424=06	6.769=11
BISMUTH	4.023=02(4)	3.616=02(4)	4.023=02(4)	1.519=05(4)
PB-209	2.622=06	7.115=07	2.622=06	1.884=11
PB-211	5.661=07	5.463=08	5.661=07	1.006=09
PB-212	4.521=03	4.064=03	4.521=03	1.706=06
LEAD	4.524=03(66)	4.065=03(66)	4.524=03(66)	1.707=06(66)
TL-207	5.572=07	5.377=08	5.572=07	9.901=10
TL-208	2.022=02	1.818=02	2.022=02	7.631=06
THALLIUM	2.022=02(84)	1.818=02(84)	2.022=02(84)	7.632=06(84)
TB-157	5.135=10	1.659=10	5.135=10	1.223=10
TB-158	6.535=10	9.272=10	6.535=10	8.946=11
TERBIUM	1.167=09(97)	1.093=09(95)	1.167=09(97)	2.117=10(97)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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GD=153 GADOLINIUM	2.923=10 2.923=10(100)	4.941=10 4.941=10(100)	2.923=10 2.923=10(100)	8.395=10 8.395=10(100)
EU=152	2.763=04	3.312=04	2.763=04	3.232=04
EU=154	1.044=01	2.146=01	1.044=01	2.122=01
EU=155	4.841=04	9.758=04	4.841=04	9.647=04
EUROPIUM	1.051=01(83)	2.159=01(83)	1.051=01(83)	2.135=01(83)
SM=145	1.080=09	1.596=09	1.080=09	3.346=09
SM=151	3.231=04	3.063=04	3.231=04	2.870=04
SAMARIUM	3.231=04(2)	3.063=04(2)	3.231=04(2)	2.870=04(2)
PM=147 PROMETHIUM	3.630=02 3.630=02(0)	2.561=02 2.561=02(0)	3.630=02 3.630=02(0)	2.197=02 2.197=02(0)
PR=144 PRASEODYMIUM	1.374=02 1.374=02(2)	1.054=02 1.054=02(2)	1.374=02 1.374=02(2)	8.590=03 8.590=03(2)
CE=144 CESIUM	1.189=03 1.189=03(25)	9.115=04 9.115=04(25)	1.189=03 1.189=03(25)	7.428=04 7.428=04(25)
LA=137 LANTHANUM	5.464=10 5.464=10(100)	2.408=10 2.408=10(100)	5.464=10 5.464=10(100)	1.176=10 1.176=10(100)
BA=137M BARIUM	3.724=00 3.724=00(100)	6.056=00 6.056=00(100)	3.724=00 3.724=00(100)	4.172=00 4.172=00(100)
CS=134	5.365=01	1.270=00	5.365=01	1.050=00
CS=137	9.788=01	1.592=00	9.788=01	1.097=00
CESIUM	1.515=00(32)	2.862=00(40)	1.515=00(32)	2.146=00(44)
I=129 IODINE	3.157=07 3.157=07(39)	4.814=07 4.814=07(39)	3.157=07 3.157=07(39)	1.552=07 1.552=07(39)
TE=125M	1.253=02	1.475=02	1.253=02	2.894=03
TE=127M	1.717=11	5.362=12	1.717=11	9.318=13
TE=127	4.237=11	1.323=11	4.237=11	2.299=12
TELLURIUM	1.253=02(100)	1.475=02(100)	1.253=02(100)	2.894=03(100)
SB=125 ANTIMONY	4.414=02 4.414=02(83)	5.198=02 5.198=02(83)	4.414=02 4.414=02(83)	1.020=02 1.020=02(83)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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SN=119M	3.751-08	2.532-08	3.751-08	1.689-08
SN=121M	5.947-08	6.967-08	5.947-08	5.260-08
SN=123	2.690-10	1.026-10	2.690-10	4.109-11
TIN	9.725-08(54)	9.509-08(45)	9.725-08(54)	6.953-08(43)
AG=108M	4.385-06	5.162-07	4.385-06	1.082-06
AG=110M	1.667-06	2.754-06	1.667-06	1.681-06
SILVER	6.052-06(99)	3.270-06(97)	6.052-06(99)	2.764-06(98)
PD=107	1.038-08	1.765-08	1.038-08	1.776-08
PALLADIUM	1.038-08(49)	1.765-08(49)	1.038-08(49)	1.776-08(49)
RH=106	6.834-03	6.466-03	6.834-03	6.477-03
RHODIUM	6.834-03(12)	6.466-03(12)	6.834-03(12)	6.477-03(12)
RU=106	4.030-05	3.813-05	4.030-05	3.819-05
RUTHENIUM	4.030-05(0)	3.813-05(0)	4.030-05(0)	3.819-05(0)
TC=99	6.962-05	1.099-04	6.962-05	9.559-05
TECHNETIUM	6.962-05(0)	1.099-04(0)	6.962-05(0)	9.559-05(0)
NB=93M	2.988-06	5.257-06	2.988-06	3.485-06
NIUBIUM	2.988-06(100)	5.257-06(100)	2.988-06(100)	3.485-06(100)
ZR=93	2.126-06	3.513-06	2.126-06	2.334-06
ZIRCUNIUM	2.126-06(0)	3.513-06(0)	2.126-06(0)	2.334-06(0)
Y=90	5.539+00	8.923+00	5.539+00	5.698+00
YTRIUM	5.539+00(0)	8.923+00(0)	5.539+00(0)	5.698+00(0)
SR=90	1.178+00	1.897+00	1.178+00	1.211+00
STRONTIUM	1.178+00(0)	1.897+00(0)	1.178+00(0)	1.211+00(0)
RB=87	2.061-10	3.284-10	2.061-10	1.571-10
RUBIDIUM	2.061-10(0)	3.284-10(0)	2.061-10(0)	1.571-10(0)
KR=85	2.724-01	3.148-01	2.724-01	1.435-01
KRYPTON	2.724-01(0)	3.148-01(0)	2.724-01(0)	1.435-01(0)
SE=79	2.159-06	2.586-06	2.159-06	7.223-07
SELENIUM	2.159-06(0)	2.586-06(0)	2.159-06(0)	7.223-07(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	238S RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	238S RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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NI-59	8.964+08	4.766+09	8.964+08	9.993+09
NI-63	2.430+05	1.293+06	2.430+05	2.711+06
NICKEL	2.439+05(0)	1.298+06(0)	2.439+05(0)	2.721+06(0)
CO-60	2.264+06	1.211+07	2.264+06	2.539+07
COBALT	2.264+06(96)	1.211+07(96)	2.264+06(96)	2.539+07(96)
CL-36	2.009+06	0.000	2.009+06	0.000
CHLORINE	2.009+06(0)	0.000 (0)	2.009+06(0)	0.000 (0)
C-14 FROM C	7.375+06	0.000	7.375+06	0.000
C-14 FROM N	1.189+06	1.171+08	1.189+06	2.454+08
C-14 FROM O	6.093+07	1.641+08	6.093+07	3.440+08
CARBON	9.173+06(0)	2.811+08(0)	9.173+06(0)	5.894+08(0)
H-3 FROM LIO	6.452+04	1.067+05	6.452+04	2.237+05
H-3 FROM BIO	1.259+06	0.000	1.259+06	0.000
H-3 FISS YLD	7.906+05	1.250+04	7.906+05	9.038+05
TRITIUM	7.255+04(0)	1.357+04(0)	7.255+04(0)	1.127+04(0)
ALL ELEMENTS				
TOTAL BETA	8.108+00	1.294+01	8.108+00	8.345+00
TOTAL GAMMA	4.377+00	7.475+00	4.377+00	5.324+00
TOTAL ALPHA	6.092+01	9.103+01	6.092+01	1.843+01
GRAND TOTAL	1.309+01(33)	2.132+01(35)	1.309+01(33)	3.210+01(16)

TABLE D-4
DECAY HEAT FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF
RELOAD 13 AND ORIGINALLY LOADED AT RELOAD 9

NOTE: Table D-4 consists of 29 pages
of computer print-out (pages 67
through 95).

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM=242	1.058=04	6.574=01	1.058=04	1.353=02	1.058=04	5.304=00
CM=243	2.076=08	2.779=04	2.076=08	3.645=06	2.076=08	2.215=03
CM=244	2.835=04	2.518=01	2.835=04	2.011=03	2.835=04	1.967=00
CUMIUM	3.894=04(0)	9.094=01(0)	3.894=04(0)	1.554=02(0)	3.894=04(0)	7.274=00(0)
AM=241	1.230=06	3.048=03	1.230=06	1.078=04	1.230=06	2.457=02
AM=242M	2.082=09	1.290=06	2.082=09	3.638=08	2.082=09	1.045=05
AM=242	9.010=09	5.580=06	9.010=09	1.574=07	9.010=09	4.523=05
AM=243	3.179=07	9.661=04	3.179=07	1.407=05	3.179=07	9.927=03
AMERICIUM	1.559=06(0)	4.021=03(0)	1.559=06(0)	1.221=04(0)	1.559=06(0)	3.455=02(0)
PU=238	1.207=02	3.876=00	1.207=02	4.918=01	1.207=02	3.017=01
PU=239	3.179=06	2.825=03	3.179=06	1.562=04	3.179=06	2.192=02
PU=240	3.784=06	4.902=03	3.784=06	2.342=03	3.784=06	3.880=02
PU=241	1.045=06	2.110=03	1.045=06	8.303=05	1.045=06	1.695=02
PLUTONIUM	1.208=02(0)	3.886=00(0)	1.208=02(0)	4.922=01(0)	1.208=02(0)	3.023=01(0)
NP=237	1.816=06	2.900=04	1.816=06	4.006=05	1.816=06	1.879=03
NEPTUNIUM	1.816=06(0)	2.900=04(0)	1.816=06(0)	4.006=05(0)	1.816=06(0)	1.879=03(0)
U=232	8.308=02	1.359=05	8.308=02	8.119=02	8.308=02	5.633=05
U=233	5.949=02	9.135=10	5.949=02	9.056=03	5.949=02	4.896=09
U=234	7.631=03	4.635=04	7.631=03	1.438=02	7.631=03	2.005=03
U=235	5.120=07	3.864=06	5.120=07	1.875=06	5.120=07	3.021=06
U=236	2.384=06	2.019=04	2.384=06	2.821=05	2.384=06	1.849=03
U=237	5.196=09	4.020=07	5.196=09	6.264=08	5.196=09	3.513=06
U=238	0.000	3.192=07	0.000	1.395=11	0.000	2.381=06
URANIUM	1.502=01(0)	7.035=04(0)	1.502=01(0)	1.047=01(0)	1.502=01(0)	3.919=03(0)
PA=231	8.499=05	1.420=08	8.499=05	9.384=06	8.499=05	5.913=08
PA=233	1.007=01	1.329=08	1.007=01	1.050=07	1.007=01	2.661=07
PA=234	3.016=03	1.341=07	3.016=03	3.744=11	3.016=03	1.000=06
PROTACTINIUM	1.008=01(84)	1.616=07(80)	1.008=01(84)	9.489=06(2)	1.008=01(84)	1.325=06(83)
TH=228	3.697=02	6.008=06	3.697=02	7.652=02	3.697=02	2.483=05
TH=229	8.790=06	1.954=10	8.790=06	3.791=05	8.790=06	8.042=10
TH=230	1.702=04	2.114=08	1.702=04	1.331=05	1.702=04	8.674=08
TH=231	1.995=08	1.506=07	1.995=08	7.306=08	1.995=08	1.177=07
TH=232	2.107=05	0.000	2.107=05	0.000	2.107=05	0.000
TH=234	1.259=04	5.599=09	1.259=04	1.564=12	1.259=04	4.177=08
THURIUM	3.730=02(0)	6.186=06(1)	3.730=02(0)	7.657=02(0)	3.730=02(0)	2.510=05(0)
AC=225	1.021=05	2.269=10	1.021=05	4.403=05	1.021=05	9.339=10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
AC-227	1.245-07	1.062-11	1.245-07	6.577-09	1.245-07	4.422-11
AC-228	3.297-06	0.000	3.297-06	1.169-11	3.297-06	0.000
ACTINIUM	1.363-05(17)	2.375-10(0)	1.363-05(17)	4.403-05(0)	1.363-05(17)	9.781-10(0)
RA-223	8.512-06	6.986-10	8.512-06	4.262-07	8.512-06	2.908-09
RA-224	3.870-02	6.290-06	3.870-02	8.011-02	3.870-02	2.601-05
RA-225	2.298-07	5.108-12	2.298-07	9.913-07	2.298-07	2.103-11
RA-226	3.204-08	0.000	3.204-08	1.136-13	3.204-08	0.000
RADIUM	3.871-02(0)	6.291-06(0)	3.871-02(0)	8.011-02(0)	3.871-02(0)	2.601-05(0)
FR-221	1.111-05	2.468-10	1.111-05	4.790-05	1.111-05	1.016-09
FR-223	9.547-09	7.835-13	9.547-09	4.780-10	9.547-09	3.261-12
FRANCIUM	1.111-05(0)	2.476-10(0)	1.111-05(0)	4.790-05(0)	1.111-05(0)	1.019-09(0)
RN-219	9.888-06	8.116-10	9.888-06	4.951-07	9.888-06	3.378-09
RN-220	4.286-02	6.966-06	4.286-02	8.871-02	4.286-02	2.880-05
RAUON	4.287-02(0)	6.966-06(0)	4.287-02(0)	8.871-02(0)	4.287-02(0)	2.881-05(0)
AT-217	1.238-05	2.753-10	1.238-05	5.342-05	1.238-05	1.133-09
AT-218	1.476-10	0.000	1.476-10	1.154-11	1.476-10	0.000
ASTATINE	1.238-05(0)	2.753-10(0)	1.238-05(0)	5.342-05(0)	1.238-05(0)	1.133-09(0)
PU-210	2.181-05	4.910-09	2.181-05	2.236-05	2.181-05	2.050-08
PU-212	3.706-02	6.024-06	3.706-02	7.937-02	3.706-02	2.491-05
PU-213	1.469-05	3.265-10	1.469-05	6.336-05	1.469-05	1.344-09
PQ-215	1.071-05	8.791-10	1.071-05	5.364-07	1.071-05	3.659-09
PU-216	4.625-02	7.516-06	4.625-02	9.572-02	4.625-02	3.108-05
PULONUM	8.336-02(0)	1.355-05(0)	8.336-02(0)	1.752-01(0)	8.336-02(0)	5.602-05(0)
BI-211	9.581-06	7.863-10	9.581-06	4.797-07	9.581-06	3.273-09
BI-212	1.928-02	3.133-06	1.928-02	3.990-02	1.928-02	1.296-05
BI-213	1.284-06	2.855-11	1.284-06	5.540-06	1.284-06	1.175-10
BISMUTH	1.929-02(4)	3.134-06(4)	1.929-02(4)	3.991-02(4)	1.929-02(4)	1.296-05(4)
PB-209	3.574-07	7.944-12	3.574-07	1.542-06	3.574-07	3.270-11
PB-211	7.832-07	6.428-11	7.832-07	3.922-08	7.832-07	2.676-10
PB-212	2.167-03	3.522-07	2.167-03	4.486-03	2.167-03	1.456-06
LEAD	2.168-03(66)	3.523-07(66)	2.168-03(66)	4.487-03(66)	2.168-03(66)	1.457-06(66)
TL-207	7.709-07	6.327-11	7.709-07	3.860-08	7.709-07	2.633-10
TL-208	9.372-03	1.523-06	9.372-03	2.006-02	9.372-03	6.297-06
THALLIUM	9.372-03(84)	1.523-06(84)	9.372-03(84)	2.006-02(84)	9.372-03(84)	6.297-06(84)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23WS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25WS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
DY=159 DYSPRISIUM	3.032-07 3.032-07(100)	4.976-08 4.976-08(100)	3.032-07 3.032-07(100)	7.381-08 7.381-08(100)	3.032-07 3.032-07(100)	2.833-07 2.833-07(100)
IB=157 IB=158 IB=160 TERBIUM	5.345-10 6.703-10 3.514-03 3.514-03(85)	7.732-11 1.189-10 4.320-03 4.320-03(85)	5.345-10 6.703-10 3.514-03 3.514-03(85)	2.096-10 8.440-10 3.889-03 3.889-03(85)	5.345-10 6.703-10 3.514-03 3.514-03(85)	4.323-10 1.322-10 7.378-03 7.378-03(85)
GD=153 GADOLINIUM	6.201-06 6.201-06(100)	1.384-05 1.384-05(100)	6.201-06 6.201-06(100)	1.592-05 1.592-05(100)	6.201-06 6.201-06(100)	5.171-05 5.171-05(100)
EU=152 EU=154 EU=155 EU=156 EUROPIUM	4.576-04 1.528-01 1.789-02 4.042-03 1.752-01(81)	7.474-04 4.315-01 4.946-02 1.119-02 4.929-01(81)	4.576-04 1.528-01 1.789-02 4.042-03 1.752-01(81)	5.090-04 2.862-01 3.282-02 7.427-03 3.270-01(81)	4.576-04 1.528-01 1.789-02 4.042-03 1.752-01(81)	5.880-04 3.282-01 3.767-02 8.925-03 3.750-01(81)
SM=145 SM=151 SAMARIUM	1.280-06 3.448-04 3.460-04(2)	2.369-06 4.268-04 4.291-04(2)	1.280-06 3.448-04 3.460-04(2)	3.510-06 2.992-04 3.027-04(3)	1.280-06 3.448-04 3.460-04(2)	1.348-05 3.224-04 3.358-04(5)
PM=147 PM=148M PRASETHIUM	4.472-01 1.936-01 6.408-01(28)	3.892-01 1.777-01 5.669-01(29)	4.472-01 1.936-01 6.408-01(28)	2.963-01 1.343-01 4.306-01(29)	4.472-01 1.936-01 6.408-01(28)	2.925-01 1.334-01 4.259-01(29)
ND=147 NEODYMIUM	1.843-04 1.843-04(32)	7.108-05 7.108-05(32)	1.843-04 1.843-04(32)	6.399-05 6.399-05(32)	1.843-04 1.843-04(32)	5.441-05 5.441-05(32)
PR=144 PRASEUDYMIUM	6.569+01 6.569+01(2)	5.851+01 5.851+01(2)	6.569+01 6.569+01(2)	4.679+01 4.679+01(2)	6.569+01 6.569+01(2)	4.389+01 4.389+01(2)
CE=141 CE=144 CERIUM	7.253-01 5.681+00 6.406+00(26)	2.086-01 5.059+00 5.268+00(26)	7.253-01 5.681+00 6.406+00(26)	2.254-01 4.046+00 4.271+00(26)	7.253-01 5.681+00 6.406+00(26)	1.584-01 3.795+00 3.954+00(26)
LA=137 LA=140 LANTHANUM	5.445-10 2.386-02 2.386-02(81)	7.213-11 6.927-03 6.927-03(81)	5.445-10 2.386-02 2.386-02(81)	2.631-10 7.191-03 7.191-03(81)	5.445-10 2.386-02 2.386-02(81)	3.975-10 5.280-03 5.280-03(81)
BA=137M BA=140 BARIUM	4.547+00 4.209-03 4.551+00(99)	7.056+00 1.222-03 7.057+00(99)	4.547+00 4.209-03 4.551+00(99)	6.622+00 1.269-03 6.623+00(99)	4.547+00 4.209-03 4.551+00(99)	5.263+00 9.316-04 5.264+00(99)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E.		23MS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CS-134	1.301+01	3.528+01	1.301+01	2.770+01	1.301+01	2.631+01
CS-137	1.195+00	1.855+00	1.195+00	1.741+00	1.195+00	1.383+00
CESIUM	1.421+01(83)	3.714+01(88)	1.421+01(83)	2.944+01(85)	1.421+01(83)	2.769+01(86)
XE-131M	6.442+06	1.560+06	6.442+06	1.835+06	6.442+06	1.183+06
XENON	6.442+06(100)	1.560+06(100)	6.442+06(100)	1.835+06(100)	6.442+06(100)	1.183+06(100)
I-129	3.093+07	2.125+07	3.093+07	4.196+07	3.093+07	1.576+07
I-131	8.649+06	2.078+06	8.649+06	2.448+06	8.649+06	1.576+06
IODINE	8.959+06(66)	2.290+06(64)	8.959+06(66)	2.868+06(63)	8.959+06(66)	1.733+06(65)
TE-125M	1.377+01	4.576+02	1.377+01	1.465+01	1.377+01	3.361+02
TE-127M	6.733+02	5.796+03	6.733+02	1.989+02	6.733+02	4.102+03
TE-127	1.661+01	1.430+02	1.661+01	4.907+02	1.661+01	1.012+02
TE-129M	2.612+01	3.717+02	2.612+01	6.528+02	2.612+01	2.751+02
TE-129	5.103+01	7.262+02	5.103+01	1.276+01	5.103+01	5.376+02
TELLURIUM	1.143+00(30)	1.756+01(40)	1.143+00(30)	4.083+01(49)	1.143+00(30)	1.291+01(40)
SB-124	1.700+03	1.284+03	1.700+03	2.101+03	1.700+03	1.342+03
SB-125	4.951+01	1.619+01	4.951+01	5.180+01	4.951+01	1.189+01
ANTIMONY	4.968+01(83)	1.632+01(83)	4.968+01(83)	5.201+01(83)	4.968+01(83)	1.203+01(83)
SN-119M	5.676+04	3.667+04	5.676+04	3.560+04	5.676+04	2.747+04
SN-121M	6.331+08	6.828+08	6.331+08	6.943+08	6.331+08	8.038+08
SN-123	6.238+02	1.430+02	6.238+02	2.259+02	6.238+02	1.063+02
TIN	6.294+02(2)	1.466+02(3)	6.294+02(2)	2.295+02(2)	6.294+02(2)	1.090+02(3)
IN-114M	5.815+04	6.648+06	5.815+04	1.282+05	5.815+04	4.923+05
IN-114	1.978+03	2.942+05	1.978+03	4.359+05	1.978+03	1.675+04
INDIUM	2.559+03(22)	3.806+05(22)	2.559+03(22)	5.641+05(22)	2.559+03(22)	2.167+04(22)
CD-115M	4.119+04	1.652+04	4.119+04	1.690+04	4.119+04	1.258+04
CADMIUM	4.119+04(5)	1.652+04(5)	4.119+04(5)	1.690+04(5)	4.119+04(5)	1.258+04(5)
AG-108M	4.537+06	6.692+07	4.537+06	9.916+07	4.537+06	3.804+06
AG-110M	2.048+02	2.869+02	2.048+02	3.046+02	2.048+02	2.154+02
SILVER	2.048+02(97)	2.869+02(97)	2.048+02(97)	3.046+02(97)	2.048+02(97)	2.155+02(97)
PD-107	1.018+08	2.409+08	1.018+08	1.564+08	1.018+08	1.800+08
PALLADIUM	1.018+08(49)	2.409+08(49)	1.018+08(49)	1.564+08(49)	1.018+08(49)	1.800+08(49)
HM-103M	6.683+02	3.670+02	6.683+02	2.866+02	6.683+02	2.898+02
HM-106	4.691+00	6.276+00	4.691+00	4.114+00	4.691+00	4.708+00
RHODIUM	4.758+00(13)	6.315+00(12)	4.758+00(13)	4.143+00(12)	4.758+00(13)	4.737+00(12)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	M8 FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
RU-103	9.361=01	5.421=01	9.361=01	4.014=01	9.361=01	4.059=01
RU-106	2.766=02	3.701=02	2.766=02	2.026=02	2.766=02	2.776=02
RUTHENIUM	9.637=01(85)	5.791=01(82)	9.637=01(85)	4.257=01(82)	9.637=01(85)	4.337=01(82)
TC-99	6.835=05	1.330=04	6.835=05	9.740=05	6.835=05	9.704=05
TECHNETIUM	6.835=05(0)	1.330=04(0)	6.835=05(0)	9.740=05(0)	6.835=05(0)	9.704=05(0)
NB-93M	5.788=07	1.350=06	5.788=07	1.301=06	5.788=07	9.825=07
NB-95M	4.948=00	1.788=00	4.948=00	1.739=00	4.948=00	1.525=00
NB-95	3.252=01	1.190=01	3.252=01	1.154=01	3.252=01	8.814=00
NIOBIUM	3.747=01(95)	1.369=01(95)	3.747=01(95)	1.328=01(95)	3.747=01(95)	1.014=01(95)
ZR-93	2.083=06	3.236=06	2.083=06	3.081=06	2.083=06	2.557=06
ZR-95	1.691=01	6.113=00	1.691=01	5.943=00	1.691=01	4.529=00
ZIRCONIUM	1.691=01(86)	6.113=00(86)	1.691=01(86)	5.943=00(86)	1.691=01(86)	4.529=00(86)
Y-90	6.890=00	1.003=01	6.890=00	9.931=00	6.890=00	7.308=00
Y-91	2.699=00	8.452=01	2.699=00	8.930=01	2.699=00	6.248=01
YTRIUM	9.589=00(0)	1.088=01(0)	9.589=00(0)	1.082=01(0)	9.589=00(0)	7.933=00(0)
SR-89	7.327=00	1.921=00	7.327=00	2.247=00	7.327=00	1.415=00
SR-90	1.465=00	2.133=00	1.465=00	2.112=00	1.465=00	1.554=00
STRONTIUM	8.792=00(0)	4.054=00(0)	8.792=00(0)	4.359=00(0)	8.792=00(0)	2.969=00(0)
RB-86	1.846=04	6.441=05	1.846=04	1.103=04	1.846=04	4.617=05
RB-87	2.020=10	2.185=10	2.020=10	2.869=10	2.020=10	1.589=10
RUBIDIUM	1.846=04(12)	6.441=05(12)	1.846=04(12)	1.103=04(12)	1.846=04(12)	4.617=05(12)
KR-85	4.973=01	3.783=01	4.973=01	5.202=01	4.973=01	2.749=01
KRYPTON	4.973=01(0)	3.783=01(0)	4.973=01(0)	5.202=01(0)	4.973=01(0)	2.749=01(0)
SE-79	2.134=06	1.035=06	2.134=06	2.298=06	2.134=06	7.475=07
SELENIUM	2.134=06(0)	1.035=06(0)	2.134=06(0)	2.298=06(0)	2.134=06(0)	7.475=07(0)
NI-59	8.645=08	5.759=09	8.645=08	8.534=09	8.645=08	3.278=08
NI-63	2.519=05	1.679=06	2.519=05	2.489=06	2.519=05	9.561=06
NICKEL	2.528=05(0)	1.685=06(0)	2.528=05(0)	2.497=06(0)	2.528=05(0)	9.594=06(0)
CU-58	6.657=06	4.435=07	6.657=06	6.572=07	6.657=06	2.525=06
CU-60	7.676=06	5.143=07	7.676=06	7.621=07	7.676=06	2.928=06
COPALT	1.433=05(96)	9.578=07(96)	1.433=05(96)	1.419=06(96)	1.433=05(96)	5.453=06(96)
CL-36	1.943=06	0.000	1.943=06	0.000	1.943=06	0.000
CHLORINE	1.943=06(0)	0.000 (0)	1.943=06(0)	0.000 (0)	1.943=06(0)	0.000 (0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	MS FRESH U-235 F.E.		23MS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
S-35	2.676-04	8.968-07	2.676-04	1.329-06	2.676-04	5.106-06
SULFUR	2.676-04(0)	8.968-07(0)	2.676-04(0)	1.329-06(0)	2.676-04(0)	5.106-06(0)
C-14 FROM C	7.116-06	0.000	7.116-06	0.000	7.116-06	0.000
C-14 FROM N	1.150-06	1.418-08	1.150-06	2.102-08	1.150-06	8.074-08
C-14 FROM U	5.861-07	1.983-08	5.861-07	2.939-08	5.861-07	1.129-07
CARBON	8.852-06(0)	3.401-08(0)	8.852-06(0)	5.041-08(0)	8.852-06(0)	1.936-07(0)
H-3 FROM Li6	1.100-03	2.279-05	1.100-03	3.377-05	1.100-03	1.297-04
H-3 FROM B10	2.152-06	0.000	2.152-06	0.000	2.152-06	0.000
H-3 FISS YLD	1.324-04	2.143-04	1.324-04	1.879-04	1.324-04	1.582-04
TRITIUM	1.234-03(0)	2.371-04(0)	1.234-03(0)	2.216-04(0)	1.234-03(0)	2.859-04(0)
ALL ELEMENTS						
TOTAL BETA	1.014+02	6.916+01	1.014+02	7.463+01	1.014+02	6.654+01
TOTAL GAMMA	8.110+01	6.228+01	8.110+01	5.377+01	8.110+01	4.639+01
TOTAL ALPHA	3.791+01	4.791+00	3.791+01	1.062+00	3.791+01	3.749+01
GRAND TOTAL	1.829+02(44)	1.562+02(39)	1.829+02(44)	1.295+02(41)	1.829+02(44)	1.505+02(30)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23MS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25MS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
CM-242	4.824+05	2.991+01	4.824+05	6.154+03	4.824+05	2.413+00
CM-243	2.053+08	2.749+04	2.053+08	3.605+06	2.053+08	2.191+03
CM-244	2.780+04	2.469+01	2.780+04	1.972+03	2.780+04	1.924+00
CURIUM	3.263+04(0)	5.462+01(0)	3.263+04(0)	8.129+03(0)	3.263+04(0)	4.544+00(0)
AM-241	2.091+06	4.788+03	2.091+06	1.763+04	2.091+06	3.853+02
AM-242M	2.078+09	1.287+06	2.078+09	3.629+08	2.078+09	1.043+05
AM-242	8.989+09	5.567+06	8.989+09	1.570+07	8.989+09	4.513+05
AM-243	3.178+07	1.255+03	3.178+07	1.407+05	3.178+07	9.926+03
AMERICIUM	2.420+06(0)	6.049+03(0)	2.420+06(0)	1.905+04(0)	2.420+06(0)	4.852+02(0)
PU-238	1.202+02	3.861+00	1.202+02	4.898+01	1.202+02	3.005+01
PU-239	3.179+06	2.825+03	3.179+06	1.562+04	3.179+06	2.192+02
PU-240	3.783+06	4.901+03	3.783+06	2.542+04	3.783+06	3.879+02
PU-241	1.021+06	2.061+03	1.021+06	8.111+05	1.021+06	1.655+02
PLUTONIUM	1.203+02(0)	3.870+00(0)	1.203+02(0)	4.903+01(0)	1.203+02(0)	3.013+01(0)
NP-237	1.816+06	2.900+04	1.816+06	4.006+05	1.816+06	1.874+03
NEPTUNIUM	1.816+06(0)	2.900+04(0)	1.816+06(0)	4.006+05(0)	1.816+06(0)	1.874+03(0)
U-232	8.268+02	1.352+05	8.268+02	8.079+02	8.268+02	5.606+05
U-233	5.954+02	9.136+10	5.954+02	9.056+03	5.954+02	4.897+09
U-234	7.631+03	4.835+04	7.631+03	1.438+02	7.631+03	2.005+03
U-235	5.120+07	3.864+06	5.120+07	1.875+06	5.120+07	3.621+06
U-236	2.384+06	2.019+04	2.384+06	2.821+05	2.384+06	1.849+03
U-238	0.000	3.192+07	0.000	1.395+11	0.000	2.381+06
URANIUM	1.499+01(0)	7.030+04(0)	1.499+01(0)	1.043+01(0)	1.499+01(0)	3.916+03(0)
PA-231	8.499+05	1.424+08	8.499+05	9.384+06	8.499+05	5.916+08
PA-233	8.665+02	1.143+10	8.665+02	9.034+10	8.665+02	2.289+09
PA-234	1.464+05	1.541+07	1.464+05	6.014+12	1.464+05	1.000+06
PROTACTINIUM	8.675+02(84)	1.484+07(80)	8.675+02(84)	9.385+06(1)	8.675+02(84)	1.862+06(83)
TH-228	4.498+02	7.325+06	4.498+02	7.685+02	4.498+02	3.032+05
TH-229	1.176+05	1.954+10	1.176+05	3.836+05	1.176+05	8.644+10
TH-230	1.702+04	2.321+08	1.702+04	1.337+05	1.702+04	9.731+08
TH-231	1.995+08	1.506+08	1.995+08	7.306+08	1.995+08	1.177+07
TH-232	2.107+05	0.000	2.107+05	0.000	2.107+05	0.000
TH-234	6.113+07	5.598+09	6.113+07	2.511+13	6.113+07	4.176+08
THORIUM	4.519+02(0)	7.369+06(0)	4.519+02(0)	7.690+02(0)	4.519+02(0)	3.057+05(0)
AC-225	1.366+05	2.269+10	1.366+05	4.455+05	1.366+05	9.441+10
AC-227	1.225+07	1.431+11	1.225+07	9.018+09	1.225+07	5.956+11

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
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AC-228 ACTINIUM	3.515=06 1.730=05(15)	0.000 2.412=10(0)	3.515=06 1.730=05(15)	1.110=11 4.456=05(0)	3.515=06 1.730=05(15)	0.000 9.937=10(0)
RA-223 RA-224 RA-225 RA-226 RADIUM	8.376=06 4.709=02 3.076=07 3.415=08 4.710=02(0)	9.542=10 7.668=06 5.109=12 0.000 7.669=06(0)	8.376=06 4.709=02 3.076=07 3.415=08 4.710=02(0)	5.794=07 8.045=02 1.003=06 1.079=13 8.045=02(0)	8.376=06 4.709=02 3.076=07 3.415=08 4.710=02(0)	3.971=09 3.174=05 2.103=11 0.000 3.174=05(0)
FR-221 FR-223 FRANCIUM	1.486=05 9.392=09 1.487=05(0)	2.469=10 1.070=12 2.479=10(0)	1.486=05 9.392=09 1.487=05(0)	4.847=05 6.498=10 4.847=05(0)	1.486=05 9.392=09 1.487=05(0)	1.016=09 4.454=12 1.021=09(0)
RN-219 RN-220 RADON	9.730=06 5.215=02 5.216=02(0)	1.108=09 8.491=06 8.493=06(0)	9.730=06 5.215=02 5.216=02(0)	6.731=07 8.409=02 8.409=02(0)	9.730=06 5.215=02 5.216=02(0)	4.613=09 3.514=05 3.515=05(0)
AT-217 AT-218 ASTATINE	1.658=05 1.575=10 1.658=05(0)	2.753=10 0.000 2.753=10(0)	1.658=05 1.575=10 1.658=05(0)	5.406=05 1.237=11 5.406=05(0)	1.658=05 1.575=10 1.658=05(0)	1.133=09 0.000 1.133=09(0)
PU-210 PU-212 PU-213 PU-215 PU-216 POLONIUM	9.012=06 4.640=02 1.966=05 1.054=05 5.627=02 1.027=01(0)	2.305=09 7.556=06 3.266=10 1.201=09 9.162=06 1.672=05(0)	9.012=06 4.640=02 1.966=05 1.054=05 5.627=02 1.027=01(0)	9.240=06 7.969=02 6.412=05 7.291=07 9.613=02 1.759=01(0)	9.012=06 4.640=02 1.966=05 1.054=05 5.627=02 1.027=01(0)	9.623=09 3.127=05 1.344=09 4.997=09 3.792=05 6.921=05(0)
BI-211 BI-212 BI-213 BISMUTH	9.427=06 2.346=02 1.719=06 2.347=02(4)	1.074=09 3.820=06 2.856=11 3.821=06(4)	9.427=06 2.346=02 1.719=06 2.347=02(4)	6.521=07 4.007=02 5.606=06 4.008=02(4)	9.427=06 2.346=02 1.719=06 2.347=02(4)	4.470=09 1.581=05 1.175=10 1.581=05(4)
PB-209 PB-211 PB-212 LEAD	4.784=07 7.707=07 2.637=03 2.638=03(66)	7.946=12 8.780=11 4.294=07 4.295=07(66)	4.784=07 7.707=07 2.637=03 2.638=03(66)	1.560=06 5.331=08 4.505=03 4.507=03(66)	4.784=07 7.707=07 2.637=03 2.638=03(66)	3.271=11 3.654=10 1.777=06 1.777=06(66)
TL-207 TL-208 THALLIUM	7.586=07 1.173=02 1.173=02(84)	8.642=11 1.910=06 1.910=06(84)	7.586=07 1.173=02 1.173=02(84)	5.248=08 2.015=02 2.015=02(84)	7.586=07 1.173=02 1.173=02(84)	3.597=10 7.907=06 7.907=06(84)
DY-159 DYSPRSIUM	1.243=07 1.243=07(100)	2.040=08 2.040=08(100)	1.243=07 1.243=07(100)	3.026=08 3.026=08(100)	1.243=07 1.243=07(100)	1.161=07 1.161=07(100)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH FERTILE PTL.	U-235 F.E. FISSILE PTL.	23RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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TB=157	5.332=10	7.714=11	5.332=10	2.091=10	5.332=10	4.313=10
TB=158	6.688=10	1.186=10	6.688=10	8.420=10	6.688=10	1.319=10
TB=160	5.906=04	7.260=04	5.906=04	6.537=04	5.906=04	1.240=03
TERBIUM	5.906=04(85)	7.260=04(85)	5.906=04(85)	6.537=04(85)	5.906=04(85)	1.240=03(85)
GD=153	3.648=06	8.139=06	3.648=06	9.363=06	3.648=06	3.042=05
GADOLINIUM	3.648=06(100)	8.139=06(100)	3.648=06(100)	9.363=06(100)	3.648=06(100)	3.042=05(100)
EU=152	4.452=04	7.270=04	4.452=04	4.952=04	4.452=04	5.720=04
EU=154	1.495=01	4.221=01	1.495=01	2.800=01	1.495=01	5.211=01
EU=155	1.473=02	4.073=02	1.473=02	2.703=02	1.473=02	3.104=02
EU=156	9.672=07	2.677=06	9.672=07	1.777=06	9.672=07	2.040=06
EUROPIUM	1.647=01(81)	4.636=01(81)	1.647=01(81)	3.075=01(81)	1.647=01(81)	3.527=01(81)
SM=145	8.774=07	1.624=06	8.774=07	2.406=06	8.773=07	9.243=06
SM=151	3.434=04	4.251=04	3.434=04	2.980=04	3.434=04	3.211=04
SAMARIUM	3.442=04(2)	4.267=04(2)	3.442=04(2)	3.004=04(2)	3.442=04(2)	3.303=04(4)
PM=147	3.911=01	3.404=01	3.911=01	2.591=01	3.911=01	2.558=01
PM=148M	8.967=03	8.233=03	8.967=03	6.221=03	8.967=03	6.183=03
PROMETHIUM	4.001=01(2)	3.486=01(2)	4.001=01(2)	2.654=01(2)	4.001=01(2)	2.620=01(2)
ND=147	1.673=09	6.453=10	1.673=09	5.808=10	1.673=09	4.940=10
NEODYMIUM	1.673=09(32)	6.453=10(32)	1.673=09(32)	5.808=10(32)	1.673=09(32)	4.940=10(32)
PR=144	4.180=01	3.723=01	4.180=01	2.977=01	4.180=01	2.792=01
PRASEODYMIUM	4.180=01(2)	3.723=01(2)	4.180=01(2)	2.977=01(2)	4.180=01(2)	2.792=01(2)
CE=141	1.395=02	4.013=03	1.395=02	4.336=03	1.395=02	3.046=03
CE=144	3.615=00	3.219=00	3.615=00	2.574=00	3.615=00	2.415=00
CEMIUM	3.629=00(25)	3.223=00(25)	3.629=00(25)	2.579=00(25)	3.629=00(25)	2.418=00(25)
LA=137	5.444=10	7.212=11	5.444=10	2.630=10	5.444=10	3.975=10
LA=140	1.050=06	3.049=07	1.050=06	3.165=07	1.050=06	2.324=07
LANTHANUM	1.051=06(81)	3.050=07(81)	1.051=06(81)	3.168=07(81)	1.051=06(81)	2.328=07(81)
BA=137M	4.494=00	6.974=00	4.494=00	6.545=00	4.494=00	5.202=00
BA=140	1.852=07	5.379=08	1.852=07	5.584=08	1.852=07	4.100=08
BARIUM	4.494=00(99)	6.974=00(100)	4.494=00(99)	6.545=00(100)	4.494=00(99)	5.202=00(100)
CS=134	1.096=01	2.972=01	1.096=01	2.333=01	1.096=01	2.216=01
CS=137	1.181=00	1.833=00	1.181=00	1.720=00	1.181=00	1.367=00
CESIUM	1.214=01(81)	3.155=01(85)	1.214=01(81)	2.505=01(84)	1.214=01(81)	2.352=01(85)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
XE-131M	1.220=10	2.955=11	1.220=10	3.477=11	1.220=10	2.241=11
XENDON	1.220=10(100)	2.955=11(100)	1.220=10(100)	3.477=11(100)	1.220=10(100)	2.241=11(100)
I-129	3.098=07	2.126=07	3.098=07	4.197=07	3.098=07	1.576=07
I-131	1.025=12	0.000	1.025=12	0.000	1.025=12	0.000
IODINE	3.098=07(39)	2.126=07(39)	3.098=07(39)	4.197=07(39)	3.098=07(39)	1.576=07(39)
TE-125M	1.231=01	4.035=02	1.231=01	1.291=01	1.231=01	2.963=02
TE-127M	2.073=02	1.785=03	2.073=02	6.124=03	2.073=02	1.263=03
TE-127	5.115=02	4.404=03	5.115=02	1.511=02	5.115=02	3.116=03
TE-129M	6.054=03	8.615=04	6.054=03	1.513=03	6.054=03	6.377=04
TE-129	1.183=02	1.683=03	1.183=02	2.957=03	1.183=02	1.246=03
TELLURIUM	2.129=01(69)	4.908=02(86)	2.129=01(69)	1.548=01(87)	2.129=01(69)	3.590=02(87)
SB-124	2.016=04	1.523=04	2.016=04	2.492=04	2.016=04	1.592=04
SB-125	4.349=01	1.422=01	4.349=01	4.550=01	4.349=01	1.045=01
ANTIMONY	4.351=01(83)	1.424=01(83)	4.351=01(83)	4.553=01(83)	4.351=01(83)	1.046=01(83)
SN-119M	3.396=04	2.194=04	3.396=04	2.130=04	3.396=04	1.644=04
SN-121M	6.302=08	6.796=08	6.302=08	6.911=08	6.302=08	8.001=08
SN-123	2.233=02	5.118=03	2.233=02	8.088=03	2.233=02	3.806=03
TIN	2.267=02(2)	5.338=03(5)	2.267=02(2)	8.301=03(3)	2.267=02(2)	3.970=03(5)
IN-114M	4.349=05	6.469=07	4.349=05	9.586=07	4.349=05	3.683=06
IN-114	1.480=04	2.200=06	1.480=04	3.261=06	1.480=04	1.253=05
INDIUM	1.914=04(22)	2.847=06(22)	1.914=04(22)	4.220=06(22)	1.914=04(22)	1.621=05(22)
CD-115M	2.082=05	8.350=06	2.082=05	8.540=06	2.082=05	6.355=06
CAUDIUM	2.082=05(5)	8.350=06(5)	2.082=05(5)	8.540=06(5)	2.082=05(5)	6.355=06(5)
AG-108M	4.525=06	6.674=07	4.525=06	9.890=07	4.525=06	3.799=06
AG-110M	1.238=02	1.734=02	1.238=02	1.841=02	1.238=02	1.302=02
SILVER	1.238=02(97)	1.734=02(97)	1.238=02(97)	1.841=02(97)	1.238=02(97)	1.303=02(97)
PD-107	1.018=08	2.409=08	1.018=08	1.564=08	1.018=08	1.800=08
PALLADIUM	1.018=08(49)	2.409=08(49)	1.018=08(49)	1.564=08(49)	1.018=08(49)	1.800=08(49)
RH-103M	2.652=03	1.536=03	2.652=03	1.137=03	2.652=03	1.150=03
RH-106	3.310=00	4.428=00	3.310=00	2.903=00	3.310=00	3.322=00
RHODIUM	3.312=00(12)	4.430=00(12)	3.312=00(12)	2.904=00(12)	3.312=00(12)	3.323=00(12)
RU-103	3.715=02	2.151=02	3.715=02	1.593=02	3.715=02	1.611=02
RU-106	1.952=02	2.611=02	1.952=02	1.712=02	1.952=02	1.959=02
RUTHENIUM	5.667=02(57)	4.763=02(39)	5.667=02(57)	3.305=02(42)	5.667=02(57)	3.570=02(39)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
TC-99 TECHNETIUM	6.835=05 6.835=05(0)	1.330=04 1.330=04(0)	6.835=05 6.835=05(0)	9.740=05 9.740=05(0)	6.835=05 6.835=05(0)	9.704=05 9.704=05(0)
NB-93M NB-95M NB-95 NIUBIUM	7.346=07 6.975=01 5.054=00 5.751+00(95)	1.580=06 2.521=01 1.830+00 2.083+00(95)	7.346=07 6.975=01 5.054=00 5.751+00(95)	1.521=06 2.451=01 1.779+00 2.024+00(95)	7.346=07 6.975=01 5.054=00 5.751+00(95)	1.150=06 1.868=01 1.356+00 1.543+00(95)
ZR-93 ZM-95 ZIRCONIUM	2.083=06 2.384+00 2.384+00(86)	5.236=06 8.618=01 8.618=01(86)	2.083=06 2.384+00 2.384+00(86)	3.081=06 8.379=01 8.379=01(86)	2.083=06 2.384+00 2.384+00(86)	2.357=06 6.385=01 6.385=01(86)
Y-90 Y-91 YTRIUM	6.803+00 2.951=01 7.098+00(0)	9.907+00 9.239=02 1.000+01(0)	6.803+00 2.951=01 7.098+00(0)	9.806+00 9.762=02 9.904+00(0)	6.803+00 2.951=01 7.098+00(0)	7.215+00 6.830=02 7.283+00(0)
SR-89 SR-90 STRONTIUM	6.411=01 1.446+00 2.087+00(0)	1.681=01 2.106+00 2.274+00(0)	6.411=01 1.446+00 2.087+00(0)	1.967=01 2.085+00 2.282+00(0)	6.411=01 1.446+00 2.087+00(0)	1.239=01 1.534+00 1.658+00(0)
RB-86 RB-87 RUBIDIUM	1.893=07 2.020=10 1.895=07(12)	6.606=08 2.185=10 6.628=08(12)	1.893=07 2.020=10 1.895=07(12)	1.131=07 2.869=10 1.134=07(12)	1.893=07 2.020=10 1.895=07(12)	4.733=08 1.589=10 4.751=08(12)
KR-85 KRYPTON	4.813=01 4.813=01(0)	3.662=01 3.662=01(0)	4.813=01 4.813=01(0)	5.035=01 5.035=01(0)	4.813=01 4.813=01(0)	2.661=01 2.661=01(0)
SE-79 SELENIUM	2.134=06 2.134=06(0)	1.035=06 1.035=06(0)	2.134=06 2.134=06(0)	2.298=06 2.298=06(0)	2.134=06 2.134=06(0)	7.475=07 7.475=07(0)
NI-59 NI-63 NICKEL	8.645=08 2.510=05 2.518=05(0)	5.759=09 1.673=06 1.679=06(0)	8.645=08 2.510=05 2.518=05(0)	8.534=09 2.479=06 2.488=06(0)	8.645=08 2.510=05 2.518=05(0)	3.278=08 9.525=06 9.537=06(0)
CU-58 CO-60 COPALT	1.101=06 7.179=06 8.281=06(96)	7.338=08 4.810=07 5.544=07(96)	1.101=06 7.179=06 8.281=06(96)	1.087=07 7.128=07 8.216=07(96)	1.101=06 7.179=06 8.281=06(96)	4.177=07 2.738=06 3.156=06(96)
CL-36 CHLORINE	1.943=06 1.943=06(0)	0.000 0.000 (0)	1.943=06 1.943=06(0)	0.000 0.000 (0)	1.943=06 1.943=06(0)	0.000 0.000 (0)
S-35 SULFUR	6.136=05 6.136=05(0)	2.057=07 2.057=07(0)	6.136=05 6.136=05(0)	3.048=07 3.048=07(0)	6.136=05 6.136=05(0)	1.171=06 1.171=06(0)

D-77

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	238S RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	258S RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
C-14 FROM C	7.116=06	0.000	7.116=06	0.000	7.116=06	0.000
C-14 FROM N	1.150=06	1.418=08	1.150=06	2.102=08	1.150=06	8.073=08
C-14 FROM U	5.860=07	1.983=08	5.860=07	2.939=08	5.860=07	1.129=07
CARBON	8.851=06(0)	3.401=08(0)	8.851=06(0)	5.041=08(0)	8.851=06(0)	1.936=07(0)
H-3 FROM L10	1.069=03	2.215=05	1.069=03	3.282=05	1.069=03	1.261=04
H-3 FROM B10	2.091=06	0.000	2.091=06	0.000	2.091=06	0.000
H-3 FISS YLD	1.287=04	2.083=04	1.287=04	1.826=04	1.287=04	1.518=04
TRITIUM	1.200=03(0)	2.304=04(0)	1.200=03(0)	2.154=04(0)	1.200=03(0)	2.779=04(0)
ALL ELEMENTS						
TOTAL BETA	5.947+01	6.055+01	5.947+01	5.074+01	5.947+01	4.517+01
TOTAL GAMMA	2.512+01	3.953+01	2.512+01	3.294+01	2.512+01	2.949+01
TOTAL ALPHA	4.269=01	4.415+00	4.269=01	1.055+00	4.269=01	3.446+01
GRAND TOTAL	8.502+01(29)	1.045+02(37)	8.502+01(29)	8.473+01(38)	8.502+01(29)	1.091+02(27)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
CM-242	2.331-06	1.349-02	2.331-06	2.784-04	2.331-06	1.089-01
CM-243	1.966-08	2.632-04	1.966-08	3.452-06	1.966-08	2.098-03
CM-244	2.573-04	2.265-01	2.573-04	1.825-03	2.573-04	1.785-00
CURIUM	2.596-04(0)	2.422-01(0)	2.596-04(0)	2.107-03(0)	2.596-04(0)	1.896-00(0)
AM-241	5.292-06	1.125-02	5.292-06	4.306-04	5.292-06	9.042-02
AM-242M	2.059-09	1.275-06	2.059-09	3.596-08	2.059-09	1.033-05
AM-242	8.907-09	5.517-06	8.907-09	1.556-07	8.907-09	4.472-05
AM-243	3.178-07	1.254-03	3.178-07	1.406-05	3.178-07	9.924-03
AMERICIUM	5.621-06(0)	1.251-02(0)	5.621-06(0)	4.448-04(0)	5.621-06(0)	1.004-01(0)
PU-238	1.183-02	5.800-00	1.183-02	4.821-01	1.183-02	2.958-01
PU-239	3.179-06	2.824-03	3.179-06	1.562-04	3.179-06	2.192-02
PU-240	3.783-06	4.900-03	3.783-06	2.341-04	3.783-06	3.878-02
PU-241	9.308-07	1.879-03	9.308-07	7.395-05	9.308-07	1.509-02
PLUTONIUM	1.184-02(0)	3.810-00(0)	1.184-02(0)	4.826-01(0)	1.184-02(0)	2.966-01(0)
NP-237	1.816-06	2.900-04	1.816-06	4.006-05	1.816-06	1.879-03
NEPTUNIUM	1.816-06(0)	2.900-04(0)	1.816-06(0)	4.006-05(0)	1.816-06(0)	1.879-03(0)
U-232	8.110-02	1.326-05	8.110-02	7.925-02	8.110-02	5.499-05
U-233	5.954-02	9.136-10	5.954-02	9.056-03	5.954-02	4.897-09
U-234	7.631-03	4.835-04	7.631-03	1.438-02	7.631-03	2.005-03
U-235	5.120-07	3.864-06	5.120-07	1.875-06	5.120-07	3.021-06
U-236	2.384-06	2.019-04	2.384-06	2.821-05	2.384-06	1.849-03
U-238	0.000	3.192-07	0.000	1.595-11	0.000	2.381-06
URANIUM	1.483-01(0)	7.028-04(0)	1.483-01(0)	1.027-01(0)	1.483-01(0)	3.915-03(0)
PA-231	8.499-05	1.442-08	8.499-05	9.384-06	8.499-05	5.930-08
PA-233	6.205-10	0.000	6.205-10	0.000	6.205-10	0.000
PA-234	0.000	1.341-07	0.000	5.861-12	0.000	1.000-06
PROTACTINIUM	8.499-05(1)	1.485-07(80)	8.499-05(1)	9.384-06(1)	8.499-05(1)	1.059-06(83)
TH-228	6.487-02	1.059-05	6.487-02	7.947-02	6.487-02	4.390-05
TH-229	2.350-05	1.955-10	2.350-05	4.014-05	2.350-05	8.052-10
TH-230	1.704-04	3.141-08	1.704-04	1.361-05	1.704-04	1.314-07
TH-231	1.995-08	1.506-07	1.995-08	7.306-08	1.995-08	1.177-07
TH-232	2.107-05	0.000	2.107-05	0.000	2.107-05	0.000
TH-234	0.000	5.598-09	0.000	2.447-13	0.000	4.176-08
THORIUM	6.509-02(0)	1.078-05(1)	6.509-02(0)	7.952-02(0)	6.509-02(0)	4.419-05(0)
AC-225	2.729-05	2.271-10	2.729-05	4.862-05	2.729-05	9.351-10
AC-227	1.149-07	2.841-11	1.149-07	1.827-08	1.149-07	1.178-10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E.		238 RECYCLE U-235 F.E.		258 RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
AC-228	4.269-06	0.000	4.269-06	9.040-12	4.269-06	0.000
ACTINIUM	3.167-05(10)	2.555-10(1)	3.167-05(10)	4.663-05(0)	3.167-05(10)	1.053-09(1)
HA-223	7.855-06	1.931-09	7.855-06	1.211-06	7.855-06	8.008-09
HA-224	6.791-02	1.109-05	6.791-02	8.319-02	6.791-02	4.595-05
RA-225	6.144-07	5.113-12	6.144-07	1.050-06	6.144-07	2.105-11
RA-228	4.148-08	0.000	4.148-08	8.785-14	4.148-08	0.000
RADIUM	6.792-02(0)	1.109-05(2)	6.792-02(0)	8.319-02(0)	6.792-02(0)	4.596-05(0)
FR-221	2.969-05	2.471-10	2.969-05	5.072-05	2.969-05	1.017-09
FR-223	8.808-09	2.166-12	8.808-09	1.358-09	8.808-09	8.980-12
FRANCIUM	2.970-05(0)	2.492-10(0)	2.970-05(0)	5.072-05(0)	2.970-05(0)	1.026-09(0)
RN-219	9.125-06	2.243-09	9.125-06	1.407-06	9.125-06	9.302-09
RN-220	7.521-02	1.228-05	7.521-02	9.213-02	7.521-02	5.089-05
RADON	7.521-02(0)	1.228-05(0)	7.521-02(0)	9.213-02(0)	7.521-02(0)	5.090-05(0)
AT-217	3.311-05	2.755-10	3.311-05	5.656-05	3.311-05	1.135-09
AT-218	1.964-10	0.000	1.964-10	1.569-11	1.964-10	0.000
ASTATINE	3.311-05(0)	2.755-10(0)	3.311-05(0)	5.656-05(0)	3.311-05(0)	1.135-09(0)
PO-210	8.272-07	2.370-10	8.272-07	8.482-07	8.272-07	9.895-10
PO-212	6.715-02	1.097-05	6.715-02	8.239-02	6.715-02	4.544-05
PO-213	3.927-05	3.268-10	3.927-05	6.709-05	3.927-05	1.346-09
PU-215	9.884-06	2.430-09	9.884-06	1.524-06	9.884-06	1.008-08
PU-216	6.115-02	1.325-05	6.115-02	9.940-02	6.115-02	5.491-05
POLONIUM	1.483-01(0)	2.422-05(0)	1.483-01(0)	1.819-01(0)	1.483-01(0)	1.004-04(0)
BI-211	8.841-06	2.174-09	8.841-06	1.363-06	8.841-06	9.013-09
BI-212	3.383-02	5.524-06	3.383-02	4.144-02	3.383-02	2.289-05
BI-213	3.434-06	2.858-11	3.434-06	5.866-06	3.434-06	1.177-10
BISMUTH	3.384-02(4)	5.526-06(4)	3.384-02(4)	4.145-02(4)	3.384-02(4)	2.290-05(4)
PB-209	9.555-07	7.952-12	9.555-07	1.632-06	9.555-07	3.274-11
PB-211	7.228-07	1.777-10	7.228-07	1.114-07	7.228-07	7.368-10
PB-212	3.803-03	6.210-07	3.803-03	4.658-03	3.803-03	2.573-06
LEAD	3.804-03(66)	6.212-07(66)	3.804-03(66)	4.660-03(66)	3.804-03(66)	2.574-06(66)
TL-207	7.114-07	1.749-10	7.114-07	1.097-07	7.114-07	7.252-10
TL-208	1.698-02	2.772-06	1.698-02	2.083-02	1.698-02	1.149-05
THALLIUM	1.698-02(84)	2.772-06(84)	1.698-02(84)	2.083-02(84)	1.698-02(84)	1.149-05(84)
DY-159	3.689-09	6.056-10	3.689-09	8.983-10	3.689-09	3.448-09
DYSPHOSIUM	3.689-09(100)	6.056-10(100)	3.689-09(100)	8.983-10(100)	3.689-09(100)	3.448-09(100)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER P.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TB-157	5.283+10	7.643+11	5.283+10	2.072+10	5.283+10	4.273+10
TB-158	6.626+10	1.175+10	6.626+10	8.343+10	6.626+10	1.307+10
TB-160	5.212+07	6.407+07	5.212+07	5.769+07	5.212+07	1.094+06
TENURIUM	5.224+07(85)	6.409+07(85)	5.224+07(85)	5.779+07(85)	5.224+07(85)	1.095+06(85)
GD-153	4.500+07	1.004+06	4.500+07	1.155+06	4.500+07	3.752+06
GADOLINIUM	4.500+07(100)	1.004+06(100)	4.500+07(100)	1.155+06(100)	4.500+07(100)	3.752+06(100)
EU-152	3.992+04	6.519+04	3.992+04	4.440+04	3.992+04	5.129+04
EU-154	1.371+01	3.871+01	1.371+01	2.568+01	1.371+01	2.945+01
EU-155	6.852+03	1.895+02	6.852+03	1.257+02	6.852+03	1.443+02
EUROPIUM	1.444+01(82)	4.067+01(82)	1.444+01(82)	2.698+01(82)	1.444+01(82)	3.094+01(82)
SM-145	1.979+07	3.662+07	1.979+07	5.426+07	1.979+07	2.085+06
SM-151	3.379+04	4.184+04	3.379+04	2.933+04	3.379+04	3.160+04
SAMARIUM	3.381+04(2)	4.187+04(2)	3.381+04(2)	2.938+04(2)	3.381+04(2)	3.181+04(2)
PM-147	2.305+01	2.006+01	2.305+01	1.527+01	2.305+01	1.507+01
PM-148M	4.914+08	4.511+08	4.914+08	3.409+08	4.914+08	3.388+08
PRASETHIUM	2.305+01(0)	2.006+01(0)	2.305+01(0)	1.527+01(0)	2.305+01(0)	1.507+01(0)
PR-144	7.029+00	6.260+00	7.029+00	5.006+00	7.029+00	4.696+00
PRASEODYMIUM	7.029+00(2)	6.260+00(2)	7.029+00(2)	5.006+00(2)	7.029+00(2)	4.696+00(2)
CE-141	2.387+09	6.867+10	2.387+09	7.419+10	2.387+09	5.212+10
CE-144	6.078+01	5.413+01	6.078+01	4.329+01	6.078+01	4.061+01
CERIUM	6.078+01(25)	5.413+01(25)	6.078+01(25)	4.329+01(25)	6.078+01(25)	4.061+01(25)
LA-137	5.443+10	7.211+11	5.443+10	2.630+10	5.443+10	3.974+10
LANTHANUM	5.443+10(100)	7.211+11(100)	5.443+10(100)	2.630+10(100)	5.443+10(100)	3.974+10(100)
BA-137M	4.291+00	6.659+00	4.291+00	6.250+00	4.291+00	4.967+00
BARIUM	4.291+00(100)	6.659+00(100)	4.291+00(100)	6.250+00(100)	4.291+00(100)	4.967+00(100)
CS-134	5.567+00	1.510+01	5.567+00	1.185+01	5.567+00	1.126+01
CS-137	1.128+00	1.750+00	1.128+00	1.643+00	1.128+00	1.306+00
CESIUM	6.695+00(75)	1.685+01(81)	6.695+00(75)	1.349+01(79)	6.695+00(75)	1.256+01(81)
I-129	3.098+07	2.126+07	3.098+07	4.197+07	3.098+07	1.576+07
IODINE	3.098+07(39)	2.126+07(39)	3.098+07(39)	4.197+07(39)	3.098+07(39)	1.576+07(39)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	M8 FRESH U-235 F.E.		23M8 RECYCLE U-235 F.E.		25M8 RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
TE-125M	7.402=02	2.421=02	7.402=02	7.744=02	7.402=02	1.778=02
TE-127M	1.992=04	1.715=05	1.992=04	5.885=05	1.992=04	1.214=05
TE-127	4.916=04	4.232=05	4.916=04	1.452=04	4.916=04	2.995=05
TE-129M	2.161=09	3.075=10	2.161=09	5.401=10	2.161=09	2.276=10
TE-129	4.222=09	6.008=10	4.222=09	1.055=09	4.222=09	4.448=10
TELLURIUM	7.471=02(99)	2.427=02(99)	7.471=02(99)	7.765=02(99)	7.471=02(99)	1.782=02(99)
SB-124	4.499=08	3.399=08	4.499=08	5.563=08	4.499=08	3.553=08
SB-125	2.608=01	8.529=02	2.608=01	2.728=01	2.608=01	6.263=02
ANTIMONY	2.608=01(83)	8.529=02(83)	2.608=01(83)	2.728=01(83)	2.608=01(83)	6.263=02(83)
SN-119M	4.484=05	2.897=05	4.484=05	2.812=05	4.484=05	2.170=05
SN-121M	6.188=08	6.673=08	6.188=08	6.787=08	6.188=08	7.857=08
SN-123	3.889=04	8.914=05	3.889=04	1.409=04	3.889=04	6.629=05
TIN	4.338=04(11)	1.182=04(25)	4.338=04(11)	1.691=04(17)	4.338=04(11)	8.607=05(25)
IN-114M	1.576=09	2.344=11	1.576=09	3.474=11	1.576=09	1.333=10
IN-114	5.362=09	7.974=11	5.362=09	1.182=10	5.362=09	4.540=10
INDIUM	6.938=09(22)	1.032=10(22)	6.938=09(22)	1.529=10(22)	6.938=09(22)	5.874=10(22)
CD-115M	1.607=10	6.446=11	1.607=10	6.592=11	1.607=10	4.906=11
CADMIUM	1.607=10(5)	6.446=11(5)	1.607=10(5)	6.592=11(5)	1.607=10(5)	4.906=11(5)
AG-108M	4.477=06	6.603=07	4.477=06	9.785=07	4.477=06	3.759=06
AG-110M	1.700=03	2.382=03	1.700=03	2.529=03	1.700=03	1.789=03
SILVER	1.705=03(97)	2.383=03(97)	1.705=03(97)	2.530=03(97)	1.705=03(97)	1.792=03(97)
PD-107	1.018=08	2.409=08	1.018=08	1.564=08	1.018=08	1.800=08
PALLADIUM	1.018=08(49)	2.409=08(49)	1.018=08(49)	1.564=08(49)	1.018=08(49)	1.800=08(49)
RH-103M	7.893=09	4.571=09	7.893=09	3.385=09	7.893=09	3.423=09
RH-106	8.365=01	1.119=00	8.365=01	7.337=01	8.365=01	8.395=01
RHODIUM	8.365=01(12)	1.119=00(12)	8.365=01(12)	7.337=01(12)	8.365=01(12)	8.395=01(12)
RU-103	1.106=07	6.403=08	1.106=07	4.741=08	1.106=07	4.794=08
RU-106	4.933=03	6.600=03	4.933=03	4.326=03	4.933=03	4.950=03
RUTHENIUM	4.933=03(0)	6.600=03(0)	4.933=03(0)	4.326=03(0)	4.933=03(0)	4.951=03(0)
TC-99	6.835=05	1.330=04	6.835=05	9.740=05	6.835=05	9.704=05
TECHNETIUM	6.835=05(0)	1.330=04(0)	6.835=05(0)	9.740=05(0)	6.835=05(0)	9.704=05(0)
NB-93M	1.311=06	2.433=06	1.311=06	2.331=06	1.311=06	1.772=06
NB-95M	3.078=04	1.113=04	3.078=04	1.082=04	3.078=04	8.243=05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	M8 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23K8 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25K8 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
NB=95 NIUBIUM	2.276=03 2.585=03(95)	8.226=04 9.363=04(95)	2.276=03 2.585=03(95)	7.998=04 9.103=04(95)	2.276=03 2.585=03(95)	6.095=04 6.937=04(95)
ZR=93 ZIRCONIUM	2.083=06 1.052=03 1.054=03(86)	3.236=06 3.803=04 3.836=04(85)	2.083=06 1.052=03 1.054=03(86)	3.081=06 3.697=04 3.728=04(85)	2.083=06 1.052=03 1.054=03(86)	2.357=06 2.816=04 2.843=04(85)
Y=90 Y=91 YTTRIUM	6.471+00 4.773=05 6.471+00(0)	9.424+00 1.494=05 9.424+00(0)	6.471+00 4.773=05 6.471+00(0)	9.327+00 1.579=05 9.327+00(0)	6.471+00 4.773=05 6.471+00(0)	6.863+00 1.105=05 6.863+00(0)
SR=89 SR=90 STRONTIUM	4.313=05 1.376+00 1.376+00(0)	1.131=05 2.004+00 2.004+00(0)	4.313=05 1.376+00 1.376+00(0)	1.323=05 1.983+00 1.983+00(0)	4.313=05 1.376+00 1.376+00(0)	8.332=06 1.459+00 1.459+00(0)
RB=87 RUBIDIUM	2.020=10 2.020=10(0)	2.185=10 2.185=10(0)	2.020=10 2.020=10(0)	2.869=10 2.869=10(0)	2.020=10 2.020=10(0)	1.589=10 1.589=10(0)
KR=85 KRYPTON	4.231=01 4.231=01(0)	3.219=01 3.219=01(0)	4.231=01 4.231=01(0)	4.426=01 4.426=01(0)	4.231=01 4.231=01(0)	2.339=01 2.339=01(0)
SE=79 SELENIUM	2.134=06 2.134=06(0)	1.035=06 1.035=06(0)	2.134=06 2.134=06(0)	2.298=06 2.298=06(0)	2.134=06 2.134=06(0)	7.475=07 7.475=07(0)
NI=59 NI=63 NICKEL	8.645=08 2.472=05 2.481=05(0)	5.759=09 1.648=06 1.654=06(0)	8.645=08 2.472=05 2.481=05(0)	8.534=09 2.442=06 2.451=06(0)	8.645=08 2.472=05 2.481=05(0)	3.278=08 0.382=06 9.415=06(0)
CU=68 CU=60 COPPER	9.138=10 5.515=06 5.516=06(96)	6.087=11 3.695=07 3.696=07(96)	9.138=10 5.515=06 5.516=06(96)	9.021=11 5.476=07 5.477=07(96)	9.138=10 5.515=06 5.516=06(96)	3.465=10 2.104=06 2.104=06(96)
CL=36 CHLORINE	1.943=06 1.943=06(0)	0.000 0.000 (0)	1.943=06 1.943=06(0)	0.000 0.000 (0)	1.943=06 1.943=06(0)	0.000 0.000 (0)
S=35 SULFUR	1.844=07 1.844=07(0)	6.179=10 6.179=10(0)	1.844=07 1.844=07(0)	9.157=10 9.157=10(0)	1.844=07 1.844=07(0)	3.516=09 3.516=09(0)
C=14 FROM C C=14 FROM N C=14 FROM U CARBON	7.114=06 1.149=06 5.859=07 8.849=06(0)	0.000 1.418=08 1.983=08 3.400=08(0)	7.114=06 1.149=06 5.859=07 8.849=06(0)	0.000 2.101=08 2.938=08 5.039=08(0)	7.114=06 1.149=06 5.859=07 8.849=06(0)	0.000 8.071=08 1.129=07 1.936=07(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25RS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
H-3 FROM LI6	9.553-04	1.979-05	9.553-04	2.933-05	9.553-04	1.127-04
H-3 FROM B10	1.869-06	0.000	1.869-06	0.000	1.869-06	0.000
H-3 FISS YLD	1.150-04	1.861-04	1.150-04	1.632-04	1.150-04	1.356-04
TRITIUM	1.072-03(0)	2.059-04(0)	1.072-03(0)	1.925-04(0)	1.072-03(0)	2.483-04(0)
ALL ELEMENTS						
TOTAL BETA	1.827+01	2.268+01	1.827+01	2.060+01	1.827+01	1.679+01
TOTAL GAMMA	1.021+01	2.123+01	1.021+01	1.789+01	1.021+01	1.584+01
TOTAL ALPHA	5.424-01	4.058+00	5.424-01	1.055+00	5.424-01	3.160+01
GRAND TOTAL	2.902+01(35)	4.797+01(44)	2.902+01(35)	3.954+01(45)	2.902+01(35)	6.423+01(24)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	MS FRESH U-235 F.E.		2388 RECYCLE U-235 F.E.		2588 RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
CM=242	2.747=07	7.094=04	2.747=07	1.544=05	2.747=07	5.728=03
CM=243	1.883=08	2.521=04	1.883=08	3.306=06	1.883=08	2.009=03
CM=244	2.381=04	2.114=01	2.381=04	1.669=03	2.381=04	1.652=00
CURIUM	2.384=04(0)	2.124=01(0)	2.384=04(0)	1.708=03(0)	2.384=04(0)	1.660=00(0)
AM=241	8.199=06	1.712=02	8.199=06	6.615=04	8.199=06	1.378=01
AM=242M	2.040=09	1.263=06	2.040=09	3.564=08	2.040=09	1.024=05
AM=242	8.826=09	5.467=06	8.826=09	1.542=07	8.826=09	4.431=05
AM=243	3.177=07	1.254=03	3.177=07	1.406=05	3.177=07	9.922=03
AMERICIUM	8.528=06(0)	1.838=02(0)	8.528=06(0)	6.757=04(0)	8.528=06(0)	1.475=01(0)
PU=238	1.165=02	3.741=00	1.165=02	4.746=01	1.165=02	2.912=01
PU=239	3.179=06	2.824=03	3.179=06	1.562=04	3.179=06	2.192=02
PU=240	3.782=06	4.899=03	3.782=06	2.341=04	3.782=06	3.878=02
PU=241	8.486=07	1.713=03	8.486=07	6.742=05	8.486=07	1.378=02
PLUTONIUM	1.165=02(0)	3.750=00(0)	1.165=02(0)	4.750=01(0)	1.165=02(0)	2.919=01(0)
NP=237	1.816=06	2.900=04	1.816=06	4.006=05	1.816=06	1.879=03
NEPTUNIUM	1.816=06(0)	2.900=04(0)	1.816=06(0)	4.006=05(0)	1.816=06(0)	1.879=03(0)
U=232	7.956=02	1.301=05	7.956=02	7.774=02	7.956=02	5.394=05
U=233	5.954=02	9.136=10	5.954=02	9.056=03	5.954=02	4.897=09
U=234	7.631=03	4.835=04	7.631=03	1.438=02	7.631=03	2.009=03
U=235	5.120=07	3.864=06	5.120=07	1.875=06	5.120=07	3.021=06
U=236	2.384=06	2.019=04	2.384=06	2.821=05	2.384=06	1.849=03
U=238	0.000	3.192=07	0.000	1.395=11	0.000	2.381=06
URANIUM	1.467=01(0)	7.025=04(0)	1.467=01(0)	1.012=01(0)	1.467=01(0)	3.913=03(0)
PA=231	8.498=05	1.461=08	8.498=05	9.383=06	8.498=05	5.944=08
PA=234	0.000	1.341=07	0.000	5.861=12	0.000	1.000=06
PRUTACTINIUM	8.498=05(1)	1.487=07(80)	8.498=05(1)	9.383=06(1)	8.498=05(1)	1.060=06(83)
TH=228	7.367=02	1.204=05	7.367=02	7.947=02	7.367=02	4.991=05
TH=229	3.523=05	1.957=10	3.523=05	4.192=05	3.523=05	8.060=10
TH=230	1.705=04	3.961=08	1.705=04	1.386=05	1.705=04	1.654=07
TH=231	1.995=08	1.506=07	1.995=08	7.306=08	1.995=08	1.177=07
TH=232	2.107=05	0.000	2.107=05	0.000	2.107=05	0.000
TH=234	0.000	5.598=09	0.000	2.447=13	0.000	4.176=08
THURIUM	7.390=02(0)	1.224=05(1)	7.390=02(0)	7.952=02(0)	7.390=02(0)	5.024=05(0)
AC=225	4.091=05	2.272=10	4.091=05	4.868=05	4.091=05	9.360=10
AC=227	1.077=07	4.181=11	1.077=07	2.694=08	1.077=07	1.725=10
AC=228	4.882=06	0.000	4.882=06	7.367=12	4.882=06	0.000
ACTINIUM	4.590=05(8)	2.691=10(1)	4.590=05(8)	4.871=05(0)	4.590=05(8)	1.109=09(1)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	MS FRESH U-235 F.E.		23KS RECYCLE U-233 F.E.		25KS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
RA-223	7.367=06	2.860=09	7.367=06	1.843=06	7.367=06	1.180=08
RA-224	7.713=02	1.261=05	7.713=02	8.319=02	7.713=02	5.225=05
RA-225	9.211=07	5.117=12	9.211=07	1.096=06	9.211=07	2.108=11
RA-226	4.745=08	0.000	4.745=08	7.159=14	4.745=08	0.000
RADIUM	7.714=02(0)	1.261=05(0)	7.714=02(0)	8.319=02(0)	7.714=02(0)	5.226=05(0)
FR-221	4.451=05	2.472=10	4.451=05	5.296=05	4.451=05	1.016=09
FR-223	8.261=09	3.208=12	8.261=09	2.067=09	8.261=09	1.324=11
FRANCIUM	4.451=05(0)	2.504=10(0)	4.451=05(0)	5.296=05(0)	4.451=05(0)	1.032=09(0)
RN-219	8.558=06	3.323=09	8.558=06	2.141=06	8.558=06	1.371=08
RN-220	8.541=02	1.396=05	8.541=02	9.213=02	8.541=02	5.786=05
RADON	8.542=02(0)	1.396=05(0)	8.542=02(0)	9.213=02(0)	8.542=02(0)	5.787=05(0)
AT-217	4.964=05	2.757=10	4.964=05	5.906=05	4.964=05	1.136=09
AT-218	2.353=10	0.000	2.353=10	1.912=11	2.353=10	0.000
ASTATINE	4.964=05(0)	2.757=10(0)	4.964=05(0)	5.906=05(0)	4.964=05(0)	1.136=09(0)
PU-210	5.777=07	0.000	5.777=07	0.000	5.777=07	0.000
PU-212	7.634=02	1.248=05	7.634=02	8.239=02	7.634=02	9.172=05
PU-213	5.887=05	3.270=10	5.887=05	7.006=05	5.887=05	1.347=09
PU-215	9.270=06	3.599=09	9.270=06	2.319=06	9.270=06	1.485=08
PU-216	9.216=02	1.506=05	9.216=02	9.940=02	9.216=02	6.243=05
PULONIUM	1.686=01(0)	2.754=05(0)	1.686=01(0)	1.819=01(0)	1.686=01(0)	1.142=04(0)
BI-211	8.291=06	3.219=09	8.291=06	2.074=06	8.291=06	1.328=08
BI-212	3.842=02	6.279=06	3.842=02	4.144=02	3.842=02	2.603=05
BI-213	5.148=06	2.860=11	5.148=06	6.126=06	5.148=06	1.178=10
BISMUTH	3.843=02(4)	6.282=06(4)	3.843=02(4)	4.145=02(4)	3.843=02(4)	2.604=05(4)
PB-209	1.432=06	7.958=12	1.432=06	1.705=06	1.432=06	3.278=11
PB-211	6.778=07	2.632=10	6.778=07	1.696=07	6.778=07	1.086=09
PB-212	4.319=03	7.058=07	4.319=03	4.658=03	4.319=03	2.926=06
LEAD	4.321=03(66)	7.061=07(66)	4.321=03(66)	4.660=03(66)	4.321=03(66)	2.927=06(66)
TL-207	6.672=07	2.591=10	6.672=07	1.669=07	6.672=07	1.069=09
TL-208	1.930=02	3.156=06	1.930=02	2.083=02	1.930=02	1.308=05
THALLIUM	1.930=02(84)	3.156=06(84)	1.930=02(84)	2.083=02(84)	1.930=02(84)	1.308=05(84)
DY-159	1.096=10	1.798=11	1.096=10	2.668=11	1.096=10	1.024=10
DYSPROSIUM	1.096=10(100)	1.798=11(100)	1.096=10(100)	2.668=11(100)	1.096=10(100)	1.024=10(100)
TB-157	5.235=10	7.573=11	5.235=10	2.052=10	5.235=10	4.234=10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	M8 FRESH U-235 F.E.		23MS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISILE PTL. -----	FERTILE PTL. -----	FISILE PTL. -----	FERTILE PTL. -----	FISILE PTL. -----
TB-158	6.565=10	1.164=10	6.565=10	8.266=10	6.565=10	1.295=10
TB-160	4.602=10	5.657=10	4.602=10	5.093=10	4.602=10	9.662=10
TERBIUM	1.640=09(93)	7.578=10(86)	1.640=09(93)	1.541=09(92)	1.640=09(93)	1.519=09(90)
GD-153	5.553=08	1.239=07	5.553=08	1.425=07	5.553=08	4.630=07
GADOLINIUM	5.553=08(100)	1.239=07(100)	5.553=08(100)	1.425=07(100)	5.553=08(100)	4.630=07(100)
EU-152	3.579=04	5.845=04	3.579=04	3.981=04	3.579=04	4.599=04
EU-154	1.257=01	3.550=01	1.257=01	2.355=01	1.257=01	2.701=01
EU-155	3.187=03	8.812=03	3.187=03	5.849=03	3.187=03	6.712=03
EUROPIUM	1.293=01(83)	3.644=01(83)	1.293=01(83)	2.417=01(83)	1.293=01(83)	2.772=01(83)
SM-145	4.463=08	8.258=08	4.463=08	1.224=07	4.463=08	4.701=07
SM-151	3.326=04	4.118=04	3.326=04	2.886=04	3.326=04	3.110=04
SAMARIUM	3.327=04(2)	4.118=04(2)	3.327=04(2)	2.887=04(2)	3.327=04(2)	3.115=04(2)
PM-147	1.358=01	1.182=01	1.358=01	9.000=02	1.358=01	8.884=02
PRIMUMIUM	1.358=01(0)	1.182=01(0)	1.358=01(0)	9.000=02(0)	1.358=01(0)	8.884=02(0)
PR-144	1.182=00	1.053=00	1.182=00	8.419=01	1.182=00	7.897=01
PRASEODYMIUM	1.182=00(2)	1.053=00(2)	1.182=00(2)	8.419=01(2)	1.182=00(2)	7.897=01(2)
CE-144	1.022=01	9.104=02	1.022=01	7.280=02	1.022=01	6.829=02
CERIUM	1.022=01(25)	9.104=02(25)	1.022=01(25)	7.280=02(25)	1.022=01(25)	6.829=02(25)
LA-137	5.442=10	7.209=11	5.442=10	2.629=10	5.442=10	3.973=10
LANTHANUM	5.442=10(100)	7.209=11(100)	5.442=10(100)	2.629=10(100)	5.442=10(100)	3.973=10(100)
BA-137M	4.097=00	6.359=00	4.097=00	5.968=00	4.097=00	4.743=00
BARIUM	4.097=00(100)	6.359=00(100)	4.097=00(100)	5.968=00(100)	4.097=00(100)	4.743=00(100)
CS-134	2.828=00	7.669=00	2.828=00	6.020=00	2.828=00	5.718=00
CS-137	1.077=00	1.671=00	1.077=00	1.569=00	1.077=00	1.247=00
CESIUM	3.905=00(65)	9.340=00(74)	3.905=00(65)	7.588=00(71)	3.905=00(65)	6.965=00(74)
I-129	3.098=07	2.126=07	3.098=07	4.197=07	3.098=07	1.576=07
IODINE	3.098=07(39)	2.126=07(39)	3.098=07(39)	4.197=07(39)	3.098=07(39)	1.576=07(39)
TE-125M	4.438=02	1.452=02	4.438=02	4.644=02	4.438=02	1.066=02
TE-127M	1.915=06	1.649=07	1.915=06	5.658=07	1.915=06	1.167=07
TE-127	4.725=06	4.068=07	4.725=06	1.396=06	4.725=06	2.879=07

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	2388 RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	2588 RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
TELLURIUM	4.439=02(99)	1.452=02(99)	4.439=02(99)	4.644=02(99)	4.439=02(99)	1.066=02(99)
SB=124	1.005=11	7.590=12	1.005=11	1.242=11	1.005=11	7.933=12
SB=125	1.564=01	5.114=02	1.564=01	1.636=01	1.564=01	3.756=02
ANTIMONY	1.564=01(83)	5.114=02(83)	1.564=01(83)	1.636=01(83)	1.564=01(83)	3.756=02(83)
SN=119M	5.920=06	3.825=06	5.920=06	3.713=06	5.920=06	2.869=06
SN=121M	6.077=08	6.553=08	6.077=08	6.664=08	6.077=08	7.719=08
SN=123	6.776=06	1.553=06	6.776=06	2.454=06	6.776=06	1.155=06
TIN	1.276=05(47)	5.443=06(70)	1.276=05(47)	6.234=06(60)	1.276=05(47)	4.097=06(70)
AG=108M	4.430=06	6.533=07	4.430=06	9.681=07	4.430=06	3.719=06
AG=110M	2.336=04	3.272=04	2.336=04	3.475=04	2.336=04	2.458=04
SILVER	2.380=04(97)	3.279=04(97)	2.380=04(97)	3.484=04(97)	2.380=04(97)	2.495=04(97)
PD=107	1.018=08	2.409=08	1.018=08	1.564=08	1.018=08	1.800=08
PALLADIUM	1.018=08(49)	2.409=08(49)	1.018=08(49)	1.564=08(49)	1.018=08(49)	1.800=08(49)
RH=106	2.114=01	2.829=01	2.114=01	1.855=01	2.114=01	2.122=01
RHODIUM	2.114=01(12)	2.829=01(12)	2.114=01(12)	1.855=01(12)	2.114=01(12)	2.122=01(12)
RU=106	1.247=03	1.668=03	1.247=03	1.094=03	1.247=03	1.251=03
RUTHENIUM	1.247=03(0)	1.668=03(0)	1.247=03(0)	1.094=03(0)	1.247=03(0)	1.251=03(0)
TC=99	6.835=05	1.366=04	6.835=05	9.740=05	6.835=05	9.704=05
TECHNETIUM	6.835=05(0)	1.366=04(0)	6.835=05(0)	9.740=05(0)	6.835=05(0)	9.704=05(0)
NB=93M	1.832=06	3.204=06	1.832=06	3.064=06	1.832=06	2.333=06
NB=95M	1.359=07	4.913=08	1.359=07	4.776=08	1.359=07	3.640=08
NB=95	1.005=06	3.632=07	1.005=06	3.531=07	1.005=06	2.691=07
NIUBIUM	2.973=06(98)	3.616=06(99)	2.973=06(98)	3.464=06(99)	2.973=06(98)	2.639=06(99)
ZR=93	2.083=06	3.236=06	2.083=06	3.081=06	2.083=06	2.357=06
ZR=95	4.645=07	1.679=07	4.645=07	1.632=07	4.645=07	1.244=07
ZIRCONIUM	2.548=06(15)	3.404=06(4)	2.548=06(15)	3.244=06(4)	2.548=06(15)	2.481=06(4)
Y=90	6.155+00	8.963+00	6.155+00	8.872+00	6.155+00	6.528+00
Y=91	7.725=09	2.419=09	7.725=09	2.556=09	7.725=09	1.788=09
YTTRIUM	6.155+00(0)	8.963+00(0)	6.155+00(0)	8.872+00(0)	6.155+00(0)	6.528+00(0)
SR=89	2.903=09	7.610=10	2.903=09	8.905=10	2.903=09	5.608=10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	MS FRESH U-235 F.E.		23MS RECYCLE U-233 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
SR=90 STRONTIUM	1.309+00 1.309+00(0)	1.906+00 1.906+00(0)	1.309+00 1.309+00(0)	1.886+00 1.886+00(0)	1.309+00 1.309+00(0)	1.388+00 1.388+00(0)
RH=87 RUBIDIUM	2.020+10 2.020+10(0)	2.185+10 2.185+10(0)	2.020+10 2.020+10(0)	2.869+10 2.869+10(0)	2.020+10 2.020+10(0)	1.589+10 1.589+10(0)
KR=85 KRYPTON	3.719+01 3.719+01(0)	2.830+01 2.830+01(0)	3.719+01 3.719+01(0)	3.891+01 3.891+01(0)	3.719+01 3.719+01(0)	2.056+01 2.056+01(0)
SE=79 SELENIUM	2.134+06 2.134+06(0)	1.035+06 1.035+06(0)	2.134+06 2.134+06(0)	2.298+06 2.298+06(0)	2.134+06 2.134+06(0)	7.474+07 7.474+07(0)
NI=59 NI=63 NICKEL	8.645+08 2.435+05 2.444+05(0)	5.759+09 1.623+06 1.629+06(0)	8.645+08 2.435+05 2.444+05(0)	8.534+09 2.406+06 2.414+06(0)	8.645+08 2.435+05 2.444+05(0)	3.278+08 9.242+06 9.275+06(0)
CU=58 CO=60 COBALT	7.583+13 4.237+06 4.237+06(96)	0.000 2.839+07 2.839+07(96)	7.583+13 4.237+06 4.237+06(96)	0.000 4.206+07 4.206+07(96)	7.583+13 4.237+06 4.237+06(96)	0.000 1.616+06 1.616+06(96)
CL=36 CHLORINE	1.943+06 1.943+06(0)	0.000 0.000 (0)	1.943+06 1.943+06(0)	0.000 0.000 (0)	1.943+06 1.943+06(0)	0.000 0.000 (0)
S=35 SULFUR	5.542+10 5.542+10(0)	1.857+12 1.857+12(0)	5.542+10 5.542+10(0)	2.752+12 2.752+12(0)	5.542+10 5.542+10(0)	1.057+11 1.057+11(0)
C=14 FROM C C=14 FROM N C=14 FROM U CARBON	7.112+06 1.149+06 5.857+07 8.846+06(0)	0.000 1.417+08 1.982+08 3.399+08(0)	7.112+06 1.149+06 5.857+07 8.846+06(0)	0.000 2.100+08 2.937+08 5.038+08(0)	7.112+06 1.149+06 5.857+07 8.846+06(0)	0.000 8.069+08 1.128+07 1.939+07(0)
H=3 FROM LI6 H=3 FROM B10 H=3 FISS YLD TRITIUM	8.537+04 1.670+06 1.028+04 9.581+04(0)	1.769+05 0.000 1.663+04 1.840+04(0)	8.537+04 1.670+06 1.028+04 9.581+04(0)	2.621+05 0.000 1.458+04 1.720+04(0)	8.537+04 1.670+06 1.028+04 9.581+04(0)	1.007+04 0.000 1.212+04 2.219+04(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	25MS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25MS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
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ALL ELEMENTS						
TOTAL BETA	1.078+01	1.507+01	1.078+01	1.448+01	1.078+01	1.110+01
TOTAL GAMMA	7.055+00	1.377+01	7.055+00	1.191+01	7.055+00	1.028+01
TOTAL ALPHA	5.926+01	3.974+00	5.926+01	1.046+00	5.926+01	3.093+01
GRAND TOTAL	1.843+01(38)	3.281+01(41)	1.843+01(38)	2.743+01(43)	1.843+01(38)	5.232+01(19)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	M9 FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	2.070=07	1.282=04	2.070=07	3.617=06	2.070=07	1.039=03
CM-243	1.690=08	2.262=04	1.690=08	2.967=06	1.690=08	1.803=03
CM-244	1.962=04	1.742=01	1.962=04	1.392=03	1.962=04	1.361=00
CURIUM	1.964=04(0)	1.746=01(0)	1.964=04(0)	1.398=03(0)	1.964=04(0)	1.364=00(0)
AM-241	1.435=05	2.953=02	1.435=05	1.150=03	1.435=05	2.372=01
AM-242M	1.994=09	1.233=06	1.994=09	3.483=08	1.994=09	1.001=05
AM-242	8.627=09	5.343=06	8.627=09	1.507=07	8.627=09	4.331=05
AM-243	3.176=07	1.254=03	3.176=07	1.405=05	3.176=07	9.918=03
AMERICIUM	1.468=05(0)	3.079=02(0)	1.468=05(0)	1.164=03(0)	1.468=05(0)	2.472=01(0)
PU-238	1.120=02	3.596=00	1.120=02	4.362=01	1.120=02	2.799=01
PU-239	3.178=06	2.824=03	3.178=06	1.562=04	3.178=06	4.191=02
PU-240	3.780=06	4.897=03	3.780=06	2.339=04	3.780=06	3.876=02
PU-241	6.736=07	1.360=03	6.736=07	5.351=05	6.736=07	1.092=02
PLUTONIUM	1.120=02(0)	3.605=00(0)	1.120=02(0)	4.566=01(0)	1.120=02(0)	2.806=01(0)
NP-237	1.816=06	2.900=04	1.816=06	4.006=05	1.816=06	1.879=03
NEPTUNIUM	1.816=06(0)	2.900=04(0)	1.816=06(0)	4.006=05(0)	1.816=06(0)	1.879=03(0)
U-232	7.582=02	1.240=05	7.582=02	7.409=02	7.582=02	3.141=05
U-233	5.954=02	9.136=10	5.954=02	9.055=03	5.954=02	4.897=09
U-234	7.631=03	4.834=04	7.631=03	1.438=02	7.631=03	2.005=03
U-235	5.120=07	3.864=06	5.120=07	1.875=06	5.120=07	3.021=06
U-236	2.384=06	2.019=04	2.384=06	2.821=05	2.384=06	1.849=03
U-238	0.000	3.192=07	0.000	1.395=11	0.000	2.381=06
URANIUM	1.430=01(0)	7.019=04(0)	1.430=01(0)	9.755=02(0)	1.430=01(0)	3.911=03(0)
PA-231	8.498=05	1.506=08	8.498=05	9.383=06	8.498=05	5.979=08
PA-234	0.000	1.341=07	0.000	5.861=12	0.000	1.000=06
PROTACTINIUM	8.498=05(1)	1.491=07(79)	8.498=05(1)	9.383=06(1)	8.498=05(1)	1.060=06(83)
TH-228	7.796=02	1.275=05	7.796=02	7.587=02	7.796=02	5.285=05
TH-229	6.454=05	1.961=10	6.454=05	4.636=05	6.454=05	8.081=10
TH-230	1.708=04	6.010=08	1.708=04	1.446=05	1.708=04	2.503=07
TH-231	1.995=08	1.506=07	1.995=08	7.306=08	1.995=08	1.177=07
TH-232	2.107=05	0.000	2.107=05	0.000	2.107=05	0.000
TH-234	0.000	5.598=09	0.000	2.447=13	0.000	4.176=08
THURIUM	7.822=02(0)	1.296=05(1)	7.822=02(0)	7.593=02(0)	7.822=02(0)	5.326=05(0)
AC-225	7.494=05	2.277=10	7.494=05	5.384=05	7.494=05	9.384=10
AC-227	9.177=08	7.260=11	9.177=08	4.633=08	9.177=08	2.955=10
AC-228	5.960=06	0.000	5.960=06	4.427=12	5.960=06	0.000
ACTINIUM	8.100=05(5)	3.003=10(2)	8.100=05(5)	5.388=05(0)	8.100=05(5)	1.234=09(2)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELUAD 13 AND WAS ORIGINALLY LOADED AT RELUAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	M8 FRESH U-235 F.E.		23MS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
RA=223	6.275=06	4.994=09	6.275=06	5.188=06	6.275=06	2.033=08
RA=224	8.162=02	1.335=05	8.162=02	7.943=02	8.162=02	5.533=05
RA=225	1.687=06	5.126=12	1.687=06	1.212=06	1.687=06	2.113=11
RA=228	5.791=08	0.000	5.791=08	4.302=14	5.791=08	0.000
RADIUM	8.163=02(0)	1.335=05(0)	8.163=02(0)	7.943=02(0)	8.163=02(0)	5.535=05(0)
FR=221	8.154=05	2.477=10	8.154=05	5.857=05	8.154=05	1.021=09
FR=223	7.036=09	5.601=12	7.036=09	3.575=09	7.036=09	2.280=11
FRANCIUM	8.154=05(0)	2.533=10(1)	8.154=05(0)	5.857=05(0)	8.154=05(0)	1.044=09(1)
RN=219	7.289=06	5.802=09	7.289=06	3.703=06	7.289=06	2.362=08
RN=220	9.038=02	1.478=05	9.038=02	8.796=02	9.038=02	6.127=05
RADON	9.039=02(0)	1.478=05(0)	9.039=02(0)	8.796=02(0)	9.039=02(0)	6.130=05(0)
AT=217	9.093=05	2.762=10	9.093=05	6.532=05	9.093=05	1.139=09
AT=218	3.324=10	0.000	3.324=10	2.815=11	3.324=10	0.000
ASTATINE	9.093=05(0)	2.762=10(0)	9.093=05(0)	6.532=05(0)	9.093=05(0)	1.139=09(0)
PU=210	4.828=07	0.000	4.828=07	0.000	4.828=07	0.000
PU=212	8.084=02	1.322=05	8.084=02	7.868=02	8.084=02	5.481=05
PU=213	1.079=04	3.276=10	1.079=04	7.748=05	1.079=04	1.350=09
PU=215	7.896=06	6.285=09	7.896=06	4.011=06	7.896=06	2.559=08
PU=216	9.752=02	1.595=05	9.752=02	9.490=02	9.752=02	6.611=05
PULONIUM	1.785=01(0)	2.917=05(0)	1.785=01(0)	1.737=01(0)	1.785=01(0)	1.209=04(0)
BI=211	7.062=06	5.621=09	7.062=06	3.588=06	7.062=06	2.289=08
BI=212	4.065=02	6.647=06	4.065=02	3.956=02	4.065=02	2.756=05
BI=213	9.431=06	2.865=11	9.431=06	6.775=06	9.431=06	1.181=10
BISMUTH	4.067=02(4)	6.653=06(4)	4.067=02(4)	3.957=02(4)	4.067=02(4)	2.758=05(4)
PB=209	2.624=06	7.972=12	2.624=06	1.885=06	2.624=06	3.286=11
PB=211	5.774=07	4.595=10	5.774=07	2.933=07	5.774=07	1.871=09
PB=212	4.570=03	7.473=07	4.570=03	4.447=03	4.570=03	3.098=06
LEAD	4.573=03(66)	7.477=07(66)	4.573=03(66)	4.450=03(66)	4.573=03(66)	3.100=06(66)
TL=207	5.683=07	4.523=10	5.683=07	2.887=07	5.683=07	1.842=09
TL=208	2.044=02	3.341=06	2.044=02	1.989=02	2.044=02	1.386=05
THALLIUM	2.044=02(84)	3.342=06(84)	2.044=02(84)	1.989=02(84)	2.044=02(84)	1.386=05(84)
TB=157	5.115=10	7.400=11	5.115=10	2.006=10	5.115=10	4.137=10
TB=158	6.415=10	1.138=10	6.415=10	8.078=10	6.415=10	1.265=10
TEHBUM	1.153=09(97)	1.878=10(97)	1.153=09(97)	1.008=09(96)	1.153=09(97)	5.402=10(98)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN KW-TIS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	M8 FRESH U-235 F.E. FERTILE PTL.	FISSILE PTL.	23MS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.	25MS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
GD-153 GADOLINIUM	2.970-10 2.970-10(100)	6.628-10 6.628-10(100)	2.970-10 2.970-10(100)	7.625-10 7.625-10(100)	2.970-10 2.970-10(100)	2.477-09 2.477-09(100)
EU-152	2.725-04	4.450-04	2.725-04	5.031-04	2.725-04	5.501-04
EU-154	1.013-01	2.859-01	1.013-01	1.896-01	1.013-01	2.175-01
EU-155	4.703-04	1.300-03	4.703-04	8.631-04	4.703-04	9.905-04
EUROPIUM	1.020-01(83)	2.677-01(83)	1.020-01(83)	1.908-01(83)	1.020-01(83)	2.188-01(83)
SM-145	1.078-09	1.995-09	1.078-09	2.957-09	1.078-09	1.136-08
SM-151	3.196-04	3.957-04	3.196-04	2.774-04	3.196-04	2.989-04
SAMARIUM	3.196-04(2)	3.957-04(2)	3.196-04(2)	2.774-04(2)	3.196-04(2)	2.989-04(2)
PM-147 PRIMUMIUM	3.622-02 3.622-02(0)	3.152-02 3.152-02(0)	3.622-02 3.622-02(0)	2.400-02 2.400-02(0)	3.622-02 3.622-02(0)	2.364-02 2.364-02(0)
PR-144 PRABEUDYMIUM	1.371-02 1.371-02(2)	1.221-02 1.221-02(2)	1.371-02 1.371-02(2)	9.766-03 9.766-03(2)	1.371-02 1.371-02(2)	9.160-03 9.160-03(2)
CE-144 CEMIUM	1.186-03 1.186-03(25)	1.056-03 1.056-03(25)	1.186-03 1.186-03(25)	8.445-04 8.445-04(25)	1.186-03 1.186-03(25)	7.922-04 7.922-04(25)
LA-137 LANTHANUM	5.439-10 5.439-10(100)	7.205-11 7.205-11(100)	5.439-10 5.439-10(100)	2.628-10 2.628-10(100)	5.439-10 5.439-10(100)	3.971-10 3.971-10(100)
BA-137M BARIUM	3.651+00 3.651+00(100)	5.665+00 5.665+00(100)	3.651+00 3.651+00(100)	5.317+00 5.317+00(100)	3.651+00 3.651+00(100)	4.226+00 4.226+00(100)
CS-134	5.203-01	1.411+00	5.203-01	1.107+00	5.203-01	1.052+00
CS-137	9.595-01	1.489+00	9.595-01	1.398+00	9.595-01	1.111+00
CESIUM	1.480+00(31)	2.900+00(44)	1.480+00(31)	2.505+00(40)	1.480+00(31)	2.163+00(44)
I-129 IODINE	3.098-07 3.098-07(39)	2.126-07 2.126-07(39)	3.098-07 3.098-07(39)	4.197-07 4.197-07(39)	3.098-07 3.098-07(39)	1.576-07 1.576-07(39)
TE-125M	1.236-02	4.042-03	1.236-02	1.293-02	1.236-02	2.964-03
TE-127M	1.736-11	1.494-12	1.736-11	5.127-12	1.736-11	1.057-12
TE-127	4.283-11	3.667-12	4.283-11	1.265-11	4.283-11	2.604-12
TELLURIUM	1.236-02(100)	4.042-03(100)	1.236-02(100)	1.293-02(100)	1.236-02(100)	2.964-03(100)
SB-125 ANTIMONY	4.354-02 4.354-02(83)	1.424-02 1.424-02(83)	4.354-02 4.354-02(83)	4.556-02 4.556-02(83)	4.354-02 4.354-02(83)	1.046-02 1.046-02(83)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER P.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE	MS FRESH U-235 P.E.		23KS RECYCLE U-235 P.E.		25KS RECYCLE U-235 P.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
SN=119M	3.750=08	2.423=08	3.750=08	2.352=08	3.750=08	1.813=08
SN=121M	5.806=08	6.261=08	5.806=08	6.367=08	5.806=08	7.371=08
SN=123	2.715=10	6.222=11	2.715=10	9.832=11	2.715=10	4.626=11
TIN	9.583=08(54)	8.690=08(40)	9.583=08(54)	8.729=08(45)	9.583=08(54)	9.191=08(40)
AG=108M	4.313=06	6.362=07	4.313=06	9.426=07	4.313=06	3.621=06
AG=110M	1.634=06	2.290=06	1.634=06	2.431=06	1.634=06	1.720=06
SILVER	5.948=06(99)	2.926=06(98)	5.948=06(99)	3.374=06(98)	5.948=06(99)	5.340=06(99)
PD=107	1.018=08	2.409=08	1.018=08	1.564=08	1.018=08	1.800=08
PALLADIUM	1.018=08(49)	2.409=08(49)	1.018=08(49)	1.564=08(49)	1.018=08(49)	1.800=08(49)
RH=106	6.793=03	9.088=03	6.793=03	5.958=03	6.793=03	6.817=03
RHODIUM	6.793=03(12)	9.088=03(12)	6.793=03(12)	5.958=03(12)	6.793=03(12)	6.817=03(12)
RU=106	4.006=05	5.359=05	4.006=05	3.513=05	4.006=05	4.020=05
RUTHENIUM	4.006=05(0)	5.359=05(0)	4.006=05(0)	3.513=05(0)	4.006=05(0)	4.020=05(0)
TC=99	6.835=05	1.366=04	6.835=05	9.740=05	6.835=05	9.704=05
TECHNETIUM	6.835=05(0)	1.366=04(0)	6.835=05(0)	9.740=05(0)	6.835=05(0)	9.704=05(0)
NB=93M	2.924=06	4.819=06	2.924=06	4.599=06	2.924=06	3.510=06
NIUBIUM	2.924=06(100)	4.819=06(100)	2.924=06(100)	4.599=06(100)	2.924=06(100)	3.510=06(100)
ZR=93	2.083=06	3.236=06	2.083=06	3.081=06	2.083=06	2.357=06
ZIRCONIUM	2.083=06(0)	3.236=06(0)	2.083=06(0)	3.081=06(0)	2.083=06(0)	2.357=06(0)
Y=90	5.431+00	7.909+00	5.431+00	7.828+00	5.431+00	5.760+00
YTTTRIUM	5.431+00(0)	7.909+00(0)	5.431+00(0)	7.828+00(0)	5.431+00(0)	5.760+00(0)
SR=90	1.155+00	1.682+00	1.155+00	1.664+00	1.155+00	1.225+00
STRONTIUM	1.155+00(0)	1.682+00(0)	1.155+00(0)	1.664+00(0)	1.155+00(0)	1.225+00(0)
RB=87	2.020=10	2.185=10	2.020=10	2.869=10	2.020=10	1.589=10
RUBIDIUM	2.020=10(0)	2.185=10(0)	2.020=10(0)	2.869=10(0)	2.020=10(0)	1.589=10(0)
KR=85	2.695=01	2.050=01	2.695=01	2.819=01	2.695=01	1.490=01
KRYPTON	2.695=01(0)	2.050=01(0)	2.695=01(0)	2.819=01(0)	2.695=01(0)	1.490=01(0)
SE=79	2.134=06	1.035=06	2.134=06	2.298=06	2.134=06	7.474=07
SELENIUM	2.134=06(0)	1.035=06(0)	2.134=06(0)	2.298=06(0)	2.134=06(0)	7.474=07(0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT FROM GAMMAS IN PARENTHESES)

NUCLIDE -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
NI-59	8.644+08	5.759+09	8.644+08	8.533+09	8.644+08	3.278+08
NI-63	2.345+05	1.563+06	2.345+05	2.317+06	2.345+05	8.900+06
NICKEL	2.354+05(0)	1.569+06(0)	2.354+05(0)	2.325+06(0)	2.354+05(0)	8.933+06(0)
CU-60	2.191+06	1.468+07	2.191+06	2.176+07	2.191+06	8.359+07
COBALT	2.191+06(96)	1.468+07(96)	2.191+06(96)	2.176+07(96)	2.191+06(96)	8.359+07(96)
CL-36	1.943+06	0.000	1.943+06	0.000	1.943+06	0.000
CHLORINE	1.943+06(0)	0.000 (0)	1.943+06(0)	0.000 (0)	1.943+06(0)	0.000 (0)
C-14 FROM C	7.107+06	0.000	7.107+06	0.000	7.107+06	0.000
C-14 FROM N	1.148+06	1.416+08	1.148+06	2.099+08	1.148+06	8.063+08
C-14 FROM U	5.853+07	1.981+08	5.853+07	2.935+08	5.853+07	1.128+07
CARBON	8.840+06(0)	3.397+08(0)	8.840+06(0)	5.034+08(0)	8.840+06(0)	1.934+07(0)
H-3 FROM LI6	6.444+04	1.335+05	6.444+04	1.978+05	6.444+04	7.600+05
H-3 FROM B10	1.261+06	0.000	1.261+06	0.000	1.261+06	0.000
H-3 FISS YLD	7.756+05	1.255+04	7.756+05	1.101+04	7.756+05	9.149+05
TRITIUM	7.232+04(0)	1.389+04(0)	7.232+04(0)	1.299+04(0)	7.232+04(0)	1.675+04(0)
ALL ELEMENTS						
TOTAL BETA	7.952+00	1.152+01	7.952+00	1.136+01	7.952+00	8.463+00
TOTAL GAMMA	4.285+00	7.209+00	4.285+00	6.561+00	4.285+00	5.389+00
TOTAL ALPHA	6.139+01	3.804+00	6.139+01	1.003+00	6.139+01	2.962+01
GRAND TOTAL	1.285+01(33)	2.253+01(31)	1.285+01(33)	1.892+01(34)	1.285+01(33)	4.348+01(12)

GAMMA DOSE RATES

TABLE D-5
GAMMA DOSE RATES FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF RELOAD 1
AND ORIGINALLY LOADED AT RELOAD 0

and

TABLE D-6
GAMMA DOSE RATES FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF RELOAD 5
AND ORIGINALLY LOADED AT RELOAD 1

NOTE: Tables D-5 and D-6 consist of 58 pages
of computer print-out, with the two tables
appearing side by side (pages D-99 through
D-156).

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

U-235

0.1	3.211-08	8.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.076-06	5.143-06
1.483-06	7.075-06

URANIUM

0.1	3.211-08	8.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.076-06	5.143-06
1.483-06	7.075-06

PA-233

0.1	1.226+02	9.386-09
0.3	8.131+02	6.227-08
TOTAL	9.356+02	7.165-08

1.007+02	1.229-07
6.679+02	8.131-07
7.686+02	9.379-07

PA-234

0.3	1.839-02	3.547-07
0.6	1.872-02	3.612-07
0.8	9.210-03	1.777-07
1.0	1.721-01	3.320-06
1.25	1.282-02	2.473-07
1.6	3.041-02	5.866-07
TOTAL	2.617-01	5.048-06

1.281-02	4.735-07
1.305-02	4.822-07
6.419-03	2.372-07
1.200-01	4.433-06
8.934-03	3.301-07
2.120-02	7.832-07
1.824-01	6.739-06

PROTACTINIUM

0.1	1.226+02	9.386-09
0.3	8.131+02	4.169-07
0.6	1.872-02	3.612-07
0.8	9.210-03	1.777-07
1.0	1.721-01	3.320-06
1.25	1.282-02	2.473-07
1.6	3.041-02	5.866-07
TOTAL	9.359+02	5.119-06

1.007+02	1.229-07
6.679+02	1.289-06
1.305-02	4.822-07
6.419-03	2.372-07
1.200-01	4.433-06
8.934-03	3.301-07
2.120-02	7.832-07
7.688+02	7.677-06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

AC-228

0.3	6.201-06	0.000
0.6	3.157-06	0.000
0.8	7.765-06	0.000
1.0	6.996-05	0.000
1.6	2.188-05	0.000
2.0	5.044-06	0.000
TOTAL	1.140-04	0.000

8.041-06	0.000
4.095-06	0.000
1.007-05	0.000
9.072-05	0.000
2.837-05	0.000
6.542-06	0.000
1.478-04	0.000

ACTINIUM

0.3	6.201-06	0.000
0.6	3.157-06	0.000
0.8	7.765-06	0.000
1.0	6.996-05	0.000
1.6	2.188-05	0.000
2.0	5.044-06	0.000
TOTAL	1.140-04	0.000

8.041-06	0.000
4.095-06	0.000
1.007-05	0.000
9.072-05	0.000
2.837-05	0.000
6.542-06	0.000
1.478-04	0.000

HA-223

0.1	1.455-06	4.986-11
0.3	3.874-06	1.327-10
TOTAL	5.329-06	1.826-10

2.302-06	1.696-10
6.129-06	4.516-10
8.431-06	6.212-10

RADIUM

0.1	1.455-06	4.986-11
0.3	3.874-06	1.327-10
TOTAL	5.329-06	1.826-10

2.302-06	1.696-10
6.129-06	4.516-10
8.431-06	6.212-10

RN-219

0.3	3.874-06	1.327-10
TOTAL	3.874-06	1.327-10

6.129-06	4.516-10
6.129-06	4.516-10

RADON

0.3	3.874-06	1.327-10
TOTAL	3.874-06	1.327-10

6.129-06	4.516-10
6.129-06	4.516-10

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

BI-211

0.3

TOTAL

3.874-06

1.327-10

3.874-06

1.327-10

6.129-06

4.516-10

6.129-06

4.516-10

BI-212

0.8

1.0

1.6

TOTAL

4.247-03

4.580-07

6.784-04

7.316-08

1.870-03

2.017-07

6.795-03

7.328-07

3.591-02

5.986-06

5.736-03

9.562-07

1.581-02

2.636-06

5.745-02

9.578-06

BI-213

0.3

1.0

TOTAL

6.645-06

8.886-12

4.557-07

6.094-13

7.101-06

9.496-12

2.082-05

5.454-10

1.428-06

3.740-11

2.224-05

9.828-10

BISMUTH

0.3

0.8

1.0

1.6

TOTAL

1.052-05

1.416-10

4.247-03

4.580-07

6.788-04

7.316-08

1.870-03

2.017-07

6.806-03

7.330-07

2.694-05

9.969-10

3.591-02

5.986-06

5.737-03

9.562-07

1.581-02

2.636-06

5.748-02

9.579-06

PB-211

0.3

0.8

TOTAL

2.324-06

7.965-11

2.329-06

7.979-11

4.653-06

1.594-10

3.677-06

2.709-10

3.684-06

2.714-10

7.361-06

5.424-10

PB-212

0.3

TOTAL

8.478-03

9.144-07

8.478-03

9.144-07

7.169-02

1.195-05

7.169-02

1.195-05

LEAD

0.3

0.8

TOTAL

8.481-03

9.144-07

2.329-06

7.979-11

8.483-03

9.145-07

7.169-02

1.195-05

3.684-06

2.714-10

7.169-02

1.195-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

IL-208
0.3
0.6
0.8
2.4
TOTAL

4.667-04 5.055-08
1.480-02 1.596-06
2.817-03 3.039-07
4.680-02 5.048-06
6.488-02 6.999-06

4.160-03 6.935-07
1.313-01 2.189-05
2.501-02 4.168-06
4.154-01 6.925-05
5.760-01 9.600-05

THALLIUM
0.3
0.6
0.8
2.4
TOTAL

4.667-04 5.055-08
1.480-02 1.596-06
2.817-03 3.039-07
4.680-02 5.048-06
6.488-02 6.999-06

4.160-03 6.935-07
1.313-01 2.189-05
2.501-02 4.168-06
4.154-01 6.925-05
5.760-01 9.600-05

TB-158
0.3
0.8
1.0
1.25
TOTAL

7.894-11 3.331-11
6.766-10 2.855-10
5.179-09 2.185-09
1.631-10 6.880-11
6.098-09 2.573-09

6.915-10 1.007-10
5.927-09 8.630-10
4.537-08 6.606-09
1.428-09 2.080-10
5.342-08 7.777-09

TB-160
0.3
0.8
1.0
1.25
TOTAL

2.782-02 6.755-03
6.736-02 1.635-02
6.901-02 1.676-02
5.172-02 1.256-02
2.159-01 5.242-02

2.804-02 2.986-02
6.788-02 7.230-02
6.954-02 7.407-02
5.212-02 5.551-02
2.176-01 2.317-01

TERBIUM
0.3
0.8
1.0
1.25
TOTAL

2.782-02 6.755-03
6.736-02 1.635-02
6.901-02 1.676-02
5.172-02 1.256-02
2.159-01 5.242-02

2.804-02 2.986-02
6.788-02 7.230-02
6.954-02 7.407-02
5.212-02 5.551-02
2.176-01 2.317-01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

EU-152

0.1	1.891-03	3.107-03
0.3	5.012-03	8.236-03
0.6	8.188-04	1.345-03
0.8	5.195-03	8.537-03
1.0	1.494-02	2.455-02
1.25	1.176-02	1.932-02
1.6	4.281-04	7.035-04
TOTAL	4.004-02	6.579-02

1.636-03	2.155-03
4.338-03	5.714-03
7.086-04	9.334-04
4.497-03	5.923-03
1.293-02	1.703-02
1.017-02	1.340-02
3.705-04	4.880-04
3.465-02	4.564-02

EU-154

0.1	2.463-02	2.103-01
0.3	1.070-02	9.135-02
0.6	2.814-02	2.402-01
0.8	1.531-01	1.307+00
1.0	1.431-01	1.239+00
1.25	2.231-01	1.905+00
1.6	1.723-02	1.471-01
TOTAL	6.020-01	5.140+00

4.694-01	1.080+00
2.039-01	4.692-01
5.363-01	1.234+00
2.919+00	6.715+00
2.767+00	6.368+00
4.252+00	9.763+00
3.284-01	7.594-01
1.148+01	2.640+01

EU-156

0.6	1.084-03	6.354-03
0.8	3.200-03	1.875-02
1.0	2.862-03	1.677-02
1.25	7.521-03	4.408-02
2.0	8.514-03	4.873-02
2.4	8.146-04	4.774-03
TOTAL	2.380-02	1.395-01

1.191-02	2.700-02
3.516-02	7.969-02
3.145-02	7.129-02
8.265-02	1.873-01
9.136-02	2.071-01
8.952-03	2.029-02
2.615-01	5.927-01

EUROPIUM

0.1	2.652-02	2.134-01
0.3	1.571-02	9.958-02
0.6	3.004-02	2.479-01
0.8	1.615-01	1.335+00
1.0	1.629-01	1.281+00
1.25	2.423-01	1.968+00
1.6	1.765-02	1.478-01
2.0	8.314-03	4.873-02
2.4	8.146-04	4.774-03
TOTAL	6.659-01	5.346+00

4.710-01	1.082+00
2.083-01	4.749-01
5.489-01	1.262+00
2.958+00	6.800+00
2.811+00	6.454+00
4.345+00	9.984+00
3.287-01	7.559-01
9.136-02	2.071-01
8.952-03	2.029-02
1.177+01	2.704+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

M3 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

PM-148M

0.1	8.913-03	4.563-02	4.352-02	3.044-02
0.3	2.563-01	1.312+00	1.252+00	8.753-01
0.6	2.045+00	1.047+01	9.984+00	6.983+00
0.8	3.729-01	1.909+00	1.821+00	1.273+00
1.0	5.895-01	3.018+00	2.879+00	2.013+00
TOTAL	3.272+00	1.675+01	1.598+01	1.118+01

PRIMUMIUM

0.1	8.913-03	4.563-02	4.352-02	3.044-02
0.3	2.563-01	1.312+00	1.252+00	8.753-01
0.6	2.045+00	1.047+01	9.984+00	6.983+00
0.8	3.729-01	1.909+00	1.821+00	1.273+00
1.0	5.895-01	3.018+00	2.879+00	2.013+00
TOTAL	3.272+00	1.675+01	1.598+01	1.118+01

ND-147

0.1	6.939-04	1.508-03	1.165-03	3.230-04
0.3	4.395-04	9.553-04	7.381-04	2.046-04
0.6	1.953-03	4.245-03	3.279-03	9.089-04
TOTAL	3.086-03	6.708-03	5.183-03	1.436-03

NEODYMIUM

0.1	6.939-04	1.508-03	1.165-03	3.230-04
0.3	4.395-04	9.553-04	7.381-04	2.046-04
0.6	1.953-03	4.245-03	3.279-03	9.089-04
TOTAL	3.086-03	6.708-03	5.183-03	1.436-03

PR-144

0.6	1.182+01	5.152+01	5.089+01	3.566+01
0.8	2.214-01	9.653-01	9.535-01	6.682-01
1.25	1.027-01	4.478-01	4.424-01	3.100-01
1.6	4.192+00	1.828+01	1.805+01	1.265+01
2.0	1.456+01	6.350+01	6.272+01	4.395+01
TOTAL	3.090+01	1.347+02	1.331+02	9.324+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

PRASEODYMIUM

0.6	1.182+01	5.152+01	5.089+01	3.566+01
0.8	2.214+01	9.653+01	9.535+01	6.682+01
1.25	1.027+01	4.478+01	4.428+01	3.100+01
1.6	4.192+00	1.828+01	1.805+01	1.265+01
2.0	1.456+01	6.350+01	6.272+01	4.395+01
TOTAL	3.090+01	1.347+02	1.331+02	9.324+01

LA-140

0.1	7.048+04	1.194+03	1.169+03	2.410+04
0.3	3.969+02	6.726+02	6.585+02	1.357+02
0.6	1.072+01	1.816+01	1.778+01	3.664+02
0.8	1.235+01	2.092+01	2.048+01	4.222+02
1.0	4.351+02	7.373+02	7.219+02	1.488+02
1.25	1.177+03	1.995+03	1.953+03	4.026+04
1.6	6.324+01	1.072+00	1.049+00	2.163+01
2.4	3.870+02	6.558+02	6.420+02	1.323+02
2.9	9.353+04	1.585+03	1.552+03	3.199+04
3.5	3.189+05	5.404+05	5.291+05	1.090+05
TOTAL	9.877+01	1.674+00	1.639+00	3.378+01

LANTHANUM

0.1	7.048+04	1.194+03	1.169+03	2.410+04
0.3	3.969+02	6.726+02	6.585+02	1.357+02
0.6	1.072+01	1.816+01	1.778+01	3.664+02
0.8	1.235+01	2.092+01	2.048+01	4.222+02
1.0	4.351+02	7.373+02	7.219+02	1.488+02
1.25	1.177+03	1.995+03	1.953+03	4.026+04
1.6	6.324+01	1.072+00	1.049+00	2.163+01
2.4	3.870+02	6.558+02	6.420+02	1.323+02
2.9	9.353+04	1.585+03	1.552+03	3.199+04
3.5	3.189+05	5.404+05	5.291+05	1.090+05
TOTAL	9.877+01	1.674+00	1.639+00	3.378+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

BA-137M

0.1	1.699+01	6.799+01	1.429+00	1.866+00
0.6	4.483+01	1.794+02	3.771+02	4.924+02
TOTAL	4.500+01	1.801+02	3.785+02	4.942+02

BA-140

0.1	7.312+03	1.239+02	1.213+02	2.500+03
0.3	1.595+02	2.703+02	2.646+02	5.454+03
0.6	6.301+02	1.068+01	1.046+01	2.155+02
TOTAL	8.628+02	1.462+01	1.431+01	2.950+02

BARIUM

0.1	1.772+01	6.923+01	1.441+00	1.868+00
0.3	1.595+02	2.703+02	2.646+02	5.454+03
0.6	4.489+01	1.795+02	3.772+02	4.924+02
TOTAL	4.508+01	1.803+02	3.787+02	4.943+02

CS-134

0.3	2.606+03	2.175+02	7.467+02	1.698+01
0.6	1.925+01	1.606+02	5.514+02	1.254+03
0.8	1.997+01	1.667+02	5.722+02	1.301+03
1.0	2.728+01	2.276+00	7.814+00	1.777+01
1.25	1.662+00	1.387+01	4.761+01	1.083+02
1.6	9.196+03	7.674+02	2.635+01	5.991+01
TOTAL	4.116+01	3.435+02	1.179+03	2.681+03

CESIUM

0.3	2.606+03	2.175+02	7.467+02	1.698+01
0.6	1.925+01	1.606+02	5.514+02	1.254+03
0.8	1.997+01	1.667+02	5.722+02	1.301+03
1.0	2.728+01	2.276+00	7.814+00	1.777+01
1.25	1.662+00	1.387+01	4.761+01	1.083+02
1.6	9.196+03	7.674+02	2.635+01	5.991+01
TOTAL	4.116+01	3.435+02	1.179+03	2.681+03

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

I-131
0.1
0.3
0.6
0.8
TOTAL

3.102-06 4.203-06
2.699-04 3.656-04
3.959-05 5.364-05
1.044-05 1.414-05
3.230-04 4.376-04

5.061-06 8.667-07
4.403-04 7.540-05
6.460-05 1.106-05
1.703-05 2.916-06
5.270-04 9.025-05

IODINE
0.1
0.3
0.6
0.8
TOTAL

3.102-06 4.203-06
2.699-04 3.656-04
3.959-05 5.364-05
1.044-05 1.414-05
3.230-04 4.376-04

5.061-06 8.667-07
4.403-04 7.540-05
6.460-05 1.106-05
1.703-05 2.916-06
5.270-04 9.025-05

TE-129M
0.1
0.6
0.8
1.0
1.25
TOTAL

2.433-02 2.163-02
3.158+00 2.807+00
9.606-01 8.539-01
5.391-02 4.792-02
1.204-02 1.071-02
4.209+00 3.742+00

4.342-02 4.435-03
5.635+00 5.755-01
1.714+00 1.751-01
9.620-02 9.825-03
2.149-02 2.195-03
7.510+00 7.670-01

TE-129
0.1
0.3
0.6
0.8
1.0
1.25
TOTAL

2.596-01 2.307-01
2.332-01 2.073-01
2.542+00 2.260+00
1.428-01 1.269-01
5.184-01 4.608-01
2.007-02 1.784-02
3.717+00 3.304+00

4.631-01 4.730-02
4.162-01 4.250-02
4.536+00 4.633-01
2.548-01 2.602-02
9.250-01 9.447-02
3.582-02 3.658-03
6.631+00 6.773-01

TELLURIUM
0.1
0.3
0.6
0.8
1.0
1.25
TOTAL

2.839-01 2.524-01
2.332-01 2.073-01
5.701+00 5.067+00
1.103+00 9.808-01
5.723-01 5.087-01
3.212-02 2.855-02
7.926+00 7.045+00

5.066-01 5.174-02
4.162-01 4.250-02
1.017+01 1.039+00
1.969+00 2.011-01
1.021+00 1.043-01
5.731-02 5.853-03
1.414+01 1.444+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HK PER P.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

88-124

0.6	1.493+02	6.841+03
0.8	2.565+03	1.175+03
1.0	8.939+04	4.095+04
1.25	1.298+03	5.947+04
1.6	1.725+02	7.901+03
2.0	2.272+03	1.041+03
TOTAL	3.921+02	1.796+02

4.676+02	2.971+02
8.031+03	5.102+03
2.799+03	1.778+03
4.065+03	2.582+03
5.401+02	3.431+02
7.115+03	4.520+03
1.228+01	7.800+02

98-125

0.1	1.944+01	1.951+01
0.3	1.845+00	1.851+00
0.6	3.697+00	3.709+00
TOTAL	5.737+00	5.755+00

1.282+00	3.484+01
1.216+01	3.306+00
2.437+01	6.624+00
3.781+01	1.028+01

ANTIMONY

0.1	1.944+01	1.951+01
0.3	1.845+00	1.851+00
0.6	3.712+00	3.716+00
0.8	2.565+03	1.175+03
1.0	8.939+04	4.095+04
1.25	1.298+03	5.947+04
1.6	1.725+02	7.901+03
2.0	2.272+03	1.041+03
TOTAL	5.776+00	5.773+00

1.282+00	3.484+01
1.216+01	3.306+00
2.442+01	6.654+00
8.031+03	5.102+03
2.799+03	1.778+03
4.065+03	2.582+03
5.401+02	3.431+02
7.115+03	4.520+03
3.793+01	1.036+01

CD-115M

1.0	6.062+04	1.144+03
1.25	2.934+04	5.539+04
TOTAL	8.996+04	1.698+03

1.189+03	3.673+04
5.754+04	1.778+04
1.764+03	5.451+04

CADMIUM

1.0	6.062+04	1.144+03
1.25	2.934+04	5.539+04
TOTAL	8.996+04	1.698+03

1.189+03	3.673+04
5.754+04	1.778+04
1.764+03	5.451+04

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

18 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

AG-108M

0.1	3.397-07	1.659-08	1.170-06	9.327-08
0.3	2.750-05	1.343-06	9.469-05	7.549-06
0.6	4.120-05	2.011-06	1.419-04	1.131-08
0.8	4.669-05	2.279-06	1.608-04	1.282-05
1.0	6.253-07	3.053-08	2.153-06	1.717-07
TOTAL	1.163-04	5.681-06	4.006-04	3.194-05

AG-110M

0.1	1.034-05	3.847-05	1.312-04	1.531-04
0.3	8.703-04	3.236-03	1.104-02	1.288-02
0.6	4.273-02	1.589-01	5.420-01	6.323-01
0.8	5.692-02	2.117-01	7.220-01	8.423-01
1.0	1.690-02	6.283-02	2.143-01	2.501-01
1.25	1.865-02	6.934-02	2.365-01	2.759-01
1.6	1.425-02	5.298-02	1.807-01	2.108-01
2.0	8.962-05	3.333-04	1.137-03	1.326-03
2.4	9.273-05	3.448-04	1.176-03	1.372-03
TOTAL	1.505-01	5.596-01	1.909-00	2.227-00

SILVER

0.1	1.068-05	3.848-05	1.324-04	1.532-04
0.3	8.978-04	3.238-03	1.113-02	1.289-02
0.6	4.277-02	1.589-01	5.421-01	6.323-01
0.8	5.697-02	2.117-01	7.221-01	8.423-01
1.0	1.690-02	6.283-02	2.143-01	2.501-01
1.25	1.865-02	6.934-02	2.365-01	2.759-01
1.6	1.425-02	5.298-02	1.807-01	2.108-01
2.0	8.962-05	3.333-04	1.137-03	1.326-03
2.4	9.273-05	3.448-04	1.176-03	1.372-03
TOTAL	1.506-01	5.597-01	1.909-00	2.227-00

RM-106

0.1	3.290-02	1.915-01	1.613-01	1.727-01
0.3	9.543-00	5.556-01	4.680-01	5.011-01
0.6	2.087-01	1.215-00	1.024-00	1.096-00
0.8	8.423-01	4.904-00	4.151-00	4.423-00
1.0	2.803-01	1.632-00	1.375-00	1.472-00
1.25	1.935-01	1.126-00	9.489-01	1.016-00
1.6	7.137-02	4.155-01	3.500-01	3.747-01
2.0	7.133-02	4.153-01	3.498-01	3.745-01
2.4	1.171-02	6.820-02	5.745-02	6.150-02
TOTAL	1.126-01	6.553-01	5.520-01	5.910-01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

RHODIUM

0.3	3.290-02	1.915-01	1.613-01	1.727-01
0.6	9.543+00	5.556+01	4.680+01	5.011+01
0.8	2.087-01	1.215+00	1.024+00	1.096+00
1.0	8.423-01	4.904+00	4.131+00	4.423+00
1.25	2.803-01	1.632+00	1.375+00	1.472+00
1.6	1.935-01	1.126+00	9.489-01	1.016+00
2.0	7.137-02	4.155-01	3.500-01	3.747-01
2.4	7.133-02	4.153-01	3.498-01	3.745-01
2.9	1.171-02	6.820-02	5.745-02	6.150-02
TOTAL	1.126+01	6.553+01	5.520+01	5.910+01

RU-103

0.1	1.508-02	5.915-02	2.907-02	1.199-02
0.3	2.007-01	7.875-01	3.870-01	1.596-01
0.6	3.948+01	1.549+02	7.610+01	3.140+01
TOTAL	3.969+01	1.557+02	7.652+01	3.157+01

RUTHENIUM

0.1	1.508-02	5.915-02	2.907-02	1.199-02
0.3	2.007-01	7.875-01	3.870-01	1.596-01
0.6	3.948+01	1.549+02	7.610+01	3.140+01
TOTAL	3.969+01	1.557+02	7.652+01	3.157+01

NB-95

0.8	1.299+03	3.513+03	2.830+03	7.401+02
TOTAL	1.299+03	3.513+03	2.830+03	7.401+02

NIUBIUM

0.8	1.299+03	3.513+03	2.830+03	7.401+02
TOTAL	1.299+03	3.513+03	2.830+03	7.401+02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

ZR-95

0.3

0.8

TOTAL

1.197+00

6.295+02

6.307+02

3.149+00

1.656+03

1.659+03

2.554+00

1.343+03

1.346+03

6.595+01

3.467+02

3.474+02

ZIRCONIUM

0.3

0.8

TOTAL

1.197+00

6.295+02

6.307+02

3.149+00

1.656+03

1.659+03

2.554+00

1.343+03

1.346+03

6.595+01

3.467+02

3.474+02

RB-86

1.0

TOTAL

8.696+04

8.696+04

2.350+04

2.350+04

1.971+03

1.971+03

6.172+04

6.172+04

RUBIDIUM

1.0

TOTAL

8.696+04

8.696+04

2.350+04

2.350+04

1.971+03

1.971+03

6.172+04

6.172+04

CU-58

0.6

0.8

1.6

TOTAL

1.052+04

5.454+04

6.196+06

6.569+04

2.280+06

1.182+05

1.343+07

1.423+05

9.451+05

4.899+04

5.565+06

5.900+04

3.403+06

1.764+05

2.003+07

2.124+05

CO-60

1.25

TOTAL

2.295+04

2.295+04

4.946+06

4.946+06

6.793+04

6.793+04

2.460+05

2.460+05

COBALT

0.6

0.8

1.25

1.6

TOTAL

1.052+04

5.454+04

2.295+04

6.196+06

8.864+04

2.280+06

1.182+05

4.946+06

1.343+07

1.918+05

9.451+05

4.899+04

6.793+04

5.565+06

1.269+03

3.403+06

1.764+05

2.460+05

2.003+07

4.584+05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

ALL ELEMENTS

0.1	1.253+02	1.461+00
0.3	8.170+02	7.726+00
0.6	1.367+02	6.220+02
0.8	1.951+03	5.342+03
1.0	2.745+00	1.214+01
1.25	2.406+00	1.803+01
1.6	5.109+00	2.076+01
2.0	1.465+01	6.396+01
2.4	1.577+01	4.860+01
2.9	1.265+02	6.978+02
3.5	3.189+05	5.404+05
TOTAL	3.053+03	6.089+03

1.045+02	3.393+00
6.853+02	5.922+00
1.148+03	1.880+03
4.755+03	2.399+03
1.914+01	3.110+01
5.414+01	1.204+02
2.091+01	1.548+01
6.317+01	4.454+01
8.396+01	4.095+01
5.900+02	6.182+02
5.291+05	1.090+05
6.852+03	4.500+03

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

U-235

0.1	3.211-08	8.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.078-06	5.143-06
1.483-06	7.075-06

URANIUM

0.1	3.211-08	8.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.078-06	5.143-06
1.483-06	7.075-06

PA-233

0.1	1.054+00	8.074-11
0.3	6.994+00	5.356-10
TOTAL	8.048+00	6.164-10

8.660-01	1.057-09
5.745+00	7.011-09
6.611+00	8.068-09

PA-234

0.3	8.923-05	3.546-07
0.6	9.087-05	3.612-07
0.8	4.470-05	1.776-07
1.0	8.353-04	3.320-06
1.25	6.221-05	2.472-07
1.6	1.476-04	5.866-07
TOTAL	1.270-03	5.047-06

6.220-05	4.735-07
6.334-05	4.822-07
3.115-05	2.372-07
5.822-04	4.432-06
4.336-05	3.301-07
1.029-04	7.832-07
8.852-04	6.738-06

PROTACTINIUM

0.1	1.054+00	8.074-11
0.3	6.994+00	3.552-07
0.6	9.087-05	3.612-07
0.8	4.470-05	1.776-07
1.0	8.353-04	3.320-06
1.25	6.221-05	2.472-07
1.6	1.476-04	5.866-07
TOTAL	8.050+00	5.048-06

8.660-01	1.057-09
5.745+00	4.805-07
6.334-05	4.822-07
3.115-05	2.372-07
5.822-04	4.432-06
4.336-05	3.301-07
1.029-04	7.832-07
6.612+00	6.747-06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER P.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

AC-228

0.3	0.999-06	0.000
0.6	3.564-06	0.000
0.8	8.765-06	0.000
1.0	7.896-05	0.000
1.6	2.470-05	0.000
2.0	5.694-06	0.000
TOTAL	1.287-04	0.000

8.577-06	0.000
4.367-06	0.000
1.074-05	0.000
9.676-05	0.000
3.026-05	0.000
6.977-06	0.000
1.577-04	0.000

ACTINIUM

0.3	0.999-06	0.000
0.6	3.564-06	0.000
0.8	8.765-06	0.000
1.0	7.896-05	0.000
1.6	2.470-05	0.000
2.0	5.694-06	0.000
TOTAL	1.287-04	0.000

8.577-06	0.000
4.367-06	0.000
1.074-05	0.000
9.676-05	0.000
3.026-05	0.000
6.977-06	0.000
1.577-04	0.000

RA-223

0.1	1.432-06	7.919-11
0.3	3.812-06	2.108-10
TOTAL	5.244-06	2.900-10

2.265-06	2.319-10
6.030-06	6.174-10
8.295-06	8.493-10

RADIUM

0.1	1.432-06	7.919-11
0.3	3.812-06	2.108-10
TOTAL	5.244-06	2.900-10

2.265-06	2.319-10
6.030-06	6.174-10
8.295-06	8.493-10

RN-219

0.3	3.812-06	2.108-10
TOTAL	3.812-06	2.108-10

6.050-06	6.174-10
6.030-06	6.174-10

RAUON

0.3	3.812-06	2.108-10
TOTAL	3.812-06	2.108-10

6.050-06	6.174-10
6.030-06	6.174-10

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

BI-211
0.3
TOTAL

3.812-06 2.108-10
3.812-06 2.108-10

6.030-06 6.174-10
6.030-06 6.174-10

BI-212
0.8
1.0
1.6
TOTAL

6.434-03 6.916-07
1.028-03 1.105-07
2.833-03 3.045-07
1.029-02 1.107-06

4.361-02 7.218-06
6.966-03 1.153-06
1.920-02 3.178-06
6.978-02 1.155-05

BI-213
0.3
1.0
TOTAL

1.124-05 8.930-12
7.706-07 6.124-13
1.201-05 9.543-12

2.798-05 5.454-10
1.919-06 3.741-11
2.990-05 5.828-10

BISMUTH
0.3
0.8
1.0
1.6
TOTAL

1.505-05 2.198-10
6.434-03 6.916-07
1.028-03 1.105-07
2.833-03 3.045-07
1.031-02 1.107-06

3.401-05 1.163-09
4.361-02 7.218-06
6.966-03 1.153-06
1.920-02 3.178-06
6.981-02 1.155-05

PB-211
0.3
0.8
TOTAL

2.287-06 1.265-10
2.291-06 1.267-10
4.579-06 2.532-10

3.618-06 3.704-10
3.625-06 3.711-10
7.243-06 7.416-10

PB-212
0.3
TOTAL

1.284-02 1.381-06
1.284-02 1.381-06

8.706-02 1.441-05
8.706-02 1.441-05

LEAD
0.3
0.8
TOTAL

1.285-02 1.381-06
2.291-06 1.267-10
1.285-02 1.381-06

8.707-02 1.441-05
3.625-06 3.711-10
8.707-02 1.441-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

TL-208

0.3	7.630-04	8.202-08
0.6	2.409-02	2.589-06
0.8	4.586-03	4.930-07
2.4	7.619-02	8.190-06
TOTAL	1.056-01	1.135-05

5.197-03	8.601-07
1.641-01	2.715-05
3.124-02	5.170-06
5.189-01	8.589-05
7.194-01	1.191-04

THALLIUM

0.3	7.630-04	8.202-08
0.6	2.409-02	2.589-06
0.8	4.586-03	4.930-07
2.4	7.619-02	8.190-06
TOTAL	1.056-01	1.135-05

5.197-03	8.601-07
1.641-01	2.715-05
3.124-02	5.170-06
5.189-01	8.589-05
7.194-01	1.191-04

TB-158

0.3	7.876-11	3.323-11
0.8	6.751-10	2.848-10
1.0	5.167-09	2.180-09
1.25	1.627-10	6.864-11
TOTAL	6.084-09	2.567-09

6.899-10	1.004-10
5.913-09	8.609-10
4.526-08	6.590-09
1.425-09	2.075-10
5.329-08	7.759-09

TB-160

0.3	4.676-03	1.135-03
0.8	1.132-02	2.749-03
1.0	1.160-02	2.816-03
1.25	8.693-03	2.111-03
TOTAL	3.629-02	8.811-03

4.712-03	5.019-03
1.141-02	1.215-02
1.169-02	1.245-02
8.761-03	9.331-03
3.657-02	3.895-02

TERBIUM

0.3	4.676-03	1.135-03
0.8	1.132-02	2.749-03
1.0	1.160-02	2.816-03
1.25	8.693-03	2.111-03
TOTAL	3.629-02	8.811-03

4.712-03	5.019-03
1.141-02	1.215-02
1.169-02	1.245-02
8.761-03	9.331-03
3.657-02	3.895-02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

EU-152

0.1	1.839=03	3.022=03
0.3	4.876=03	8.012=03
0.6	7.964=04	1.309=03
0.8	5.054=03	8.305=03
1.0	1.453=02	2.388=02
1.25	1.143=02	1.879=02
1.6	4.164=04	6.843=04
TOTAL	3.895=02	6.400=02

1.592=03	2.097=03
4.220=03	5.558=03
6.893=04	9.079=04
4.374=03	5.761=03
1.258=02	1.656=02
9.896=03	1.304=02
3.604=04	4.747=04
3.371=02	4.440=02

EU-154

0.1	2.409=02	2.057=01
0.3	1.047=02	8.936=02
0.6	2.752=02	2.350=01
0.8	1.498=01	1.279=00
1.0	1.420=01	1.212=00
1.25	2.182=01	1.863=00
1.6	1.685=02	1.439=01
TOTAL	5.889=01	5.029=00

4.592=01	1.057=00
1.995=01	4.590=01
5.247=01	1.207=00
2.855=00	6.569=00
2.707=00	6.227=00
4.160=00	9.570=00
3.212=01	7.390=01
1.123=01	2.583=01

EU-156

0.6	2.594=07	1.521=06
0.8	7.657=07	4.487=06
1.0	6.849=07	4.014=06
1.25	1.800=06	1.055=05
2.0	1.990=06	1.166=05
2.4	1.949=07	1.142=06
TOTAL	5.694=06	3.337=05

2.851=06	6.462=06
8.414=06	1.907=05
7.526=06	1.706=05
1.978=05	4.483=05
2.186=05	4.956=05
2.142=06	4.856=06
6.257=05	1.418=04

EUROPIUM

0.1	2.593=02	2.087=01
0.3	1.534=02	9.738=02
0.6	2.832=02	2.363=01
0.8	1.548=01	1.287=00
1.0	1.565=01	1.236=00
1.25	2.297=01	1.882=00
1.6	1.727=02	1.446=01
2.0	1.990=06	1.166=05
2.4	1.949=07	1.142=06
TOTAL	6.279=01	5.093=00

4.608=01	1.059=00
2.037=01	4.645=01
5.254=01	1.208=00
2.860=00	6.575=00
2.719=00	6.244=00
4.170=00	9.583=00
3.216=01	7.395=01
2.186=05	4.956=05
2.142=06	4.856=06
1.126=01	2.587=01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

PM-148M

0.1	4.129-04	2.114-03
0.3	1.187-02	6.079-02
0.6	9.473-02	4.850-01
0.8	1.728-02	8.844-02
1.0	2.731-02	1.398-01
TOTAL	1.516-01	7.761-01

2.016-03	1.410-03
5.798-02	4.055-02
4.626-01	3.235-01
8.436-02	5.900-02
1.334-01	9.328-02
7.403-01	5.178-01

PROMETHIUM

0.1	4.129-04	2.114-03
0.3	1.187-02	6.079-02
0.6	9.473-02	4.850-01
0.8	1.728-02	8.844-02
1.0	2.731-02	1.398-01
TOTAL	1.516-01	7.761-01

2.016-03	1.410-03
5.798-02	4.055-02
4.626-01	3.235-01
8.436-02	5.900-02
1.334-01	9.328-02
7.403-01	5.178-01

ND-147

0.1	6.299-09	1.369-08
0.3	3.990-09	8.672-09
0.6	1.773-08	3.853-08
TOTAL	2.802-08	6.090-08

1.058-08	2.932-09
6.700-09	1.857-09
2.977-08	8.251-09
4.705-08	1.304-08

NEODYMIUM

0.1	6.299-09	1.369-08
0.3	3.990-09	8.672-09
0.6	1.773-08	3.853-08
TOTAL	2.802-08	6.090-08

1.058-08	2.932-09
6.700-09	1.857-09
2.977-08	8.251-09
4.705-08	1.304-08

PM-144

0.6	7.519+00	3.278+01
0.8	1.409+01	6.142+01
1.25	6.536+02	2.850+01
1.6	2.667+00	1.163+01
2.0	9.267+00	4.040+01
TOTAL	1.966+01	8.571+01

3.238+01	2.269+01
6.067+01	4.252+01
2.815+01	1.973+01
1.149+01	8.050+00
3.991+01	2.797+01
8.466+01	5.933+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

PRASEODYMIUM

0.6	7.519+00	3.278+01	3.238+01	2.269+01
0.8	1.409+01	6.142+01	6.067+01	4.252+01
1.25	6.538+02	2.850+01	2.815+01	1.973+01
1.6	2.667+00	1.163+01	1.149+01	8.050+00
2.0	9.267+00	4.040+01	3.991+01	2.797+01
TOTAL	1.966+01	8.571+01	8.466+01	5.933+01

LA-140

0.1	3.102+08	5.257+08	5.147+08	1.061+08
0.3	1.747+06	2.960+06	2.898+06	5.973+07
0.6	4.716+06	7.992+06	7.825+06	1.613+06
0.8	5.434+06	9.208+06	9.016+06	1.858+06
1.0	1.915+06	3.245+06	3.177+06	6.549+07
1.25	5.182+08	8.781+08	8.598+08	1.772+08
1.6	2.783+05	4.717+05	4.618+05	9.518+06
2.4	1.703+06	2.886+06	2.826+06	5.824+07
2.9	4.117+08	6.976+08	6.830+08	1.408+08
3.5	1.403+09	2.378+09	2.329+09	4.799+10
TOTAL	4.347+05	7.367+05	7.213+05	1.487+05

LANTHANUM

0.1	3.102+08	5.257+08	5.147+08	1.061+08
0.3	1.747+06	2.960+06	2.898+06	5.973+07
0.6	4.716+06	7.992+06	7.825+06	1.613+06
0.8	5.434+06	9.208+06	9.016+06	1.858+06
1.0	1.915+06	3.245+06	3.177+06	6.549+07
1.25	5.182+08	8.781+08	8.598+08	1.772+08
1.6	2.783+05	4.717+05	4.618+05	9.518+06
2.4	1.703+06	2.886+06	2.826+06	5.824+07
2.9	4.117+08	6.976+08	6.830+08	1.408+08
3.5	1.403+09	2.378+09	2.329+09	4.799+10
TOTAL	4.347+05	7.367+05	7.213+05	1.487+05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

BA-137M

0.1
0.6
TOTAL

1.679+01 6.720+01
4.431+01 1.773+02
4.448+01 1.780+02

1.412+00 1.844+00
3.727+02 4.866+02
3.741+02 4.885+02

BA-140

0.1
0.3
0.6
TOTAL

3.218+07 5.454+07
7.020+07 1.190+06
2.773+06 4.700+06
3.797+06 6.435+06

5.340+07 1.101+07
1.165+06 2.401+07
4.602+06 9.484+07
6.300+06 1.299+06

BARIUM

0.1
0.3
0.6
TOTAL

1.679+01 6.720+01
7.020+07 1.190+06
4.431+01 1.773+02
4.448+01 1.780+02

1.412+00 1.844+00
1.165+06 2.401+07
3.727+02 4.866+02
3.741+02 4.885+02

CS-134

0.3
0.6
0.8
1.0
1.25
1.6
TOTAL

2.195+03 1.832+02
1.621+01 1.353+02
1.682+01 1.404+02
2.297+01 1.917+00
1.400+00 1.168+01
7.745+03 6.464+02
3.467+01 2.893+02

6.288+02 1.430+01
4.644+02 1.056+03
4.819+02 1.096+03
6.581+00 1.496+01
4.010+01 9.117+01
2.219+01 5.045+01
9.933+02 2.258+03

CESIUM

0.3
0.6
0.8
1.0
1.25
1.6
TOTAL

2.195+03 1.832+02
1.621+01 1.353+02
1.682+01 1.404+02
2.297+01 1.917+00
1.400+00 1.168+01
7.745+03 6.464+02
3.467+01 2.893+02

6.288+02 1.430+01
4.644+02 1.056+03
4.819+02 1.096+03
6.581+00 1.496+01
4.010+01 9.117+01
2.219+01 5.045+01
9.933+02 2.258+03

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

I-131
0.1
0.3
0.6
0.8
TOTAL

3.677-13 4.982-13
3.199-11 4.334-11
4.694-12 6.359-12
1.237-12 1.676-12
3.829-11 5.188-11

5.999-13 0.000
5.219-11 0.000
7.658-12 0.000
2.019-12 0.000
6.247-11 0.000

IODINE
0.1
0.3
0.6
0.8
TOTAL

3.677-13 4.982-13
3.199-11 4.334-11
4.694-12 6.359-12
1.237-12 1.676-12
3.829-11 5.188-11

5.999-13 0.000
5.219-11 0.000
7.658-12 0.000
2.019-12 0.000
6.247-11 0.000

TE-129M
0.1
0.6
0.8
1.0
1.25
TOTAL

5.641-04 5.014-04
7.321-02 6.507-02
2.227-02 1.979-02
1.250-03 1.111-03
2.792-04 2.482-04
9.757-02 8.673-02

1.006-03 1.028-04
1.306-01 1.334-02
3.973-02 4.058-03
2.230-03 2.277-04
4.981-04 5.088-05
1.741-01 1.778-02

TE-129
0.1
0.3
0.6
0.8
1.0
1.25
TOTAL

6.017-03 5.348-03
5.406-03 4.806-03
5.893-02 5.238-02
3.310-03 2.942-03
1.202-02 1.068-02
4.653-04 4.136-04
8.615-02 7.658-02

1.073-02 1.096-03
9.646-03 9.852-04
1.051-01 1.074-02
5.906-03 6.032-04
2.144-02 2.190-03
8.302-04 8.480-05
1.537-01 1.570-02

TELLURIUM
0.1
0.3
0.6
0.8
1.0
1.25
TOTAL

6.581-03 5.850-03
5.406-03 4.806-03
1.321-01 1.175-01
2.558-02 2.273-02
1.327-02 1.179-02
7.445-04 6.618-04
1.857-01 1.633-01

1.174-02 1.199-03
9.646-03 9.852-04
2.358-01 2.408-02
4.563-02 4.661-03
2.367-02 2.417-03
1.328-03 1.357-04
3.278-01 3.348-02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

88-124

0.6	1.771-03	8.114-04
0.8	3.042-04	1.394-04
1.0	1.060-04	4.857-05
1.25	1.540-04	7.053-05
1.6	2.046-03	9.371-04
2.0	2.695-04	1.235-04
TOTAL	4.650-03	2.130-03

5.546-03	3.523-03
9.525-04	6.052-04
3.320-04	2.109-04
4.821-04	3.063-04
6.405-03	4.069-03
8.438-04	5.361-04
1.456-02	9.251-03

88-125

0.1	1.708-01	1.713-01
0.3	1.621+00	1.626+00
0.6	3.247+00	3.258+00
TOTAL	5.039+00	5.055+00

1.126+00	3.060-01
1.068+01	2.904+00
2.141+01	5.819+00
3.321+01	9.029+00

ANTIMONY

0.1	1.708-01	1.713-01
0.3	1.621+00	1.626+00
0.6	3.249+00	3.259+00
0.8	3.042-04	1.394-04
1.0	1.060-04	4.857-05
1.25	1.540-04	7.053-05
1.6	2.046-03	9.371-04
2.0	2.695-04	1.235-04
TOTAL	5.043+00	5.057+00

1.126+00	3.060-01
1.068+01	2.904+00
2.141+01	5.822+00
9.525-04	6.052-04
3.320-04	2.109-04
4.821-04	3.063-04
6.405-03	4.069-03
8.438-04	5.361-04
3.323+01	9.038+00

CD-115M

1.0	3.064-05	5.783-05
1.25	1.483-05	2.799-05
TOTAL	4.547-05	8.582-05

6.007-05	1.856-05
2.908-05	8.986-06
8.915-05	2.755-05

CADMIUM

1.0	3.064-05	5.783-05
1.25	1.483-05	2.799-05
TOTAL	4.547-05	8.582-05

6.007-05	1.856-05
2.908-05	8.986-06
8.915-05	2.755-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

AG-108M

0.1	3.388-07	1.054-08
0.3	2.742-05	1.339-06
0.6	4.108-05	2.006-06
0.8	4.656-05	2.273-06
1.0	6.236-07	3.045-08
TOTAL	1.160-04	5.665-06

1.167-06	9.302-08
9.444-05	7.529-06
1.418-04	1.128-05
1.603-04	1.278-05
2.147-06	1.712-07
3.996-04	3.186-05

AG-110M

0.1	6.253-06	2.325-05
0.3	5.261-04	1.956-03
0.6	2.583-02	9.605-02
0.8	3.441-02	1.279-01
1.0	1.021-02	3.798-02
1.25	1.127-02	4.192-02
1.6	8.612-03	3.203-02
2.0	5.417-05	2.015-04
2.4	5.605-05	2.084-04
TOTAL	9.097-02	3.383-01

7.932-05	9.253-05
6.673-03	7.785-03
3.276-01	3.822-01
4.364-01	5.092-01
1.296-01	1.512-01
1.430-01	1.668-01
1.092-01	1.274-01
6.872-04	8.017-04
7.110-04	8.295-04
1.154+00	1.346+00

SILVER

0.1	6.591-06	2.327-05
0.3	5.535-04	1.958-03
0.6	2.587-02	9.605-02
0.8	3.445-02	1.280-01
1.0	1.021-02	3.798-02
1.25	1.127-02	4.192-02
1.6	8.612-03	3.203-02
2.0	5.417-05	2.015-04
2.4	5.605-05	2.084-04
TOTAL	9.109-02	3.383-01

8.048-05	9.263-05
6.768-03	7.793-03
3.278-01	3.822-01
4.366-01	5.092-01
1.296-01	1.512-01
1.430-01	1.668-01
1.092-01	1.274-01
6.872-04	8.017-04
7.110-04	8.295-04
1.154+00	1.346+00

HM-106

0.3	2.321-02	1.351-01
0.6	6.733+00	3.920+01
0.8	1.473-01	8.575-01
1.0	5.943-01	3.460+00
1.25	1.978-01	1.152+00
1.6	1.365-01	7.948-01
2.0	5.035-02	2.932-01
2.4	5.032-02	2.930-01
2.9	8.264-03	4.812-02
TOTAL	7.941+00	4.623+01

1.138-01	1.219-01
3.302+01	3.535+01
7.223-01	7.733-01
2.915+00	3.121+00
9.700-01	1.039+00
6.695-01	7.168-01
2.470-01	2.644-01
2.468-01	2.642-01
4.053-02	4.339-02
3.895+01	4.170+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

18 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.
.....

M8 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.
.....

RHODIUM

0.3	2.321-02	1.351-01	1.138-01	1.219-01
0.6	6.733+00	3.920+01	3.302+01	3.535+01
0.8	1.473-01	6.575-01	7.223-01	7.733-01
1.0	5.943-01	3.460+00	2.915+00	3.121+00
1.25	1.978-01	1.152+00	9.700-01	1.039+00
1.6	1.365-01	7.948-01	6.695-01	7.168-01
2.0	5.035-02	2.932-01	2.470-01	2.644-01
2.4	5.032-02	2.930-01	2.468-01	2.642-01
2.9	8.264-03	4.812-02	4.053-02	4.339-02
TOTAL	7.941+00	4.623+01	3.895+01	4.170+01

RU-103

0.1	5.985-04	2.348-03	1.154-03	4.759-04
0.3	7.967-03	3.125-02	1.536-02	6.336-03
0.6	1.567+00	6.146+00	3.021+00	1.246+00
TOTAL	1.575+00	6.180+00	3.037+00	1.253+00

RUTHENIUM

0.1	5.985-04	2.348-03	1.154-03	4.759-04
0.3	7.967-03	3.125-02	1.536-02	6.336-03
0.6	1.567+00	6.146+00	3.021+00	1.246+00
TOTAL	1.575+00	6.180+00	3.037+00	1.253+00

NB-95

0.8	2.055+02	5.429+02	4.398+02	1.138+02
TOTAL	2.055+02	5.429+02	4.398+02	1.138+02

NIUBIUM

0.8	2.055+02	5.429+02	4.398+02	1.138+02
TOTAL	2.055+02	5.429+02	4.398+02	1.138+02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

ZR-95

0.3

1.688-01

4.440-01

3.601-01

9.298-02

0.8

8.875+01

2.334+02

1.893+02

4.888+01

TOTAL

8.892+01

2.339+02

1.897+02

4.897+01

ZIRCONIUM

0.3

1.688-01

4.440-01

3.601-01

9.298-02

0.8

8.875+01

2.334+02

1.893+02

4.888+01

TOTAL

8.892+01

2.339+02

1.897+02

4.897+01

RB-86

1.0

8.919-07

2.411-07

2.022-06

6.330-07

TOTAL

8.919-07

2.411-07

2.022-06

6.330-07

RUBIDIUM

1.0

8.919-07

2.411-07

2.022-06

6.330-07

TOTAL

8.919-07

2.411-07

2.022-06

6.330-07

CU-58

0.6

1.741-05

3.772-07

1.564-05

5.630-07

0.8

9.025-05

1.955-06

8.106-05

2.918-06

1.6

1.025-06

2.221-08

9.208-07

3.315-08

TOTAL

1.087-04

2.355-06

9.762-05

3.514-06

CU-60

1.25

2.146-04

4.626-06

6.354-04

2.300-05

TOTAL

2.146-04

4.626-06

6.354-04

2.300-05

COBALT

0.6

1.741-05

3.772-07

1.564-05

5.630-07

0.8

9.025-05

1.955-06

8.106-05

2.918-06

1.25

2.146-04

4.626-06

6.354-04

2.300-05

1.6

1.025-06

2.221-08

9.208-07

3.315-08

TOTAL

3.233-04

6.981-06

7.330-04

2.652-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

ALL ELEMENTS

0.1	1.426+00	1.062+00
0.3	8.868+00	2.421+00
0.6	7.989+01	3.949+02
0.8	3.116+02	9.197+02
1.0	1.045+00	6.806+00
1.25	1.914+00	1.504+01
1.6	2.843+00	1.267+01
2.0	9.318+00	4.070+01
2.4	1.266+01	2.932+01
2.9	8.264+03	4.812+02
3.5	1.403+09	2.378+09
TOTAL	4.170+02	1.394+03

3.880+00	3.212+00
1.736+01	3.787+00
9.287+02	1.610+03
1.116+03	1.267+03
1.252+01	2.459+01
4.567+01	1.022+02
1.284+01	1.014+01
4.016+01	2.823+01
7.665+01	2.652+01
4.053+02	4.339+02
2.329+09	4.799+10
2.178+03	3.049+03

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

U-235

0.1

0.3

TOTAL

3.211-08

8.549-08

1.176-07

8.456-06

2.251-05

3.097-05

4.048-07

1.078-06

1.483-06

1.932-06

5.143-06

7.075-06

URANIUM

0.1

0.3

TOTAL

3.211-08

8.549-08

1.176-07

8.456-06

2.251-05

3.097-05

4.048-07

1.078-06

1.483-06

1.932-06

5.143-06

7.075-06

PA-233

0.1

0.3

TOTAL

7.549-09

5.008-08

5.763-08

0.000

0.000

0.000

6.201-09

4.114-08

4.734-08

0.000

0.000

0.000

PA-234

0.3

0.6

0.8

1.0

1.25

1.6

TOTAL

0.000

0.000

0.000

0.000

0.000

0.000

0.000

3.546-07

3.612-07

1.776-07

3.320-06

2.472-07

5.866-07

5.047-06

0.000

0.000

0.000

0.000

0.000

0.000

0.000

4.735-07

4.822-07

2.372-07

4.432-06

3.301-07

7.832-07

6.738-06

PROTACTINIUM

0.1

0.3

0.6

0.8

1.0

1.25

1.6

TOTAL

7.549-09

5.008-08

0.000

0.000

0.000

0.000

0.000

0.000

0.000

3.546-07

3.612-07

1.776-07

3.320-06

2.472-07

5.866-07

5.047-06

6.201-09

4.114-08

0.000

0.000

0.000

0.000

0.000

0.000

0.000

4.735-07

4.822-07

2.372-07

4.432-06

3.301-07

7.832-07

6.738-06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.
.....

MS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.
.....

AC-228

0.3	9.769-06	0.000
0.6	4.974-06	0.000
0.8	1.223-05	0.000
1.0	1.102-04	0.000
1.6	3.447-05	0.000
2.0	7.947-06	0.000
TOTAL	1.796-04	0.000

1.043-05	0.000
5.313-06	0.000
1.307-05	0.000
1.177-04	0.000
3.682-05	0.000
8.489-06	0.000
1.918-04	0.000

ACTINIUM

0.3	9.769-06	0.000
0.6	4.974-06	0.000
0.8	1.223-05	0.000
1.0	1.102-04	0.000
1.6	3.447-05	0.000
2.0	7.947-06	0.000
TOTAL	1.796-04	0.000

1.043-05	0.000
5.313-06	0.000
1.307-05	0.000
1.177-04	0.000
3.682-05	0.000
8.489-06	0.000
1.918-04	0.000

RA-223

0.1	1.343-06	1.974-10
0.3	3.575-06	5.255-10
TOTAL	4.918-06	7.229-10

2.124-06	4.696-10
5.656-06	1.250-09
7.780-06	1.720-09

RADIUM

0.1	1.343-06	1.974-10
0.3	3.575-06	5.255-10
TOTAL	4.918-06	7.229-10

2.124-06	4.696-10
5.656-06	1.250-09
7.780-06	1.720-09

RN-219

0.3	3.575-06	5.255-10
TOTAL	3.575-06	5.255-10

5.656-06	1.250-09
5.656-06	1.250-09

RADON

0.3	3.575-06	5.255-10
TOTAL	3.575-06	5.255-10

5.656-06	1.250-09
5.656-06	1.250-09

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

BI-211
0.3
TOTAL

3.575-06 5.255-10
3.575-06 5.255-10

5.656-06 1.250-09
5.656-06 1.250-09

BI-212
0.8
1.0
1.6
TOTAL

1.190-02 1.276-06
1.901-03 2.038-07
5.241-03 5.616-07
1.905-02 2.041-06

6.273-02 1.028-05
1.002-02 1.641-06
2.762-02 4.524-06
1.004-01 1.644-05

BI-213
0.3
1.0
TOTAL

2.935-05 9.104-12
2.013-06 6.243-13
3.136-05 9.728-12

5.624-05 5.457-10
3.857-06 3.742-11
6.010-05 5.831-10

BISMUTH
0.3
0.8
1.0
1.6
TOTAL

3.292-05 5.347-10
1.190-02 1.276-06
1.903-03 2.038-07
5.241-03 5.616-07
1.908-02 2.041-06

6.189-05 1.796-09
6.273-02 1.028-05
1.002-02 1.641-06
2.762-02 4.524-06
1.004-01 1.644-05

PB-211
0.3
0.8
TOTAL

2.145-06 3.153-10
2.149-06 3.159-10
4.294-06 6.312-10

3.593-06 7.501-10
3.400-06 7.515-10
6.793-06 1.502-09

PB-212
0.3
TOTAL

2.376-02 2.547-06
2.376-02 2.547-06

1.252-01 2.051-05
1.252-01 2.051-05

LEAD
0.3
0.8
TOTAL

2.377-02 2.547-06
2.149-06 3.159-10
2.377-02 2.547-06

1.252-01 2.051-05
3.400-06 7.515-10
1.252-01 2.052-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

TL-208

0.3	1.422=03	1.524=07
0.6	4.490=02	4.812=06
0.8	8.549=03	9.162=07
2.4	1.420=01	1.522=05
TOTAL	1.969=01	2.110=05

7.501=03	1.229=06
2.368=01	3.879=05
4.509=02	7.386=06
7.491=01	1.227=04
1.038=00	1.701=04

TMALLIUM

0.3	1.422=03	1.524=07
0.6	4.490=02	4.812=06
0.8	8.549=03	9.162=07
2.4	1.420=01	1.522=05
TOTAL	1.969=01	2.110=05

7.501=03	1.229=06
2.368=01	3.879=05
4.509=02	7.386=06
7.491=01	1.227=04
1.038=00	1.701=04

TB-158

0.3	7.803=11	3.292=11
0.6	6.688=10	2.822=10
1.0	5.120=09	2.160=09
1.25	1.612=10	6.801=11
TOTAL	6.028=09	2.543=09

6.835=10	9.952=11
5.859=09	8.530=10
4.485=08	6.529=09
1.412=09	2.056=10
5.280=08	7.688=09

TB-160

0.3	4.127=06	1.002=06
0.6	9.991=06	2.426=06
1.0	1.024=05	2.485=06
1.25	7.672=06	1.863=06
TOTAL	3.202=05	7.775=06

4.159=06	4.429=06
1.007=05	1.072=05
1.031=05	1.099=05
7.731=06	8.234=06
3.227=05	3.437=05

TERBIUM

0.3	4.127=06	1.002=06
0.6	9.991=06	2.426=06
1.0	1.024=05	2.487=06
1.25	7.672=06	1.863=06
TOTAL	3.203=05	7.778=06

4.159=06	4.429=06
1.007=05	1.072=05
1.036=05	1.099=05
7.733=06	8.234=06
3.233=05	3.438=05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

EU-152

0.1	1.649-03	2.710-03
0.3	4.372-03	7.183-03
0.6	7.141-04	1.173-03
0.8	4.531-03	7.446-03
1.0	1.303-02	2.141-02
1.25	1.025-02	1.685-02
1.6	3.734-04	6.135-04
TOTAL	3.492-02	5.738-02

1.427-03	1.860-03
3.784-03	4.984-03
6.180-04	8.141-04
3.922-03	5.166-03
1.128-02	1.485-02
8.874-03	1.169-02
3.232-04	4.257-04
3.022-02	3.981-02

EU-154

0.1	2.209-02	1.886-01
0.3	9.598-03	8.195-02
0.6	2.524-02	2.155-01
0.8	1.374-01	1.173+00
1.0	1.302-01	1.112+00
1.25	2.001-01	1.709+00
1.6	1.545-02	1.320-01
TOTAL	5.401-01	4.612+00

4.211-01	9.689-01
1.829-01	4.209-01
4.812-01	1.107+00
2.618+00	6.024+00
2.482+00	5.711+00
3.815+00	8.777+00
2.946-01	6.777-01
1.030+01	2.369+01

EUROPIUM

0.1	2.374-02	1.914-01
0.3	1.397-02	8.914-02
0.6	2.596-02	2.167-01
0.8	1.419-01	1.180+00
1.0	1.432-01	1.133+00
1.25	2.104-01	1.726+00
1.6	1.583-02	1.326-01
TOTAL	5.750-01	4.669+00

4.225-01	9.708-01
1.867-01	4.259-01
4.818-01	1.108+00
2.622+00	6.029+00
2.493+00	5.726+00
3.824+00	8.788+00
2.949-01	6.782-01
1.033+01	2.373+01

PM-148M

0.1	2.263-09	1.158-08
0.3	6.506-08	3.331-07
0.6	5.191-07	2.657-06
0.8	9.466-08	4.848-07
1.0	1.497-07	7.662-07
TOTAL	8.307-07	4.253-06

1.105-08	7.728-09
3.177-07	2.222-07
2.535-06	1.773-06
4.622-07	3.233-07
7.308-07	5.111-07
4.056-06	2.837-06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELUAD 1 AND WAS
ORIGINALLY LOADED AT RELUAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELUAD 5 AND WAS
ORIGINALLY LOADED AT RELUAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

PROMETHIUM

0.1	2.263+09	1.158+08
0.3	6.566+08	3.331+07
0.6	5.191+07	2.657+06
0.8	9.466+08	4.846+07
1.0	1.497+07	7.662+07
TOTAL	8.307+07	4.253+06

1.105+08	7.728+09
3.177+07	2.222+07
2.535+06	1.773+06
4.622+07	3.233+07
7.308+07	5.111+07
4.056+06	2.837+06

PR-144

0.6	1.264+00	5.512+00
0.8	2.369+02	1.033+01
1.25	1.099+02	4.792+02
1.6	4.486+01	1.955+00
2.0	1.558+00	6.794+00
TOTAL	3.306+00	1.441+01

5.445+00	3.816+00
1.020+01	7.150+02
4.733+02	3.317+02
1.932+00	1.354+00
6.711+00	4.703+00
1.424+01	9.977+00

PRASEODYMIUM

0.6	1.264+00	5.512+00
0.8	2.369+02	1.033+01
1.25	1.099+02	4.792+02
1.6	4.486+01	1.955+00
2.0	1.558+00	6.794+00
TOTAL	3.306+00	1.441+01

5.445+00	3.816+00
1.020+01	7.150+02
4.733+02	3.317+02
1.932+00	1.354+00
6.711+00	4.703+00
1.424+01	9.977+00

BA-137M

0.1	1.603+01	6.416+01
0.6	4.230+01	1.693+02
TOTAL	4.247+01	1.700+02

1.348+00	1.761+00
3.559+02	4.647+02
3.572+02	4.664+02

BARIUM

0.1	1.603+01	6.416+01
0.6	4.230+01	1.693+02
TOTAL	4.247+01	1.700+02

1.348+00	1.761+00
3.559+02	4.647+02
3.572+02	4.664+02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

CS-134
0.3
0.6
0.8
1.0
1.25
1.6
TOTAL

1.115-03	9.305-03
8.235+00	6.872+01
8.544+00	7.130+01
1.167-01	9.738-01
7.110-01	5.933+00
3.935-03	3.283-02
1.761+01	1.470+02

3.194-02	7.263-02
2.359+02	5.364+02
2.448+02	5.566+02
3.343+00	7.601+00
2.037+01	4.631+01
1.127-01	2.563-01
5.046+02	1.147+03

CESIUM
0.3
0.6
0.8
1.0
1.25
1.6
TOTAL

1.115-03	9.305-03
8.235+00	6.872+01
8.544+00	7.130+01
1.167-01	9.738-01
7.110-01	5.933+00
3.935-03	3.283-02
1.761+01	1.470+02

3.194-02	7.263-02
2.359+02	5.364+02
2.448+02	5.566+02
3.343+00	7.601+00
2.037+01	4.631+01
1.127-01	2.563-01
5.046+02	1.147+03

TE-129M
0.1
0.6
0.8
1.0
1.25
TOTAL

2.013-10	1.790-10
2.613-08	2.323-08
7.948-09	7.064-09
4.460-10	3.965-10
9.965-11	8.858-11
3.462-08	3.095-08

3.592-10	3.669-11
4.662-08	4.762-09
1.418-08	1.448-09
7.959-10	8.128-11
1.778-10	1.816-11
6.214-08	6.346-09

TE-129
0.1
0.3
0.6
0.8
1.0
1.25
TOTAL

2.148-09	1.909-09
1.930-09	1.715-09
2.103-08	1.870-08
1.181-09	1.050-09
4.289-09	3.812-09
1.661-10	1.476-10
3.075-08	2.733-08

3.832-09	3.913-10
3.443-09	3.517-10
3.753-08	3.833-09
2.108-09	2.153-10
7.652-09	7.816-10
2.963-10	3.027-11
5.486-08	5.603-09

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

TELLURIUM

0.1	2.349-09	2.088-09	4.191-09	4.280-10
0.3	1.930-09	1.715-09	3.443-09	3.517-10
0.6	4.716-08	4.192-08	8.415-08	8.595-09
0.8	9.129-09	8.115-09	1.629-08	1.664-09
1.0	4.735-09	4.209-09	8.448-09	8.629-10
1.25	2.657-10	2.362-10	4.741-10	4.843-11
TOTAL	6.557-08	5.829-08	1.170-07	1.195-08

SB-124

0.6	3.953-07	1.811-07	1.238-06	7.863-07
0.8	6.789-08	3.110-08	2.126-07	1.351-07
1.0	2.366-08	1.084-08	7.409-08	4.707-08
1.25	3.436-08	1.574-08	1.076-07	6.836-08
1.6	4.565-07	2.091-07	1.430-06	9.082-07
2.0	6.014-08	2.755-08	1.883-07	1.196-07
TOTAL	1.038-06	4.755-07	3.250-06	2.065-06

SB-125

0.1	1.024-01	1.027-01	6.750-01	1.835-01
0.3	9.718-01	9.749-01	6.405-00	1.741-00
0.6	1.947+00	1.953+00	1.283+01	3.489+00
TOTAL	3.021+00	3.031+00	1.992+01	5.414+00

ANTIMONY

0.1	1.024-01	1.027-01	6.750-01	1.835-01
0.3	9.718-01	9.749-01	6.405-00	1.741-00
0.6	1.947+00	1.953+00	1.283+01	3.489+00
0.8	6.789-08	3.110-08	2.126-07	1.351-07
1.0	2.366-08	1.084-08	7.409-08	4.707-08
1.25	3.436-08	1.574-08	1.076-07	6.836-08
1.6	4.565-07	2.091-07	1.430-06	9.082-07
2.0	6.014-08	2.755-08	1.883-07	1.196-07
TOTAL	3.021+00	3.031+00	1.992+01	5.414+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

M5 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

CO-115M

1.0	2.365-10	4.464-10
1.25	1.145-10	2.161-10
TOTAL	3.509-10	6.625-10

4.637-10	1.433-10
2.245-10	6.936-11
6.882-10	2.126-10

CADMIUM

1.0	2.365-10	4.464-10
1.25	1.145-10	2.161-10
TOTAL	3.509-10	6.625-10

4.637-10	1.433-10
2.245-10	6.936-11
6.882-10	2.126-10

AG-108M

0.1	3.352-07	1.637-08
0.3	2.713-05	1.325-06
0.6	4.065-05	1.985-06
0.8	4.607-05	2.249-06
1.0	6.170-07	3.013-08
TOTAL	1.148-04	5.605-06

1.154-06	9.203-08
9.343-05	7.449-06
1.400-04	1.116-05
1.586-04	1.265-05
2.125-06	1.694-07
3.953-04	3.152-05

AG-110M

0.1	8.589-07	3.194-06
0.3	7.226-05	2.687-04
0.6	3.548-03	1.319-02
0.8	4.726-03	1.758-02
1.0	1.403-03	5.217-03
1.25	1.548-03	5.758-03
1.6	1.183-03	4.399-03
2.0	7.441-06	2.767-05
2.4	7.699-06	2.863-05
TOTAL	1.250-02	4.647-02

1.090-05	1.271-05
9.166-04	1.069-03
4.500-02	5.250-02
5.995-02	6.994-02
1.780-02	2.076-02
1.964-02	2.291-02
1.501-02	1.751-02
9.439-05	1.101-04
9.767-05	1.139-04
1.585-01	1.849-01

SILVER

0.1	1.194-06	3.210-06
0.3	9.940-05	2.700-04
0.6	3.588-03	1.319-02
0.8	4.772-03	1.758-02
1.0	1.404-03	5.217-03
1.25	1.548-03	5.758-03
1.6	1.183-03	4.399-03
2.0	7.441-06	2.767-05
2.4	7.699-06	2.863-05
TOTAL	1.261-02	4.648-02

1.205-05	1.280-05
1.010-03	1.077-03
4.514-02	5.251-02
6.011-02	6.995-02
1.780-02	2.076-02
1.964-02	2.291-02
1.501-02	1.751-02
9.439-05	1.101-04
9.767-05	1.139-04
1.589-01	1.850-01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

RM-106

0.3	5.867-03	3.416-02
0.6	1.702+00	9.908+00
0.8	3.722-02	2.167-01
1.0	1.502-01	8.745-01
1.25	4.999-02	2.910-01
1.6	3.450-02	2.009-01
2.0	1.273-02	7.410-02
2.4	1.272-02	7.405-02
2.9	2.089-03	1.216-02
TOTAL	2.007+00	1.169+01

2.877-02	3.080-02
8.346+00	8.935+00
1.826-01	1.954-01
7.367-01	7.887-01
2.452-01	2.625-01
1.692-01	1.812-01
6.242-02	6.683-02
6.238-02	6.679-02
1.024-02	1.097-02
9.843+00	1.054+01

RMUDIUM

0.3	5.867-03	3.416-02
0.6	1.702+00	9.908+00
0.8	3.722-02	2.167-01
1.0	1.502-01	8.745-01
1.25	4.999-02	2.910-01
1.6	3.450-02	2.009-01
2.0	1.273-02	7.410-02
2.4	1.272-02	7.405-02
2.9	2.089-03	1.216-02
TOTAL	2.007+00	1.169+01

2.877-02	3.080-02
8.346+00	8.935+00
1.826-01	1.954-01
7.367-01	7.887-01
2.452-01	2.625-01
1.692-01	1.812-01
6.242-02	6.683-02
6.238-02	6.679-02
1.024-02	1.097-02
9.843+00	1.054+01

RU-103

0.1	1.781-09	6.987-09
0.3	2.371-08	9.301-08
0.6	4.663-06	1.829-05
TOTAL	4.689-06	1.839-05

3.433-09	1.416-09
4.571-08	1.886-08
8.989-06	3.709-06
9.038-06	3.729-06

RUTHENIUM

0.1	1.781-09	6.987-09
0.3	2.371-08	9.301-08
0.6	4.663-06	1.829-05
TOTAL	4.689-06	1.839-05

3.433-09	1.416-09
4.571-08	1.886-08
8.989-06	3.709-06
9.038-06	3.729-06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

NR-95

0.8
TOTAL

9.284-02 2.442-01
9.284-02 2.442-01

1.981-01 5.113-02
1.981-01 5.113-02

NIUBIUM

0.8
TOTAL

9.284-02 2.442-01
9.284-02 2.442-01

1.981-01 5.113-02
1.981-01 5.113-02

ZR-95

0.3
0.8
TOTAL

7.450-05 1.959-04
3.916-02 1.030-01
3.924-02 1.032-01

1.589-04 4.103-05
8.355-02 2.157-02
8.371-02 2.161-02

ZIRCONIUM

0.3
0.8
TOTAL

7.450-05 1.959-04
3.916-02 1.030-01
3.924-02 1.032-01

1.589-04 4.103-05
8.355-02 2.157-02
8.371-02 2.161-02

CO-58

0.6
0.8
1.6
TOTAL

1.444-08 3.129-10
7.487-08 1.622-09
8.505-10 1.843-11
9.016-08 1.953-09

1.297-08 4.670-10
6.724-08 2.421-09
7.638-10 2.750-11
8.098-08 2.915-09

CO-60

1.25
TOTAL

1.649-04 3.553-06
1.649-04 3.553-06

4.881-04 1.767-05
4.881-04 1.767-05

COBALT

0.6
0.8
1.25
1.6
TOTAL

1.444-08 3.129-10
7.487-08 1.622-09
1.649-04 3.553-06
8.505-10 1.843-11
1.650-04 3.555-06

1.297-08 4.670-10
6.724-08 2.421-09
4.881-04 1.767-05
7.638-10 2.750-11
4.881-04 1.767-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.
.....

MS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.
.....

ALL ELEMENTS

0.1	2.864-01	9.357-01
0.3	1.018+00	1.108+00
0.6	5.553+01	2.557+02
0.8	8.904+00	7.317+01
1.0	4.136-01	2.987+00
1.25	9.841-01	8.004+00
1.6	5.093-01	2.326+00
2.0	1.571+00	6.868+00
2.4	1.547-01	7.410-02
2.9	2.089-03	1.216-02
TOTAL	6.937+01	3.511+02

2.446+00	2.915+00
6.787+00	2.272+00
6.192+02	1.018+03
2.481+02	5.630+02
6.601+00	1.414+01
2.451+01	5.542+01
2.551+00	2.487+00
6.773+00	4.770+00
6.115-01	6.702-02
1.024-02	1.097-02
9.178+02	1.664+03

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

U-235

0.1	3.211-08	8.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.078-06	5.143-06
1.483-06	7.075-06

URANIUM

0.1	3.211-08	8.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.078-06	5.143-06
1.483-06	7.075-06

PA-234

0.3	0.000	3.546-07
0.6	0.000	3.612-07
0.8	0.000	1.776-07
1.0	0.000	3.320-06
1.25	0.000	2.472-07
1.6	0.000	5.866-07
TOTAL	0.000	5.047-06

0.000	4.735-07
0.000	4.822-07
0.000	2.372-07
0.000	4.432-06
0.000	3.301-07
0.000	7.832-07
0.000	6.738-06

PROTACTINIUM

0.3	0.000	3.546-07
0.6	0.000	3.612-07
0.8	0.000	1.776-07
1.0	0.000	3.320-06
1.25	0.000	2.472-07
1.6	0.000	5.866-07
TOTAL	0.000	5.047-06

0.000	4.735-07
0.000	4.822-07
0.000	2.372-07
0.000	4.432-06
0.000	3.301-07
0.000	7.832-07
0.000	6.738-06

AC-228

0.3	1.202-05	0.000
0.6	6.121-06	0.000
0.8	1.505-05	0.000
1.0	1.356-04	0.000
1.6	4.242-05	0.000
2.0	9.779-06	0.000
TOTAL	2.210-04	0.000

1.194-05	0.000
6.082-06	0.000
1.496-05	0.000
1.348-04	0.000
4.215-05	0.000
9.717-06	0.000
2.196-04	0.000

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER P.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

ACTINIUM

0.3	1.202=05	0.000
0.6	6.121=06	0.000
0.8	1.505=05	0.000
1.0	1.356=04	0.000
1.6	4.242=05	0.000
2.0	9.779=06	0.000
TOTAL	2.210=04	0.000

1.194=05	0.000
6.082=06	0.000
1.496=05	0.000
1.348=04	0.000
4.215=05	0.000
9.717=06	0.000
2.196=04	0.000

RA-223

0.1	1.259=06	3.195=10
0.3	3.353=06	8.506=10
TOTAL	4.612=06	1.170=09

1.992=06	6.950=10
5.304=06	1.850=09
7.296=06	2.545=09

RADIUM

0.1	1.259=06	3.195=10
0.3	3.353=06	8.506=10
TOTAL	4.612=06	1.170=09

1.992=06	6.950=10
5.304=06	1.850=09
7.296=06	2.545=09

RN-219

0.3	3.353=06	8.506=10
TOTAL	3.353=06	8.506=10

5.304=06	1.850=09
5.304=06	1.850=09

RADON

0.3	3.353=06	8.506=10
TOTAL	3.353=06	8.506=10

5.304=06	1.850=09
5.304=06	1.850=09

BI-211

0.3	3.353=06	8.506=10
TOTAL	3.353=06	8.506=10

5.304=06	1.850=09
5.304=06	1.850=09

BI-212

0.8	1.438=02	1.540=06
1.0	2.297=03	2.460=07
1.6	6.333=03	6.782=07
TOTAL	2.301=02	2.464=06

7.119=02	1.163=05
1.137=02	1.857=06
3.134=02	5.119=06
1.139=01	1.860=05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV
.....

18 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.
.....

BI-213

0.3

1.0

TOTAL

4.746-05

3.255-06

5.071-05

9.277-12

6.362-13

9.913-12

8.449-05

5.794-06

9.026-05

5.459-10

3.744-11

5.834-10

BISMUTH

0.3

0.8

1.0

1.6

TOTAL

5.081-05

1.438-02

2.301-03

6.333-03

2.307-02

8.598-10

1.540-06

2.460-07

6.782-07

2.465-06

8.979-05

7.119-02

1.138-02

3.134-02

1.140-01

2.396-09

1.161-05

1.857-06

5.119-06

1.860-05

PB-211

0.3

0.8

TOTAL

2.012-06

2.015-06

4.027-06

5.103-10

5.113-10

1.022-09

3.182-06

3.188-06

6.370-06

1.110-09

1.112-09

2.222-09

PB-212

0.3

TOTAL

2.871-02

2.871-02

3.075-06

3.075-06

1.421-01

1.421-01

2.321-05

2.321-05

LEAD

0.3

0.8

TOTAL

2.872-02

2.015-06

2.872-02

3.075-06

5.113-10

3.076-06

1.421-01

3.188-06

1.421-01

2.321-05

1.112-09

2.321-05

TL-208

0.3

0.6

0.8

2.4

TOTAL

1.721-03

5.433-02

1.034-02

1.718-01

2.382-01

1.843-07

5.819-06

1.108-06

1.841-05

2.552-05

8.522-03

2.690-01

5.122-02

8.510-01

1.180-00

1.391-06

4.393-05

8.363-06

1.389-04

1.926-04

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSILE PTL.

THALLIUM

0.3	1.721-03	1.843-07	8.522-03	1.391-08
0.6	5.433-02	5.819-06	2.690-01	4.393-05
0.8	1.034-02	1.108-06	5.122-02	8.363-06
2.4	1.718-01	1.841-05	8.510-01	1.389-04
TOTAL	2.382-01	2.552-05	1.180+00	1.926-04

TB-158

0.3	7.732-11	3.262-11	6.773-10	9.861-11
0.8	6.627-10	2.796-10	5.805-09	8.452-10
1.0	5.073-09	2.140-09	4.443-08	6.470-09
1.25	1.597-10	6.738-11	1.399-09	2.037-10
TOTAL	5.972-09	2.520-09	5.232-08	7.617-09

TB-160

0.3	3.643-09	8.846-10	3.672-09	3.911-09
0.8	8.821-09	2.142-09	8.889-09	9.468-09
1.0	9.037-09	2.194-09	9.107-09	9.700-09
1.25	6.773-09	1.644-09	6.826-09	7.270-09
TOTAL	2.827-08	6.865-09	2.849-08	3.035-08

TERBIUM

0.3	3.721-09	9.172-10	4.349-09	4.009-09
0.8	9.483-09	2.421-09	1.469-08	1.031-08
1.0	1.411-08	4.334-09	5.354-08	1.617-08
1.25	6.933-09	1.712-09	8.225-09	7.474-09
TOTAL	3.425-08	9.385-09	8.081-08	3.796-08

EU-152

0.1	1.479-03	2.430-03	1.280-03	1.686-03
0.3	3.920-03	6.441-03	3.392-03	4.469-03
0.6	6.403-04	1.052-03	5.542-04	7.300-04
0.8	4.063-03	6.676-03	3.516-03	4.632-03
1.0	1.168-02	1.920-02	1.011-02	1.332-02
1.25	9.193-03	1.511-02	7.956-03	1.048-02
1.6	3.348-04	5.501-04	2.898-04	3.817-04
TOTAL	3.131-02	5.145-02	2.710-02	3.570-02

THIS SEGMENT WAS DISCHARGED AT
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THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELUAD 5 AND WAS
ORIGINALLY LOADED AT RELUAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

EU-154

0.1	2.026-02	1.730-01
0.3	8.802-03	7.516-02
0.6	2.315-02	1.977-01
0.8	1.260-01	1.076+00
1.0	1.194-01	1.020+00
1.25	1.835-01	1.567+00
1.6	1.417-02	1.210-01
TOTAL	4.953-01	4.229+00

3.862-01	8.885-01
1.678-01	3.860-01
4.412-01	1.015+00
2.401+00	5.525+00
2.276+00	5.237+00
3.498+00	8.049+00
2.701-01	6.215-01
9.441+00	2.172+01

EURONIUM

0.1	2.174-02	1.754-01
0.3	1.272-02	8.160-02
0.6	2.379-02	1.987-01
0.8	1.300-01	1.082+00
1.0	1.311-01	1.039+00
1.25	1.927-01	1.582+00
1.6	1.451-02	1.216-01
TOTAL	5.266-01	4.281+00

3.875-01	8.902-01
1.712-01	3.905-01
4.418-01	1.016+00
2.405+00	5.529+00
2.286+00	5.251+00
3.506+00	8.059+00
2.704-01	6.219-01
9.468+00	2.176+01

PR-144

0.6	2.126-01	9.270-01
0.8	3.984-03	1.737-02
1.25	1.848-03	8.058-03
1.6	7.543-02	3.289-01
2.0	2.621-01	1.143+00
TOTAL	5.560-01	2.424+00

9.157-01	6.417-01
1.716-02	1.202-02
7.960-03	5.578-03
3.248-01	2.276-01
1.129+00	7.908-01
2.394+00	1.678+00

PRASEODYMIUM

0.6	2.126-01	9.270-01
0.8	3.984-03	1.737-02
1.25	1.848-03	8.058-03
1.6	7.543-02	3.289-01
2.0	2.621-01	1.143+00
TOTAL	5.560-01	2.424+00

9.157-01	6.417-01
1.716-02	1.202-02
7.960-03	5.578-03
3.248-01	2.276-01
1.129+00	7.908-01
2.394+00	1.678+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

BA-137M

0.1	1.531+01	6.127+01
0.6	4.040+01	1.617+02
TOTAL	4.055+01	1.623+02

1.288+00	1.681+00
3.398+02	4.437+02
3.411+02	4.454+02

BARIUM

0.1	1.531+01	6.127+01
0.6	4.040+01	1.617+02
TOTAL	4.055+01	1.623+02

1.288+00	1.681+00
3.398+02	4.437+02
3.411+02	4.454+02

CS-134

0.3	5.664+04	4.727+03
0.6	4.183+00	3.491+01
0.8	4.341+00	3.622+01
1.0	5.928+02	4.947+01
1.25	3.612+01	3.014+00
1.6	1.999+03	1.668+02
TOTAL	8.947+00	7.467+01

1.623+02	3.690+02
1.199+02	2.725+02
1.244+02	2.828+02
1.698+00	3.862+00
1.035+01	2.353+01
5.727+02	1.302+01
2.563+02	5.828+02

CEBIUM

0.3	5.664+04	4.727+03
0.6	4.183+00	3.491+01
0.8	4.341+00	3.622+01
1.0	5.928+02	4.947+01
1.25	3.612+01	3.014+00
1.6	1.999+03	1.668+02
TOTAL	8.947+00	7.467+01

1.623+02	3.690+02
1.199+02	2.725+02
1.244+02	2.828+02
1.698+00	3.862+00
1.035+01	2.353+01
5.727+02	1.302+01
2.563+02	5.828+02

SB-124

0.6	8.827+11	4.044+11
0.8	1.516+11	6.946+12
1.0	5.284+12	2.421+12
1.25	7.673+12	3.515+12
1.6	1.020+10	4.670+11
2.0	1.343+11	6.153+12
TOTAL	2.318+10	1.062+10

2.764+10	1.756+10
4.747+11	3.016+11
1.655+11	1.051+11
2.403+11	1.526+11
3.192+10	2.028+10
4.206+11	2.672+11
7.257+10	4.611+10

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

88-125

0.1	6.141-02	6.160-02
0.3	5.827-01	5.846-01
0.6	1.168+00	1.171+00
TOTAL	1.812+00	1.818+00

4.048-01	1.100-01
3.841+00	1.044+00
7.696+00	2.092+00
1.194+01	3.246+00

ANTIMONY

0.1	6.141-02	6.160-02
0.3	5.827-01	5.846-01
0.6	1.168+00	1.171+00
0.8	1.516-11	6.946-12
1.0	5.284-12	2.421-12
1.25	7.673-12	3.515-12
1.6	1.020-10	4.670-11
2.0	1.343-11	6.153-12
TOTAL	1.812+00	1.818+00

4.048-01	1.100-01
3.841+00	1.044+00
7.696+00	2.092+00
4.747-11	3.016-11
1.655-11	1.051-11
2.403-11	1.526-11
3.192-10	2.028-10
4.206-11	2.672-11
1.194+01	3.246+00

AG-108M

0.1	3.317-07	1.619-08
0.3	2.685-05	1.311-06
0.6	4.022-05	1.964-06
0.8	4.558-05	2.225-06
1.0	6.105-07	2.981-08
TOTAL	1.136-04	5.546-06

1.142-06	9.106-08
9.249-05	7.370-06
1.365-04	1.104-05
1.570-04	1.251-05
2.102-06	1.676-07
3.911-04	3.118-05

AG-110M

0.1	1.180-07	4.388-07
0.3	9.928-06	3.692-05
0.6	4.874-04	1.813-03
0.8	6.493-04	2.415-03
1.0	1.928-04	7.168-04
1.25	2.127-04	7.910-04
1.6	1.625-04	6.044-04
2.0	1.022-06	3.802-06
2.4	1.058-06	3.934-06
TOTAL	1.717-03	6.384-03

1.497-06	1.746-06
1.259-04	1.469-04
6.183-03	7.213-03
8.236-03	9.609-03
2.445-03	2.853-03
2.698-03	3.148-03
2.062-03	2.405-03
1.297-05	1.513-05
1.342-05	1.565-05
2.178-02	2.541-02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

SILVER

0.1	4.497-07	4.550-07
0.3	3.677-05	3.823-05
0.6	5.276-04	1.814-03
0.8	6.949-04	2.417-03
1.0	1.934-04	7.168-04
1.25	2.127-04	7.910-04
1.6	1.625-04	6.044-04
2.0	1.022-06	3.802-06
2.4	1.058-06	3.934-06
TOTAL	1.830-03	6.390-03

2.639-06	1.837-06
2.184-04	1.543-04
6.321-03	7.224-03
8.393-03	9.621-03
2.447-03	2.853-03
2.698-03	3.148-03
2.062-03	2.405-03
1.297-05	1.513-05
1.342-05	1.565-05
2.217-02	2.544-02

RM-106

0.3	1.483-03	8.634-03
0.6	4.301-01	2.504+00
0.8	9.409-03	5.478-02
1.0	3.797-02	2.211-01
1.25	1.264-02	7.357-02
1.6	8.721-03	5.078-02
2.0	3.217-03	1.873-02
2.4	3.215-03	1.872-02
2.9	5.280-04	3.074-03
TOTAL	5.073-01	2.954+00

7.273-03	7.787-03
2.110+00	2.259+00
4.614-02	4.940-02
1.862-01	1.994-01
6.197-02	6.635-02
4.277-02	4.579-02
1.578-02	1.689-02
1.577-02	1.688-02
2.589-03	2.772-03
2.488+00	2.664+00

RHODIUM

0.3	1.483-03	8.634-03
0.6	4.301-01	2.504+00
0.8	9.409-03	5.478-02
1.0	3.797-02	2.211-01
1.25	1.264-02	7.357-02
1.6	8.721-03	5.078-02
2.0	3.217-03	1.873-02
2.4	3.215-03	1.872-02
2.9	5.280-04	3.074-03
TOTAL	5.073-01	2.954+00

7.273-03	7.787-03
2.110+00	2.259+00
4.614-02	4.940-02
1.862-01	1.994-01
6.197-02	6.635-02
4.277-02	4.579-02
1.578-02	1.689-02
1.577-02	1.688-02
2.589-03	2.772-03
2.488+00	2.664+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

RU-103

0.1	0.000	2.081-14
0.3	0.000	2.770-13
0.6	0.000	5.449-11
TOTAL	0.000	5.478-11

1.023-14	0.000
1.362-13	0.000
2.678-11	0.000
2.692-11	0.000

RUTHENIUM

0.1	0.000	2.081-14
0.3	0.000	2.770-13
0.6	0.000	5.449-11
TOTAL	0.000	5.478-11

1.023-14	0.000
1.362-13	0.000
2.678-11	0.000
2.692-11	0.000

NB-95

0.8	4.099-05	1.078-04
TOTAL	4.099-05	1.078-04

8.745-05	2.258-05
8.745-05	2.258-05

NIUBIUM

0.8	4.099-05	1.078-04
TOTAL	4.099-05	1.078-04

8.745-05	2.258-05
8.745-05	2.258-05

ZR-95

0.3	3.289-08	8.651-08
0.8	1.729-05	4.548-05
TOTAL	1.732-05	4.557-05

7.017-08	1.811-08
3.689-05	9.524-06
3.696-05	9.542-06

ZIRCONIUM

0.3	3.289-08	8.651-08
0.8	1.729-05	4.548-05
TOTAL	1.732-05	4.557-05

7.017-08	1.811-08
3.689-05	9.524-06
3.696-05	9.542-06

CO-58

0.6	1.199-11	0.000
0.8	6.214-11	0.000
1.6	7.059-13	0.000
TOTAL	7.483-11	0.000

1.077-11	0.000
5.581-11	0.000
6.339-13	0.000
6.721-11	0.000

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

CO-60
1.25
TOTAL

1.267-04 2.730-06
1.267-04 2.730-06

3.749-04 1.358-05
3.749-04 1.358-05

COBALT
0.6
0.8
1.25
1.6
TOTAL

1.199-11 0.000
6.214-11 0.000
1.267-04 2.730-06
7.059-13 0.000
1.267-04 2.730-06

1.077-11 0.000
5.581-11 0.000
3.749-04 1.358-05
6.339-13 0.000
3.749-04 1.358-05

ALL ELEMENTS

0.1 2.362-01 8.497-01
0.3 6.280-01 6.796-01
0.6 4.647-01 2.014-02
0.8 4.510-00 3.738-01
1.0 2.310-01 1.755-00
1.25 5.687-01 4.679-00
1.6 1.072-01 5.185-01
2.0 2.653-01 1.161-00
2.4 1.751-01 1.874-02
2.9 5.280-04 3.074-03
TOTAL 5.319-01 2.485-02

2.080-00 2.681-00
4.187-00 1.479-00
4.711-02 7.222-02
1.270-02 2.884-02
4.185-00 9.315-00
1.393-01 3.166-01
7.288-01 1.028-00
1.144-00 8.078-01
8.667-01 1.704-02
2.589-03 2.772-03
6.252-02 1.058-03

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER P.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

U-235

0.1	3.211-08	6.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.078-06	5.143-06
1.483-06	7.075-06

URANIUM

0.1	3.211-08	6.456-06
0.3	8.549-08	2.251-05
TOTAL	1.176-07	3.097-05

4.048-07	1.932-06
1.078-06	5.143-06
1.483-06	7.075-06

PA-234

0.3	0.000	3.546-07
0.6	0.000	3.612-07
0.8	0.000	1.776-07
1.0	0.000	3.320-06
1.25	0.000	2.472-07
1.6	0.000	5.866-07
TOTAL	0.000	5.047-06

0.000	4.735-07
0.000	4.822-07
0.000	2.372-07
0.000	4.432-06
0.000	3.301-07
0.000	7.832-07
0.000	6.738-06

PROTACTINIUM

0.3	0.000	3.546-07
0.6	0.000	3.612-07
0.8	0.000	1.776-07
1.0	0.000	3.320-06
1.25	0.000	2.472-07
1.6	0.000	5.866-07
TOTAL	0.000	5.047-06

0.000	4.735-07
0.000	4.822-07
0.000	2.372-07
0.000	4.432-06
0.000	3.301-07
0.000	7.832-07
0.000	6.738-06

AC-228

0.3	1.598-05	0.000
0.6	8.135-06	0.000
0.8	2.001-05	0.000
1.0	1.802-04	0.000
1.6	5.637-05	0.000
2.0	1.300-05	0.000
TOTAL	2.937-04	0.000

1.460-05	0.000
7.433-06	0.000
1.828-05	0.000
1.647-04	0.000
5.151-05	0.000
1.188-05	0.000
2.684-04	0.000

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

ACTINIUM

0.3	1.598-05	0.000
0.6	8.135-06	0.000
0.8	2.001-05	0.000
1.0	1.802-04	0.000
1.6	5.637-05	0.000
2.0	1.300-05	0.000
TOTAL	2.937-04	0.000

1.460-05	0.000
7.433-06	0.000
1.828-05	0.000
1.647-04	0.000
5.151-05	0.000
1.188-05	0.000
2.684-04	0.000

RA-223

0.1	1.073-06	6.400-10
0.3	2.856-06	1.704-09
TOTAL	3.929-06	2.344-09

1.697-06	1.210-09
4.518-06	3.222-09
6.215-06	4.432-09

RADIUM

0.1	1.073-06	6.400-10
0.3	2.856-06	1.704-09
TOTAL	3.929-06	2.344-09

1.697-06	1.210-09
4.518-06	3.222-09
6.215-06	4.432-09

RN-219

0.3	2.856-06	1.704-09
TOTAL	2.856-06	1.704-09

4.518-06	3.222-09
4.518-06	3.222-09

RADON

0.3	2.856-06	1.704-09
TOTAL	2.856-06	1.704-09

4.518-06	3.222-09
4.518-06	3.222-09

BI-211

0.3	2.856-06	1.704-09
TOTAL	2.856-06	1.704-09

4.518-06	3.222-09
4.518-06	3.222-09

BI-212

0.8	1.579-02	1.691-06
1.0	2.523-03	2.701-07
1.6	6.954-03	7.444-07
TOTAL	2.527-02	2.705-06

7.529-02	1.227-05
1.203-02	1.960-06
3.315-02	5.404-06
1.205-01	1.964-05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

BI-213

0.3

1.0

TOTAL

9.271-05

6.358-06

9.907-05

9.710-12

6.659-13

1.038-11

1.551-04

1.064-05

1.637-04

5.466-10

3.748-11

5.841-10

BISMUTH

0.3

0.8

1.0

1.6

TOTAL

9.557-05

1.579-02

2.529-03

6.954-03

2.537-02

1.714-09

1.691-06

2.701-07

7.444-07

2.707-06

1.596-04

7.529-02

1.204-02

3.315-02

1.206-01

3.768-09

1.227-05

1.960-06

5.404-06

1.964-05

PB-211

0.3

0.8

TOTAL

1.714-06

1.717-06

3.430-06

1.022-09

1.024-09

2.047-09

2.711-06

2.716-06

5.426-06

1.933-09

1.936-09

3.869-09

PB-212

0.3

TOTAL

3.153-02

3.153-02

3.375-06

3.375-06

1.503-01

1.503-01

2.450-05

2.450-05

LEAD

0.3

0.8

TOTAL

3.153-02

1.717-06

3.153-02

3.376-06

1.024-09

3.376-06

1.503-01

2.716-06

1.503-01

2.450-05

1.936-09

2.451-05

IL-208

0.3

0.6

0.8

2.4

TOTAL

1.892-03

5.973-02

1.137-02

1.889-01

2.619-01

2.025-07

6.393-06

1.217-06

2.022-05

2.803-05

9.019-03

2.847-01

5.421-02

9.006-01

1.249-00

1.470-06

4.641-05

8.836-06

1.468-04

2.035-04

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

THALLIUM

0.3	1.892-03	2.025-07	9.019-03	1.470-06
0.6	5.973-02	6.393-06	2.847-01	4.641-05
0.8	1.137-02	1.217-06	5.421-02	8.836-06
2.4	1.889-01	2.022-05	9.006-01	1.468-04
TOTAL	2.619-01	2.803-05	1.249+00	2.035-04

TB-158

0.3	7.555-11	3.188-11	6.618-10	9.636-11
0.8	6.476-10	2.732-10	5.672-09	8.259-10
1.0	4.957-09	2.091-09	4.342-08	6.322-09
1.25	1.561-10	6.584-11	1.367-09	1.990-10
TOTAL	5.836-09	2.462-09	5.112-08	7.443-09

TERBIUM

0.3	7.555-11	3.188-11	6.618-10	9.636-11
0.8	6.476-10	2.732-10	5.672-09	8.259-10
1.0	4.957-09	2.091-09	4.342-08	6.322-09
1.25	1.561-10	6.584-11	1.367-09	1.990-10
TOTAL	5.836-09	2.462-09	5.112-08	7.443-09

EU-152

0.1	1.126-03	1.850-03	9.743-04	1.283-03
0.3	2.984-03	4.904-03	2.583-03	3.402-03
0.6	4.675-04	8.010-04	4.219-04	5.557-04
0.8	3.093-03	5.083-03	2.677-03	3.526-03
1.0	8.894-03	1.461-02	7.697-03	1.014-02
1.25	6.999-03	1.150-02	6.057-03	7.979-03
1.6	2.549-04	4.188-04	2.206-04	2.906-04
TOTAL	2.384-02	3.917-02	2.063-02	2.718-02

EU-154

0.1	1.632-02	1.393-01	3.110-01	7.156-01
0.3	7.089-03	6.053-02	1.351-01	3.109-01
0.6	1.864-02	1.592-01	3.554-01	8.176-01
0.8	1.015-01	8.663-01	1.934+00	4.450+00
1.0	9.618-02	8.213-01	1.833+00	4.218+00
1.25	1.478-01	1.262+00	2.818+00	6.482+00
1.6	1.141-02	9.746-02	2.176-01	5.006-01
TOTAL	3.989-01	3.406+00	7.604+00	1.749+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER P.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

18 FRESH U-235 P.E.
FERTILE PTL. FISSION PTL.

18 FRESH U-235 P.E.
FERTILE PTL. FISSION PTL.

EUROPIUM

0.1	1.744-02	1.412-01
0.3	1.007-02	6.543-02
0.6	1.913-02	1.600-01
0.8	1.046-01	8.714-01
1.0	1.051-01	8.359-01
1.25	1.548-01	1.274+00
1.6	1.167-02	9.788-02
TOTAL	4.228-01	3.445+00

3.120-01	7.169-01
1.377-01	3.143-01
3.558-01	8.182-01
1.937+00	4.453+00
1.841+00	4.228+00
2.824+00	6.490+00
2.178-01	5.009-01
7.625+00	1.752+01

PR-144

0.6	2.467-03	1.075-02
0.8	4.622-05	2.015-04
1.25	2.144-05	9.348-05
1.6	8.750-04	3.815-03
2.0	3.040-03	1.325-02
TOTAL	6.449-03	2.812-02

1.062-02	7.444-03
1.990-04	1.395-04
9.234-05	6.471-05
3.768-03	2.641-03
1.309-02	9.174-03
2.777-02	1.946-02

PRASEODYMIUM

0.6	2.467-03	1.075-02
0.8	4.622-05	2.015-04
1.25	2.144-05	9.348-05
1.6	8.750-04	3.815-03
2.0	3.040-03	1.325-02
TOTAL	6.449-03	2.812-02

1.062-02	7.444-03
1.990-04	1.395-04
9.234-05	6.471-05
3.768-03	2.641-03
1.309-02	9.174-03
2.777-02	1.946-02

BA-137M

0.1	1.364-01	5.459-01
0.6	3.599+01	1.441+02
TOTAL	3.613+01	1.446+02

1.147+00	1.498+00
3.028+02	3.953+02
3.039+02	3.968+02

BARIIUM

0.1	1.364-01	5.459-01
0.6	3.599+01	1.441+02
TOTAL	3.613+01	1.446+02

1.147+00	1.498+00
3.028+02	3.953+02
3.039+02	3.968+02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

CS-134

0.3	1.042=04	8.697=04	2.985=03	6.788=03
0.6	7.696=01	6.423+00	2.205+01	5.013+01
0.8	7.985=01	6.664+00	2.288+01	5.202+01
1.0	1.091=02	9.101=02	3.124=01	7.104=01
1.25	6.645=02	5.545=01	1.904+00	4.328+00
1.6	3.677=04	3.069=03	1.053=02	2.395=02
TOTAL	1.646+00	1.374+01	4.716+01	1.072+02

CESIUM

0.3	1.042=04	8.697=04	2.985=03	6.788=03
0.6	7.696=01	6.423+00	2.205+01	5.013+01
0.8	7.985=01	6.664+00	2.288+01	5.202+01
1.0	1.091=02	9.101=02	3.124=01	7.104=01
1.25	6.645=02	5.545=01	1.904+00	4.328+00
1.6	3.677=04	3.069=03	1.053=02	2.395=02
TOTAL	1.646+00	1.374+01	4.716+01	1.072+02

SB-125

0.1	1.710=02	1.715=02	1.127=01	3.064=02
0.3	1.623=01	1.628=01	1.069+00	2.907=01
0.6	3.251=01	3.262=01	2.143+00	5.826=01
TOTAL	5.045=01	5.061=01	3.325+00	9.039=01

ANTIMONY

0.1	1.710=02	1.715=02	1.127=01	3.064=02
0.3	1.623=01	1.628=01	1.069+00	2.907=01
0.6	3.251=01	3.262=01	2.143+00	5.826=01
TOTAL	5.045=01	5.061=01	3.325+00	9.039=01

AG-108M

0.1	3.230=07	1.577=08	1.112=06	8.866=08
0.3	2.614=05	1.276=06	9.001=05	7.176=06
0.6	3.916=05	1.912=06	1.348=04	1.075=05
0.8	4.438=05	2.167=06	1.528=04	1.218=05
1.0	5.944=07	2.902=08	2.047=06	1.632=07
TOTAL	1.106=04	5.400=06	3.808=04	3.036=05

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

M8 FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

AG-110M

0.1	8.256-10	3.070-09
0.3	6.946-08	2.583-07
0.6	3.410-06	1.268-05
0.8	4.543-06	1.689-05
1.0	1.349-06	5.015-06
1.25	1.488-06	5.535-06
1.6	1.137-06	4.229-06
2.0	7.153-09	2.660-08
2.4	7.401-09	2.752-08
TOTAL	1.201-05	4.467-05

1.047-08	1.222-08
8.811-07	1.028-06
4.328-05	5.047-05
5.763-05	6.723-05
1.711-05	1.996-05
1.888-05	2.203-05
1.442-05	1.683-05
9.073-08	1.059-07
9.388-08	1.095-07
1.524-04	1.778-04

SILVER

0.1	3.238-07	1.884-08
0.3	2.621-05	1.535-06
0.6	4.257-05	1.459-05
0.8	4.892-05	1.906-05
1.0	1.943-06	5.044-06
1.25	1.488-06	5.535-06
1.6	1.137-06	4.229-06
2.0	7.153-09	2.660-08
2.4	7.401-09	2.752-08
TOTAL	1.226-04	5.007-05

1.123-06	1.009-07
9.089-05	8.204-06
1.781-04	6.122-05
2.105-04	7.942-05
1.915-05	2.012-05
1.888-05	2.203-05
1.442-05	1.683-05
9.073-08	1.059-07
9.388-08	1.095-07
5.332-04	2.081-04

RH-106

0.3	4.764-05	2.774-04
0.6	1.382-02	8.045-02
0.8	3.023-04	1.760-03
1.0	1.220-03	7.102-03
1.25	4.059-04	2.363-03
1.6	2.802-04	1.631-03
2.0	1.033-04	6.017-04
2.4	1.033-04	6.013-04
2.9	1.696-05	9.875-05
TOTAL	1.630-02	9.489-02

2.336-04	2.501-04
6.777-02	7.256-02
1.482-03	1.587-03
5.982-03	6.405-03
1.991-03	2.131-03
1.374-03	1.471-03
5.068-04	5.426-04
5.065-04	5.423-04
8.319-05	8.906-05
7.993-02	8.558-02

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

IS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

MS FRESH U-235 F.E.
FERTILE PTL. FISSION PTL.

RHODIUM

0.3	4.764-05	2.774-04	2.336-04	2.501-04
0.6	1.382-02	8.045-02	6.777-02	7.256-02
0.8	3.023-04	1.760-03	1.482-03	1.587-03
1.0	1.220-03	7.102-03	5.982-03	6.405-03
1.25	4.059-04	2.363-03	1.991-03	2.131-03
1.6	2.802-04	1.631-03	1.374-03	1.471-03
2.0	1.033-04	6.017-04	5.068-04	5.426-04
2.4	1.033-04	6.013-04	5.065-04	5.423-04
2.9	1.696-05	9.875-05	8.319-05	8.906-05
TOTAL	1.630-02	9.489-02	7.993-02	8.558-02

CO-60

1.25	6.552-05	1.412-06	1.939-04	7.022-06
TOTAL	6.552-05	1.412-06	1.939-04	7.022-06

COBALT

1.25	6.552-05	1.412-06	1.939-04	7.022-06
TOTAL	6.552-05	1.412-06	1.939-04	7.022-06

ALL ELEMENTS

0.1	1.709-01	7.042-01	1.572+00	2.245+00
0.3	2.060-01	2.294-01	1.370+00	6.121-01
0.6	3.718+01	1.511+02	3.277+02	4.469+02
0.8	9.307-01	7.537+00	2.495+01	5.647+01
1.0	1.199-01	9.340-01	2.172+00	4.945+00
1.25	2.218-01	1.831+00	4.730+00	1.082+01
1.6	2.020-02	1.064-01	2.667-01	5.290-01
2.0	3.156-03	1.386-02	1.361-02	9.717-03
2.4	1.890-01	6.216-04	9.011-01	6.892-04
2.9	1.696-05	9.875-05	8.319-05	8.906-05
TOTAL	3.904+01	1.624+02	3.636+02	5.226+02

TABLE D-7
GAMMA DOSE RATES FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF RELOAD 10
AND ORIGINALLY LOADED AT RELOAD 6

NOTE: Table D-7 consists of 58 pages of computer
print-out (pages D-159 through D-216).

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
U-235		
0.1	3.816-07	1.356-06
0.3	1.016-06	3.610-06
TOTAL	1.398-06	4.965-06
URANIUM		
0.1	3.816-07	1.356-06
0.3	1.016-06	3.610-06
TOTAL	1.398-06	4.965-06
PA-233		
0.1	9.874+01	2.029-07
0.3	6.551+02	1.346-06
TOTAL	7.538+02	1.549-06
PA-234		
0.3	1.180-02	4.595-11
0.6	1.201-02	4.680-11
0.8	5.910-03	2.302-11
1.0	1.104-01	4.302-10
1.25	8.225-03	3.204-11
1.6	1.951-02	7.601-11
TOTAL	1.679-01	6.540-10
PROTACTINIUM		
0.1	9.874+01	2.029-07
0.3	6.551+02	1.346-06
0.6	1.201-02	4.680-11
0.8	5.910-03	2.302-11
1.0	1.104-01	4.302-10
1.25	8.225-03	3.204-11
1.6	1.951-02	7.601-11
TOTAL	7.540+02	1.549-06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	2588 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
AC-228		
0.3	8.089-06	5.555-12
0.6	4.119-06	2.829-12
0.8	1.013-05	6.956-12
1.0	9.126-05	6.267-11
1.6	2.854-05	1.960-11
2.0	6.581-06	4.519-12
TOTAL	1.487-04	1.021-10
ACTINIUM		
0.3	8.089-06	5.555-12
0.6	4.119-06	2.829-12
0.8	1.013-05	6.956-12
1.0	9.126-05	6.267-11
1.6	2.854-05	1.960-11
2.0	6.581-06	4.519-12
TOTAL	1.487-04	1.021-10
RA-223		
0.1	2.355-06	2.200-08
0.3	6.269-06	5.858-08
TOTAL	8.624-06	8.058-08
RADIUM		
0.1	2.355-06	2.200-08
0.3	6.269-06	5.858-08
TOTAL	8.624-06	8.058-08
RN-219		
0.3	6.269-06	5.858-08
TOTAL	6.269-06	5.858-08
RADON		
0.3	6.269-06	5.858-08
TOTAL	6.269-06	5.858-08

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----	2588 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----
BI-211		
0.3	6.269-06	5.858-06
TOTAL	6.269-06	5.858-06
BI-212		
0.8	3.596-02	6.836-02
1.0	5.744-03	1.092-02
1.6	1.583-02	3.010-02
TOTAL	5.753-02	1.094-01
BI-213		
0.3	2.159-05	2.108-05
1.0	1.481-06	1.446-06
TOTAL	2.307-05	2.253-05
BISMUTH		
0.3	2.786-05	2.114-05
0.8	3.596-02	6.836-02
1.0	5.745-03	1.092-02
1.6	1.583-02	3.010-02
TOTAL	5.756-02	1.094-01
PB-211		
0.3	3.762-06	3.515-06
0.8	3.768-06	3.521-06
TOTAL	7.530-06	7.036-06
PB-212		
0.3	7.179-02	1.365-01
TOTAL	7.179-02	1.365-01
LEAD		
0.3	7.179-02	1.365-01
0.8	3.768-06	3.521-06
TOTAL	7.179-02	1.365-01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		2388 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TL-208				
0.3	4.166-03	8.189-03	4.166-03	1.575-06
0.6	1.315-01	2.585-01	1.315-01	4.973-05
0.8	2.504-02	4.922-02	2.504-02	9.469-06
2.4	4.160-01	8.177-01	4.160-01	1.573-04
TOTAL	5.767-01	1.134-00	5.767-01	2.181-04
THALLIUM				
0.3	4.166-03	8.189-03	4.166-03	1.575-06
0.6	1.315-01	2.585-01	1.315-01	4.973-05
0.8	2.504-02	4.922-02	2.504-02	9.469-06
2.4	4.160-01	8.177-01	4.160-01	1.573-04
TOTAL	5.767-01	1.134-00	5.767-01	2.181-04
TB-158				
0.3	6.600-10	9.365-10	6.600-10	9.035-11
0.8	5.657-09	8.026-09	5.657-09	7.744-10
1.0	4.331-08	6.144-08	4.331-08	5.928-09
1.25	1.363-09	1.934-09	1.363-09	1.866-10
TOTAL	5.099-08	7.234-08	5.099-08	6.979-09
TB-160				
0.3	2.730-02	2.888-02	2.730-02	3.117-02
0.8	6.610-02	6.991-02	6.610-02	7.545-02
1.0	6.772-02	7.163-02	6.772-02	7.730-02
1.25	5.076-02	5.369-02	5.076-02	5.794-02
TOTAL	2.119-01	2.241-01	2.119-01	2.419-01
TERBIUM				
0.3	2.730-02	2.888-02	2.730-02	3.117-02
0.8	6.610-02	6.991-02	6.610-02	7.545-02
1.0	6.772-02	7.163-02	6.772-02	7.730-02
1.25	5.076-02	5.369-02	5.076-02	5.794-02
TOTAL	2.119-01	2.241-01	2.119-01	2.419-01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23R8 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25R8 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
EU-152				
0.1	1.694-03	2.030-03	1.694-03	1.981-03
0.3	4.491-03	5.383-03	4.491-03	5.252-03
0.6	7.337-04	8.793-04	7.337-04	8.580-04
0.8	4.656-03	5.579-03	4.656-03	5.444-03
1.0	1.339-02	1.604-02	1.339-02	1.565-02
1.25	1.053-02	1.262-02	1.053-02	1.232-02
1.6	3.836-04	4.597-04	3.836-04	4.486-04
TOTAL	3.588-02	4.300-02	3.588-02	4.196-02
EU-154				
0.1	4.479-01	9.210-01	4.479-01	9.106-01
0.3	1.946-01	4.001-01	1.946-01	3.956-01
0.6	5.118-01	1.052+00	5.118-01	1.040+00
0.8	2.785+00	5.727+00	2.785+00	5.662+00
1.0	2.640+00	5.429+00	2.640+00	5.367+00
1.25	4.057+00	8.343+00	4.057+00	8.249+00
1.6	3.133-01	6.443-01	3.133-01	6.370-01
TOTAL	1.095+01	2.252+01	1.095+01	2.226+01
EU-156				
0.6	1.072-02	2.164-02	1.072-02	2.159-02
0.8	3.164-02	6.386-02	3.164-02	6.313-02
1.0	2.830-02	5.713-02	2.830-02	5.647-02
1.25	7.437-02	1.501-01	7.437-02	1.484-01
2.0	8.222-02	1.659-01	8.222-02	1.640-01
2.4	8.056-03	1.626-02	8.056-03	1.607-02
TOTAL	2.353-01	4.750-01	2.353-01	4.695-01
EUHONIUM				
0.1	4.496-01	9.231-01	4.496-01	9.126-01
0.3	1.991-01	4.055-01	1.991-01	4.008-01
0.6	5.232-01	1.075+00	5.232-01	1.063+00
0.8	2.821+00	5.796+00	2.821+00	5.730+00
1.0	2.682+00	5.502+00	2.682+00	5.439+00
1.25	4.142+00	8.506+00	4.142+00	8.409+00
1.6	3.137-01	6.447-01	3.137-01	6.374-01
2.0	8.222-02	1.659-01	8.222-02	1.640-01
2.4	8.056-03	1.626-02	8.056-03	1.607-02
TOTAL	1.122+01	2.303+01	1.122+01	2.277+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	238 RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****		238 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
PM-148M				
0.1	4.352-02	3.218-02	4.352-02	2.781-02
0.3	1.251+00	9.253-01	1.251+00	7.996-01
0.6	9.984+00	7.382+00	9.984+00	6.379+00
0.8	1.821+00	1.346+00	1.821+00	1.163+00
1.0	2.879+00	2.128+00	2.879+00	1.839+00
TOTAL	1.598+01	1.181+01	1.598+01	1.021+01
PROMETHIUM				
0.1	4.352-02	3.218-02	4.352-02	2.781-02
0.3	1.251+00	9.253-01	1.251+00	7.996-01
0.6	9.984+00	7.382+00	9.984+00	6.379+00
0.8	1.821+00	1.346+00	1.821+00	1.163+00
1.0	2.879+00	2.128+00	2.879+00	1.839+00
TOTAL	1.598+01	1.181+01	1.598+01	1.021+01
ND-147				
0.1	1.121-03	4.003-04	1.121-03	2.910-04
0.3	7.102-04	2.536-04	7.102-04	1.843-04
0.6	3.156-03	1.127-03	3.156-03	8.189-04
TOTAL	4.987-03	1.781-03	4.987-03	1.294-03
NEODYMIUM				
0.1	1.121-03	4.003-04	1.121-03	2.910-04
0.3	7.102-04	2.536-04	7.102-04	1.843-04
0.6	3.156-03	1.127-03	3.156-03	8.189-04
TOTAL	4.987-03	1.781-03	4.987-03	1.294-03
PR-144				
0.6	4.885+01	3.746+01	4.885+01	3.053+01
0.8	9.154+01	7.020+01	9.154+01	5.721+01
1.25	4.247+01	3.257+01	4.247+01	2.694+01
1.6	1.733+01	1.329+01	1.733+01	1.083+01
2.0	6.021+01	4.617+01	6.021+01	3.763+01
TOTAL	1.277+02	9.795+01	1.277+02	7.983+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
PRASEODYMIUM				
0.6	4.885+01	3.746+01	4.885+01	3.053+01
0.8	9.154+01	7.020+01	9.154+01	5.721+01
1.25	4.247+01	3.257+01	4.247+01	2.654+01
1.6	1.733+01	1.329+01	1.733+01	1.083+01
2.0	6.021+01	4.617+01	6.021+01	3.763+01
TOTAL	1.277+02	9.795+01	1.277+02	7.983+01
LA-140				
0.1	1.127+03	3.489+04	1.127+03	2.178+04
0.3	6.344+02	1.965+02	6.344+02	1.226+02
0.6	1.713+01	5.305+02	1.713+01	3.311+02
0.8	1.974+01	6.112+02	1.974+01	3.815+02
1.0	6.955+02	2.154+02	6.955+02	1.344+02
1.25	1.882+03	5.829+04	1.882+03	3.638+04
1.6	1.011+00	3.131+01	1.011+00	1.954+01
2.4	6.186+02	1.916+02	6.186+02	1.196+02
2.9	1.495+03	4.631+04	1.495+03	2.890+04
3.5	5.098+05	1.579+05	5.098+05	9.854+06
TOTAL	1.579+00	4.890+01	1.579+00	3.052+01
LANTHANUM				
0.1	1.127+03	3.489+04	1.127+03	2.178+04
0.3	6.344+02	1.965+02	6.344+02	1.226+02
0.6	1.713+01	5.305+02	1.713+01	3.311+02
0.8	1.974+01	6.112+02	1.974+01	3.815+02
1.0	6.955+02	2.154+02	6.955+02	1.344+02
1.25	1.882+03	5.829+04	1.882+03	3.638+04
1.6	1.011+00	3.131+01	1.011+00	1.954+01
2.4	6.186+02	1.916+02	6.186+02	1.196+02
2.9	1.495+03	4.631+04	1.495+03	2.890+04
3.5	5.098+05	1.579+05	5.098+05	9.854+06
TOTAL	1.579+00	4.890+01	1.579+00	3.052+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
BA-137M				
0.1	1.358+00	2.209+00	1.358+00	1.522+00
0.6	3.585+02	5.831+02	3.585+02	4.016+02
TOTAL	3.599+02	5.853+02	3.599+02	4.032+02
BA-140				
0.1	1.169+02	3.620+03	1.169+02	2.260+03
0.3	2.550+02	7.896+03	2.550+02	4.929+03
0.6	1.007+01	3.120+02	1.007+01	1.947+02
TOTAL	1.379+01	4.271+02	1.379+01	2.666+02
BARIUM				
0.1	1.370+00	2.213+00	1.370+00	1.524+00
0.3	2.550+02	7.896+03	2.550+02	4.929+03
0.6	3.586+02	5.831+02	3.586+02	4.016+02
TOTAL	3.600+02	5.853+02	3.600+02	4.032+02
CS-134				
0.3	6.919+02	1.638+01	6.919+02	1.354+01
0.6	5.110+02	1.210+03	5.110+02	9.998+02
0.8	5.302+02	1.255+03	5.302+02	1.037+03
1.0	7.241+00	1.715+01	7.241+00	1.417+01
1.25	4.412+01	1.045+02	4.412+01	8.633+01
1.6	2.442+01	5.781+01	2.442+01	4.777+01
TOTAL	1.093+03	2.588+03	1.093+03	2.138+03
CESIUM				
0.3	6.919+02	1.638+01	6.919+02	1.354+01
0.6	5.110+02	1.210+03	5.110+02	9.998+02
0.8	5.302+02	1.255+03	5.302+02	1.037+03
1.0	7.241+00	1.715+01	7.241+00	1.417+01
1.25	4.412+01	1.045+02	4.412+01	8.633+01
1.6	2.442+01	5.781+01	2.442+01	4.777+01
TOTAL	1.093+03	2.588+03	1.093+03	2.138+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
I-131				
0.1	4.878-06	1.424-06	4.878-06	7.771-07
0.3	4.244-04	1.239-04	4.244-04	6.761-05
0.6	6.226-05	1.818-05	6.226-05	9.919-06
0.8	1.641-05	4.791-06	1.641-05	2.615-06
TOTAL	5.079-04	1.483-04	5.079-04	8.092-05
IODINE				
0.1	4.878-06	1.424-06	4.878-06	7.771-07
0.3	4.244-04	1.239-04	4.244-04	6.761-05
0.6	6.226-05	1.818-05	6.226-05	9.919-06
0.8	1.641-05	4.791-06	1.641-05	2.615-06
TOTAL	5.079-04	1.483-04	5.079-04	8.092-05
TE-129M				
0.1	4.192-02	1.088-02	4.192-02	3.864-03
0.6	5.440+00	1.412+00	5.440+00	5.015-01
0.8	1.655+00	4.294-01	1.655+00	1.525-01
1.0	9.287-02	2.410-02	9.287-02	8.562-03
1.25	2.075-02	5.384-03	2.075-02	1.913-03
TOTAL	7.250+00	1.882+00	7.250+00	6.684-01
TE-129				
0.1	4.471-01	1.160-01	4.471-01	4.122-02
0.3	4.018-01	1.043-01	4.018-01	3.704-02
0.6	4.379+00	1.136+00	4.379+00	4.037-01
0.8	2.460-01	6.383-02	2.460-01	2.268-02
1.0	8.929-01	2.317-01	8.929-01	8.232-02
1.25	3.458-02	8.973-03	3.458-02	3.188-03
TOTAL	6.402+00	1.661+00	6.402+00	5.902-01
TELLURIUM				
0.1	4.890-01	1.269-01	4.890-01	4.508-02
0.3	4.018-01	1.043-01	4.018-01	3.704-02
0.6	9.820+00	2.548+00	9.820+00	9.053-01
0.8	1.901+00	4.932-01	1.901+00	1.752-01
1.0	9.858-01	2.558-01	9.858-01	9.088-02
1.25	5.533-02	1.436-02	5.533-02	5.101-03
TOTAL	1.365+01	3.543+00	1.365+01	1.259+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----		235S RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
SB-124				
0.6	4.406-02	5.988-02	4.406-02	2.598-02
0.8	7.568-03	1.028-02	7.568-03	4.462-03
1.0	2.638-03	3.584-03	2.638-03	1.555-03
1.25	3.830-03	5.205-03	3.830-03	2.258-03
1.6	5.089-02	6.916-02	5.089-02	3.000-02
2.0	6.704-03	9.111-03	6.704-03	3.953-03
TOTAL	1.157-01	1.572-01	1.157-01	6.821-02
SB-125				
0.1	1.225+00	1.442+00	1.225+00	2.829-01
0.3	1.162+01	1.369+01	1.162+01	2.685+00
0.6	2.329+01	2.743+01	2.329+01	5.380+00
TOTAL	3.614+01	4.255+01	3.614+01	8.347+00
ANTIMONY				
0.1	1.225+00	1.442+00	1.225+00	2.829-01
0.3	1.162+01	1.369+01	1.162+01	2.685+00
0.6	2.333+01	2.749+01	2.333+01	5.408+00
0.8	7.568-03	1.028-02	7.568-03	4.462-03
1.0	2.638-03	3.584-03	2.638-03	1.555-03
1.25	3.830-03	5.205-03	3.830-03	2.258-03
1.6	5.089-02	6.916-02	5.089-02	3.000-02
2.0	6.704-03	9.111-03	6.704-03	3.953-03
TOTAL	3.625+01	4.271+01	3.625+01	8.416+00
CD-115M				
1.0	1.146-03	5.006-04	1.146-03	3.184-04
1.25	5.549-04	2.423-04	5.549-04	1.541-04
TOTAL	1.701-03	7.430-04	1.701-03	4.726-04
CADMIUM				
1.0	1.146-03	5.006-04	1.146-03	3.184-04
1.25	5.549-04	2.423-04	5.549-04	1.541-04
TOTAL	1.701-03	7.430-04	1.701-03	4.726-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
AG-108M				
0.1	1.130=06	1.331=07	1.130=06	2.790=07
0.3	9.149=05	1.077=05	9.149=05	2.258=05
0.6	1.371=04	1.614=05	1.371=04	3.383=05
0.8	1.553=04	1.829=05	1.553=04	3.834=05
1.0	2.081=06	2.449=07	2.081=06	5.135=07
TOTAL	3.871=04	4.557=05	3.871=04	9.554=05
AG-110M				
0.1	1.232=04	2.035=04	1.232=04	1.243=04
0.3	1.036=02	1.712=02	1.036=02	1.045=02
0.6	5.088=01	8.406=01	5.088=01	5.132=01
0.8	6.778=01	1.120=00	6.778=01	6.837=01
1.0	2.012=01	3.324=01	2.012=01	2.030=01
1.25	2.221=01	3.669=01	2.221=01	2.240=01
1.6	1.697=01	2.803=01	1.697=01	1.711=01
2.0	1.067=03	1.763=03	1.067=03	1.076=03
2.4	1.104=03	1.824=03	1.104=03	1.114=03
TOTAL	1.792+00	2.961+00	1.792+00	1.808+00
SILVER				
0.1	1.243=04	2.036=04	1.243=04	1.245=04
0.3	1.046=02	1.713=02	1.046=02	1.048=02
0.6	5.090=01	8.406=01	5.090=01	5.133=01
0.8	6.780=01	1.120=00	6.780=01	6.837=01
1.0	2.012=01	3.324=01	2.012=01	2.030=01
1.25	2.221=01	3.669=01	2.221=01	2.240=01
1.6	1.697=01	2.803=01	1.697=01	1.711=01
2.0	1.067=03	1.763=03	1.067=03	1.076=03
2.4	1.104=03	1.824=03	1.104=03	1.114=03
TOTAL	1.793+00	2.961+00	1.793+00	1.808+00
RH-106				
0.3	1.545=01	1.462=01	1.545=01	1.465=01
0.6	4.482+01	4.241+01	4.482+01	4.249+01
0.8	9.805=01	9.277=01	9.805=01	9.293=01
1.0	3.957+00	3.744+00	3.957+00	3.750+00
1.25	1.317+00	1.246+00	1.317+00	1.248+00
1.6	9.088=01	8.599=01	9.088=01	8.614=01
2.0	3.352=01	3.172=01	3.352=01	3.177=01
2.4	3.350=01	3.170=01	3.350=01	3.175=01
2.9	5.502=02	5.206=02	5.502=02	5.215=02
TOTAL	5.287+01	5.002+01	5.287+01	5.011+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		238S RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
RHODIUM				
0.3	1.545-01	1.462-01	1.545-01	1.465-01
0.6	4.482+01	4.241+01	4.482+01	4.249+01
0.8	9.805-01	9.277-01	9.805-01	9.293-01
1.0	3.957+00	3.744+00	3.957+00	3.750+00
1.25	1.317+00	1.246+00	1.317+00	1.248+00
1.6	9.088-01	8.599-01	9.088-01	8.614-01
2.0	3.352-01	3.172-01	3.352-01	3.177-01
2.4	3.350-01	3.170-01	3.350-01	3.175-01
2.9	5.502-02	5.206-02	5.502-02	5.215-02
TOTAL	5.267+01	5.002+01	5.267+01	5.011+01
RU-103				
0.1	2.794-02	1.222-02	2.794-02	1.063-02
0.3	3.720-01	1.627-01	3.720-01	1.416-01
0.6	7.315+01	3.199+01	7.315+01	2.784+01
TOTAL	7.355+01	3.217+01	7.355+01	2.799+01
RUTHENIUM				
0.1	2.794-02	1.222-02	2.794-02	1.063-02
0.3	3.720-01	1.627-01	3.720-01	1.416-01
0.6	7.315+01	3.199+01	7.315+01	2.784+01
TOTAL	7.355+01	3.217+01	7.355+01	2.799+01
NB-95				
0.8	2.728+03	9.964+02	2.728+03	6.504+02
TOTAL	2.728+03	9.964+02	2.728+03	6.504+02
NIUBIUM				
0.8	2.728+03	9.964+02	2.728+03	6.504+02
TOTAL	2.728+03	9.964+02	2.728+03	6.504+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/MR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	2388 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
ZR-95		
0.3	2.462+00	8.903-01
0.8	1.294+03	4.681+02
TOTAL	1.297+03	4.690+02
ZINCUNIUM		
0.3	2.462+00	8.903-01
0.8	1.294+03	4.681+02
TOTAL	1.297+03	4.690+02
RB-86		
1.0	1.860-03	1.245-03
TOTAL	1.860-03	1.245-03
RUBIDIUM		
1.0	1.860-03	1.245-03
TOTAL	1.860-03	1.245-03
CU-58		
0.6	9.115-05	4.846-06
0.8	4.725-04	2.512-05
1.6	5.367-06	2.854-07
TOTAL	5.690-04	3.025-05
CO-60		
1.25	6.366-04	3.404-05
TOTAL	6.366-04	3.404-05
COBALT		
0.6	9.115-05	4.846-06
0.8	4.725-04	2.512-05
1.25	6.366-04	3.404-05
1.6	5.367-06	2.854-07
TOTAL	1.206-03	6.429-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND
GAMMA ENERGY
IN MEV

2388 RECYCLE U=233 F.E.
FERTILE PTL. FISSILE PTL.

2588 RECYCLE U=235 F.E.
FERTILE PTL. FISSILE PTL.

ALL ELEMENTS

0.1	1.024+02	4.750+00	1.024+02	2.804+00
0.3	6.718+02	1.670+01	6.718+02	4.984+00
0.6	1.081+03	1.945+03	1.081+03	1.517+03
0.8	4.562+03	2.731+03	4.562+03	2.002+03
1.0	1.820+01	2.922+01	1.820+01	2.558+01
1.25	5.035+01	1.150+02	5.035+01	9.654+01
1.6	2.006+01	1.607+01	2.006+01	1.320+01
2.0	6.063+01	4.667+01	6.063+01	3.811+01
2.4	8.220+01	1.172+00	8.220+01	3.468+01
2.9	5.651+02	5.252+02	5.651+02	5.244+02
3.5	5.098+05	1.579+05	5.098+05	9.854+06
TOTAL	6.567+03	4.905+03	6.567+03	3.700+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
U-235				
0.1	3.816=07	1.356=06	3.816=07	1.916=06
0.3	1.016=06	3.610=06	1.016=06	5.103=06
TOTAL	1.398=06	4.965=06	1.398=06	7.019=06
URANIUM				
0.1	3.816=07	1.356=06	3.816=07	1.916=06
0.3	1.016=06	3.610=06	1.016=06	5.103=06
TOTAL	1.398=06	4.965=06	1.398=06	7.019=06
PA-233				
0.1	8.494=01	1.745=09	8.494=01	9.192=09
0.3	5.635+00	1.158=08	5.635+00	6.098=08
TOTAL	6.485+00	1.332=08	6.485+00	7.017=08
PA-234				
0.3	5.726=05	2.173=11	5.726=05	1.861=06
0.6	5.831=05	2.213=11	5.831=05	1.895=06
0.8	2.868=05	1.089=11	2.868=05	9.322=07
1.0	5.360=04	2.034=10	5.360=04	1.742=05
1.25	3.992=05	1.515=11	3.992=05	1.297=06
1.6	9.471=05	3.594=11	9.471=05	3.078=06
TOTAL	8.149=04	3.093=10	8.149=04	2.648=05
PROTACTINIUM				
0.1	8.494=01	1.745=09	8.494=01	9.192=09
0.3	5.635+00	1.160=08	5.635+00	1.922=06
0.6	5.831=05	2.213=11	5.831=05	1.895=06
0.8	2.868=05	1.089=11	2.868=05	9.322=07
1.0	5.360=04	2.034=10	5.360=04	1.742=05
1.25	3.992=05	1.515=11	3.992=05	1.297=06
1.6	9.471=05	3.594=11	9.471=05	3.078=06
TOTAL	6.485+00	1.363=08	6.485+00	2.656=05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	25RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
AC-228		
0.3	8.625-06	5.273-12
0.6	4.392-06	2.685-12
0.8	1.080-05	6.603-12
1.0	9.730-05	5.949-11
1.6	3.043-05	1.861-11
2.0	7.016-06	4.290-12
TOTAL	1.586-04	9.695-11
ACTINIUM		
0.3	8.625-06	5.273-12
0.6	4.392-06	2.685-12
0.8	1.080-05	6.603-12
1.0	9.730-05	5.949-11
1.6	3.043-05	1.861-11
2.0	7.016-06	4.290-12
TOTAL	1.586-04	9.695-11
NA-223		
0.1	2.317-06	3.007-08
0.3	6.169-06	8.007-08
TOTAL	8.485-06	1.101-07
RADIUM		
0.1	2.317-06	3.007-08
0.3	6.169-06	8.007-08
TOTAL	8.485-06	1.101-07
RN-219		
0.3	6.169-06	8.007-08
TOTAL	6.169-06	8.007-08
RADON		
0.3	6.169-06	8.007-08
TOTAL	6.169-06	8.007-08

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23KS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25KS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-211				
0.3	6.169-06	8.007-08	6.169-06	1.600-09
TOTAL	6.169-06	8.007-08	6.169-06	1.600-09
BI-212				
0.8	4.366-02	6.836-02	4.366-02	1.650-05
1.0	6.974-03	1.092-02	6.974-03	2.635-06
1.6	1.922-02	3.010-02	1.922-02	7.264-06
TOTAL	6.985-02	1.094-01	6.985-02	2.640-05
BI-213				
0.3	2.890-05	2.225-05	2.890-05	1.135-09
1.0	1.982-06	1.526-06	1.982-06	7.783-11
TOTAL	3.089-05	2.378-05	3.089-05	1.213-09
BISMUTH				
0.3	3.507-05	2.233-05	3.507-05	2.735-09
0.8	4.366-02	6.836-02	4.366-02	1.650-05
1.0	6.976-03	1.092-02	6.976-03	2.635-06
1.6	1.922-02	3.010-02	1.922-02	7.264-06
TOTAL	6.989-02	1.094-01	6.989-02	2.640-05
PB-211				
0.3	3.701-06	4.804-08	3.701-06	9.598-10
0.8	3.708-06	4.813-08	3.708-06	9.615-10
TOTAL	7.409-06	9.617-08	7.409-06	1.921-09
PB-212				
0.3	8.716-02	1.365-01	8.716-02	3.294-05
TOTAL	8.716-02	1.365-01	8.716-02	3.294-05
LEAD				
0.3	8.716-02	1.365-01	8.716-02	3.294-05
0.8	3.708-06	4.813-08	3.708-06	9.615-10
TOTAL	8.716-02	1.365-01	8.716-02	3.294-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TL=208				
0.3	5.202=03	8.189=03	5.202=03	1.966=06
0.6	1.642=01	2.585=01	1.642=01	6.208=05
0.8	3.127=02	4.922=02	3.127=02	1.182=05
2.4	5.195=01	8.177=01	5.195=01	1.964=04
TOTAL	7.202=01	1.134=00	7.202=01	2.722=04
THALLIUM				
0.3	5.202=03	8.189=03	5.202=03	1.966=06
0.6	1.642=01	2.585=01	1.642=01	6.208=05
0.8	3.127=02	4.922=02	3.127=02	1.182=05
2.4	5.195=01	8.177=01	5.195=01	1.964=04
TOTAL	7.202=01	1.134=00	7.202=01	2.722=04
TB=158				
0.3	6.585=10	9.343=10	6.585=10	9.014=11
0.8	5.644=09	8.008=09	5.644=09	7.726=10
1.0	4.320=08	6.130=08	4.320=08	5.914=09
1.25	1.360=09	1.930=09	1.360=09	1.862=10
TOTAL	5.087=08	7.217=08	5.087=08	6.963=09
TB=160				
0.3	4.589=03	4.854=03	4.589=03	5.238=03
0.8	1.111=02	1.175=02	1.111=02	1.268=02
1.0	1.138=02	1.204=02	1.138=02	1.299=02
1.25	8.531=03	9.023=03	8.531=03	9.738=03
TOTAL	3.561=02	3.767=02	3.561=02	4.065=02
TEHBIUM				
0.3	4.589=03	4.854=03	4.589=03	5.238=03
0.8	1.111=02	1.175=02	1.111=02	1.268=02
1.0	1.138=02	1.204=02	1.138=02	1.299=02
1.25	8.531=03	9.023=03	8.531=03	9.738=03
TOTAL	3.561=02	3.767=02	3.561=02	4.065=02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS UNIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL.		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL.	
EU-152				
0.1	1.648=03	1.975=03	1.648=03	1.927=03
0.3	4.369=03	5.236=03	4.369=03	5.109=03
0.6	7.137=04	8.553=04	7.137=04	8.346=04
0.8	4.526=03	5.427=03	4.526=03	5.296=03
1.0	1.302=02	1.560=02	1.302=02	1.523=02
1.25	1.025=02	1.228=02	1.025=02	1.198=02
1.6	3.731=04	4.472=04	3.731=04	4.364=04
TOTAL	3.490=02	4.182=02	3.490=02	4.081=02
EU-154				
0.1	4.382=01	9.011=01	4.382=01	8.908=01
0.3	1.904=01	3.914=01	1.904=01	3.870=01
0.6	5.006=01	1.030+00	5.006=01	1.018+00
0.8	2.724+00	5.602+00	2.724+00	5.539+00
1.0	2.583+00	5.311+00	2.583+00	5.251+00
1.25	3.969+00	8.162+00	3.969+00	8.069+00
1.6	3.065=01	6.303=01	3.065=01	6.231=01
TOTAL	1.071+01	2.203+01	1.071+01	2.178+01
EU-156				
0.6	2.566=06	5.178=06	2.566=06	5.119=06
0.8	7.572=06	1.528=05	7.572=06	1.511=05
1.0	6.773=06	1.367=05	6.773=06	1.351=05
1.25	1.780=05	3.592=05	1.780=05	3.551=05
2.0	1.968=05	3.971=05	1.968=05	3.925=05
2.4	1.928=06	3.891=06	1.928=06	3.846=06
TOTAL	5.631=05	1.137=04	5.631=05	1.123=04
EUROPIUM				
0.1	4.398=01	9.030=01	4.398=01	8.928=01
0.3	1.947=01	3.967=01	1.947=01	3.921=01
0.6	5.014=01	1.030+00	5.014=01	1.019+00
0.8	2.729+00	5.608+00	2.729+00	5.544+00
1.0	2.596+00	5.327+00	2.596+00	5.266+00
1.25	3.979+00	8.174+00	3.979+00	8.082+00
1.6	3.069=01	6.307=01	3.069=01	6.236=01
2.0	1.968=05	3.971=05	1.968=05	3.925=05
2.4	1.928=06	3.891=06	1.928=06	3.846=06
TOTAL	1.075+01	2.207+01	1.075+01	2.182+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/YR PER P.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE FERTILE PTL. -----	U-233 F.E. FISSILE PTL. -----	25RS RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
PM-148M				
0.1	2.016-03	1.491-03	2.016-03	1.288-03
0.3	5.798-02	4.287-02	5.798-02	3.705-02
0.6	4.625-01	3.420-01	4.625-01	2.955-01
0.8	8.435-02	6.237-02	8.435-02	5.390-02
1.0	1.334-01	9.861-02	1.334-01	8.521-02
TOTAL	7.402-01	5.473-01	7.402-01	4.730-01
PROMETHIUM				
0.1	2.016-03	1.491-03	2.016-03	1.288-03
0.3	5.798-02	4.287-02	5.798-02	3.705-02
0.6	4.625-01	3.420-01	4.625-01	2.955-01
0.8	8.435-02	6.237-02	8.435-02	5.390-02
1.0	1.334-01	9.861-02	1.334-01	8.521-02
TOTAL	7.402-01	5.473-01	7.402-01	4.730-01
ND-147				
0.1	1.018-08	3.634-09	1.018-08	2.642-09
0.3	6.447-09	2.302-09	6.447-09	1.673-09
0.6	2.865-08	1.023-08	2.865-08	7.434-09
TOTAL	4.527-08	1.616-08	4.527-08	1.175-08
NEODYMIUM				
0.1	1.018-08	3.634-09	1.018-08	2.642-09
0.3	6.447-09	2.302-09	6.447-09	1.673-09
0.6	2.865-08	1.023-08	2.865-08	7.434-09
TOTAL	4.527-08	1.616-08	4.527-08	1.175-08
PR-144				
0.6	3.108+01	2.384+01	3.108+01	1.943+01
0.8	5.824-01	4.467-01	5.824-01	3.640-01
1.25	2.702-01	2.072-01	2.702-01	1.689-01
1.6	1.103+01	8.456+00	1.103+01	6.891+00
2.0	3.831+01	2.438+01	3.831+01	2.394+01
TOTAL	8.127+01	6.233+01	8.127+01	5.079+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	238S RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****		258S RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
PRASEODYMIUM				
0.6	3.108+01	2.384+01	3.108+01	1.943+01
0.8	5.824+01	4.467+01	5.824+01	3.640+01
1.25	2.702+01	2.072+01	2.702+01	1.689+01
1.6	1.103+01	6.456+00	1.103+01	6.891+00
2.0	3.831+01	2.938+01	3.831+01	2.394+01
TOTAL	8.127+01	6.233+01	8.127+01	9.079+01
LA-140				
0.1	4.959+08	1.536+08	4.959+08	9.586+09
0.3	2.792+06	8.648+07	2.792+06	5.398+07
0.6	7.539+06	2.335+06	7.539+06	1.457+06
0.8	8.686+06	2.690+06	8.686+06	1.679+06
1.0	3.061+06	9.481+07	3.061+06	5.918+07
1.25	8.283+08	2.565+08	8.283+08	1.601+08
1.6	4.449+05	1.378+05	4.449+05	8.601+06
2.4	2.723+06	8.432+07	2.723+06	5.263+07
2.9	6.581+08	2.038+08	6.581+08	1.272+08
3.5	2.244+09	6.948+10	2.244+09	4.337+10
TOTAL	6.949+05	2.152+05	6.949+05	1.343+05
LANTHANUM				
0.1	4.959+08	1.536+08	4.959+08	9.586+09
0.3	2.792+06	8.648+07	2.792+06	5.398+07
0.6	7.539+06	2.335+06	7.539+06	1.457+06
0.8	8.686+06	2.690+06	8.686+06	1.679+06
1.0	3.061+06	9.481+07	3.061+06	5.918+07
1.25	8.283+08	2.565+08	8.283+08	1.601+08
1.6	4.449+05	1.378+05	4.449+05	8.601+06
2.4	2.723+06	8.432+07	2.723+06	5.263+07
2.9	6.581+08	2.038+08	6.581+08	1.272+08
3.5	2.244+09	6.948+10	2.244+09	4.337+10
TOTAL	6.949+05	2.152+05	6.949+05	1.343+05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HK PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		238S RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BA-137M				
0.1	1.343+00	2.183+00	1.343+00	1.504+00
0.6	3.543+02	5.763+02	3.543+02	3.970+02
TOTAL	3.557+02	5.785+02	3.557+02	3.985+02
BA-140				
0.1	5.145+07	1.593+07	5.145+07	9.945+08
0.3	1.122+06	3.475+07	1.122+06	2.169+07
0.6	4.433+06	1.373+06	4.433+06	8.570+07
TOTAL	6.070+06	1.880+06	6.070+06	1.173+06
BARIUM				
0.1	1.343+00	2.183+00	1.343+00	1.504+00
0.3	1.122+06	3.475+07	1.122+06	2.169+07
0.6	3.543+02	5.763+02	3.543+02	3.970+02
TOTAL	3.557+02	5.785+02	3.557+02	3.985+02
CS-134				
0.3	5.827+02	1.380+01	5.827+02	1.140+01
0.6	4.303+02	1.019+03	4.303+02	8.421+02
0.8	4.465+02	1.057+03	4.465+02	8.737+02
1.0	6.098+00	1.444+01	6.098+00	1.193+01
1.25	3.716+01	8.798+01	3.716+01	7.270+01
1.6	2.056+01	4.869+01	2.056+01	4.023+01
TOTAL	9.204+02	2.179+03	9.204+02	1.801+03
CESIUM				
0.3	5.827+02	1.380+01	5.827+02	1.140+01
0.6	4.303+02	1.019+03	4.303+02	8.421+02
0.8	4.465+02	1.057+03	4.465+02	8.737+02
1.0	6.098+00	1.444+01	6.098+00	1.193+01
1.25	3.716+01	8.798+01	3.716+01	7.270+01
1.6	2.056+01	4.869+01	2.056+01	4.023+01
TOTAL	9.204+02	2.179+03	9.204+02	1.801+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
I-131				
0.1	5.782-13	0.000	5.782-13	0.000
0.3	5.030-11	0.000	5.030-11	0.000
0.6	7.380-12	0.000	7.380-12	0.000
0.8	1.946-12	0.000	1.946-12	0.000
TOTAL	6.021-11	0.000	6.021-11	0.000
IODINE				
0.1	5.782-13	0.000	5.782-13	0.000
0.3	5.030-11	0.000	5.030-11	0.000
0.6	7.380-12	0.000	7.380-12	0.000
0.8	1.946-12	0.000	1.946-12	0.000
TOTAL	6.021-11	0.000	6.021-11	0.000
TE-129M				
0.1	9.716-04	2.521-04	9.716-04	8.957-05
0.6	1.261-01	3.272-02	1.261-01	1.162-02
0.8	3.835-02	9.953-03	3.835-02	3.536-03
1.0	2.153-03	5.586-04	2.153-03	1.984-04
1.25	4.809-04	1.248-04	4.809-04	4.433-05
TOTAL	1.681-01	4.361-02	1.681-01	1.549-02
TE-129				
0.1	1.036-02	2.689-03	1.036-02	9.554-04
0.3	9.312-03	2.417-03	9.312-03	8.585-04
0.6	1.015-01	2.634-02	1.015-01	9.358-03
0.8	5.701-03	1.479-03	5.701-03	5.256-04
1.0	2.070-02	5.371-03	2.070-02	1.908-03
1.25	8.015-04	2.080-04	8.015-04	7.389-05
TOTAL	1.484-01	3.851-02	1.484-01	1.368-02
TELLURIUM				
0.1	1.134-02	2.942-03	1.134-02	1.045-03
0.3	9.312-03	2.417-03	9.312-03	8.585-04
0.6	2.276-01	5.907-02	2.276-01	2.098-02
0.8	4.405-02	1.143-02	4.405-02	4.061-03
1.0	2.285-02	5.930-03	2.285-02	2.107-03
1.25	1.282-03	3.328-04	1.282-03	1.182-04
TOTAL	3.164-01	8.212-02	3.164-01	2.917-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FI88ILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FI88ILE PTL. -----	
SB-124				
0.6	5.226-03	7.102-03	5.226-03	3.081-03
0.8	8.977-04	1.220-03	8.977-04	5.292-04
1.0	3.128-04	4.251-04	3.128-04	1.844-04
1.25	4.543-04	6.173-04	4.543-04	2.678-04
1.6	6.036-03	8.202-03	6.036-03	3.559-03
2.0	7.952-04	1.081-03	7.952-04	4.688-04
TOTAL	1.372-02	1.865-02	1.372-02	8.090-03
SB-125				
0.1	1.076+00	1.267+00	1.076+00	2.485-01
0.3	1.021+01	1.202+01	1.021+01	2.358+00
0.6	2.046+01	2.409+01	2.046+01	4.725+00
TOTAL	3.174+01	3.738+01	3.174+01	7.332+00
ANTIMONY				
0.1	1.076+00	1.267+00	1.076+00	2.485-01
0.3	1.021+01	1.202+01	1.021+01	2.358+00
0.6	2.046+01	2.410+01	2.046+01	4.728+00
0.8	8.977-04	1.220-03	8.977-04	5.292-04
1.0	3.128-04	4.251-04	3.128-04	1.844-04
1.25	4.543-04	6.173-04	4.543-04	2.678-04
1.6	6.036-03	8.202-03	6.036-03	3.559-03
2.0	7.952-04	1.081-03	7.952-04	4.688-04
TOTAL	3.175+01	3.740+01	3.175+01	7.340+00
CD-115M				
1.0	5.794-05	2.530-05	5.794-05	1.609-05
1.25	2.805-05	1.225-05	2.805-05	7.790-06
TOTAL	8.598-05	3.755-05	8.598-05	2.388-05
CADMIUM				
1.0	5.794-05	2.530-05	5.794-05	1.609-05
1.25	2.805-05	1.225-05	2.805-05	7.790-06
TOTAL	8.598-05	3.755-05	8.598-05	2.388-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
AG-108M				
0.1	1.127-06	1.327-07	1.127-06	2.782-07
0.3	9.125-05	1.074-05	9.125-05	2.252-05
0.6	1.367-04	1.609-05	1.367-04	3.374-05
0.8	1.549-04	1.824-05	1.549-04	3.824-05
1.0	2.075-06	2.443-07	2.075-06	5.121-07
TOTAL	3.861-04	4.545-05	3.861-04	9.528-05
AG-110M				
0.1	7.446-05	1.230-04	7.446-05	7.511-05
0.3	6.265-03	1.035-02	6.265-03	6.319-03
0.6	3.076-01	5.081-01	3.076-01	3.103-01
0.8	4.097-01	6.769-01	4.097-01	4.133-01
1.0	1.216-01	2.009-01	1.216-01	1.227-01
1.25	1.342-01	2.218-01	1.342-01	1.354-01
1.6	1.026-01	1.694-01	1.026-01	1.035-01
2.0	6.451-04	1.066-03	6.451-04	6.507-04
2.4	6.675-04	1.103-03	6.675-04	6.733-04
TOTAL	1.083+00	1.790+00	1.083+00	1.093+00
SILVER				
0.1	7.559-05	1.231-04	7.559-05	7.539-05
0.3	6.356-03	1.036-02	6.356-03	6.342-03
0.6	3.077-01	5.081-01	3.077-01	3.103-01
0.8	4.099-01	6.769-01	4.099-01	4.133-01
1.0	1.216-01	2.009-01	1.216-01	1.227-01
1.25	1.342-01	2.218-01	1.342-01	1.354-01
1.6	1.026-01	1.694-01	1.026-01	1.035-01
2.0	6.451-04	1.066-03	6.451-04	6.507-04
2.4	6.675-04	1.103-03	6.675-04	6.733-04
TOTAL	1.084+00	1.790+00	1.084+00	1.093+00
RH-106				
0.3	1.090-01	1.032-01	1.090-01	1.033-01
0.6	3.163+01	2.993+01	3.163+01	2.998+01
0.8	6.918-01	6.546-01	6.918-01	6.557-01
1.0	2.792+00	2.641+00	2.792+00	2.646+00
1.25	9.290-01	8.791-01	9.290-01	8.805-01
1.6	6.412-01	6.067-01	6.412-01	6.078-01
2.0	2.365-01	2.238-01	2.365-01	2.242-01
2.4	2.364-01	2.237-01	2.364-01	2.240-01
2.9	3.882-02	3.673-02	3.882-02	3.679-02
TOTAL	3.730+01	3.530+01	3.730+01	3.535+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
RHODIUM				
0.3	1.090+01	1.032+01	1.090+01	1.033+01
0.6	3.163+01	2.993+01	3.163+01	2.998+01
0.8	6.918+01	6.546+01	6.918+01	6.557+01
1.0	2.792+00	2.641+00	2.792+00	2.646+00
1.25	9.290+01	8.791+01	9.290+01	8.805+01
1.6	6.412+01	6.067+01	6.412+01	6.078+01
2.0	2.365+01	2.238+01	2.365+01	2.242+01
2.4	2.364+01	2.237+01	2.364+01	2.240+01
2.9	3.882+02	3.673+02	3.882+02	3.679+02
TOTAL	3.730+01	3.530+01	3.730+01	3.535+01
RU-103				
0.1	1.109+03	4.850+04	1.109+03	4.220+04
0.3	1.476+02	6.456+03	1.476+02	5.618+03
0.6	2.903+00	1.270+00	2.903+00	1.105+00
TOTAL	2.919+00	1.277+00	2.919+00	1.111+00
RUTHENIUM				
0.1	1.109+03	4.850+04	1.109+03	4.220+04
0.3	1.476+02	6.456+03	1.476+02	5.618+03
0.6	2.903+00	1.270+00	2.903+00	1.105+00
TOTAL	2.919+00	1.277+00	2.919+00	1.111+00
NB-95				
0.8	4.239+02	1.535+02	4.239+02	1.000+02
TOTAL	4.239+02	1.535+02	4.239+02	1.000+02
NIUBIUM				
0.8	4.239+02	1.535+02	4.239+02	1.000+02
TOTAL	4.239+02	1.535+02	4.239+02	1.000+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
ZR-95		
0.3	3.471-01	1.255-01
0.8	1.825+02	6.599+01
TOTAL	1.828+02	6.612+01
ZIRCONIUM		
0.3	3.471-01	1.255-01
0.8	1.825+02	6.599+01
TOTAL	1.828+02	6.612+01
RB-86		
1.0	1.908-06	1.277-06
TOTAL	1.908-06	1.277-06
RUBIDIUM		
1.0	1.908-06	1.277-06
TOTAL	1.908-06	1.277-06
CO-58		
0.6	1.508-05	8.019-07
0.8	7.817-05	4.157-06
1.6	8.880-07	4.722-08
TOTAL	9.414-05	5.006-06
CU-60		
1.25	5.954-04	3.184-05
TOTAL	5.954-04	3.184-05
COBALT		
0.6	1.508-05	8.019-07
0.8	7.817-05	4.157-06
1.25	5.954-04	3.184-05
1.6	8.880-07	4.722-08
TOTAL	6.895-04	3.684-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----
ALL ELEMENTS		
0.1	3.722+00	4.358+00
0.3	1.674+01	1.300+01
0.6	8.724+02	1.677+03
0.8	1.058+03	1.284+03
1.0	1.178+01	2.274+01
1.25	4.248+01	9.748+01
1.6	1.231+01	1.039+01
2.0	3.855+01	2.981+01
2.4	7.565+01	1.043+00
2.9	3.882+02	3.673+02
3.5	2.244+09	6.948+10
TOTAL	2.056+03	3.140+04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	2588 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
U-235		
0.1	3.816-07	1.356-06
0.3	1.016-06	3.610-06
TOTAL	1.398-06	4.965-06
URANIUM		
0.1	3.816-07	1.356-06
0.3	1.016-06	3.610-06
TOTAL	1.398-06	4.965-06
PA-233		
0.1	6.082-09	0.000
0.3	4.035-08	0.000
TOTAL	4.643-08	0.000
PA-234		
0.3	0.000	2.161-11
0.6	0.000	2.201-11
0.8	0.000	1.083-11
1.0	0.000	2.023-10
1.25	0.000	1.507-11
1.6	0.000	3.575-11
TOTAL	0.000	3.076-10
PROTACTINIUM		
0.1	6.082-09	0.000
0.3	4.035-08	2.161-11
0.6	0.000	2.201-11
0.8	0.000	1.083-11
1.0	0.000	2.023-10
1.25	0.000	1.507-11
1.6	0.000	3.575-11
TOTAL	4.643-08	3.076-10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
AC=228		
0.3	1.048-05	4.295-12
0.6	5.337-06	2.187-12
0.8	1.312-05	5.379-12
1.0	1.182-04	4.846-11
1.6	3.698-05	1.516-11
2.0	8.526-06	3.494-12
TOTAL	1.927-04	7.897-11
ACTINIUM		
0.3	1.048-05	4.295-12
0.6	5.337-06	2.187-12
0.8	1.312-05	5.379-12
1.0	1.182-04	4.846-11
1.6	3.698-05	1.516-11
2.0	8.526-06	3.494-12
TOTAL	1.927-04	7.897-11
RA=223		
0.1	2.173-06	6.335-08
0.3	5.785-06	1.687-07
TOTAL	7.958-06	2.320-07
RADIUM		
0.1	2.173-06	6.335-08
0.3	5.785-06	1.687-07
TOTAL	7.958-06	2.320-07
RN=219		
0.3	5.785-06	1.687-07
TOTAL	5.785-06	1.687-07
RADON		
0.3	5.785-06	1.687-07
TOTAL	5.785-06	1.687-07

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----	238S RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
BI-211				
0.3	5.785-06	1.687-07	5.785-06	3.226-09
TOTAL	5.785-06	1.687-07	5.785-06	3.226-09
BI-212				
0.8	6.278-02	7.092-02	6.278-02	2.370-05
1.0	1.003-02	1.133-02	1.003-02	3.786-06
1.6	2.764-02	3.123-02	2.764-02	1.043-05
TOTAL	1.004-01	1.135-01	1.004-01	3.792-05
BI-213				
0.3	5.774-05	2.687-05	5.774-05	1.136-09
1.0	3.960-06	1.843-06	3.960-06	7.790-11
TOTAL	6.170-05	2.872-05	6.170-05	1.214-09
BISMUTH				
0.3	6.353-05	2.704-05	6.353-05	4.362-09
0.8	6.278-02	7.092-02	6.278-02	2.370-05
1.0	1.003-02	1.133-02	1.003-02	3.786-06
1.6	2.764-02	3.123-02	2.764-02	1.043-05
TOTAL	1.005-01	1.135-01	1.005-01	3.792-05
PB-211				
0.3	3.471-06	1.012-07	3.471-06	1.936-09
0.8	3.477-06	1.014-07	3.477-06	1.939-09
TOTAL	6.948-06	2.026-07	6.948-06	3.875-09
PB-212				
0.3	1.253-01	1.416-01	1.253-01	4.731-05
TOTAL	1.253-01	1.416-01	1.253-01	4.731-05
LEAD				
0.3	1.253-01	1.416-01	1.253-01	4.732-05
0.8	3.477-06	1.014-07	3.477-06	1.939-09
TOTAL	1.253-01	1.416-01	1.253-01	4.732-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELUAD 10 AND WAS ORIGINALLY LOADED AT RELUAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	25RS RECYCLE FERTILE PTL. -----	U-233 F.E. FISSILE PTL. -----	25RS RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
TL=208				
0.3	7.508-03	8.495-03	7.508-03	2.834-06
0.6	2.370-01	2.682-01	2.370-01	8.946-05
0.8	4.513-02	5.106-02	4.513-02	1.703-05
2.4	7.497-01	8.483-01	7.497-01	2.830-04
TOTAL	1.039+00	1.176+00	1.039+00	3.923-04
THALLIUM				
0.3	7.508-03	8.495-03	7.508-03	2.834-06
0.6	2.370-01	2.682-01	2.370-01	8.946-05
0.8	4.513-02	5.106-02	4.513-02	1.703-05
2.4	7.497-01	8.483-01	7.497-01	2.830-04
TOTAL	1.039+00	1.176+00	1.039+00	3.923-04
TH=158				
0.3	6.524-10	9.257-10	6.524-10	8.931-11
0.8	5.592-09	7.934-09	5.592-09	7.655-10
1.0	4.281-08	6.074-08	4.281-08	5.860-09
1.25	1.348-09	1.912-09	1.348-09	1.845-10
TOTAL	5.040-08	7.151-08	5.040-08	6.899-08
TH=160				
0.3	4.050-06	4.283-06	4.050-06	4.623-06
0.8	9.804-06	1.037-05	9.804-06	1.119-05
1.0	1.004-05	1.062-05	1.004-05	1.147-05
1.25	7.528-06	7.963-06	7.528-06	8.594-06
TOTAL	3.143-05	3.324-05	3.143-05	3.587-05
TENBIUM				
0.3	4.050-06	4.284-06	4.050-06	4.623-06
0.8	9.810-06	1.038-05	9.810-06	1.119-05
1.0	1.009-05	1.068-05	1.009-05	1.147-05
1.25	7.530-06	7.965-06	7.530-06	8.594-06
TOTAL	3.148-05	3.331-05	3.148-05	3.588-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
EU-152				
0.1	1.478-03	1.771-03	1.478-03	1.728-03
0.3	3.917-03	4.695-03	3.917-03	4.581-03
0.6	6.399-04	7.669-04	6.399-04	7.483-04
0.8	4.060-03	4.866-03	4.060-03	4.748-03
1.0	1.167-02	1.399-02	1.167-02	1.365-02
1.25	9.187-03	1.101-02	9.187-03	1.074-02
1.6	3.346-04	4.010-04	3.346-04	3.913-04
TOTAL	3.129-02	3.750-02	3.129-02	3.659-02
EU-154				
0.1	4.018-01	8.263-01	4.018-01	8.169-01
0.3	1.746-01	3.590-01	1.746-01	3.549-01
0.6	4.591-01	9.441-01	4.591-01	9.334-01
0.8	2.499+00	5.138+00	2.499+00	5.079+00
1.0	2.369+00	4.870+00	2.369+00	4.815+00
1.25	3.640+00	7.485+00	3.640+00	7.400+00
1.6	2.811-01	5.780-01	2.811-01	5.715-01
TOTAL	9.824+00	2.020+01	9.824+00	1.997+01
EUROPIUM				
0.1	4.033-01	8.281-01	4.033-01	8.187-01
0.3	1.785-01	3.637-01	1.785-01	3.595-01
0.6	4.598-01	9.449-01	4.598-01	9.341-01
0.8	2.503+00	5.143+00	2.503+00	5.084+00
1.0	2.380+00	4.884+00	2.380+00	4.829+00
1.25	3.649+00	7.496+00	3.649+00	7.411+00
1.6	2.814-01	5.784-01	2.814-01	5.718-01
TOTAL	9.855+00	2.024+01	9.855+00	2.001+01
PM-148M				
0.1	1.105-08	8.169-09	1.105-08	7.059-09
0.3	3.177-07	2.349-07	3.177-07	2.030-07
0.6	2.534-06	1.874-06	2.534-06	1.619-06
0.8	4.622-07	3.417-07	4.622-07	2.953-07
1.0	7.307-07	5.403-07	7.307-07	4.669-07
TOTAL	4.056-06	2.999-06	4.056-06	2.592-06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL.		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL.	
PROMETHIUM				
0.1	1.105-08	8.169-09	1.105-08	7.059-09
0.3	3.177-07	2.349-07	3.177-07	2.030-07
0.6	2.534-06	1.874-06	2.534-06	1.619-06
0.8	4.622-07	3.417-07	4.622-07	2.953-07
1.0	7.307-07	5.403-07	7.307-07	4.669-07
TOTAL	4.056-06	2.999-06	4.056-06	2.592-06
PR-144				
0.6	5.227+00	4.008+00	5.227+00	3.267+00
0.8	9.794+02	7.511-02	9.794+02	6.121-02
1.25	4.544+02	3.484-02	4.544+02	2.840-02
1.6	1.854+00	1.422+00	1.854+00	1.159+00
2.0	6.442+00	4.940+00	6.442+00	4.026+00
TOTAL	1.367+01	1.048+01	1.367+01	8.541+00
PRASEODYMIUM				
0.6	5.227+00	4.008+00	5.227+00	3.267+00
0.8	9.794+02	7.511-02	9.794+02	6.121-02
1.25	4.544+02	3.484-02	4.544+02	2.840-02
1.6	1.854+00	1.422+00	1.854+00	1.159+00
2.0	6.442+00	4.940+00	6.442+00	4.026+00
TOTAL	1.367+01	1.048+01	1.367+01	8.541+00
BA-137M				
0.1	1.282+00	2.085+00	1.282+00	1.436+00
0.6	3.383+02	5.503+02	3.383+02	3.790+02
TOTAL	3.396+02	5.524+02	3.396+02	3.805+02
BARIUM				
0.1	1.282+00	2.085+00	1.282+00	1.436+00
0.6	3.383+02	5.503+02	3.383+02	3.790+02
TOTAL	3.396+02	5.524+02	3.396+02	3.805+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
CS-134				
0.3	2.960+02	7.010+02	2.960+02	5.792+02
0.6	2.186+02	5.177+02	2.186+02	4.278+02
0.8	2.268+02	5.371+02	2.268+02	4.438+02
1.0	3.098+00	7.336+00	3.098+00	6.062+00
1.25	1.888+01	4.470+01	1.888+01	3.693+01
1.6	1.045+01	2.473+01	1.045+01	2.044+01
TOTAL	4.676+02	1.107+03	4.676+02	9.148+02
CEBIUM				
0.3	2.960+02	7.010+02	2.960+02	5.792+02
0.6	2.186+02	5.177+02	2.186+02	4.278+02
0.8	2.268+02	5.371+02	2.268+02	4.438+02
1.0	3.098+00	7.336+00	3.098+00	6.062+00
1.25	1.888+01	4.470+01	1.888+01	3.693+01
1.6	1.045+01	2.473+01	1.045+01	2.044+01
TOTAL	4.676+02	1.107+03	4.676+02	9.148+02
TE-129M				
0.1	3.468-10	8.999-11	3.468-10	3.197-11
0.6	4.501-08	1.168-08	4.501-08	4.150-09
0.8	1.369-08	3.553-09	1.369-08	1.262-09
1.0	7.683-10	1.994-10	7.683-10	7.084-11
1.25	1.717-10	4.454-11	1.717-10	1.583-11
TOTAL	5.999-08	1.557-08	5.999-08	5.530-09
TE-129				
0.1	3.699-09	9.599-10	3.699-09	3.410-10
0.3	3.324-09	8.626-10	3.324-09	3.065-10
0.6	3.623-08	9.402-09	3.623-08	3.340-09
0.8	2.035-09	5.281-10	2.035-09	1.876-10
1.0	7.388-09	1.917-09	7.388-09	6.811-10
1.25	2.861-10	7.424-11	2.861-10	2.638-11
TOTAL	5.296-08	1.374-08	5.296-08	4.883-09

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----		2588 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
TELLURIUM				
0.1	4.046-09	1.050-09	4.046-09	3.730-10
0.3	3.324-09	8.626-10	3.324-09	3.065-10
0.6	8.124-08	2.108-08	8.124-08	7.490-09
0.8	1.572-08	4.081-09	1.572-08	1.450-09
1.0	8.156-09	2.116-09	8.156-09	7.519-10
1.25	4.577-10	1.188-10	4.577-10	4.220-11
TOTAL	1.130-07	2.931-08	1.130-07	1.041-08
88-124				
0.6	1.166-06	1.585-06	1.166-06	6.877-07
0.8	2.003-07	2.722-07	2.003-07	1.181-07
1.0	6.982-08	9.488-08	6.982-08	4.116-08
1.25	1.014-07	1.378-07	1.014-07	5.978-08
1.6	1.347-06	1.831-06	1.347-06	7.942-07
2.0	1.775-07	2.412-07	1.775-07	1.046-07
TOTAL	3.063-06	4.162-06	3.063-06	1.806-06
88-125				
0.1	6.451-01	7.597-01	6.451-01	1.490-01
0.3	6.121+00	7.209+00	6.121+00	1.414+00
0.6	1.227+01	1.444+01	1.227+01	2.833+00
TOTAL	1.903+01	2.241+01	1.903+01	4.396+00
ANTIMONY				
0.1	6.451-01	7.597-01	6.451-01	1.490-01
0.3	6.121+00	7.209+00	6.121+00	1.414+00
0.6	1.227+01	1.444+01	1.227+01	2.833+00
0.8	2.003-07	2.722-07	2.003-07	1.181-07
1.0	6.982-08	9.488-08	6.982-08	4.116-08
1.25	1.014-07	1.378-07	1.014-07	5.978-08
1.6	1.347-06	1.831-06	1.347-06	7.942-07
2.0	1.775-07	2.412-07	1.775-07	1.046-07
TOTAL	1.903+01	2.241+01	1.903+01	4.397+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23R8 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25R8 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CD-115M				
1.0	4.472-10	1.953-10	4.472-10	1.242-10
1.25	2.165-10	9.454-11	2.165-10	6.013-11
TOTAL	6.637-10	2.898-10	6.637-10	1.844-10
CADMIUM				
1.0	4.472-10	1.953-10	4.472-10	1.242-10
1.25	2.165-10	9.454-11	2.165-10	6.013-11
TOTAL	6.637-10	2.898-10	6.637-10	1.844-10
AG-108M				
0.1	1.115-06	1.313-07	1.115-06	2.753-07
0.3	9.028-05	1.063-05	9.028-05	2.228-05
0.6	1.352-04	1.592-05	1.352-04	3.338-05
0.8	1.533-04	1.804-05	1.533-04	3.783-05
1.0	2.053-06	2.417-07	2.053-06	5.067-07
TOTAL	3.820-04	4.497-05	3.820-04	9.428-05
AG-110M				
0.1	1.023-05	1.690-05	1.023-05	1.032-05
0.3	8.606-04	1.422-03	8.606-04	8.680-04
0.6	4.225-02	6.980-02	4.225-02	4.262-02
0.8	5.628-02	9.299-02	5.628-02	5.677-02
1.0	1.671-02	2.760-02	1.671-02	1.685-02
1.25	1.844-02	3.046-02	1.844-02	1.860-02
1.6	1.409-02	2.327-02	1.409-02	1.421-02
2.0	8.862-05	1.464-04	8.862-05	8.939-05
2.4	9.169-05	1.515-04	9.169-05	9.248-05
TOTAL	1.488-01	2.459-01	1.488-01	1.501-01
SILVER				
0.1	1.134-05	1.703-05	1.134-05	1.059-05
0.3	9.508-04	1.432-03	9.508-04	8.903-04
0.6	4.238-02	6.982-02	4.238-02	4.265-02
0.8	5.644-02	9.300-02	5.644-02	5.681-02
1.0	1.671-02	2.760-02	1.671-02	1.685-02
1.25	1.844-02	3.046-02	1.844-02	1.860-02
1.6	1.409-02	2.327-02	1.409-02	1.421-02
2.0	8.862-05	1.464-04	8.862-05	8.939-05
2.4	9.169-05	1.515-04	9.169-05	9.248-05
TOTAL	1.492-01	2.459-01	1.492-01	1.502-01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. *****	
RM=106				
0.3	2.756-02	2.607-02	2.756-02	2.612-02
0.6	7.993+00	7.564+00	7.993+00	7.576+00
0.8	1.748-01	1.654-01	1.748-01	1.657-01
1.0	7.056-01	6.676-01	7.056-01	6.687-01
1.25	2.348-01	2.222-01	2.348-01	2.226-01
1.6	1.621-01	1.533-01	1.621-01	1.536-01
2.0	5.978-02	5.657-02	5.978-02	5.666-02
2.4	5.974-02	5.653-02	5.974-02	5.663-02
2.9	9.811-03	9.284-03	9.811-03	9.300-03
TOTAL	9.428+00	8.921+00	9.428+00	8.936+00
RHODIUM				
0.3	2.756-02	2.607-02	2.756-02	2.612-02
0.6	7.993+00	7.564+00	7.993+00	7.576+00
0.8	1.748-01	1.654-01	1.748-01	1.657-01
1.0	7.056-01	6.676-01	7.056-01	6.687-01
1.25	2.348-01	2.222-01	2.348-01	2.226-01
1.6	1.621-01	1.533-01	1.621-01	1.536-01
2.0	5.978-02	5.657-02	5.978-02	5.666-02
2.4	5.974-02	5.653-02	5.974-02	5.663-02
2.9	9.811-03	9.284-03	9.811-03	9.300-03
TOTAL	9.428+00	8.921+00	9.428+00	8.936+00
RU=103				
0.1	3.300-09	1.443-09	3.300-09	1.256-09
0.3	4.393-08	1.921-08	4.393-08	1.672-08
0.6	8.640-06	3.779-06	8.640-06	3.288-06
TOTAL	8.687-06	3.799-06	8.687-06	3.306-06
RUTHENIUM				
0.1	3.300-09	1.443-09	3.300-09	1.256-09
0.3	4.393-08	1.921-08	4.393-08	1.672-08
0.6	8.640-06	3.779-06	8.640-06	3.288-06
TOTAL	8.687-06	3.799-06	8.687-06	3.306-06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----
NB-95		
0.8	1.909-01	6.903-02
TOTAL	1.909-01	6.903-02
NIUBIUM		
0.8	1.909-01	6.903-02
TOTAL	1.909-01	6.903-02
ZR-95		
0.3	1.532-04	5.539-05
0.8	8.053-02	2.912-02
TOTAL	8.069-02	2.918-02
ZIRCONIUM		
0.3	1.532-04	5.539-05
0.8	8.053-02	2.912-02
TOTAL	8.069-02	2.918-02
CO-58		
0.6	1.251-08	6.652-10
0.8	6.485-08	3.448-09
1.6	7.367-10	3.917-11
TOTAL	7.810-08	4.152-09
CU-60		
1.25	4.574-04	2.446-05
TOTAL	4.574-04	2.446-05
COBALT		
0.6	1.251-08	6.652-10
0.8	6.485-08	3.448-09
1.25	4.574-04	2.446-05
1.6	7.367-10	3.917-11
TOTAL	4.574-04	2.446-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****
ALL ELEMENTS		
0.1	2.330+00	3.673+00
0.3	6.491+00	7.820+00
0.6	5.832+02	1.095+03
0.8	2.301+02	5.428+02
1.0	6.211+00	1.293+01
1.25	2.283+01	5.248+01
1.6	2.444+00	2.456+00
2.0	6.502+00	4.997+00
2.4	8.095+01	9.050+01
2.9	9.811+03	9.284+03
TOTAL	8.609+02	1.723+03

2.330+00	2.404+00
6.491+00	1.859+00
5.832+02	8.214+02
2.301+02	4.493+02
6.211+00	1.158+01
2.283+01	4.461+01
2.444+00	2.103+00
6.502+00	4.083+00
8.095+01	5.700+02
9.811+03	9.300+03
8.609+02	1.337+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		2588 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
U-235				
0.1	3.816-07	1.356-06	3.816-07	1.916-06
0.3	1.016-06	3.610-06	1.016-06	5.103-06
TOTAL	1.398-06	4.965-06	1.398-06	7.019-06
URANIUM				
0.1	3.816-07	1.356-06	3.816-07	1.916-06
0.3	1.016-06	3.610-06	1.016-06	5.103-06
TOTAL	1.398-06	4.965-06	1.398-06	7.019-06
PA-234				
0.3	0.000	2.161-11	0.000	1.861-06
0.6	0.000	2.201-11	0.000	1.895-06
0.8	0.000	1.083-11	0.000	9.322-07
1.0	0.000	2.023-10	0.000	1.742-05
1.25	0.000	1.507-11	0.000	1.297-06
1.6	0.000	3.575-11	0.000	3.078-06
TOTAL	0.000	3.076-10	0.000	2.648-05
PROTACTINIUM				
0.3	0.000	2.161-11	0.000	1.861-06
0.6	0.000	2.201-11	0.000	1.895-06
0.8	0.000	1.083-11	0.000	9.322-07
1.0	0.000	2.023-10	0.000	1.742-05
1.25	0.000	1.507-11	0.000	1.297-06
1.6	0.000	3.575-11	0.000	3.078-06
TOTAL	0.000	3.076-10	0.000	2.648-05
AC-228				
0.3	1.199-05	3.501-12	1.199-05	0.000
0.6	6.105-06	1.782-12	6.105-06	0.000
0.8	1.501-05	4.384-12	1.501-05	0.000
1.0	1.353-04	3.949-11	1.353-04	0.000
1.6	4.231-05	1.235-11	4.231-05	0.000
2.0	9.754-06	2.848-12	9.754-06	0.000
TOTAL	2.204-04	6.436-11	2.204-04	0.000

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		2588 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
ACTINIUM				
0.3	1.199-05	3.501-12	1.199-05	0.000
0.6	6.105-06	1.782-12	6.105-06	0.000
0.8	1.501-05	4.384-12	1.501-05	0.000
1.0	1.353-04	3.949-11	1.353-04	0.000
1.6	4.231-05	1.235-11	4.231-05	0.000
2.0	9.754-06	2.848-12	9.754-06	0.000
TOTAL	2.204-04	6.436-11	2.204-04	0.000
RA-223				
0.1	2.038-06	9.664-08	2.038-06	1.787-09
0.3	5.425-06	2.573-07	5.425-06	4.758-09
TOTAL	7.463-06	3.539-07	7.463-06	6.545-09
RADIUM				
0.1	2.038-06	9.664-08	2.038-06	1.787-09
0.3	5.425-06	2.573-07	5.425-06	4.758-09
TOTAL	7.463-06	3.539-07	7.463-06	6.545-09
RN-219				
0.3	5.425-06	2.573-07	5.425-06	4.758-09
TOTAL	5.425-06	2.573-07	5.425-06	4.758-09
RADON				
0.3	5.425-06	2.573-07	5.425-06	4.758-09
TOTAL	5.425-06	2.573-07	5.425-06	4.758-09
BI-211				
0.3	5.425-06	2.573-07	5.425-06	4.758-09
TOTAL	5.425-06	2.573-07	5.425-06	4.758-09
BI-212				
0.8	7.123-02	7.092-02	7.123-02	2.689-05
1.0	1.138-02	1.133-02	1.138-02	4.295-06
1.6	3.136-02	3.123-02	3.136-02	1.184-05
TOTAL	1.140-01	1.135-01	1.140-01	4.302-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/MK PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-213				
0.3	8.657-05	3.149-05	8.657-05	1.137-09
1.0	5.937-06	2.160-06	5.937-06	7.797-11
TOTAL	9.251-05	3.365-05	9.251-05	1.219-09
BI-214				
0.3	9.200-05	3.175-05	9.200-05	5.895-09
0.8	7.123-02	7.092-02	7.123-02	2.689-05
1.0	1.138-02	1.133-02	1.138-02	4.295-06
1.6	3.136-02	3.123-02	3.136-02	1.184-05
TOTAL	1.141-01	1.135-01	1.141-01	4.302-05
PB-211				
0.3	3.255-06	1.544-07	3.255-06	2.855-09
0.8	3.261-06	1.547-07	3.261-06	2.860-09
TOTAL	6.516-06	3.090-07	6.516-06	5.714-09
PB-212				
0.3	1.422-01	1.416-01	1.422-01	5.367-05
TOTAL	1.422-01	1.416-01	1.422-01	5.367-05
LEAD				
0.3	1.422-01	1.416-01	1.422-01	5.368-05
0.8	3.261-06	1.547-07	3.261-06	2.860-09
TOTAL	1.422-01	1.416-01	1.422-01	5.368-05
TL-208				
0.3	8.527-03	8.495-03	8.527-03	3.219-06
0.6	2.692-01	2.682-01	2.692-01	1.016-04
0.8	5.125-02	5.106-02	5.125-02	1.935-05
2.4	8.515-01	8.483-01	8.515-01	3.214-04
TOTAL	1.180+00	1.176+00	1.180+00	4.456-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. *****	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****
THALLIUM		
0.3	8.527-03	8.495-03
0.6	2.692-01	2.692-01
0.8	5.125-02	5.106-02
2.4	8.515-01	8.483-01
TOTAL	1.180+00	1.176+00
TB-158		
0.3	6.465-10	9.163-10
0.8	5.541-09	7.854-09
1.0	4.241-08	6.012-08
1.25	1.335-09	1.893-09
TOTAL	4.994-08	7.078-08
TB-160		
0.3	3.575-09	3.782-09
0.8	8.656-09	9.156-09
1.0	8.868-09	9.380-09
1.25	6.647-09	7.030-09
TOTAL	2.775-08	2.935-08
TERBIUM		
0.3	4.222-09	4.698-09
0.8	1.420-08	1.701-08
1.0	5.128-08	6.950-08
1.25	7.982-09	8.923-09
TOTAL	7.768-08	1.001-07
EU-152		
0.1	1.325-03	1.588-03
0.3	3.512-03	4.209-03
0.6	5.738-04	6.876-04
0.8	3.641-03	4.363-03
1.0	1.047-02	1.255-02
1.25	8.238-03	9.872-03
1.6	3.000-04	3.595-04
TOTAL	2.806-02	3.363-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL. *****	FISSILE PTL. *****	FERTILE PTL. *****	FISSILE PTL. *****
EU-154				
0.1	3.685=01	7.578=01	3.685=01	7.492=01
0.3	1.601=01	3.292=01	1.601=01	3.255=01
0.6	4.210=01	8.658=01	4.210=01	8.560=01
0.8	2.291+00	4.712+00	2.291+00	4.658+00
1.0	2.172+00	4.467+00	2.172+00	4.416+00
1.25	3.338+00	6.864+00	3.338+00	6.787+00
1.6	2.578=01	5.301=01	2.578=01	5.241=01
TOTAL	9.009+00	1.853+01	9.009+00	1.832+01
EUROPIUM				
0.1	3.698=01	7.594=01	3.698=01	7.507=01
0.3	1.636=01	3.334=01	1.636=01	3.296=01
0.6	4.216=01	8.665=01	4.216=01	8.567=01
0.8	2.295+00	4.716+00	2.295+00	4.663+00
1.0	2.182+00	4.479+00	2.182+00	4.428+00
1.25	3.346+00	6.874+00	3.346+00	6.796+00
1.6	2.581=01	5.304=01	2.581=01	5.244=01
TOTAL	9.037+00	1.856+01	9.037+00	1.835+01
PR-144				
0.6	8.790=01	6.741=01	8.790=01	5.494=01
0.8	1.647=02	1.263=02	1.647=02	1.029=02
1.25	7.641=03	5.860=03	7.641=03	4.776=03
1.6	3.118=01	2.391=01	3.118=01	1.949=01
2.0	1.083+00	8.308=01	1.083+00	6.771=01
TOTAL	2.298+00	1.763+00	2.298+00	1.436+00
PRASEODYMIUM				
0.6	8.790=01	6.741=01	8.790=01	5.494=01
0.8	1.647=02	1.263=02	1.647=02	1.029=02
1.25	7.641=03	5.860=03	7.641=03	4.776=03
1.6	3.118=01	2.391=01	3.118=01	1.949=01
2.0	1.083+00	8.308=01	1.083+00	6.771=01
TOTAL	2.298+00	1.763+00	2.298+00	1.436+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BA-137M				
0.1	1.224+00	1.991+00	1.224+00	1.371+00
0.6	3.231+02	5.254+02	3.231+02	3.619+02
TOTAL	3.243+02	5.274+02	3.243+02	3.633+02
BARIUM				
0.1	1.224+00	1.991+00	1.224+00	1.371+00
0.6	3.231+02	5.254+02	3.231+02	3.619+02
TOTAL	3.243+02	5.274+02	3.243+02	3.633+02
CS-134				
0.3	1.504+02	3.561+02	1.504+02	2.943+02
0.6	1.111+02	2.630+02	1.111+02	2.173+02
0.8	1.152+02	2.729+02	1.152+02	2.255+02
1.0	1.574+00	3.727+00	1.574+00	3.079+00
1.25	9.590+00	2.271+01	9.590+00	1.876+01
1.6	5.307+02	1.257+01	5.307+02	1.038+01
TOTAL	2.375+02	5.625+02	2.375+02	4.648+02
CESIUM				
0.3	1.504+02	3.561+02	1.504+02	2.943+02
0.6	1.111+02	2.630+02	1.111+02	2.173+02
0.8	1.152+02	2.729+02	1.152+02	2.255+02
1.0	1.574+00	3.727+00	1.574+00	3.079+00
1.25	9.590+00	2.271+01	9.590+00	1.876+01
1.6	5.307+02	1.257+01	5.307+02	1.038+01
TOTAL	2.375+02	5.625+02	2.375+02	4.648+02
SB-124				
0.6	2.605+10	3.539+10	2.605+10	1.536+10
0.8	4.474+11	6.079+11	4.474+11	2.638+11
1.0	1.559+11	2.119+11	1.559+11	9.142+12
1.25	2.264+11	3.077+11	2.264+11	1.335+11
1.6	3.008+10	4.088+10	3.008+10	1.774+10
2.0	3.963+11	5.385+11	3.963+11	2.337+11
TOTAL	6.839+10	9.293+10	6.839+10	4.032+10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL, FISSION PTL -----		25RS RECYCLE U-235 F.E. FERTILE PTL, FISSION PTL -----	
SB-125				
0.1	3.868-01	4.555-01	3.868-01	8.936-02
0.3	3.671+00	4.323+00	3.671+00	8.479-01
0.6	7.355+00	8.662+00	7.355+00	1.699+00
TOTAL	1.141+01	1.344+01	1.141+01	2.636+00
ANTIMONY				
0.1	3.868-01	4.555-01	3.868-01	8.936-02
0.3	3.671+00	4.323+00	3.671+00	8.479-01
0.6	7.355+00	8.662+00	7.355+00	1.699+00
0.8	4.474-11	6.079-11	4.474-11	2.638-11
1.0	1.559-11	2.119-11	1.559-11	9.192-12
1.25	2.264-11	3.077-11	2.264-11	1.335-11
1.6	3.008-10	4.088-10	3.008-10	1.774-10
2.0	3.963-11	5.385-11	3.963-11	2.337-11
TOTAL	1.141+01	1.344+01	1.141+01	2.636+00
AG-108M				
0.1	1.104-06	1.299-07	1.104-06	2.724-07
0.3	8.932-05	1.052-05	8.932-05	2.205-05
0.6	1.338-04	1.575-05	1.338-04	3.303-05
0.8	1.517-04	1.785-05	1.517-04	3.743-05
1.0	2.031-06	2.391-07	2.031-06	5.013-07
TOTAL	3.779-04	4.449-05	3.779-04	9.328-05
AG-110M				
0.1	1.405-06	2.322-06	1.405-06	1.417-06
0.3	1.182-04	1.953-04	1.182-04	1.193-04
0.6	5.804-03	9.590-03	5.804-03	5.855-03
0.8	7.732-03	1.278-02	7.732-03	7.800-03
1.0	2.295-03	3.792-03	2.295-03	2.315-03
1.25	2.533-03	4.185-03	2.533-03	2.555-03
1.6	1.935-03	3.198-03	1.935-03	1.952-03
2.0	1.217-05	2.011-05	1.217-05	1.228-05
2.4	1.260-05	2.081-05	1.260-05	1.271-05
TOTAL	2.044-02	3.378-02	2.044-02	2.062-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
SILVER		
0.1	2.509-06	2.452-06
0.3	2.075-04	2.058-04
0.6	5.938-03	9.605-03
0.8	7.884-03	1.279-02
1.0	2.297-03	3.793-03
1.25	2.533-03	4.185-03
1.6	1.935-03	3.198-03
2.0	1.217-05	2.011-05
2.4	1.260-05	2.081-05
TOTAL	2.082-02	3.382-02
RH-106		
0.3	6.966-03	6.591-03
0.6	2.021+00	1.912+00
0.8	4.420-02	4.182-02
1.0	1.783-01	1.688-01
1.25	5.935-02	5.616-02
1.6	4.097-02	3.876-02
2.0	1.511-02	1.430-02
2.4	1.510-02	1.429-02
2.9	2.480-03	2.347-03
TOTAL	2.383+00	2.255+00
RHODIUM		
0.3	6.966-03	6.591-03
0.6	2.021+00	1.912+00
0.8	4.420-02	4.182-02
1.0	1.783-01	1.688-01
1.25	5.935-02	5.616-02
1.6	4.097-02	3.876-02
2.0	1.511-02	1.430-02
2.4	1.510-02	1.429-02
2.9	2.480-03	2.347-03
TOTAL	2.383+00	2.255+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----	25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----
NB-95		
0.8	8.429-05	1.984-05
TOTAL	8.429-05	1.984-05
NIUBIUM		
0.8	8.429-05	1.984-05
TOTAL	8.429-05	1.984-05
ZR-95		
0.3	6.763-08	1.592-08
0.8	3.556-05	8.371-06
TOTAL	3.562-05	8.387-06
ZIRCONIUM		
0.3	6.763-08	1.592-08
0.8	3.556-05	8.371-06
TOTAL	3.562-05	8.387-06
CU-58		
0.6	1.038-11	0.000
0.8	5.382-11	0.000
1.6	6.114-13	0.000
TOTAL	6.482-11	0.000
CO-60		
1.25	3.513-04	3.939-05
TOTAL	3.513-04	3.939-05
COBALT		
0.6	1.038-11	0.000
0.8	5.382-11	0.000
1.25	3.513-04	3.939-05
1.6	6.114-13	0.000
TOTAL	3.513-04	3.939-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
ALL ELEMENTS				
0.1	1.981+00	3.206+00	1.981+00	2.212+00
0.3	4.007+00	4.849+00	4.007+00	1.214+00
0.6	4.451+02	8.008+02	4.451+02	5.843+02
0.8	1.177+02	2.778+02	1.177+02	2.302+02
1.0	3.949+00	8.390+00	3.949+00	7.679+00
1.25	1.301+01	2.965+01	1.301+01	2.562+01
1.6	6.973+01	9.684+01	6.973+01	8.639+01
2.0	1.098+00	8.452+01	1.098+00	6.914+01
2.4	8.666+01	8.626+01	8.666+01	1.465+02
2.9	2.480+03	2.347+03	2.480+03	2.351+03
TOTAL	5.884+02	1.127+03	5.884+02	8.528+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----	238S RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
U-235				
0.1	3.816-07	1.356-06	3.816-07	1.916-06
0.3	1.016-06	3.610-06	1.016-06	5.103-06
TOTAL	1.398-06	4.965-06	1.398-06	7.019-06
URANIUM				
0.1	3.816-07	1.356-06	3.816-07	1.916-06
0.3	1.016-06	3.610-06	1.016-06	5.103-06
TOTAL	1.398-06	4.965-06	1.398-06	7.019-06
PA-234				
0.3	0.000	2.161-11	0.000	1.861-06
0.6	0.000	2.201-11	0.000	1.895-06
0.8	0.000	1.083-11	0.000	9.322-07
1.0	0.000	2.023-10	0.000	1.742-05
1.25	0.000	1.507-11	0.000	1.297-06
1.6	0.000	3.575-11	0.000	3.078-06
TOTAL	0.000	3.076-10	0.000	2.648-05
PROTACTINIUM				
0.3	0.000	2.161-11	0.000	1.861-06
0.6	0.000	2.201-11	0.000	1.895-06
0.8	0.000	1.083-11	0.000	9.322-07
1.0	0.000	2.023-10	0.000	1.742-05
1.25	0.000	1.507-11	0.000	1.297-06
1.6	0.000	3.575-11	0.000	3.078-06
TOTAL	0.000	3.076-10	0.000	2.648-05
AC-228				
0.3	1.464-05	0.000	1.464-05	0.000
0.6	7.455-06	0.000	7.455-06	0.000
0.8	1.833-05	0.000	1.833-05	0.000
1.0	1.652-04	0.000	1.652-04	0.000
1.6	5.166-05	0.000	5.166-05	0.000
2.0	1.191-05	0.000	1.191-05	0.000
TOTAL	2.692-04	0.000	2.692-04	0.000

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	238S RECYCLE FERTILE PTL. -----	U-233 F.E. FISSILE PTL. -----	238S RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
ACTINIUM				
0.3	1.464-05	0.000	1.464-05	0.000
0.6	7.455-06	0.000	7.455-06	0.000
0.8	1.833-05	0.000	1.833-05	0.000
1.0	1.652-04	0.000	1.652-04	0.000
1.6	5.166-05	0.000	5.166-05	0.000
2.0	1.191-05	0.000	1.191-05	0.000
TOTAL	2.692-04	0.000	2.692-04	0.000
RA-223				
0.1	1.736-06	1.675-07	1.736-06	3.084-09
0.3	4.621-06	4.460-07	4.621-06	8.212-09
TOTAL	6.357-06	6.135-07	6.357-06	1.130-08
RADIUM				
0.1	1.736-06	1.675-07	1.736-06	3.084-09
0.3	4.621-06	4.460-07	4.621-06	8.212-09
TOTAL	6.357-06	6.135-07	6.357-06	1.130-08
RN-219				
0.3	4.621-06	4.460-07	4.621-06	8.212-09
TOTAL	4.621-06	4.460-07	4.621-06	8.212-09
RADON				
0.3	4.621-06	4.460-07	4.621-06	8.212-09
TOTAL	4.621-06	4.460-07	4.621-06	8.212-09
BI-211				
0.3	4.621-06	4.460-07	4.621-06	8.212-09
TOTAL	4.621-06	4.460-07	4.621-06	8.212-09
BI-212				
0.8	7.534-02	6.773-02	7.534-02	2.843-05
1.0	1.203-02	1.082-02	1.203-02	4.541-06
1.6	3.317-02	2.982-02	3.317-02	1.252-05
TOTAL	1.205-01	1.084-01	1.205-01	4.549-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER P.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-213				
0.3	1.586-04	4.304-05	1.586-04	1.139-09
1.0	1.088-05	2.952-06	1.088-05	7.814-11
TOTAL	1.695-04	4.599-05	1.695-04	1.217-09
BISMUTH				
0.3	1.632-04	4.349-05	1.632-04	9.351-09
0.8	7.534-02	6.773-02	7.534-02	2.843-05
1.0	1.205-02	1.082-02	1.205-02	4.541-06
1.6	3.317-02	2.982-02	3.317-02	1.252-05
TOTAL	1.207-01	1.084-01	1.207-01	4.550-05
PB-211				
0.3	2.773-06	2.676-07	2.773-06	4.927-09
0.8	2.778-06	2.681-07	2.778-06	4.936-09
TOTAL	5.550-06	5.357-07	5.550-06	9.863-09
PB-212				
0.3	1.504-01	1.352-01	1.504-01	5.676-05
TOTAL	1.504-01	1.352-01	1.504-01	5.676-05
LEAD				
0.3	1.504-01	1.352-01	1.504-01	5.676-05
0.8	2.778-06	2.681-07	2.778-06	4.936-09
TOTAL	1.504-01	1.352-01	1.504-01	5.677-05
TL-208				
0.3	9.024-03	8.112-03	9.024-03	3.406-06
0.6	2.849-01	2.561-01	2.849-01	1.075-04
0.8	5.424-02	4.876-02	5.424-02	2.047-05
2.4	9.012-01	8.101-01	9.012-01	3.401-04
TOTAL	1.249+00	1.123+00	1.249+00	4.715-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	2385 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. *****		2585 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. *****	
THALLIUM				
0.3	9.024=03	8.112=03	9.024=03	3.406=06
0.6	2.849=01	2.561=01	2.849=01	1.075=04
0.8	5.424=02	4.876=02	5.424=02	2.047=05
2.4	9.012=01	8.101=01	9.012=01	3.401=04
TOTAL	1.249+00	1.123+00	1.249+00	4.715=04
TH-158				
0.3	6.317=10	8.962=10	6.317=10	8.647=11
0.8	5.414=09	7.682=09	5.414=09	7.412=10
1.0	4.144=08	5.880=08	4.144=08	5.673=09
1.25	1.305=09	1.851=09	1.305=09	1.786=10
TOTAL	4.879=08	6.923=08	4.879=08	6.680=09
TERBIUM				
0.3	6.317=10	8.962=10	6.317=10	8.647=11
0.8	5.414=09	7.682=09	5.414=09	7.412=10
1.0	4.144=08	5.880=08	4.144=08	5.673=09
1.25	1.305=09	1.851=09	1.305=09	1.786=10
TOTAL	4.879=08	6.923=08	4.879=08	6.680=09
EU-152				
0.1	1.009=03	1.209=03	1.009=03	1.180=03
0.3	2.674=03	3.209=03	2.674=03	3.127=03
0.6	4.368=04	5.235=04	4.368=04	5.108=04
0.8	2.772=03	3.322=03	2.772=03	3.242=03
1.0	7.970=03	9.551=03	7.970=03	9.320=03
1.25	6.272=03	7.516=03	6.272=03	7.334=03
1.6	2.284=04	2.737=04	2.284=04	2.671=04
TOTAL	2.136=02	2.560=02	2.136=02	2.498=02
EU-154				
0.1	2.968=01	6.103=01	2.968=01	6.034=01
0.3	1.289=01	2.651=01	1.289=01	2.621=01
0.6	3.391=01	6.973=01	3.391=01	6.894=01
0.8	1.845+00	3.795+00	1.845+00	3.752+00
1.0	1.749+00	3.597+00	1.749+00	3.557+00
1.25	2.689+00	5.528+00	2.689+00	5.466+00
1.6	2.076=01	4.269=01	2.076=01	4.221=01
TOTAL	7.256+00	1.492+01	7.256+00	1.475+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
EUROPIUM				
0.1	2.978-01	6.115-01	2.978-01	6.046-01
0.3	1.316-01	2.683-01	1.316-01	2.653-01
0.6	3.395-01	6.978-01	3.395-01	6.899-01
0.8	1.848+00	3.798+00	1.848+00	3.755+00
1.0	1.757+00	3.607+00	1.757+00	3.566+00
1.25	2.695+00	5.536+00	2.695+00	5.473+00
1.6	2.078-01	4.272-01	2.078-01	4.224-01
TOTAL	7.277+00	1.495+01	7.277+00	1.478+01
PR-144				
0.6	1.020-02	7.819-03	1.020-02	6.372-03
0.8	1.911-04	1.465-04	1.911-04	1.194-04
1.25	8.864-05	6.797-05	8.864-05	5.539-05
1.6	3.617-03	2.774-03	3.617-03	2.261-03
2.0	1.257-02	9.637-03	1.257-02	7.854-03
TOTAL	2.666-02	2.044-02	2.666-02	1.666-02
PRASEODYMIUM				
0.6	1.020-02	7.819-03	1.020-02	6.372-03
0.8	1.911-04	1.465-04	1.911-04	1.194-04
1.25	8.864-05	6.797-05	8.864-05	5.539-05
1.6	3.617-03	2.774-03	3.617-03	2.261-03
2.0	1.257-02	9.637-03	1.257-02	7.854-03
TOTAL	2.666-02	2.044-02	2.666-02	1.666-02
BA-137M				
0.1	1.091+00	1.774+00	1.091+00	1.222+00
0.6	2.879+02	4.682+02	2.879+02	3.225+02
TOTAL	2.889+02	4.699+02	2.889+02	3.237+02
BAHIUM				
0.1	1.091+00	1.774+00	1.091+00	1.222+00
0.6	2.879+02	4.682+02	2.879+02	3.225+02
TOTAL	2.889+02	4.699+02	2.889+02	3.237+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	2388 RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. -----		2588 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CS-134				
0.3	2.767-03	6.551-03	2.767-03	5.413-03
0.6	2.043+01	4.838+01	2.043+01	3.998+01
0.8	2.120+01	5.020+01	2.120+01	4.148+01
1.0	2.895-01	6.856-01	2.895-01	5.665-01
1.25	1.764+00	4.177+00	1.764+00	3.452+00
1.6	9.763-03	2.312-02	9.763-03	1.910-02
TOTAL	4.370+01	1.035+02	4.370+01	8.550+01
CESIUM				
0.3	2.767-03	6.551-03	2.767-03	5.413-03
0.6	2.043+01	4.838+01	2.043+01	3.998+01
0.8	2.120+01	5.020+01	2.120+01	4.148+01
1.0	2.895-01	6.856-01	2.895-01	5.665-01
1.25	1.764+00	4.177+00	1.764+00	3.452+00
1.6	9.763-03	2.312-02	9.763-03	1.910-02
TOTAL	4.370+01	1.035+02	4.370+01	8.550+01
SB-125				
0.1	1.077-01	1.268-01	1.077-01	2.488-02
0.3	1.022+00	1.204+00	1.022+00	2.361-01
0.6	2.048+00	2.412+00	2.048+00	4.731-01
TOTAL	3.178+00	3.742+00	3.178+00	7.341-01
ANTIMONY				
0.1	1.077-01	1.268-01	1.077-01	2.488-02
0.3	1.022+00	1.204+00	1.022+00	2.361-01
0.6	2.048+00	2.412+00	2.048+00	4.731-01
TOTAL	3.178+00	3.742+00	3.178+00	7.341-01
AG-108M				
0.1	1.075-06	1.265-07	1.075-06	2.652-07
0.3	8.697-05	1.024-05	8.697-05	2.147-05
0.6	1.303-04	1.534-05	1.303-04	3.216-05
0.8	1.477-04	1.738-05	1.477-04	3.645-05
1.0	1.978-06	2.328-07	1.978-06	4.881-07
TOTAL	3.680-04	4.332-05	3.680-04	9.082-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. *****	
AG-110M				
0.1	9.832-09	1.624-06	9.832-09	9.918-09
0.3	8.272-07	1.367-06	8.272-07	8.344-07
0.6	4.061-05	6.710-05	4.061-05	4.097-05
0.8	5.410-05	8.938-05	5.410-05	5.457-05
1.0	1.606-05	2.653-05	1.606-05	1.620-05
1.25	1.772-05	2.928-05	1.772-05	1.788-05
1.6	1.354-05	2.237-05	1.354-05	1.366-05
2.0	8.519-08	1.407-07	8.519-08	8.593-08
2.4	8.814-08	1.456-07	8.814-08	8.891-08
TOTAL	1.431-04	2.363-04	1.431-04	1.443-04
SILVER				
0.1	1.084-06	1.427-07	1.084-06	2.751-07
0.3	8.780-05	1.161-05	8.780-05	2.230-05
0.6	1.709-04	8.243-05	1.709-04	7.313-05
0.8	2.018-04	1.068-04	2.018-04	9.102-05
1.0	1.804-05	2.677-05	1.804-05	1.669-05
1.25	1.772-05	2.928-05	1.772-05	1.788-05
1.6	1.354-05	2.237-05	1.354-05	1.366-05
2.0	8.519-08	1.407-07	8.519-08	8.593-08
2.4	8.814-08	1.456-07	8.814-08	8.891-08
TOTAL	5.110-04	2.797-04	5.110-04	2.351-04
RH-106				
0.3	2.238-04	2.117-04	2.238-04	2.121-04
0.6	6.491-02	6.142-02	6.491-02	6.152-02
0.8	1.420-03	1.343-03	1.420-03	1.346-03
1.0	5.729-03	5.421-03	5.729-03	5.430-03
1.25	1.907-03	1.804-03	1.907-03	1.807-03
1.6	1.316-03	1.245-03	1.316-03	1.247-03
2.0	4.854-04	4.593-04	4.854-04	4.601-04
2.4	4.852-04	4.591-04	4.852-04	4.598-04
2.9	7.967-05	7.539-05	7.967-05	7.552-05
TOTAL	7.656-02	7.244-02	7.656-02	7.256-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

GAMMA DOSE RATES IN RAD/MR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. *****	
RHODIUM				
0.3	2.238-04	2.117-04	2.238-04	2.121-04
0.6	6.491-02	6.142-02	6.491-02	6.152-02
0.8	1.420-03	1.343-03	1.420-03	1.346-03
1.0	5.729-03	5.421-03	5.729-03	5.430-03
1.25	1.907-03	1.804-03	1.907-03	1.807-03
1.6	1.316-03	1.245-03	1.316-03	1.247-03
2.0	4.854-04	4.593-04	4.854-04	4.601-04
2.4	4.852-04	4.591-04	4.852-04	4.598-04
2.9	7.967-05	7.539-05	7.967-05	7.552-05
TOTAL	7.656-02	7.244-02	7.656-02	7.256-02
CO-60				
1.25	1.817-04	9.718-06	1.817-04	2.038-05
TOTAL	1.817-04	9.718-06	1.817-04	2.038-05
COBALT				
1.25	1.817-04	9.718-06	1.817-04	2.038-05
TOTAL	1.817-04	9.718-06	1.817-04	2.038-05
ALL ELEMENTS				
0.1	1.496+00	2.512+00	1.496+00	1.851+00
0.3	1.316+00	1.622+00	1.316+00	5.071+01
0.6	3.110+02	5.200+02	3.110+02	3.637+02
0.8	2.318+01	5.411+01	2.318+01	4.524+01
1.0	2.065+00	4.309+00	2.065+00	4.138+00
1.25	4.461+00	9.715+00	4.461+00	8.927+00
1.6	2.558-01	4.842-01	2.558-01	4.450-01
2.0	1.306-02	1.010-02	1.306-02	8.314-03
2.4	9.016-01	8.105-01	9.016-01	8.000-04
2.9	7.967-05	7.539-05	7.967-05	7.552-05
TOTAL	3.447+02	5.935+02	3.447+02	4.248+02

TABLE D-8
GAMMA DOSE RATES FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF RELOAD 13
AND ORIGINALLY LOADED AT RELOAD 9

NOTE: Table D-8 consists of 58 pages of computer
print-out (pages D-219 through D-276).

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
U-235						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
URANIUM						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
PA-233						
0.1	9.945+01	1.312-07	9.945+01	1.037-06	9.945+01	2.627-06
0.3	6.598+02	8.704-07	6.598+02	6.879-06	6.598+02	1.743-05
TOTAL	7.592+02	1.002-06	7.592+02	7.915-06	7.592+02	2.005-05
PA-234						
0.3	1.207-02	5.364-07	1.207-02	1.498-10	1.207-02	4.002-06
0.6	1.229-02	5.463-07	1.229-02	1.526-10	1.229-02	4.075-06
0.8	6.045-03	2.687-07	6.045-03	7.504-11	6.045-03	2.004-06
1.0	1.130-01	5.021-06	1.130-01	1.402-09	1.130-01	3.746-05
1.25	8.413-03	3.740-07	8.413-03	1.044-10	8.413-03	2.790-06
1.6	1.996-02	8.872-07	1.996-02	2.478-10	1.996-02	6.619-06
TOTAL	1.717-01	7.634-06	1.717-01	2.132-09	1.717-01	5.695-05
PRUTACTINIUM						
0.1	9.945+01	1.312-07	9.945+01	1.037-06	9.945+01	2.627-06
0.3	6.598+02	1.407-06	6.598+02	6.879-06	6.598+02	2.143-05
0.6	1.229-02	5.463-07	1.229-02	1.526-10	1.229-02	4.075-06
0.8	6.045-03	2.687-07	6.045-03	7.504-11	6.045-03	2.004-06
1.0	1.130-01	5.021-06	1.130-01	1.402-09	1.130-01	3.746-05
1.25	8.413-03	3.740-07	8.413-03	1.044-10	8.413-03	2.790-06
1.6	1.996-02	8.872-07	1.996-02	2.478-10	1.996-02	6.619-06
TOTAL	7.594+02	6.636-06	7.594+02	7.918-06	7.594+02	7.701-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AC-228						
0.3	8.111-06	0.000	8.111-06	2.877-11	8.111-06	0.000
0.6	4.130-06	0.000	4.130-06	1.465-11	4.130-06	0.000
0.8	1.016-05	0.000	1.016-05	3.602-11	1.016-05	0.000
1.0	9.150-05	0.000	9.150-05	3.245-10	9.150-05	0.000
1.6	2.862-05	0.000	2.862-05	1.015-10	2.862-05	0.000
2.0	6.598-06	0.000	6.598-06	2.340-11	6.598-06	0.000
TOTAL	1.491-04	0.000	1.491-04	5.289-10	1.491-04	0.000
ACIINIUM						
0.3	8.111-06	0.000	8.111-06	2.877-11	8.111-06	0.000
0.6	4.130-06	0.000	4.130-06	1.465-11	4.130-06	0.000
0.8	1.016-05	0.000	1.016-05	3.602-11	1.016-05	0.000
1.0	9.150-05	0.000	9.150-05	3.245-10	9.150-05	0.000
1.6	2.862-05	0.000	2.862-05	1.015-10	2.862-05	0.000
2.0	6.598-06	0.000	6.598-06	2.340-11	6.598-06	0.000
TOTAL	1.491-04	0.000	1.491-04	5.289-10	1.491-04	0.000
KA-223						
0.1	2.402-06	1.971-10	2.402-06	1.202-07	2.402-06	8.204-10
0.3	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
TOTAL	8.795-06	7.219-10	8.795-06	4.404-07	8.795-06	3.004-09
RADIUM						
0.1	2.402-06	1.971-10	2.402-06	1.202-07	2.402-06	8.204-10
0.3	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
TOTAL	8.795-06	7.219-10	8.795-06	4.404-07	8.795-06	3.004-09
RN-219						
0.3	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
TOTAL	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
RADON						
0.3	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
TOTAL	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-211						
0.3	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
TOTAL	6.394-06	5.248-10	6.394-06	3.202-07	6.394-06	2.184-09
BI-212						
0.8	3.612-02	5.869-06	3.612-02	7.475-02	3.612-02	2.427-05
1.0	5.769-03	9.376-07	5.769-03	1.194-02	5.769-03	3.877-06
1.6	1.590-02	2.584-06	1.590-02	3.291-02	1.590-02	1.069-05
TOTAL	5.778-02	9.391-06	5.778-02	1.196-01	5.778-02	3.884-05
BI-213						
0.3	2.162-05	4.805-10	2.162-05	9.325-05	2.162-05	1.978-09
1.0	1.483-06	3.296-11	1.483-06	6.395-06	1.483-06	1.337-10
TOTAL	2.310-05	5.135-10	2.310-05	9.965-05	2.310-05	2.114-09
BISMUTH						
0.3	2.801-05	1.005-09	2.801-05	9.357-05	2.801-05	4.162-09
0.8	3.612-02	5.869-06	3.612-02	7.475-02	3.612-02	2.427-05
1.0	5.770-03	9.376-07	5.770-03	1.195-02	5.770-03	3.877-06
1.6	1.590-02	2.584-06	1.590-02	3.291-02	1.590-02	1.069-05
TOTAL	5.781-02	9.392-06	5.781-02	1.197-01	5.781-02	3.884-05
PB-211						
0.3	3.836-06	3.149-10	3.836-06	1.921-07	3.836-06	1.310-09
0.8	3.843-06	3.154-10	3.843-06	1.924-07	3.843-06	1.313-09
TOTAL	7.680-06	6.303-10	7.680-06	3.845-07	7.680-06	2.623-09
PB-212						
0.3	7.210-02	1.172-05	7.210-02	1.492-01	7.210-02	4.846-05
TOTAL	7.210-02	1.172-05	7.210-02	1.492-01	7.210-02	4.846-05
LEAD						
0.3	7.210-02	1.172-05	7.210-02	1.492-01	7.210-02	4.846-05
0.8	3.843-06	3.154-10	3.843-06	1.924-07	3.843-06	1.313-09
TOTAL	7.211-02	1.172-05	7.211-02	1.492-01	7.211-02	4.846-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TL-208						
0.3	4.183-03	6.798-07	4.183-03	8.954-03	4.183-03	2.810-06
0.6	1.320-01	2.146-05	1.320-01	2.827-01	1.320-01	8.873-05
0.8	2.514-02	4.086-06	2.514-02	5.382-02	2.514-02	1.689-05
2.4	4.177-01	6.788-05	4.177-01	8.942-01	4.177-01	2.806-04
TOTAL	5.790-01	9.410-05	5.790-01	1.240+00	5.790-01	3.891-04
THALLIUM						
0.3	4.183-03	6.798-07	4.183-03	8.954-03	4.183-03	2.810-06
0.6	1.320-01	2.146-05	1.320-01	2.827-01	1.320-01	8.873-05
0.8	2.514-02	4.086-06	2.514-02	5.382-02	2.514-02	1.689-05
2.4	4.177-01	6.788-05	4.177-01	8.942-01	4.177-01	2.806-04
TOTAL	5.790-01	9.410-05	5.790-01	1.240+00	5.790-01	3.891-04
TB-158						
0.3	6.479-10	1.149-10	6.479-10	8.158-10	6.479-10	1.278-10
0.8	5.554-09	9.848-10	5.554-09	6.993-09	5.554-09	1.095-09
1.0	4.251-08	7.538-09	4.251-08	5.353-08	4.251-08	8.383-09
1.25	1.338-09	2.373-10	1.338-09	1.685-09	1.338-09	2.639-10
TOTAL	5.005-08	8.875-09	5.005-08	6.302-08	5.005-08	9.870-09
TB-160						
0.3	2.702-02	3.322-02	2.702-02	2.991-02	2.702-02	5.673-02
0.8	6.542-02	8.042-02	6.542-02	7.241-02	6.542-02	1.374-01
1.0	6.702-02	8.239-02	6.702-02	7.418-02	6.702-02	1.407-01
1.25	5.024-02	6.175-02	5.024-02	5.560-02	5.024-02	1.055-01
TOTAL	2.097-01	2.578-01	2.097-01	2.321-01	2.097-01	4.403-01
TENBLLUM						
0.3	2.702-02	3.322-02	2.702-02	2.991-02	2.702-02	5.673-02
0.8	6.542-02	8.042-02	6.542-02	7.241-02	6.542-02	1.374-01
1.0	6.702-02	8.239-02	6.702-02	7.418-02	6.702-02	1.407-01
1.25	5.024-02	6.175-02	5.024-02	5.560-02	5.024-02	1.055-01
TOTAL	2.097-01	2.578-01	2.097-01	2.321-01	2.097-01	4.403-01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.

EU-152						
0.1	1.671-03	2.728-03	1.671-03	1.858-03	1.671-03	2.147-03
0.3	4.429-03	7.232-03	4.429-03	4.926-03	4.429-03	5.690-03
0.6	7.234-04	1.181-03	7.234-04	8.047-04	7.234-04	9.295-04
0.8	4.590-03	7.497-03	4.590-03	5.106-03	4.590-03	5.898-03
1.0	1.320-02	2.155-02	1.320-02	1.468-02	1.320-02	1.696-02
1.25	1.039-02	1.696-02	1.039-02	1.155-02	1.039-02	1.335-02
1.6	3.782-04	6.177-04	3.782-04	4.207-04	3.782-04	4.860-04
TOTAL	3.538-02	5.777-02	3.538-02	3.935-02	3.538-02	4.546-02
EU-154						
0.1	4.346-01	1.227+00	4.346-01	8.139-01	4.346-01	9.334-01
0.3	1.888-01	5.331-01	1.888-01	3.536-01	1.888-01	4.055-01
0.6	4.966-01	1.402+00	4.966-01	9.299-01	4.966-01	1.067+00
0.8	2.702+00	7.629+00	2.702+00	5.060+00	2.702+00	5.894+00
1.0	2.562+00	7.232+00	2.562+00	4.797+00	2.562+00	5.502+00
1.25	3.937+00	1.111+01	3.937+00	7.372+00	3.937+00	8.456+00
1.6	3.040-01	8.583-01	3.040-01	5.693-01	3.040-01	6.529-01
TOTAL	1.062+01	3.000+01	1.062+01	1.990+01	1.062+01	2.282+01
EU-156						
0.6	1.057-02	2.925-02	1.057-02	1.942-02	1.057-02	2.229-02
0.8	3.119-02	8.633-02	3.119-02	5.732-02	3.119-02	6.579-02
1.0	2.790-02	7.723-02	2.790-02	5.127-02	2.790-02	5.885-02
1.25	7.332-02	2.029-01	7.332-02	1.347-01	7.332-02	1.547-01
2.0	8.106-02	2.243-01	8.106-02	1.489-01	8.106-02	1.710-01
2.4	7.942-03	2.198-02	7.942-03	1.459-02	7.942-03	1.675-02
TOTAL	2.320-01	6.421-01	2.320-01	4.263-01	2.320-01	4.893-01
EUROPIUM						
0.1	4.363-01	1.230+00	4.363-01	8.157-01	4.363-01	9.356-01
0.3	1.932-01	5.403-01	1.932-01	3.585-01	1.932-01	4.112-01
0.6	5.078-01	1.432+00	5.078-01	9.501-01	5.078-01	1.090+00
0.8	2.738+00	7.723+00	2.738+00	5.123+00	2.738+00	5.876+00
1.0	2.603+00	7.331+00	2.603+00	4.863+00	2.603+00	5.578+00
1.25	4.021+00	1.133+01	4.021+00	7.519+00	4.021+00	8.624+00
1.6	3.044-01	8.589-01	3.044-01	5.697-01	3.044-01	6.534-01
2.0	8.106-02	2.243-01	8.106-02	1.489-01	8.106-02	1.710-01
2.4	7.942-03	2.198-02	7.942-03	1.459-02	7.942-03	1.675-02
TOTAL	1.089+01	3.070+01	1.089+01	2.036+01	1.089+01	2.335+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.

PM-148M						
0.1	4.314-02	3.960-02	4.314-02	2.992-02	4.314-02	2.974-02
0.3	1.240+00	1.139+00	1.240+00	8.605-01	1.240+00	8.552-01
0.6	9.896+00	9.085+00	9.896+00	6.865+00	9.896+00	6.822+00
0.8	1.805+00	1.657+00	1.805+00	1.252+00	1.805+00	1.244+00
1.0	2.853+00	2.620+00	2.853+00	1.979+00	2.853+00	1.967+00
TOTAL	1.584+01	1.454+01	1.584+01	1.099+01	1.584+01	1.042+01
PROMETHIUM						
0.1	4.314-02	3.960-02	4.314-02	2.992-02	4.314-02	2.974-02
0.3	1.240+00	1.139+00	1.240+00	8.605-01	1.240+00	8.552-01
0.6	9.896+00	9.085+00	9.896+00	6.865+00	9.896+00	6.822+00
0.8	1.805+00	1.657+00	1.805+00	1.252+00	1.805+00	1.244+00
1.0	2.853+00	2.620+00	2.853+00	1.979+00	2.853+00	1.967+00
TOTAL	1.584+01	1.454+01	1.584+01	1.099+01	1.584+01	1.042+01
ND-147						
0.1	1.136-03	4.382-04	1.136-03	3.945-04	1.136-03	3.354-04
0.3	7.196-04	2.775-04	7.196-04	2.498-04	7.196-04	2.124-04
0.6	3.197-03	1.233-03	3.197-03	1.110-03	3.197-03	9.439-04
TOTAL	5.053-03	1.949-03	5.053-03	1.754-03	5.053-03	1.442-03
NEODYMIUM						
0.1	1.136-03	4.382-04	1.136-03	3.945-04	1.136-03	3.354-04
0.3	7.196-04	2.775-04	7.196-04	2.498-04	7.196-04	2.124-04
0.6	3.197-03	1.233-03	3.197-03	1.110-03	3.197-03	9.439-04
TOTAL	5.053-03	1.949-03	5.053-03	1.754-03	5.053-03	1.442-03
PR-144						
0.6	4.873+01	4.340+01	4.873+01	3.471+01	4.873+01	3.256+01
0.8	9.132-01	8.133-01	9.132-01	6.504-01	9.132-01	6.101-01
1.25	4.236-01	3.773-01	4.236-01	3.017-01	4.236-01	2.830-01
1.6	1.729+01	1.540+01	1.729+01	1.231+01	1.729+01	1.155+01
2.0	6.006+01	5.349+01	6.006+01	4.278+01	6.006+01	4.013+01
TOTAL	1.274+02	1.135+02	1.274+02	9.075+01	1.274+02	8.513+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
PRASEODYMIUM						
0.6	4.873+01	4.340+01	4.873+01	3.471+01	4.873+01	3.256+01
0.8	9.132+01	8.133+01	9.132+01	6.504+01	9.132+01	6.101+01
1.25	4.236+01	3.773+01	4.236+01	3.017+01	4.236+01	2.830+01
1.6	1.729+01	1.940+01	1.729+01	1.231+01	1.729+01	1.155+01
2.0	6.006+01	5.349+01	6.006+01	4.278+01	6.006+01	4.013+01
TOTAL	1.274+02	1.135+02	1.274+02	9.075+01	1.274+02	8.513+01
LA-140						
0.1	1.142+03	3.317+04	1.142+03	3.443+04	1.142+03	2.528+04
0.3	6.432+02	1.868+02	6.432+02	1.939+02	6.432+02	1.424+02
0.6	1.737+01	5.043+02	1.737+01	5.235+02	1.737+01	3.844+02
0.8	2.001+01	5.810+02	2.001+01	6.032+02	2.001+01	4.429+02
1.0	7.051+02	2.048+02	7.051+02	2.126+02	7.051+02	1.561+02
1.25	1.908+03	5.541+04	1.908+03	5.752+04	1.908+03	4.223+04
1.6	1.025+00	2.976+01	1.025+00	3.089+01	1.025+00	2.268+01
2.4	6.271+02	1.821+02	6.271+02	1.890+02	6.271+02	1.388+02
2.9	1.516+03	4.402+04	1.516+03	4.570+04	1.516+03	3.355+04
3.5	5.168+05	1.501+05	5.168+05	1.558+05	5.168+05	1.144+05
TOTAL	1.601+00	4.649+01	1.601+00	4.826+01	1.601+00	3.543+01
LANTHANUM						
0.1	1.142+03	3.317+04	1.142+03	3.443+04	1.142+03	2.528+04
0.3	6.432+02	1.868+02	6.432+02	1.939+02	6.432+02	1.424+02
0.6	1.737+01	5.043+02	1.737+01	5.235+02	1.737+01	3.844+02
0.8	2.001+01	5.810+02	2.001+01	6.032+02	2.001+01	4.429+02
1.0	7.051+02	2.048+02	7.051+02	2.126+02	7.051+02	1.561+02
1.25	1.908+03	5.541+04	1.908+03	5.752+04	1.908+03	4.223+04
1.6	1.025+00	2.976+01	1.025+00	3.089+01	1.025+00	2.268+01
2.4	6.271+02	1.821+02	6.271+02	1.890+02	6.271+02	1.388+02
2.9	1.516+03	4.402+04	1.516+03	4.570+04	1.516+03	3.355+04
3.5	5.168+05	1.501+05	5.168+05	1.558+05	5.168+05	1.144+05
TOTAL	1.601+00	4.649+01	1.601+00	4.826+01	1.601+00	3.543+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BA-137M						
0.1	1.332+00	2.007+00	1.332+00	1.939+00	1.332+00	1.542+00
0.6	3.515+02	5.454+02	3.515+02	5.119+02	3.515+02	4.068+02
TOTAL	3.528+02	5.475+02	3.528+02	5.138+02	3.528+02	4.084+02
BA-140						
0.1	1.185+02	3.441+03	1.185+02	3.572+03	1.185+02	2.623+03
0.3	2.585+02	7.508+03	2.585+02	7.792+03	2.585+02	5.721+03
0.6	1.021+01	2.966+02	1.021+01	3.078+02	1.021+01	2.260+02
TOTAL	1.398+01	4.060+02	1.398+01	4.215+02	1.398+01	3.095+02
BAHIUM						
0.1	1.344+00	2.070+00	1.344+00	1.943+00	1.344+00	1.544+00
0.3	2.585+02	7.508+03	2.585+02	7.792+03	2.585+02	5.721+03
0.6	3.516+02	5.455+02	3.516+02	5.119+02	3.516+02	4.069+02
TOTAL	3.529+02	5.475+02	3.529+02	5.138+02	3.529+02	4.084+02
CS-134						
0.3	6.710+02	1.819+01	6.710+02	1.428+01	6.710+02	1.357+01
0.6	4.955+02	1.344+03	4.955+02	1.055+03	4.955+02	1.002+03
0.8	5.142+02	1.394+03	5.142+02	1.094+03	5.142+02	1.040+03
1.0	7.022+00	1.904+01	7.022+00	1.495+01	7.022+00	1.420+01
1.25	4.279+01	1.160+02	4.279+01	9.107+01	4.279+01	8.651+01
1.6	2.368+01	6.420+01	2.368+01	5.039+01	2.368+01	4.787+01
TOTAL	1.060+03	2.874+03	1.060+03	2.256+03	1.060+03	2.143+03
CESIUM						
0.3	6.710+02	1.819+01	6.710+02	1.428+01	6.710+02	1.357+01
0.6	4.955+02	1.344+03	4.955+02	1.055+03	4.955+02	1.002+03
0.8	5.142+02	1.394+03	5.142+02	1.094+03	5.142+02	1.040+03
1.0	7.022+00	1.904+01	7.022+00	1.495+01	7.022+00	1.420+01
1.25	4.279+01	1.160+02	4.279+01	9.107+01	4.279+01	8.651+01
1.6	2.368+01	6.420+01	2.368+01	5.039+01	2.368+01	4.787+01
TOTAL	1.060+03	2.874+03	1.060+03	2.256+03	1.060+03	2.143+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
I-131						
0.1	4.945-06	1.188-06	4.945-06	1.400-06	4.945-06	9.009-07
0.3	4.302-04	1.034-04	4.302-04	1.218-04	4.302-04	7.838-05
0.6	6.312-05	1.510-05	6.312-05	1.787-05	6.312-05	1.150-05
0.8	1.664-05	3.997-06	1.664-05	4.710-06	1.664-05	3.031-06
TOTAL	5.150-04	1.237-04	5.150-04	1.458-04	5.150-04	9.381-05
IODINE						
0.1	4.945-06	1.188-06	4.945-06	1.400-06	4.945-06	9.009-07
0.3	4.302-04	1.034-04	4.302-04	1.218-04	4.302-04	7.838-05
0.6	6.312-05	1.510-05	6.312-05	1.787-05	6.312-05	1.150-05
0.8	1.664-05	3.997-06	1.664-05	4.710-06	1.664-05	3.031-06
TOTAL	5.150-04	1.237-04	5.150-04	1.458-04	5.150-04	9.381-05
TE-129M						
0.1	4.253-02	6.052-03	4.253-02	1.063-02	4.253-02	4.480-03
0.6	5.520+00	7.855-01	5.520+00	1.380+00	5.520+00	5.815-01
0.8	1.679+00	2.389-01	1.679+00	4.196-01	1.679+00	1.769-01
1.0	9.423-02	1.341-02	9.423-02	2.355-02	9.423-02	9.926-03
1.25	2.105-02	2.996-03	2.105-02	5.262-03	2.105-02	2.218-03
TOTAL	7.357+00	1.047+00	7.357+00	1.839+00	7.357+00	7.750-01
TE-129						
0.1	4.537-01	6.456-02	4.537-01	1.134-01	4.537-01	4.779-02
0.3	4.076-01	5.801-02	4.076-01	1.019-01	4.076-01	4.294-02
0.6	4.444+00	6.323-01	4.444+00	1.111+00	4.444+00	4.681-01
0.8	2.496-01	3.551-02	2.496-01	6.238-02	2.496-01	2.629-02
1.0	9.060-01	1.289-01	9.060-01	2.265-01	9.060-01	9.544-02
1.25	3.509-02	4.993-03	3.509-02	8.769-03	3.509-02	3.646-03
TOTAL	6.496+00	9.243-01	6.496+00	1.624+00	6.496+00	6.843-01
TELLURIUM						
0.1	4.962-01	7.061-02	4.962-01	1.240-01	4.962-01	5.227-02
0.3	4.076-01	5.801-02	4.076-01	1.019-01	4.076-01	4.294-02
0.6	9.963+00	1.418+00	9.963+00	2.490+00	9.963+00	1.050+00
0.8	1.928+00	2.744-01	1.928+00	4.820-01	1.928+00	2.032-01
1.0	1.000+00	1.423-01	1.000+00	2.500-01	1.000+00	1.054-01
1.25	5.614-02	7.989-03	5.614-02	1.403-02	5.614-02	5.914-03
TOTAL	1.385+01	1.971+00	1.385+01	3.462+00	1.385+01	1.459+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
SB-124						
0.6	4.350-02	3.285-02	4.350-02	5.377-02	4.350-02	3.434-02
0.8	7.471-03	5.643-03	7.471-03	9.230-03	7.471-03	5.898-03
1.0	2.604-03	1.967-03	2.604-03	3.219-03	2.604-03	2.056-03
1.25	3.781-03	2.856-03	3.781-03	4.674-03	3.781-03	2.985-03
1.6	5.024-02	3.794-02	5.024-02	6.210-02	5.024-02	3.966-02
2.0	6.618-03	4.999-03	6.618-03	8.181-03	6.618-03	5.225-03
TOTAL	1.142-01	8.626-02	1.142-01	1.412-01	1.142-01	9.017-02
SB-125						
0.1	1.208+00	3.951-01	1.208+00	1.264+00	1.208+00	2.902-01
0.3	1.146+01	3.750+00	1.146+01	1.200+01	1.146+01	2.754+00
0.6	2.297+01	7.514+00	2.297+01	2.404+01	2.297+01	5.518+00
TOTAL	3.565+01	1.166+01	3.565+01	3.730+01	3.565+01	8.562+00
ANTIMONY						
0.1	1.208+00	3.951-01	1.208+00	1.264+00	1.208+00	2.902-01
0.3	1.146+01	3.750+00	1.146+01	1.200+01	1.146+01	2.754+00
0.6	2.302+01	7.540+00	2.302+01	2.409+01	2.302+01	5.552+00
0.8	7.471-03	5.643-03	7.471-03	9.236-03	7.471-03	5.898-03
1.0	2.604-03	1.967-03	2.604-03	3.219-03	2.604-03	2.056-03
1.25	3.781-03	2.856-03	3.781-03	4.674-03	3.781-03	2.985-03
1.6	5.024-02	3.794-02	5.024-02	6.210-02	5.024-02	3.966-02
2.0	6.618-03	4.999-03	6.618-03	8.181-03	6.618-03	5.225-03
TOTAL	3.576+01	1.174+01	3.576+01	3.744+01	3.576+01	8.652+00
CD-115M						
1.0	1.158-03	4.647-04	1.158-03	4.752-04	1.158-03	3.537-04
1.25	5.608-04	2.249-04	5.608-04	2.300-04	5.608-04	1.712-04
TOTAL	1.719-03	6.896-04	1.719-03	7.053-04	1.719-03	5.249-04
CADMIUM						
1.0	1.158-03	4.647-04	1.158-03	4.752-04	1.158-03	3.537-04
1.25	5.608-04	2.249-04	5.608-04	2.300-04	5.608-04	1.712-04
TOTAL	1.719-03	6.896-04	1.719-03	7.053-04	1.719-03	5.249-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELUAD 13 AND WAS ORIGINALLY LOADED AT RELUAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23KS RECYCLE U-235 F.E.		25KS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
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AG-108M						
0.1	1.112-06	1.640-07	1.112-06	2.430-07	1.112-06	9.334-07
0.3	8.999-05	1.327-05	8.999-05	1.967-05	8.999-05	7.555-05
0.6	1.348-04	1.989-05	1.348-04	2.946-05	1.348-04	1.132-04
0.8	1.528-04	2.254-05	1.528-04	3.339-05	1.528-04	1.283-04
1.0	2.046-06	3.018-07	2.046-06	4.473-07	2.046-06	1.718-06
TOTAL	3.808-04	5.616-05	3.808-04	8.322-05	3.808-04	3.197-04
AG-110M						
0.1	1.208-04	1.692-04	1.208-04	1.797-04	1.208-04	1.271-04
0.3	1.016-02	1.424-02	1.016-02	1.512-02	1.016-02	1.069-02
0.6	4.990-01	6.990-01	4.990-01	7.422-01	4.990-01	5.249-01
0.8	6.647-01	9.311-01	6.647-01	9.887-01	6.647-01	6.993-01
1.0	1.973-01	2.764-01	1.973-01	2.935-01	1.973-01	2.076-01
1.25	2.178-01	3.050-01	2.178-01	3.239-01	2.178-01	2.291-01
1.6	1.664-01	2.331-01	1.664-01	2.475-01	1.664-01	1.750-01
2.0	1.047-03	1.466-03	1.047-03	1.557-03	1.047-03	1.101-03
2.4	1.083-03	1.517-03	1.083-03	1.611-03	1.083-03	1.139-03
TOTAL	1.758+00	2.462+00	1.758+00	2.614+00	1.758+00	1.849+00
SILVER						
0.1	1.219-04	1.694-04	1.219-04	1.799-04	1.219-04	1.280-04
0.3	1.025-02	1.425-02	1.025-02	1.514-02	1.025-02	1.077-02
0.6	4.991-01	6.990-01	4.991-01	7.422-01	4.991-01	5.250-01
0.8	6.649-01	9.311-01	6.649-01	9.888-01	6.649-01	6.994-01
1.0	1.973-01	2.764-01	1.973-01	2.935-01	1.973-01	2.076-01
1.25	2.178-01	3.050-01	2.178-01	3.239-01	2.178-01	2.291-01
1.6	1.664-01	2.331-01	1.664-01	2.475-01	1.664-01	1.750-01
2.0	1.047-03	1.466-03	1.047-03	1.557-03	1.047-03	1.101-03
2.4	1.083-03	1.517-03	1.083-03	1.611-03	1.083-03	1.139-03
TOTAL	1.758+00	2.462+00	1.758+00	2.614+00	1.758+00	1.849+00
RH-106						
0.3	1.536-01	2.055-01	1.536-01	1.347-01	1.536-01	1.542-01
0.6	4.456+01	5.961+01	4.456+01	3.908+01	4.456+01	4.472+01
0.8	9.746-01	1.304+00	9.746-01	8.548-01	9.746-01	9.781-01
1.0	3.933+00	5.262+00	3.933+00	3.449+00	3.933+00	3.947+00
1.25	1.309+00	1.751+00	1.309+00	1.148+00	1.309+00	1.314+00
1.6	9.034-01	1.209+00	9.034-01	7.923-01	9.034-01	9.066-01
2.0	3.332-01	4.458-01	3.332-01	2.923-01	3.332-01	3.344-01
2.4	3.330-01	4.456-01	3.330-01	2.921-01	3.330-01	3.342-01
2.9	5.469-02	7.317-02	5.469-02	4.797-02	5.469-02	5.489-02
TOTAL	5.255+01	7.031+01	5.255+01	4.609+01	5.255+01	5.274+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/MM PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH C-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
RHODIUM						
0.3	1.536+01	2.055+01	1.536+01	1.347+01	1.536+01	1.542+01
0.6	4.456+01	5.961+01	4.456+01	3.908+01	4.456+01	4.472+01
0.8	9.746+01	1.304+00	9.746+01	8.548+01	9.746+01	9.781+01
1.0	3.933+00	5.262+00	3.933+00	3.449+00	3.933+00	3.947+00
1.25	1.309+00	1.751+00	1.309+00	1.148+00	1.309+00	1.314+00
1.6	9.034+01	1.209+00	9.034+01	7.923+01	9.034+01	9.066+01
2.0	3.332+01	4.458+01	3.332+01	2.923+01	3.332+01	3.344+01
2.4	3.330+01	4.456+01	3.330+01	2.921+01	3.330+01	3.342+01
2.9	5.469+02	7.317+02	5.469+02	4.797+02	5.469+02	5.489+02
TOTAL	5.255+01	7.031+01	5.255+01	4.609+01	5.255+01	5.274+01
RU-103						
0.1	2.831+02	1.639+02	2.831+02	1.214+02	2.831+02	1.228+02
0.3	3.768+01	2.182+01	3.768+01	1.616+01	3.768+01	1.634+01
0.6	7.411+01	4.292+01	7.411+01	3.178+01	7.411+01	3.214+01
TOTAL	7.452+01	4.316+01	7.452+01	3.196+01	7.452+01	3.231+01
RUTHENIUM						
0.1	2.831+02	1.639+02	2.831+02	1.214+02	2.831+02	1.228+02
0.3	3.768+01	2.182+01	3.768+01	1.616+01	3.768+01	1.634+01
0.6	7.411+01	4.292+01	7.411+01	3.178+01	7.411+01	3.214+01
TOTAL	7.452+01	4.316+01	7.452+01	3.196+01	7.452+01	3.231+01
NR-95						
0.8	2.764+03	1.011+03	2.764+03	9.808+02	2.764+03	7.491+02
TOTAL	2.764+03	1.011+03	2.764+03	9.808+02	2.764+03	7.491+02
NIUBIUM						
0.8	2.764+03	1.011+03	2.764+03	9.808+02	2.764+03	7.491+02
TOTAL	2.764+03	1.011+03	2.764+03	9.808+02	2.764+03	7.491+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HK PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23KS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25KS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
ZR=95						
0.3	2.495+00	9.018+01	2.495+00	8.767+01	2.495+00	6.681+01
0.8	1.312+03	4.741+02	1.312+03	4.609+02	1.312+03	3.512+02
TOTAL	1.314+03	4.750+02	1.314+03	4.618+02	1.314+03	3.519+02
ZIRCONIUM						
0.3	2.495+00	9.018+01	2.495+00	8.767+01	2.495+00	6.681+01
0.8	1.312+03	4.741+02	1.312+03	4.609+02	1.312+03	3.512+02
TOTAL	1.314+03	4.750+02	1.314+03	4.618+02	1.314+03	3.519+02
RB=86						
1.0	1.874+03	6.538+04	1.874+03	1.119+03	1.874+03	4.686+04
TOTAL	1.874+03	6.538+04	1.874+03	1.119+03	1.874+03	4.686+04
RUBIDIUM						
1.0	1.874+03	6.538+04	1.874+03	1.119+03	1.874+03	4.686+04
TOTAL	1.874+03	6.538+04	1.874+03	1.119+03	1.874+03	4.686+04
CU=58						
0.6	9.204+05	6.131+06	9.204+05	9.087+06	9.204+05	3.491+05
0.8	4.771+04	3.178+05	4.771+04	4.710+05	4.771+04	1.809+04
1.6	5.420+06	3.610+07	5.420+06	5.350+07	5.420+06	2.055+06
TOTAL	5.746+04	3.827+05	5.746+04	5.672+05	5.746+04	2.179+04
CU=60						
1.25	6.160+04	4.127+05	6.160+04	6.117+05	6.160+04	2.350+04
TOTAL	6.160+04	4.127+05	6.160+04	6.117+05	6.160+04	2.350+04
COBALT						
0.6	9.204+05	6.131+06	9.204+05	9.087+06	9.204+05	3.491+05
0.8	4.771+04	3.178+05	4.771+04	4.710+05	4.771+04	1.809+04
1.25	6.160+04	4.127+05	6.160+04	6.117+05	6.160+04	2.350+04
1.6	5.420+06	3.610+07	5.420+06	5.350+07	5.420+06	2.055+06
TOTAL	1.191+03	7.955+05	1.191+03	1.179+04	1.191+03	4.529+04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
*****	*****	*****	*****	*****	*****	*****
ALL ELEMENTS						
0.1	1.030+02	3.823+00	1.030+02	4.190+00	1.030+02	2.865+00
0.3	6.764+02	7.068+00	6.764+02	1.486+01	6.764+02	5.272+00
0.6	1.059+03	2.055+03	1.059+03	1.708+03	1.059+03	1.533+03
0.8	4.599+03	2.893+03	4.599+03	2.546+03	4.599+03	2.150+03
1.0	1.787+01	3.478+01	1.787+01	2.589+01	1.787+01	2.616+01
1.25	4.888+01	1.299+02	4.888+01	1.004+02	4.888+01	9.707+01
1.6	2.001+01	1.868+01	2.001+01	1.463+01	2.001+01	1.403+01
2.0	6.049+01	5.417+01	6.049+01	4.323+01	6.049+01	4.064+01
2.4	8.224+01	4.873+01	8.224+01	1.221+00	8.224+01	3.663+01
2.9	5.621+02	7.361+02	5.621+02	4.842+02	5.621+02	5.522+02
3.5	5.168+05	1.501+05	5.168+05	1.558+05	5.168+05	1.144+05
TOTAL	6.585+03	5.197+03	6.585+03	4.458+03	6.585+03	3.869+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E., AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
U-235						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
URANIUM						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
PA-233						
0.1	8.555-01	1.129-09	8.555-01	8.919-09	8.555-01	2.260-08
0.3	5.676+00	7.487-09	5.676+00	5.917-08	5.676+00	1.499-07
TOTAL	6.531+00	8.616-09	6.531+00	6.809-08	6.531+00	1.725-07
PA-234						
0.3	5.857-05	5.364-07	5.857-05	2.406-11	5.857-05	4.001-06
0.6	5.965-05	5.462-07	5.965-05	2.450-11	5.965-05	4.075-06
0.8	2.934-05	2.687-07	2.934-05	1.205-11	2.934-05	2.004-06
1.0	5.483-04	5.021-06	5.483-04	2.252-10	5.483-04	3.746-05
1.25	4.083-05	3.739-07	4.083-05	1.677-11	4.083-05	2.789-06
1.6	9.688-05	8.872-07	9.688-05	3.980-11	9.688-05	6.618-06
TOTAL	8.335-04	7.633-06	8.335-04	3.424-10	8.335-04	5.694-05
PRUTAÇINIUM						
0.1	8.555-01	1.129-09	8.555-01	8.919-09	8.555-01	2.260-08
0.3	5.676+00	5.439-07	5.676+00	5.919-08	5.676+00	4.151-06
0.6	5.965-05	5.462-07	5.965-05	2.450-11	5.965-05	4.075-06
0.8	2.934-05	2.687-07	2.934-05	1.205-11	2.934-05	2.004-06
1.0	5.483-04	5.021-06	5.483-04	2.252-10	5.483-04	3.746-05
1.25	4.083-05	3.739-07	4.083-05	1.677-11	4.083-05	2.789-06
1.6	9.688-05	8.872-07	9.688-05	3.980-11	9.688-05	6.618-06
TOTAL	6.532+00	7.642-06	6.532+00	6.843-08	6.532+00	5.712-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/MR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
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AC-228						
0.3	8.646-06	0.000	8.646-06	2.731-11	8.646-06	0.000
0.6	4.402-06	0.000	4.402-06	1.390-11	4.402-06	0.000
0.8	1.083-05	0.000	1.083-05	3.420-11	1.083-05	0.000
1.0	9.754-05	0.000	9.754-05	3.081-10	9.754-05	0.000
1.6	3.051-05	0.000	3.051-05	9.636-11	3.051-05	0.000
2.0	7.033-06	0.000	7.033-06	2.221-11	7.033-06	0.000
TOTAL	1.590-04	0.000	1.590-04	5.020-10	1.590-04	0.000
ACTINIUM						
0.3	8.646-06	0.000	8.646-06	2.731-11	8.646-06	0.000
0.6	4.402-06	0.000	4.402-06	1.390-11	4.402-06	0.000
0.8	1.083-05	0.000	1.083-05	3.420-11	1.083-05	0.000
1.0	9.754-05	0.000	9.754-05	3.081-10	9.754-05	0.000
1.6	3.051-05	0.000	3.051-05	9.636-11	3.051-05	0.000
2.0	7.033-06	0.000	7.033-06	2.221-11	7.033-06	0.000
TOTAL	1.590-04	0.000	1.590-04	5.020-10	1.590-04	0.000
RA-223						
0.1	2.363-06	2.692-10	2.363-06	1.635-07	2.363-06	1.120-09
0.3	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
TOTAL	8.654-06	9.860-10	8.654-06	5.987-07	8.654-06	4.103-09
RADIUM						
0.1	2.363-06	2.692-10	2.363-06	1.635-07	2.363-06	1.120-09
0.3	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
TOTAL	8.654-06	9.860-10	8.654-06	5.987-07	8.654-06	4.103-09
RN-219						
0.3	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
TOTAL	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
RADON						
0.3	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
TOTAL	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
BI-211						
0.3	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
TOTAL	6.291-06	7.168-10	6.291-06	4.352-07	6.291-06	2.983-09
BI-212						
0.8	4.394-02	7.155-06	4.394-02	7.507-02	4.394-02	2.961-05
1.0	7.019-03	1.143-06	7.019-03	1.199-02	7.019-03	4.730-06
1.6	1.935-02	3.150-06	1.935-02	3.305-02	1.935-02	1.304-05
TOTAL	7.031-02	1.145-05	7.031-02	1.201-01	7.031-02	4.738-05
BI-213						
0.3	2.894-05	4.806-10	2.894-05	9.436-05	2.894-05	1.979-09
1.0	1.985-06	3.296-11	1.985-06	6.471-06	1.985-06	1.357-10
TOTAL	3.092-05	5.136-10	3.092-05	1.008-04	3.092-05	2.114-09
BISMUTH						
0.3	3.523-05	1.197-09	3.523-05	9.480-05	3.523-05	4.961-09
0.8	4.394-02	7.155-06	4.394-02	7.507-02	4.394-02	2.961-05
1.0	7.021-03	1.143-06	7.021-03	1.200-02	7.021-03	4.731-06
1.6	1.935-02	3.150-06	1.935-02	3.305-02	1.935-02	1.304-05
TOTAL	7.035-02	1.145-05	7.035-02	1.202-01	7.035-02	4.739-05
PB-211						
0.3	3.775-06	4.301-10	3.775-06	2.611-07	3.775-06	1.790-09
0.8	3.782-06	4.308-10	3.782-06	2.616-07	3.782-06	1.793-09
TOTAL	7.556-06	8.609-10	7.556-06	5.227-07	7.556-06	3.583-09
PB-212						
0.3	8.773-02	1.428-05	8.773-02	1.499-01	8.773-02	5.912-05
TOTAL	8.773-02	1.428-05	8.773-02	1.499-01	8.773-02	5.912-05
LEAD						
0.3	8.773-02	1.429-05	8.773-02	1.499-01	8.773-02	5.912-05
0.8	3.782-06	4.308-10	3.782-06	2.616-07	3.782-06	1.793-09
TOTAL	8.773-02	1.429-05	8.773-02	1.499-01	8.773-02	5.913-05

D-235

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		2388 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		2548 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TL-208						
0.3	5.23e-03	5.52e-07	5.23e-03	8.99e-03	5.23e-03	3.52e-06
0.6	1.65e-01	2.69e-05	1.65e-01	2.83e-01	1.65e-01	1.11e-04
0.8	3.14e-02	5.12e-06	3.14e-02	5.40e-02	3.14e-02	2.12e-05
2.4	5.22e-01	8.51e-05	5.22e-01	8.98e-01	5.22e-01	3.52e-04
TOTAL	7.24e-01	1.18e-04	7.24e-01	1.24e+00	7.24e-01	4.88e-04
THALLIUM						
0.3	5.23e-03	8.52e-07	5.23e-03	8.99e-03	5.23e-03	3.52e-06
0.6	1.65e-01	2.69e-05	1.65e-01	2.83e-01	1.65e-01	1.11e-04
0.8	3.14e-02	5.12e-06	3.14e-02	5.40e-02	3.14e-02	2.12e-05
2.4	5.22e-01	8.51e-05	5.22e-01	8.98e-01	5.22e-01	3.52e-04
TOTAL	7.24e-01	1.18e-04	7.24e-01	1.24e+00	7.24e-01	4.88e-04
TB-158						
0.3	6.46e-10	1.14e-10	6.46e-10	8.13e-10	6.46e-10	1.27e-10
0.8	5.54e-09	9.82e-10	5.54e-09	6.97e-09	5.54e-09	1.04e-09
1.0	4.24e-08	7.52e-09	4.24e-08	5.34e-08	4.24e-08	8.36e-09
1.25	1.33e-09	2.36e-10	1.33e-09	1.68e-09	1.33e-09	2.63e-10
TOTAL	4.99e-08	8.85e-09	4.99e-08	6.28e-08	4.99e-08	9.84e-09
TB-160						
0.3	4.54e-03	5.58e-03	4.54e-03	5.02e-03	4.54e-03	9.53e-03
0.8	1.10e-02	1.35e-02	1.10e-02	1.21e-02	1.10e-02	2.30e-02
1.0	1.12e-02	1.38e-02	1.12e-02	1.24e-02	1.12e-02	2.36e-02
1.25	8.44e-03	1.03e-02	8.44e-03	9.34e-03	8.44e-03	1.77e-02
TOTAL	3.52e-02	4.33e-02	3.52e-02	3.90e-02	3.52e-02	7.40e-02
TENNIUM						
0.3	4.54e-03	5.58e-03	4.54e-03	5.02e-03	4.54e-03	9.53e-03
0.8	1.10e-02	1.35e-02	1.10e-02	1.21e-02	1.10e-02	2.30e-02
1.0	1.12e-02	1.38e-02	1.12e-02	1.24e-02	1.12e-02	2.36e-02
1.25	8.44e-03	1.03e-02	8.44e-03	9.34e-03	8.44e-03	1.77e-02
TOTAL	3.52e-02	4.33e-02	3.52e-02	3.90e-02	3.52e-02	7.40e-02

D-236

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV *****	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. *****		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. *****	
EU-152						
0.1	1.625=03	2.654=03	1.625=03	1.807=03	1.625=03	2.088=03
0.3	4.308=03	7.035=03	4.308=03	4.792=03	4.308=03	5.535=03
0.6	7.037=04	1.149=03	7.037=04	7.827=04	7.037=04	9.042=04
0.8	4.465=03	7.292=03	4.465=03	4.967=03	4.465=03	5.737=03
1.0	1.284=02	2.097=02	1.284=02	1.428=02	1.284=02	1.650=02
1.25	1.010=02	1.650=02	1.010=02	1.124=02	1.010=02	1.298=02
1.6	3.679=04	6.009=04	3.679=04	4.093=04	3.679=04	4.728=04
TOTAL	3.441=02	5.620=02	3.441=02	3.828=02	3.441=02	4.421=02
EU-154						
0.1	4.252=01	1.200+00	4.252=01	7.962=01	4.252=01	9.132=01
0.3	1.847=01	5.215=01	1.847=01	3.459=01	1.847=01	3.967=01
0.6	4.858=01	1.371+00	4.858=01	9.097=01	4.858=01	1.043+00
0.8	2.644+00	7.464+00	2.644+00	4.950+00	2.644+00	5.678+00
1.0	2.506+00	7.075+00	2.506+00	4.693+00	2.506+00	5.383+00
1.25	3.851+00	1.087+01	3.851+00	7.212+00	3.851+00	8.272+00
1.6	2.974=01	8.397=01	2.974=01	5.569=01	2.974=01	6.388=01
TOTAL	1.039+01	2.935+01	1.039+01	1.946+01	1.039+01	2.232+01
EU-156						
0.6	2.529=06	7.000=06	2.529=06	4.648=06	2.529=06	5.335=06
0.8	7.465=06	2.066=05	7.465=06	1.372=05	7.465=06	1.574=05
1.0	6.677=06	1.848=05	6.677=06	1.227=05	6.677=06	1.408=05
1.25	1.755=05	4.856=05	1.755=05	3.224=05	1.755=05	3.701=05
2.0	1.940=05	5.368=05	1.940=05	3.564=05	1.940=05	4.091=05
2.4	1.900=06	5.260=06	1.900=06	3.492=06	1.900=06	4.008=06
TOTAL	5.551=05	1.536=04	5.551=05	1.020=04	5.551=05	1.171=04
EUROPIUM						
0.1	4.268=01	1.203+00	4.268=01	7.980=01	4.268=01	9.153=01
0.3	1.890=01	5.285=01	1.890=01	3.507=01	1.890=01	4.022=01
0.6	4.865=01	1.373+00	4.865=01	9.105=01	4.865=01	1.044+00
0.8	2.648+00	7.471+00	2.648+00	4.955+00	2.648+00	5.684+00
1.0	2.519+00	7.096+00	2.519+00	4.707+00	2.519+00	5.399+00
1.25	3.862+00	1.089+01	3.862+00	7.224+00	3.862+00	8.285+00
1.6	2.978=01	8.403=01	2.978=01	5.574=01	2.978=01	6.392=01
2.0	1.940=05	5.368=05	1.940=05	3.564=05	1.940=05	4.091=05
2.4	1.900=06	5.260=06	1.900=06	3.492=06	1.900=06	4.008=06
TOTAL	1.043+01	2.940+01	1.043+01	1.950+01	1.043+01	2.237+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
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PM=148M						
0.1	1.999+03	1.835+03	1.999+03	1.386+03	1.999+03	1.378+03
0.3	5.747+02	5.276+02	5.747+02	3.987+02	5.747+02	3.962+02
0.6	4.585+01	4.209+01	4.585+01	3.180+01	4.585+01	3.161+01
0.8	8.361+02	7.676+02	8.361+02	5.800+02	8.361+02	5.764+02
1.0	1.322+01	1.214+01	1.322+01	9.170+02	1.322+01	9.113+02
TOTAL	7.337+01	6.736+01	7.337+01	5.090+01	7.337+01	5.059+01
PROMETHIUM						
0.1	1.999+03	1.835+03	1.999+03	1.386+03	1.999+03	1.378+03
0.3	5.747+02	5.276+02	5.747+02	3.987+02	5.747+02	3.962+02
0.6	4.585+01	4.209+01	4.585+01	3.180+01	4.585+01	3.161+01
0.8	8.361+02	7.676+02	8.361+02	5.800+02	8.361+02	5.764+02
1.0	1.322+01	1.214+01	1.322+01	9.170+02	1.322+01	9.113+02
TOTAL	7.337+01	6.736+01	7.337+01	5.090+01	7.337+01	5.059+01
ND=147						
0.1	1.031+08	3.978+09	1.031+08	3.581+09	1.031+08	3.045+09
0.3	6.532+09	2.520+09	6.532+09	2.268+09	6.532+09	1.929+09
0.6	2.903+08	1.120+08	2.903+08	1.008+08	2.903+08	8.569+09
TOTAL	4.587+08	1.769+08	4.587+08	1.593+08	4.587+08	1.354+08
NEODYMIUM						
0.1	1.031+08	3.978+09	1.031+08	3.581+09	1.031+08	3.045+09
0.3	6.532+09	2.520+09	6.532+09	2.268+09	6.532+09	1.929+09
0.6	2.903+08	1.120+08	2.903+08	1.008+08	2.903+08	8.569+09
TOTAL	4.587+08	1.769+08	4.587+08	1.593+08	4.587+08	1.354+08
PR=144						
0.6	3.101+01	2.762+01	3.101+01	2.208+01	3.101+01	2.072+01
0.8	5.810+01	5.175+01	5.810+01	4.138+01	5.810+01	3.882+01
1.25	2.696+01	2.401+01	2.696+01	1.920+01	2.696+01	1.801+01
1.6	1.100+01	9.797+00	1.100+01	7.835+00	1.100+01	7.349+00
2.0	3.822+01	3.404+01	3.822+01	2.722+01	3.822+01	2.553+01
TOTAL	8.108+01	7.221+01	8.108+01	5.774+01	8.108+01	5.417+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
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PRASEODYMIUM						
0.6	3.101+01	2.762+01	3.101+01	2.208+01	3.101+01	2.072+01
0.8	5.810+01	5.175+01	5.810+01	4.138+01	5.810+01	3.862+01
1.25	2.696+01	2.401+01	2.696+01	1.920+01	2.696+01	1.801+01
1.6	1.100+01	9.797+00	1.100+01	7.835+00	1.100+01	7.349+00
2.0	3.822+01	3.404+01	3.822+01	2.722+01	3.822+01	2.553+01
TOTAL	8.108+01	7.221+01	8.108+01	5.774+01	8.108+01	5.417+01
LA-140						
0.1	5.027+08	1.460+08	5.027+08	1.515+08	5.027+08	1.113+08
0.3	2.831+06	8.221+07	2.831+06	8.533+07	2.831+06	6.266+07
0.6	7.643+06	2.220+06	7.643+06	2.304+06	7.643+06	1.692+06
0.8	8.806+06	2.557+06	8.806+06	2.655+06	8.806+06	1.949+06
1.0	3.104+06	9.012+07	3.104+06	9.355+07	3.104+06	6.869+07
1.25	8.398+08	2.439+08	8.398+08	2.532+08	8.398+08	1.859+08
1.6	4.511+05	1.310+05	4.511+05	1.360+05	4.511+05	9.984+06
2.4	2.760+06	8.015+07	2.760+06	8.320+07	2.760+06	6.109+07
2.9	6.672+08	1.937+08	6.672+08	2.011+08	6.672+08	1.477+08
3.5	2.275+09	6.605+10	2.275+09	6.857+10	2.275+09	5.034+10
TOTAL	7.045+05	2.046+05	7.045+05	2.124+05	7.045+05	1.559+05
LANTHANUM						
0.1	5.027+08	1.460+08	5.027+08	1.515+08	5.027+08	1.113+08
0.3	2.831+06	8.221+07	2.831+06	8.533+07	2.831+06	6.266+07
0.6	7.643+06	2.220+06	7.643+06	2.304+06	7.643+06	1.692+06
0.8	8.806+06	2.557+06	8.806+06	2.655+06	8.806+06	1.949+06
1.0	3.104+06	9.012+07	3.104+06	9.355+07	3.104+06	6.869+07
1.25	8.398+08	2.439+08	8.398+08	2.532+08	8.398+08	1.859+08
1.6	4.511+05	1.310+05	4.511+05	1.360+05	4.511+05	9.984+06
2.4	2.760+06	8.015+07	2.760+06	8.320+07	2.760+06	6.109+07
2.9	6.672+08	1.937+08	6.672+08	2.011+08	6.672+08	1.477+08
3.5	2.275+09	6.605+10	2.275+09	6.857+10	2.275+09	5.034+10
TOTAL	7.045+05	2.046+05	7.045+05	2.124+05	7.045+05	1.559+05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV	GAMMA DOSE RATES IN RAD/MR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL.		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL.		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL.	
BA-137M						
0.1	1.316+00	2.043+00	1.316+00	1.917+00	1.316+00	1.523+00
0.6	3.474+02	5.391+02	3.474+02	5.059+02	3.474+02	4.021+02
TOTAL	3.487+02	5.411+02	3.487+02	5.078+02	3.487+02	4.036+02
BA-140						
0.1	5.216+07	1.515+07	5.216+07	1.572+07	5.216+07	1.154+07
0.3	1.138+06	3.304+07	1.138+06	3.430+07	1.138+06	2.518+07
0.6	4.495+06	1.305+06	4.495+06	1.555+06	4.495+06	9.948+07
TOTAL	6.154+06	1.787+06	6.154+06	1.855+06	6.154+06	1.362+06
BARIUM						
0.1	1.316+00	2.043+00	1.316+00	1.917+00	1.316+00	1.523+00
0.3	1.138+06	3.304+07	1.138+06	3.430+07	1.138+06	2.518+07
0.6	3.474+02	5.391+02	3.474+02	5.059+02	3.474+02	4.021+02
TOTAL	3.487+02	5.411+02	3.487+02	5.078+02	3.487+02	4.036+02
CB-134						
0.3	5.651+02	1.532+01	5.651+02	1.203+01	5.651+02	1.143+01
0.6	4.174+02	1.132+03	4.174+02	8.883+02	4.174+02	8.438+02
0.8	4.330+02	1.174+03	4.330+02	9.217+02	4.330+02	8.755+02
1.0	5.914+00	1.604+01	5.914+00	1.259+01	5.914+00	1.146+01
1.25	3.604+01	9.771+01	3.604+01	7.670+01	3.604+01	7.286+01
1.6	1.994+01	5.407+01	1.994+01	4.244+01	1.994+01	4.032+01
TOTAL	8.926+02	2.420+03	8.926+02	1.900+03	8.926+02	1.805+03
CESIUM						
0.3	5.651+02	1.532+01	5.651+02	1.203+01	5.651+02	1.143+01
0.6	4.174+02	1.132+03	4.174+02	8.883+02	4.174+02	8.438+02
0.8	4.330+02	1.174+03	4.330+02	9.217+02	4.330+02	8.755+02
1.0	5.914+00	1.604+01	5.914+00	1.259+01	5.914+00	1.146+01
1.25	3.604+01	9.771+01	3.604+01	7.670+01	3.604+01	7.286+01
1.6	1.994+01	5.407+01	1.994+01	4.244+01	1.994+01	4.032+01
TOTAL	8.926+02	2.420+03	8.926+02	1.900+03	8.926+02	1.805+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
I-131						
0.1	5.862-13	0.000	5.862-13	0.000	5.862-13	0.000
0.3	5.100-11	0.000	5.100-11	0.000	5.100-11	0.000
0.6	7.483-12	0.000	7.483-12	0.000	7.483-12	0.000
0.8	1.973-12	0.000	1.973-12	0.000	1.973-12	0.000
TOTAL	6.105-11	0.000	6.105-11	0.000	6.105-11	0.000
IODINE						
0.1	5.862-13	0.000	5.862-13	0.000	5.862-13	0.000
0.3	5.100-11	0.000	5.100-11	0.000	5.100-11	0.000
0.6	7.483-12	0.000	7.483-12	0.000	7.483-12	0.000
0.8	1.973-12	0.000	1.973-12	0.000	1.973-12	0.000
TOTAL	6.105-11	0.000	6.105-11	0.000	6.105-11	0.000
TE-129M						
0.1	9.858-04	1.403-04	9.858-04	2.464-04	9.858-04	1.038-04
0.3	1.279-01	1.821-02	1.279-01	3.198-02	1.279-01	1.348-02
0.6	3.892-02	5.538-03	3.892-02	9.727-03	3.892-02	4.099-03
1.0	2.184-03	3.108-04	2.184-03	5.459-04	2.184-03	2.301-04
1.25	4.879-04	6.944-05	4.879-04	1.220-04	4.879-04	5.140-05
TOTAL	1.705-01	2.427-02	1.705-01	4.262-02	1.705-01	1.796-02
TE-129						
0.1	1.052-02	1.496-03	1.052-02	2.628-03	1.052-02	1.108-03
0.3	9.449-03	1.345-03	9.449-03	2.362-03	9.449-03	9.954-04
0.6	1.030-01	1.466-02	1.030-01	2.574-02	1.030-01	1.085-02
0.8	5.785-03	8.232-04	5.785-03	1.446-03	5.785-03	6.094-04
1.0	2.100-02	2.989-03	2.100-02	5.249-03	2.100-02	2.212-03
1.25	8.132-04	1.157-04	8.132-04	2.033-04	8.132-04	8.567-05
TOTAL	1.506-01	2.143-02	1.506-01	3.763-02	1.506-01	1.586-02
TELLURIUM						
0.1	1.150-02	1.637-03	1.150-02	2.875-03	1.150-02	1.212-03
0.3	9.449-03	1.345-03	9.449-03	2.362-03	9.449-03	9.954-04
0.6	2.309-01	3.286-02	2.309-01	5.772-02	2.309-01	2.433-02
0.8	4.470-02	6.361-03	4.470-02	1.117-02	4.470-02	4.709-03
1.0	2.318-02	3.299-03	2.318-02	5.795-03	2.318-02	2.442-03
1.25	1.301-03	1.852-04	1.301-03	3.252-04	1.301-03	1.371-04
TOTAL	3.211-01	4.569-02	3.211-01	8.025-02	3.211-01	3.382-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23KS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25KS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
8B-124						
0.6	5.159-03	3.896-03	5.159-03	6.377-03	5.159-03	4.073-03
0.8	8.861-04	6.693-04	8.861-04	1.095-03	8.861-04	6.996-04
1.0	3.088-04	2.332-04	3.088-04	3.818-04	3.088-04	2.438-04
1.25	4.484-04	3.387-04	4.484-04	5.544-04	4.484-04	3.541-04
1.6	5.958-03	4.500-03	5.958-03	7.366-03	5.958-03	4.704-03
2.0	7.849-04	5.929-04	7.849-04	9.704-04	7.849-04	6.197-04
TOTAL	1.355-02	1.023-02	1.355-02	1.675-02	1.355-02	1.069-02
8B-125						
0.1	1.061+00	3.471-01	1.061+00	1.110+00	1.061+00	2.549-01
0.3	1.007+01	3.294+00	1.007+01	1.054+01	1.007+01	2.419+00
0.6	2.018+01	6.600+00	2.018+01	2.111+01	2.018+01	4.847+00
TOTAL	3.131+01	1.024+01	3.131+01	3.276+01	3.131+01	7.521+00
ANTIMONY						
0.1	1.061+00	3.471-01	1.061+00	1.110+00	1.061+00	2.549-01
0.3	1.007+01	3.294+00	1.007+01	1.054+01	1.007+01	2.419+00
0.6	2.018+01	6.604+00	2.018+01	2.112+01	2.018+01	4.851+00
0.8	8.861-04	6.693-04	8.861-04	1.095-03	8.861-04	6.996-04
1.0	3.088-04	2.332-04	3.088-04	3.818-04	3.088-04	2.438-04
1.25	4.484-04	3.387-04	4.484-04	5.544-04	4.484-04	3.541-04
1.6	5.958-03	4.500-03	5.958-03	7.366-03	5.958-03	4.704-03
2.0	7.849-04	5.929-04	7.849-04	9.704-04	7.849-04	6.197-04
TOTAL	3.132+01	1.025+01	3.132+01	3.278+01	3.132+01	7.531+00
CD-115M						
1.0	5.855-05	2.348-05	5.855-05	2.402-05	5.855-05	1.787-05
1.25	2.834-05	1.137-05	2.834-05	1.163-05	2.834-05	8.652-06
TOTAL	8.689-05	3.485-05	8.689-05	3.564-05	8.689-05	2.653-05
CADMIUM						
1.0	5.855-05	2.348-05	5.855-05	2.402-05	5.855-05	1.787-05
1.25	2.834-05	1.137-05	2.834-05	1.163-05	2.834-05	8.652-06
TOTAL	8.689-05	3.485-05	8.689-05	3.564-05	8.689-05	2.653-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AG-108M						
0.1	1.109-06	1.636-07	1.109-06	2.423-07	1.109-06	9.309-07
0.3	8.975-05	1.324-05	8.975-05	1.962-05	8.975-05	7.535-05
0.6	1.345-04	1.983-05	1.345-04	2.939-05	1.345-04	1.129-04
0.8	1.524-04	2.248-05	1.524-04	3.330-05	1.524-04	1.279-04
1.0	2.041-06	3.010-07	2.041-06	4.461-07	2.041-06	1.713-06
TOTAL	3.797-04	5.601-05	3.797-04	8.299-05	3.797-04	3.188-04
AG-110M						
0.1	7.302-05	1.023-04	7.302-05	1.086-04	7.302-05	7.682-05
0.3	6.144-03	8.006-03	6.144-03	9.138-03	6.144-03	6.463-03
0.6	3.016-01	4.225-01	3.016-01	4.486-01	3.016-01	3.173-01
0.8	4.018-01	5.628-01	4.018-01	5.976-01	4.018-01	4.227-01
1.0	1.193-01	1.671-01	1.193-01	1.774-01	1.193-01	1.255-01
1.25	1.316-01	1.844-01	1.316-01	1.958-01	1.316-01	1.385-01
1.6	1.006-01	1.409-01	1.006-01	1.496-01	1.006-01	1.098-01
2.0	6.326-04	8.862-04	6.326-04	9.410-04	6.326-04	6.655-04
2.4	6.546-04	9.169-04	6.546-04	9.736-04	6.546-04	6.886-04
TOTAL	1.062+00	1.488+00	1.062+00	1.580+00	1.062+00	1.118+00
SILVER						
0.1	7.413-05	1.024-04	7.413-05	1.089-04	7.413-05	7.775-05
0.3	6.233-03	8.619-03	6.233-03	9.158-03	6.233-03	6.538-03
0.6	3.018-01	4.225-01	3.018-01	4.487-01	3.018-01	3.174-01
0.8	4.020-01	5.628-01	4.020-01	5.977-01	4.020-01	4.228-01
1.0	1.193-01	1.671-01	1.193-01	1.774-01	1.193-01	1.255-01
1.25	1.316-01	1.844-01	1.316-01	1.958-01	1.316-01	1.385-01
1.6	1.006-01	1.409-01	1.006-01	1.496-01	1.006-01	1.098-01
2.0	6.326-04	8.862-04	6.326-04	9.410-04	6.326-04	6.655-04
2.4	6.546-04	9.169-04	6.546-04	9.736-04	6.546-04	6.886-04
TOTAL	1.063+00	1.488+00	1.063+00	1.580+00	1.063+00	1.118+00
RH-106						
0.3	1.084-01	1.450-01	1.084-01	9.506-02	1.084-01	1.088-01
0.6	3.144+01	4.206+01	3.144+01	2.757+01	3.144+01	3.155+01
0.8	6.876-01	9.200-01	6.876-01	6.031-01	6.876-01	6.901-01
1.0	2.775+00	3.713+00	2.775+00	2.434+00	2.775+00	2.775+00
1.25	9.235-01	1.236+00	9.235-01	8.099-01	9.235-01	9.268-01
1.6	6.374-01	8.528-01	6.374-01	5.590-01	6.374-01	6.397-01
2.0	2.351-01	3.146-01	2.351-01	2.062-01	2.351-01	2.360-01
2.4	2.350-01	3.144-01	2.350-01	2.061-01	2.350-01	2.358-01
2.9	3.859-02	5.163-02	3.859-02	3.384-02	3.859-02	3.873-02
TOTAL	3.708+01	4.961+01	3.708+01	3.252+01	3.708+01	3.721+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23MS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
.....						
RHODIUM						
0.3	1.084+01	1.450+01	1.084+01	9.506+02	1.084+01	1.088+01
0.6	3.144+01	4.200+01	3.144+01	2.757+01	3.144+01	3.155+01
0.8	6.876+01	9.200+01	6.876+01	6.031+01	6.876+01	6.901+01
1.0	2.775+00	3.713+00	2.775+00	2.434+00	2.775+00	2.785+00
1.25	9.235+01	1.236+00	9.235+01	8.099+01	9.235+01	9.268+01
1.6	6.374+01	8.528+01	6.374+01	5.590+01	6.374+01	6.397+01
2.0	2.351+01	3.146+01	2.351+01	2.062+01	2.351+01	2.360+01
2.4	2.350+01	3.144+01	2.350+01	2.061+01	2.350+01	2.356+01
2.9	3.859+02	5.163+02	3.859+02	3.384+02	3.859+02	3.873+02
TOTAL	3.708+01	4.961+01	3.708+01	3.252+01	3.708+01	3.721+01
RU-103						
0.1	1.123+03	6.506+04	1.123+03	4.818+04	1.123+03	4.872+04
0.3	1.496+02	8.661+03	1.496+02	6.414+03	1.496+02	6.485+03
0.6	2.941+00	1.703+00	2.941+00	1.261+00	2.941+00	1.275+00
TOTAL	2.957+00	1.713+00	2.957+00	1.268+00	2.957+00	1.282+00
RUTHENIUM						
0.1	1.123+03	6.506+04	1.123+03	4.818+04	1.123+03	4.872+04
0.3	1.496+02	8.661+03	1.496+02	6.414+03	1.496+02	6.485+03
0.6	2.941+00	1.703+00	2.941+00	1.261+00	2.941+00	1.275+00
TOTAL	2.957+00	1.713+00	2.957+00	1.268+00	2.957+00	1.282+00
NB-95						
0.8	4.295+02	1.556+02	4.295+02	1.512+02	4.295+02	1.153+02
TOTAL	4.295+02	1.556+02	4.295+02	1.512+02	4.295+02	1.153+02
NIUBIUM						
0.8	4.295+02	1.556+02	4.295+02	1.512+02	4.295+02	1.153+02
TOTAL	4.295+02	1.556+02	4.295+02	1.512+02	4.295+02	1.153+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23KS RECYCLE U-235 F.E.		25KS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
ZR=95						
0.3	3.517-01	1.271-01	3.517-01	1.236-01	3.517-01	9.419-02
0.8	1.849+02	6.684+01	1.849+02	6.498+01	1.849+02	4.952+01
TOTAL	1.853+02	6.697+01	1.853+02	6.511+01	1.853+02	4.961+01
ZINCUNIUM						
0.3	3.517-01	1.271-01	3.517-01	1.236-01	3.517-01	9.419-02
0.8	1.849+02	6.684+01	1.849+02	6.498+01	1.849+02	4.952+01
TOTAL	1.853+02	6.697+01	1.853+02	6.511+01	1.853+02	4.961+01
RB=86						
1.0	1.922-06	6.705-07	1.922-06	1.148-06	1.922-06	4.806-07
TOTAL	1.922-06	6.705-07	1.922-06	1.148-06	1.922-06	4.806-07
RUBIDIUM						
1.0	1.922-06	6.705-07	1.922-06	1.148-06	1.922-06	4.806-07
TOTAL	1.922-06	6.705-07	1.922-06	1.148-06	1.922-06	4.806-07
CU=58						
0.6	1.523-05	1.015-06	1.523-05	1.503-06	1.523-05	5.776-06
0.8	7.894-05	5.259-06	7.894-05	7.793-06	7.894-05	2.994-05
1.6	8.967-07	5.974-08	8.967-07	8.852-08	8.967-07	3.401-07
TOTAL	9.506-05	6.333-06	9.506-05	9.385-06	9.506-05	3.605-05
CU=60						
1.25	5.762-04	3.860-05	5.762-04	5.721-05	5.762-04	2.198-04
TOTAL	5.762-04	3.860-05	5.762-04	5.721-05	5.762-04	2.198-04
COBALT						
0.6	1.523-05	1.015-06	1.523-05	1.503-06	1.523-05	5.776-06
0.8	7.894-05	5.259-06	7.894-05	7.793-06	7.894-05	2.994-05
1.25	5.762-04	3.860-05	5.762-04	5.721-05	5.762-04	2.198-04
1.6	8.967-07	5.974-08	8.967-07	8.852-08	8.967-07	3.401-07
TOTAL	6.713-04	4.494-05	6.713-04	6.659-05	6.713-04	2.558-04

D-245

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV	MS FRESH U-235 F.E.		238S RECYCLE U-235 F.E.		258S RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
.....						
ALL ELEMENTS						
0.1	3.674+00	3.597+00	3.674+00	3.830+00	3.674+00	2.697+00
0.3	1.664+01	4.324+00	1.664+01	1.145+01	1.664+01	3.202+00
0.6	8.519+02	1.751+03	8.519+02	1.468+03	8.519+02	1.306+03
0.8	1.052+03	1.406+03	1.052+03	1.145+03	1.052+03	1.048+03
1.0	1.150+01	2.715+01	1.150+01	2.003+01	1.150+01	2.038+01
1.25	4.123+01	1.103+02	4.123+01	8.513+01	4.123+01	8.241+01
1.6	1.226+01	1.218+01	1.226+01	9.565+00	1.226+01	9.142+00
2.0	3.846+01	3.435+01	3.846+01	2.743+01	3.846+01	2.577+01
2.4	7.585+01	3.154+01	7.585+01	1.105+00	7.585+01	2.369+01
2.9	3.859+02	5.163+02	3.859+02	3.384+02	3.859+02	3.873+02
3.5	2.275+09	6.605+10	2.275+09	6.857+10	2.275+09	5.034+10
TOTAL	2.029+03	3.349+03	2.029+03	2.771+03	2.029+03	2.497+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL.		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL.		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL.	
U-235						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
URANIUM						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
PA-233						
0.1	6.126-09	0.000	6.126-09	0.000	6.126-09	0.000
0.3	4.064-08	0.000	4.064-08	0.000	4.064-08	0.000
TOTAL	4.677-08	0.000	4.677-08	0.000	4.677-08	0.000
PA-234						
0.3	0.000	5.364-07	0.000	2.345-11	0.000	4.001-06
0.6	0.000	5.462-07	0.000	2.388-11	0.000	4.075-06
0.8	0.000	2.687-07	0.000	1.174-11	0.000	2.004-06
1.0	0.000	5.021-06	0.000	2.195-10	0.000	3.746-05
1.25	0.000	3.739-07	0.000	1.635-11	0.000	2.789-06
1.6	0.000	8.872-07	0.000	3.878-11	0.000	6.618-06
TOTAL	0.000	7.633-06	0.000	3.337-10	0.000	5.694-05
PRUTACTINIUM						
0.1	6.126-09	0.000	6.126-09	0.000	6.126-09	0.000
0.3	4.064-08	5.364-07	4.064-08	2.345-11	4.064-08	4.001-06
0.6	0.000	5.462-07	0.000	2.388-11	0.000	4.075-06
0.8	0.000	2.687-07	0.000	1.174-11	0.000	2.004-06
1.0	0.000	5.021-06	0.000	2.195-10	0.000	3.746-05
1.25	0.000	3.739-07	0.000	1.635-11	0.000	2.789-06
1.6	0.000	8.872-07	0.000	3.878-11	0.000	6.618-06
TOTAL	4.677-08	7.633-06	4.677-08	3.337-10	4.677-08	5.694-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELUAD 13 AND WAS ORIGINALLY LOADED AT RELUAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23M8 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25M8 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AC-228						
0.3	1.050-05	0.000	1.050-05	2.224-11	1.050-05	0.000
0.6	5.347-06	0.000	5.347-06	1.132-11	5.347-06	0.000
0.8	1.315-05	0.000	1.315-05	2.785-11	1.315-05	0.000
1.0	1.185-04	0.000	1.185-04	2.509-10	1.185-04	0.000
1.6	3.706-05	0.000	3.706-05	7.847-11	3.706-05	0.000
2.0	8.543-06	0.000	8.543-06	1.809-11	8.543-06	0.000
TOTAL	1.931-04	0.000	1.931-04	4.089-10	1.931-04	0.000
ACTINIUM						
0.3	1.050-05	0.000	1.050-05	2.224-11	1.050-05	0.000
0.6	5.347-06	0.000	5.347-06	1.132-11	5.347-06	0.000
0.8	1.315-05	0.000	1.315-05	2.785-11	1.315-05	0.000
1.0	1.185-04	0.000	1.185-04	2.509-10	1.185-04	0.000
1.6	3.706-05	0.000	3.706-05	7.847-11	3.706-05	0.000
2.0	8.543-06	0.000	8.543-06	1.809-11	8.543-06	0.000
TOTAL	1.931-04	0.000	1.931-04	4.089-10	1.931-04	0.000
RA-223						
0.1	2.216-06	5.448-10	2.216-06	3.416-07	2.216-06	2.259-09
0.3	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
TOTAL	8.116-06	1.995-09	8.116-06	1.251-06	8.116-06	8.274-09
RADIUM						
0.1	2.216-06	5.448-10	2.216-06	3.416-07	2.216-06	2.259-09
0.3	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
TOTAL	8.116-06	1.995-09	8.116-06	1.251-06	8.116-06	8.274-09
RN-219						
0.3	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
TOTAL	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
RADON						
0.3	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
TOTAL	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-211						
0.3	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
TOTAL	5.900-06	1.451-09	5.900-06	9.096-07	5.900-06	6.015-09
BI-212						
0.8	6.337-02	1.035-05	6.337-02	7.763-02	6.337-02	4.288-05
1.0	1.012-02	1.653-06	1.012-02	1.240-02	1.012-02	6.850-06
1.6	2.790-02	4.556-06	2.790-02	3.418-02	2.790-02	1.888-05
TOTAL	1.014-01	1.656-05	1.014-01	1.242-01	1.014-01	6.861-05
BI-213						
0.3	5.779-05	4.810-10	5.779-05	9.874-05	5.779-05	1.981-09
1.0	3.964-06	3.299-11	3.964-06	6.772-06	3.964-06	1.358-10
TOTAL	6.176-05	5.140-10	6.176-05	1.055-04	6.176-05	2.116-09
BISMUTH						
0.3	6.369-05	1.932-09	6.369-05	9.965-05	6.369-05	7.996-09
0.8	6.337-02	1.035-05	6.337-02	7.763-02	6.337-02	4.288-05
1.0	1.013-02	1.653-06	1.013-02	1.241-02	1.013-02	6.850-06
1.6	2.790-02	4.556-06	2.790-02	3.418-02	2.790-02	1.888-05
TOTAL	1.015-01	1.656-05	1.015-01	1.243-01	1.015-01	6.862-05
PB-211						
0.3	3.540-06	8.703-10	3.540-06	5.458-07	3.540-06	3.609-09
0.8	3.546-06	8.719-10	3.546-06	5.468-07	3.546-06	3.616-09
TOTAL	7.087-06	1.742-09	7.087-06	1.093-06	7.087-06	7.224-09
PB-212						
0.3	1.265-01	2.066-05	1.265-01	1.550-01	1.265-01	8.561-05
TOTAL	1.265-01	2.066-05	1.265-01	1.550-01	1.265-01	8.561-05
LEAD						
0.3	1.265-01	2.066-05	1.265-01	1.550-01	1.265-01	8.561-05
0.8	3.546-06	8.719-10	3.546-06	5.468-07	3.546-06	3.616-09
TOTAL	1.265-01	2.066-05	1.265-01	1.550-01	1.265-01	8.561-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TL-208						
0.3	7.578-03	1.237-06	7.578-03	9.299-03	7.578-03	5.128-06
0.6	2.392-01	3.906-05	2.392-01	2.936-01	2.392-01	1.619-04
0.8	4.555-02	7.437-06	4.555-02	5.589-02	4.555-02	3.082-05
2.4	7.567-01	1.236-04	7.567-01	9.285-01	7.567-01	5.120-04
TOTAL	1.049+00	1.713-04	1.049+00	1.287+00	1.049+00	7.099-04
THALLIUM						
0.3	7.578-03	1.237-06	7.578-03	9.299-03	7.578-03	5.128-06
0.6	2.392-01	3.906-05	2.392-01	2.936-01	2.392-01	1.619-04
0.8	4.555-02	7.437-06	4.555-02	5.589-02	4.555-02	3.082-05
2.4	7.567-01	1.236-04	7.567-01	9.285-01	7.567-01	5.120-04
TOTAL	1.049+00	1.713-04	1.049+00	1.287+00	1.049+00	7.099-04
TH-158						
0.3	6.405-10	1.136-10	6.405-10	8.085-10	6.405-10	1.263-10
0.8	5.490-09	9.734-10	5.490-09	6.912-09	5.490-09	1.083-09
1.0	4.202-08	7.452-09	4.202-08	5.291-08	4.202-08	8.287-09
1.25	1.323-09	2.346-10	1.323-09	1.666-09	1.323-09	2.609-10
TOTAL	4.947-08	8.773-09	4.947-08	6.230-08	4.947-08	9.756-09
TH-160						
0.3	4.008-06	4.927-06	4.008-06	4.436-06	4.008-06	8.415-06
0.8	9.704-06	1.193-05	9.704-06	1.074-05	9.704-06	2.037-05
1.0	9.941-06	1.222-05	9.941-06	1.100-05	9.941-06	2.087-05
1.25	7.451-06	9.159-06	7.451-06	8.246-06	7.451-06	1.564-05
TOTAL	3.110-05	3.823-05	3.110-05	3.442-05	3.110-05	6.530-05
TENBIUM						
0.3	4.009-06	4.927-06	4.009-06	4.437-06	4.009-06	8.415-06
0.8	9.709-06	1.193-05	9.709-06	1.075-05	9.709-06	2.037-05
1.0	9.983-06	1.223-05	9.983-06	1.106-05	9.983-06	2.088-05
1.25	7.452-06	9.160-06	7.452-06	8.248-06	7.452-06	1.564-05
TOTAL	3.115-05	3.824-05	3.115-05	3.449-05	3.115-05	6.531-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER P.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
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EU=152						
0.1	1.457=03	2.379=03	1.457=03	1.621=03	1.457=03	1.872=03
0.3	3.862=03	6.308=03	3.862=03	4.296=03	3.862=03	4.963=03
0.6	6.310=04	1.030=03	6.310=04	7.018=04	6.310=04	8.107=04
0.8	4.004=03	6.538=03	4.004=03	4.453=03	4.004=03	5.144=03
1.0	1.151=02	1.880=02	1.151=02	1.280=02	1.151=02	1.479=02
1.25	9.059=03	1.479=02	9.059=03	1.008=02	9.059=03	1.164=02
1.6	3.299=04	5.388=04	3.299=04	3.670=04	3.299=04	4.239=04
TOTAL	3.085=02	5.039=02	3.085=02	3.432=02	3.085=02	3.965=02
EU=154						
0.1	3.899=01	1.101=00	3.899=01	7.302=01	3.899=01	8.375=01
0.3	1.694=01	4.782=01	1.694=01	3.172=01	1.694=01	3.638=01
0.6	4.455=01	1.258=00	4.455=01	8.343=01	4.455=01	9.568=01
0.8	2.424=00	6.844=00	2.424=00	4.540=00	2.424=00	5.207=00
1.0	2.298=00	6.488=00	2.298=00	4.304=00	2.298=00	4.936=00
1.25	3.532=00	9.972=00	3.532=00	6.614=00	3.532=00	7.586=00
1.6	2.728=01	7.700=01	2.728=01	5.108=01	2.728=01	5.858=01
TOTAL	9.532=00	2.691=01	9.532=00	1.785=01	9.532=00	2.047=01
EUROPIUM						
0.1	3.914=01	1.103=00	3.914=01	7.318=01	3.914=01	8.393=01
0.3	1.733=01	4.845=01	1.733=01	3.215=01	1.733=01	3.688=01
0.6	4.461=01	1.259=00	4.461=01	8.350=01	4.461=01	9.576=01
0.8	2.428=00	6.851=00	2.428=00	4.544=00	2.428=00	5.212=00
1.0	2.310=00	6.507=00	2.310=00	4.317=00	2.310=00	4.951=00
1.25	3.541=00	9.986=00	3.541=00	6.624=00	3.541=00	7.598=00
1.6	2.731=01	7.706=01	2.731=01	5.111=01	2.731=01	5.862=01
TOTAL	9.563=00	2.696=01	9.563=00	1.788=01	9.563=00	2.051=01
PM=148M						
0.1	1.095=08	1.005=08	1.095=08	7.597=09	1.095=08	7.550=09
0.3	3.149=07	2.891=07	3.149=07	2.184=07	3.149=07	2.171=07
0.6	2.512=06	2.306=06	2.512=06	1.743=06	2.512=06	1.732=06
0.8	4.581=07	4.206=07	4.581=07	3.178=07	4.581=07	3.158=07
1.0	7.243=07	6.650=07	7.243=07	5.025=07	7.243=07	4.994=07
TOTAL	4.020=06	3.691=06	4.020=06	2.789=06	4.020=06	2.772=06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23MS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
PROMETHIUM						
0.1	1.095-08	1.005-08	1.095-08	7.597-09	1.095-08	7.550-09
0.3	3.149-07	2.891-07	3.149-07	2.184-07	3.149-07	2.171-07
0.6	2.512-06	2.306-06	2.512-06	1.743-06	2.512-06	1.732-06
0.8	4.581-07	4.206-07	4.581-07	3.178-07	4.581-07	3.158-07
1.0	7.243-07	6.650-07	7.243-07	5.025-07	7.243-07	4.994-07
TOTAL	4.020-06	3.691-06	4.020-06	2.789-06	4.020-06	2.772-06
PR-144						
0.6	5.214+00	4.644+00	5.214+00	3.714+00	5.214+00	3.484+00
0.8	9.771-02	8.702-02	9.771-02	6.959-02	9.771-02	6.527-02
1.25	4.533-02	4.037-02	4.533-02	3.228-02	4.533-02	3.028-02
1.6	1.850+00	1.647+00	1.850+00	1.317+00	1.850+00	1.236+00
2.0	6.427+00	5.724+00	6.427+00	4.577+00	6.427+00	4.293+00
TOTAL	1.363+01	1.214+01	1.363+01	9.710+00	1.363+01	9.108+00
PRASEODYMIUM						
0.6	5.214+00	4.644+00	5.214+00	3.714+00	5.214+00	3.484+00
0.8	9.771-02	8.702-02	9.771-02	6.959-02	9.771-02	6.527-02
1.25	4.533-02	4.037-02	4.533-02	3.228-02	4.533-02	3.028-02
1.6	1.850+00	1.647+00	1.850+00	1.317+00	1.850+00	1.236+00
2.0	6.427+00	5.724+00	6.427+00	4.577+00	6.427+00	4.293+00
TOTAL	1.363+01	1.214+01	1.363+01	9.710+00	1.363+01	9.108+00
BA-137M						
0.1	1.257+00	1.950+00	1.257+00	1.830+00	1.257+00	1.455+00
0.6	3.317+02	5.147+02	3.317+02	4.831+02	3.317+02	3.839+02
TOTAL	3.329+02	5.167+02	3.329+02	4.849+02	3.329+02	3.854+02
BARIIUM						
0.1	1.257+00	1.950+00	1.257+00	1.830+00	1.257+00	1.455+00
0.6	3.317+02	5.147+02	3.317+02	4.831+02	3.317+02	3.839+02
TOTAL	3.329+02	5.167+02	3.329+02	4.849+02	3.329+02	3.854+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/YR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		23RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.

CS-134						
0.3	2.871+02	7.784+02	2.871+02	6.110+02	2.871+02	5.804+02
0.6	2.120+02	5.749+02	2.120+02	4.512+02	2.120+02	4.287+02
0.8	2.200+02	5.965+02	2.200+02	4.682+02	2.200+02	4.448+02
1.0	3.004+00	8.146+00	3.004+00	6.394+00	3.004+00	6.074+00
1.25	1.831+01	4.964+01	1.831+01	3.896+01	1.831+01	3.701+01
1.6	1.013+01	2.747+01	1.013+01	2.156+01	1.013+01	2.048+01
TOTAL	4.534+02	1.229+03	4.534+02	9.650+02	4.534+02	9.168+02
CESIUM						
0.3	2.871+02	7.784+02	2.871+02	6.110+02	2.871+02	5.804+02
0.6	2.120+02	5.749+02	2.120+02	4.512+02	2.120+02	4.287+02
0.8	2.200+02	5.965+02	2.200+02	4.682+02	2.200+02	4.448+02
1.0	3.004+00	8.146+00	3.004+00	6.394+00	3.004+00	6.074+00
1.25	1.831+01	4.964+01	1.831+01	3.896+01	1.831+01	3.701+01
1.6	1.013+01	2.747+01	1.013+01	2.156+01	1.013+01	2.048+01
TOTAL	4.534+02	1.229+03	4.534+02	9.650+02	4.534+02	9.168+02
TE-129M						
0.1	3.519+10	5.007+11	3.519+10	8.795+11	3.519+10	3.707+11
0.6	4.567+08	6.499+09	4.567+08	1.141+08	4.567+08	4.811+09
0.8	1.389+08	1.977+09	1.389+08	3.472+09	1.389+08	1.463+09
1.0	7.795+10	1.109+10	7.795+10	1.948+10	7.795+10	8.212+11
1.25	1.742+10	2.478+11	1.742+10	4.353+11	1.742+10	1.835+11
TOTAL	6.086+08	8.661+09	6.086+08	1.521+08	6.086+08	6.411+09
TE-129						
0.1	3.753+09	5.341+10	3.753+09	9.381+10	3.753+09	3.954+10
0.3	3.372+09	4.799+10	3.372+09	8.430+10	3.372+09	3.533+10
0.6	3.676+08	5.232+09	3.676+08	9.189+09	3.676+08	3.873+09
0.8	2.065+09	2.938+10	2.065+09	5.161+10	2.065+09	2.175+10
1.0	7.496+09	1.067+09	7.496+09	1.874+09	7.496+09	7.896+10
1.25	2.903+10	4.131+11	2.903+10	7.255+11	2.903+10	3.038+11
TOTAL	5.374+08	7.647+09	5.374+08	1.343+08	5.374+08	5.661+09

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		238S RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		258S RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
TELLURIUM						
0.1	4.105-09	5.842-10	4.105-09	1.026-09	4.105-09	4.324-10
0.3	3.372-09	4.799-10	3.372-09	8.430-10	3.372-09	3.553-10
0.6	8.243-08	1.173-08	8.243-08	2.080-08	8.243-08	8.683-09
0.8	1.595-08	2.270-09	1.595-08	3.988-09	1.595-08	1.681-09
1.0	8.275-09	1.178-09	8.275-09	2.068-09	8.275-09	8.717-10
1.25	4.644-10	6.609-11	4.644-10	1.161-10	4.644-10	4.892-11
TOTAL	1.146-07	1.631-08	1.146-07	2.864-08	1.146-07	1.207-08
SB=124						
0.6	1.151-06	8.696-07	1.151-06	1.423-06	1.151-06	9.090-07
0.8	1.978-07	1.494-07	1.978-07	2.445-07	1.978-07	1.561-07
1.0	6.892-08	5.206-08	6.892-08	8.520-08	6.892-08	5.442-08
1.25	1.001-07	7.560-08	1.001-07	1.237-07	1.001-07	7.902-08
1.6	1.330-06	1.004-06	1.330-06	1.644-06	1.330-06	1.050-06
2.0	1.752-07	1.323-07	1.752-07	2.166-07	1.752-07	1.383-07
TOTAL	3.023-06	2.283-06	3.023-06	3.737-06	3.023-06	2.387-06
SB=125						
0.1	6.363-01	2.081-01	6.363-01	6.658-01	6.363-01	1.528-01
0.3	6.038+00	1.975+00	6.038+00	6.318+00	6.038+00	1.450+00
0.6	1.210+01	3.957+00	1.210+01	1.266+01	1.210+01	2.906+00
TOTAL	1.877+01	6.140+00	1.877+01	1.964+01	1.877+01	4.510+00
ANTIMONY						
0.1	6.363-01	2.081-01	6.363-01	6.658-01	6.363-01	1.528-01
0.3	6.038+00	1.975+00	6.038+00	6.318+00	6.038+00	1.450+00
0.6	1.210+01	3.957+00	1.210+01	1.266+01	1.210+01	2.906+00
0.8	1.978-07	1.494-07	1.978-07	2.445-07	1.978-07	1.561-07
1.0	6.892-08	5.206-08	6.892-08	8.520-08	6.892-08	5.442-08
1.25	1.001-07	7.560-08	1.001-07	1.237-07	1.001-07	7.902-08
1.6	1.330-06	1.004-06	1.330-06	1.644-06	1.330-06	1.050-06
2.0	1.752-07	1.323-07	1.752-07	2.166-07	1.752-07	1.383-07
TOTAL	1.877+01	6.140+00	1.877+01	1.964+01	1.877+01	4.510+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CD-115M						
1.0	4.519-10	1.813-10	4.519-10	1.854-10	4.519-10	1.380-10
1.25	2.188-10	8.775-11	2.188-10	8.974-11	2.188-10	6.679-11
TOTAL	6.707-10	2.690-10	6.707-10	2.751-10	6.707-10	2.048-10
CADMIUM						
1.0	4.519-10	1.813-10	4.519-10	1.854-10	4.519-10	1.380-10
1.25	2.188-10	8.775-11	2.188-10	8.974-11	2.188-10	6.679-11
TOTAL	6.707-10	2.690-10	6.707-10	2.751-10	6.707-10	2.048-10
AG-108M						
0.1	1.097-06	1.618-07	1.097-06	2.398-07	1.097-06	9.211-07
0.3	8.880-05	1.310-05	8.880-05	1.941-05	8.880-05	7.455-05
0.6	1.330-04	1.962-05	1.330-04	2.907-05	1.330-04	1.117-04
0.8	1.508-04	2.224-05	1.508-04	3.295-05	1.508-04	1.266-04
1.0	2.019-06	2.978-07	2.019-06	4.413-07	2.019-06	1.695-06
TOTAL	3.757-04	5.542-05	3.757-04	8.211-05	3.757-04	3.154-04
AG-110M						
0.1	1.003-05	1.405-05	1.003-05	1.492-05	1.003-05	1.055-05
0.3	8.439-04	1.182-03	8.439-04	1.255-03	8.439-04	8.878-04
0.6	4.143-02	5.804-02	4.143-02	6.163-02	4.143-02	4.358-02
0.8	5.520-02	7.732-02	5.520-02	8.210-02	5.520-02	5.806-02
1.0	1.639-02	2.295-02	1.639-02	2.437-02	1.639-02	1.724-02
1.25	1.808-02	2.533-02	1.808-02	2.690-02	1.808-02	1.902-02
1.6	1.382-02	1.935-02	1.382-02	2.055-02	1.382-02	1.453-02
2.0	8.690-05	1.217-04	8.690-05	1.293-04	8.690-05	9.142-05
2.4	8.992-05	1.260-04	8.992-05	1.337-04	8.992-05	9.459-05
TOTAL	1.459-01	2.044-01	1.459-01	2.171-01	1.459-01	1.535-01
SILVER						
0.1	1.113-05	1.421-05	1.113-05	1.516-05	1.113-05	1.147-05
0.3	9.327-04	1.195-03	9.327-04	1.275-03	9.327-04	9.623-04
0.6	4.157-02	5.806-02	4.157-02	6.166-02	4.157-02	4.370-02
0.8	5.535-02	7.734-02	5.535-02	8.213-02	5.535-02	5.819-02
1.0	1.639-02	2.295-02	1.639-02	2.437-02	1.639-02	1.724-02
1.25	1.808-02	2.533-02	1.808-02	2.690-02	1.808-02	1.902-02
1.6	1.382-02	1.935-02	1.382-02	2.055-02	1.382-02	1.453-02
2.0	8.690-05	1.217-04	8.690-05	1.293-04	8.690-05	9.142-05
2.4	8.992-05	1.260-04	8.992-05	1.337-04	8.992-05	9.459-05
TOTAL	1.463-01	2.045-01	1.463-01	2.172-01	1.463-01	1.538-01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		25HS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25HS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
RM-106						
0.3	2.739-02	3.665-02	2.739-02	2.403-02	2.739-02	2.749-02
0.6	7.946+00	1.063+01	7.946+00	6.969+00	7.946+00	7.974+00
0.8	1.738-01	2.325-01	1.738-01	1.524-01	1.738-01	1.744-01
1.0	7.014-01	9.384-01	7.014-01	6.151-01	7.014-01	7.039-01
1.25	2.334-01	3.123-01	2.334-01	2.047-01	2.334-01	2.342-01
1.6	1.611-01	2.155-01	1.611-01	1.413-01	1.611-01	1.617-01
2.0	5.942-02	7.951-02	5.942-02	5.212-02	5.942-02	5.964-02
2.4	5.939-02	7.946-02	5.939-02	5.209-02	5.939-02	5.960-02
2.9	9.753-03	1.305-02	9.753-03	8.554-03	9.753-03	9.788-03
TOTAL	9.371+00	1.254+01	9.371+00	8.219+00	9.371+00	9.405+00
RMUDIUM						
0.3	2.739-02	3.665-02	2.739-02	2.403-02	2.739-02	2.749-02
0.6	7.946+00	1.063+01	7.946+00	6.969+00	7.946+00	7.974+00
0.8	1.738-01	2.325-01	1.738-01	1.524-01	1.738-01	1.744-01
1.0	7.014-01	9.384-01	7.014-01	6.151-01	7.014-01	7.039-01
1.25	2.334-01	3.123-01	2.334-01	2.047-01	2.334-01	2.342-01
1.6	1.611-01	2.155-01	1.611-01	1.413-01	1.611-01	1.617-01
2.0	5.942-02	7.951-02	5.942-02	5.212-02	5.942-02	5.964-02
2.4	5.939-02	7.946-02	5.939-02	5.209-02	5.939-02	5.960-02
2.9	9.753-03	1.305-02	9.753-03	8.554-03	9.753-03	9.788-03
TOTAL	9.371+00	1.254+01	9.371+00	8.219+00	9.371+00	9.405+00
RU-103						
0.1	3.344-09	1.936-09	3.344-09	1.434-09	3.344-09	1.450-09
0.3	4.451-08	2.578-08	4.451-08	1.909-08	4.451-08	1.930-08
0.6	8.754-06	5.069-06	8.754-06	3.754-06	8.754-06	3.796-06
TOTAL	8.802-06	5.097-06	8.802-06	3.775-06	8.802-06	3.817-06
RUTHENIUM						
0.1	3.344-09	1.936-09	3.344-09	1.434-09	3.344-09	1.450-09
0.3	4.451-08	2.578-08	4.451-08	1.909-08	4.451-08	1.930-08
0.6	8.754-06	5.069-06	8.754-06	3.754-06	8.754-06	3.796-06
TOTAL	8.802-06	5.097-06	8.802-06	3.775-06	8.802-06	3.817-06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
NB-95						
0.8	1.934-01	6.992-02	1.934-01	6.798-02	1.934-01	5.180-02
TOTAL	1.934-01	6.992-02	1.934-01	6.798-02	1.934-01	5.180-02
NIUBIUM						
0.8	1.934-01	6.992-02	1.934-01	6.798-02	1.934-01	5.180-02
TOTAL	1.934-01	6.992-02	1.934-01	6.798-02	1.934-01	5.180-02
ZR-95						
0.3	1.552-04	5.610-05	1.552-04	5.455-05	1.552-04	4.156-05
0.8	8.160-02	2.950-02	8.160-02	2.868-02	8.160-02	2.185-02
TOTAL	8.176-02	2.955-02	8.176-02	2.873-02	8.176-02	2.189-02
ZINCUNIUM						
0.3	1.552-04	5.610-05	1.552-04	5.455-05	1.552-04	4.156-05
0.8	8.160-02	2.950-02	8.160-02	2.868-02	8.160-02	2.185-02
TOTAL	8.176-02	2.955-02	8.176-02	2.873-02	8.176-02	2.189-02
CO-58						
0.6	1.263-08	8.416-10	1.263-08	1.247-09	1.263-08	4.791-09
0.8	6.549-08	4.362-09	6.549-08	6.465-09	6.549-08	2.484-08
1.6	7.439-10	4.955-11	7.439-10	7.344-11	7.439-10	2.821-10
TOTAL	7.886-08	5.254-09	7.886-08	7.786-09	7.886-08	2.991-08
CO-60						
1.25	4.426-04	2.965-05	4.426-04	4.395-05	4.426-04	1.688-04
TOTAL	4.426-04	2.965-05	4.426-04	4.395-05	4.426-04	1.688-04
COBALT						
0.6	1.263-08	8.416-10	1.263-08	1.247-09	1.263-08	4.791-09
0.8	6.549-08	4.362-09	6.549-08	6.465-09	6.549-08	2.484-08
1.25	4.426-04	2.965-05	4.426-04	4.395-05	4.426-04	1.688-04
1.6	7.439-10	4.955-11	7.439-10	7.344-11	7.439-10	2.821-10
TOTAL	4.427-04	2.966-05	4.427-04	4.395-05	4.427-04	1.688-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE					
	M8 FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23R8 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25R8 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
ALL ELEMENTS						
0.1	2.284+00	3.262+00	2.284+00	3.228+00	2.284+00	2.447+00
0.3	6.403+00	2.575+00	6.403+00	6.890+00	6.403+00	1.906+00
0.6	5.697+02	1.110+03	5.697+02	9.589+02	5.697+02	8.280+02
0.8	2.231+02	6.038+02	2.231+02	4.733+02	2.231+02	4.504+02
1.0	6.042+00	1.561+01	6.042+00	1.136+01	6.042+00	1.175+01
1.25	2.214+01	6.000+01	2.214+01	4.585+01	2.214+01	4.489+01
1.6	2.427+00	2.928+00	2.427+00	2.240+00	2.427+00	2.203+00
2.0	6.486+00	5.803+00	6.486+00	4.629+00	6.486+00	4.353+00
2.4	8.162+01	7.971+02	8.162+01	9.808+01	8.162+01	6.021+02
2.9	9.753+03	1.305+02	9.753+03	8.554+03	9.753+03	9.788+03
TOTAL	8.394+02	1.804+03	8.394+02	1.507+03	8.394+02	1.346+03

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HK PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
U-235						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
URANIUM						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
PA-234						
0.3	0.000	5.364-07	0.000	2.345-11	0.000	4.001-06
0.6	0.000	5.462-07	0.000	2.368-11	0.000	4.075-06
0.8	0.000	2.687-07	0.000	1.174-11	0.000	2.004-06
1.0	0.000	5.021-06	0.000	2.195-10	0.000	3.746-05
1.25	0.000	3.739-07	0.000	1.635-11	0.000	2.789-06
1.6	0.000	8.872-07	0.000	3.878-11	0.000	6.618-06
TOTAL	0.000	7.633-06	0.000	3.337-10	0.000	5.694-05
PROTACTINIUM						
0.3	0.000	5.364-07	0.000	2.345-11	0.000	4.001-06
0.6	0.000	5.462-07	0.000	2.368-11	0.000	4.075-06
0.8	0.000	2.687-07	0.000	1.174-11	0.000	2.004-06
1.0	0.000	5.021-06	0.000	2.195-10	0.000	3.746-05
1.25	0.000	3.739-07	0.000	1.635-11	0.000	2.789-06
1.6	0.000	8.872-07	0.000	3.878-11	0.000	6.618-06
TOTAL	0.000	7.633-06	0.000	3.337-10	0.000	5.694-05
AC-228						
0.3	1.201-05	0.000	1.201-05	1.812-11	1.201-05	0.000
0.6	6.116-06	0.000	6.116-06	9.227-12	6.116-06	0.000
0.8	1.504-05	0.000	1.504-05	2.269-11	1.504-05	0.000
1.0	1.355-04	0.000	1.355-04	2.044-10	1.355-04	0.000
1.6	4.238-05	0.000	4.238-05	6.395-11	4.238-05	0.000
2.0	9.770-06	0.000	9.770-06	1.474-11	9.770-06	0.000
TOTAL	2.208-04	0.000	2.208-04	3.332-10	2.208-04	0.000

D-259

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23MS RECYCLE U-235 F.E.		25MS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
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ACTINIUM						
0.3	1.201-05	0.000	1.201-05	1.812-11	1.201-05	0.000
0.6	6.116-06	0.000	6.116-06	9.227-12	6.116-06	0.000
0.8	1.504-05	0.000	1.504-05	2.269-11	1.504-05	0.000
1.0	1.355-04	0.000	1.355-04	2.044-10	1.355-04	0.000
1.6	4.238-05	0.000	4.238-05	6.395-11	4.238-05	0.000
2.0	9.770-06	0.000	9.770-06	1.474-11	9.770-06	0.000
TOTAL	2.208-04	0.000	2.208-04	3.332-10	2.208-04	0.000
RA-223						
0.1	2.078-06	8.070-10	2.078-06	5.199-07	2.078-06	3.330-09
0.3	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
TOTAL	7.612-06	2.956-09	7.612-06	1.904-06	7.612-06	1.220-08
RADIUM						
0.1	2.078-06	8.070-10	2.078-06	5.199-07	2.078-06	3.330-09
0.3	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
TOTAL	7.612-06	2.956-09	7.612-06	1.904-06	7.612-06	1.220-08
RN-219						
0.3	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
TOTAL	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
RADON						
0.3	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
TOTAL	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
BI-211						
0.3	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
TOTAL	5.533-06	2.149-09	5.533-06	1.384-06	5.533-06	8.866-09
BI-212						
0.8	7.197-02	1.176-05	7.197-02	7.763-02	7.197-02	4.876-05
1.0	1.150-02	1.879-06	1.150-02	1.240-02	1.150-02	7.788-06
1.6	3.169-02	5.179-06	3.169-02	3.418-02	3.169-02	2.147-05
TOTAL	1.152-01	1.882-05	1.152-01	1.242-01	1.152-01	7.801-05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-213						
0.3	8.665-05	4.813-10	8.665-05	1.031-04	8.665-05	1.983-09
1.0	5.942-06	3.301-11	5.942-06	7.071-06	5.942-06	1.360-10
TOTAL	9.259-05	5.143-10	9.259-05	1.102-04	9.259-05	2.119-09
BISMUTH						
0.3	9.218-05	2.630-09	9.218-05	1.045-04	9.218-05	1.085-08
0.8	7.197-02	1.176-05	7.197-02	7.763-02	7.197-02	4.816-05
1.0	1.150-02	1.879-06	1.150-02	1.241-02	1.150-02	7.788-06
1.6	3.169-02	5.179-06	3.169-02	3.418-02	3.169-02	2.147-05
TOTAL	1.153-01	1.882-05	1.153-01	1.243-01	1.153-01	7.802-05
PB-211						
0.3	3.320-06	1.289-09	3.320-06	8.306-07	3.320-06	5.319-09
0.8	3.326-06	1.291-09	3.326-06	8.321-07	3.326-06	5.329-09
TOTAL	6.646-06	2.581-09	6.646-06	1.663-06	6.646-06	1.065-08
PB-212						
0.3	1.437-01	2.348-05	1.437-01	1.550-01	1.437-01	9.734-05
TOTAL	1.437-01	2.348-05	1.437-01	1.550-01	1.437-01	9.734-05
LEAD						
0.3	1.437-01	2.348-05	1.437-01	1.550-01	1.437-01	9.734-05
0.8	3.326-06	1.291-09	3.326-06	8.321-07	3.326-06	5.329-09
TOTAL	1.437-01	2.348-05	1.437-01	1.550-01	1.437-01	9.735-05
TL-208						
0.3	8.615-03	1.408-06	8.615-03	9.299-03	8.615-03	5.836-06
0.6	2.720-01	4.446-05	2.720-01	2.936-01	2.720-01	1.842-04
0.8	5.178-02	8.466-06	5.178-02	5.589-02	5.178-02	3.508-05
2.4	8.603-01	1.406-04	8.603-01	9.285-01	8.603-01	5.827-04
TOTAL	1.193+00	1.950-04	1.193+00	1.287+00	1.193+00	8.079-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
THALLIUM						
0.3	8.615-03	1.408-06	8.615-03	9.299-03	8.615-03	5.836-06
0.6	2.720-01	4.446-05	2.720-01	2.936-01	2.720-01	1.842-04
0.8	5.178-02	8.466-06	5.178-02	5.589-02	5.178-02	3.508-05
2.4	8.603-01	1.406-04	8.603-01	9.285-01	8.603-01	5.827-04
TOTAL	1.193+00	1.950-04	1.193+00	1.287+00	1.193+00	8.079-04
TB-158						
0.3	6.346-10	1.125-10	6.346-10	7.990-10	6.346-10	1.251-10
0.8	5.439-09	9.645-10	5.439-09	6.849-09	5.439-09	1.073-09
1.0	4.164-08	7.383-09	4.164-08	5.242-08	4.164-08	8.210-08
1.25	1.311-09	2.324-10	1.311-09	1.631-09	1.311-09	2.585-10
TOTAL	4.902-08	8.693-09	4.902-08	6.172-08	4.902-08	9.667-09
TB-160						
0.3	3.539-09	4.350-09	3.539-09	3.916-09	3.539-09	7.429-09
0.8	8.567-09	1.053-08	8.567-09	9.482-09	8.567-09	1.799-08
1.0	8.777-09	1.079-08	8.777-09	9.714-09	8.777-09	1.843-08
1.25	6.579-09	8.087-09	6.579-09	7.281-09	6.579-09	1.381-08
TOTAL	2.746-08	3.376-08	2.746-08	3.039-08	2.746-08	5.766-08
TENNIUM						
0.3	4.173-09	4.462-09	4.173-09	4.715-09	4.173-09	7.555-09
0.8	1.401-08	1.150-08	1.401-08	1.633-08	1.401-08	1.906-08
1.0	5.041-08	1.817-08	5.041-08	6.214-08	5.041-08	2.664-08
1.25	7.889-09	8.319-09	7.889-09	8.931-09	7.889-09	1.407-08
TOTAL	7.648-08	4.245-08	7.648-08	9.212-08	7.648-08	6.732-08
EU-152						
0.1	1.306-03	2.134-03	1.306-03	1.453-03	1.306-03	1.679-03
0.3	3.463-03	5.656-03	3.463-03	3.852-03	3.463-03	4.450-03
0.6	5.657-04	9.239-04	5.657-04	6.293-04	5.657-04	7.269-04
0.8	3.590-03	5.863-03	3.590-03	3.993-03	3.590-03	4.613-03
1.0	1.032-02	1.686-02	1.032-02	1.148-02	1.032-02	1.326-02
1.25	8.123-03	1.326-02	8.123-03	9.035-03	8.123-03	1.044-02
1.6	2.958-04	4.831-04	2.958-04	3.290-04	2.958-04	3.801-04
TOTAL	2.767-02	4.518-02	2.767-02	3.077-02	2.767-02	3.555-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.

EU-154						
0.1	3.576-01	1.010+00	3.576-01	6.696-01	3.576-01	7.680-01
0.3	1.553-01	4.386-01	1.553-01	2.909-01	1.553-01	3.336-01
0.6	4.086-01	1.153+00	4.086-01	7.651-01	4.086-01	6.775-01
0.8	2.223+00	6.277+00	2.223+00	4.163+00	2.223+00	4.775+00
1.0	2.108+00	5.950+00	2.108+00	3.947+00	2.108+00	4.527+00
1.25	3.239+00	9.145+00	3.239+00	6.066+00	3.239+00	6.957+00
1.6	2.501-01	7.062-01	2.501-01	4.684-01	2.501-01	5.372-01
TOTAL	8.742+00	2.468+01	8.742+00	1.637+01	8.742+00	1.878+01
EUROPIUM						
0.1	3.589-01	1.012+00	3.589-01	6.711-01	3.589-01	7.697-01
0.3	1.588-01	4.442-01	1.588-01	2.948-01	1.588-01	3.381-01
0.6	4.091-01	1.154+00	4.091-01	7.657-01	4.091-01	6.782-01
0.8	2.227+00	6.283+00	2.227+00	4.167+00	2.227+00	4.780+00
1.0	2.118+00	5.967+00	2.118+00	3.958+00	2.118+00	4.540+00
1.25	3.247+00	9.158+00	3.247+00	6.075+00	3.247+00	6.967+00
1.6	2.504-01	7.067-01	2.504-01	4.687-01	2.504-01	5.376-01
TOTAL	8.770+00	2.472+01	8.770+00	1.640+01	8.770+00	1.881+01
PR-144						
0.6	8.769-01	7.810-01	8.769-01	6.246-01	8.769-01	5.859-01
0.8	1.643-02	1.463-02	1.643-02	1.170-02	1.643-02	1.098-02
1.25	7.623-03	6.789-03	7.623-03	5.429-03	7.623-03	5.093-03
1.6	3.111-01	2.771-01	3.111-01	2.216-01	3.111-01	2.078-01
2.0	1.081+00	9.626-01	1.081+00	7.698-01	1.081+00	7.221-01
TOTAL	2.293+00	2.042+00	2.293+00	1.633+00	2.293+00	1.532+00
PRASEODYMIUM						
0.6	8.769-01	7.810-01	8.769-01	6.246-01	8.769-01	5.859-01
0.8	1.643-02	1.463-02	1.643-02	1.170-02	1.643-02	1.098-02
1.25	7.623-03	6.789-03	7.623-03	5.429-03	7.623-03	5.093-03
1.6	3.111-01	2.771-01	3.111-01	2.216-01	3.111-01	2.078-01
2.0	1.081+00	9.626-01	1.081+00	7.698-01	1.081+00	7.221-01
TOTAL	2.293+00	2.042+00	2.293+00	1.633+00	2.293+00	1.532+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/YR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	45 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BA-137M						
0.1	1.200+00	1.802+00	1.200+00	1.748+00	1.200+00	1.389+00
0.6	3.167+02	4.915+02	3.167+02	4.613+02	3.167+02	3.666+02
TOTAL	3.179+02	4.934+02	3.179+02	4.630+02	3.179+02	3.680+02
BARIUM						
0.1	1.200+00	1.802+00	1.200+00	1.748+00	1.200+00	1.389+00
0.6	3.167+02	4.915+02	3.167+02	4.613+02	3.167+02	3.666+02
TOTAL	3.179+02	4.934+02	3.179+02	4.630+02	3.179+02	3.680+02
CS-134						
0.3	1.458+02	3.954+02	1.458+02	3.104+02	1.458+02	2.949+02
0.6	1.077+02	2.920+02	1.077+02	2.292+02	1.077+02	2.178+02
0.8	1.118+02	3.030+02	1.118+02	2.379+02	1.118+02	2.260+02
1.0	1.526+00	4.139+00	1.526+00	3.249+00	1.526+00	3.086+00
1.25	9.300+00	2.522+01	9.300+00	1.979+01	9.300+00	1.880+01
1.6	5.146+02	1.395+01	5.146+02	1.095+01	5.146+02	1.040+01
TOTAL	2.304+02	6.246+02	2.304+02	4.903+02	2.304+02	4.657+02
CESIUM						
0.3	1.458+02	3.954+02	1.458+02	3.104+02	1.458+02	2.949+02
0.6	1.077+02	2.920+02	1.077+02	2.292+02	1.077+02	2.178+02
0.8	1.118+02	3.030+02	1.118+02	2.379+02	1.118+02	2.260+02
1.0	1.526+00	4.139+00	1.526+00	3.249+00	1.526+00	3.086+00
1.25	9.300+00	2.522+01	9.300+00	1.979+01	9.300+00	1.880+01
1.6	5.146+02	1.395+01	5.146+02	1.095+01	5.146+02	1.040+01
TOTAL	2.304+02	6.246+02	2.304+02	4.903+02	2.304+02	4.657+02
SB-124						
0.6	2.571+10	1.942+10	2.571+10	3.179+10	2.571+10	2.030+10
0.8	4.416+11	3.336+11	4.416+11	5.459+11	4.416+11	3.487+11
1.0	1.539+11	1.163+11	1.539+11	1.903+11	1.539+11	1.215+11
1.25	2.235+11	1.688+11	2.235+11	2.763+11	2.235+11	1.765+11
1.6	2.970+10	2.243+10	2.970+10	3.671+10	2.970+10	2.345+10
2.0	3.912+11	2.955+11	3.912+11	4.836+11	3.912+11	3.089+11
TOTAL	6.751+10	5.099+10	6.751+10	8.346+10	6.751+10	5.330+10

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	NS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
88-125						
0.1	3.816+01	1.248+01	3.816+01	3.993+01	3.816+01	9.165+02
0.3	3.621+00	1.184+00	3.621+00	3.789+00	3.621+00	8.697+01
0.6	7.255+00	2.373+00	7.255+00	7.592+00	7.255+00	1.743+00
TOTAL	1.126+01	3.682+00	1.126+01	1.178+01	1.126+01	2.704+00
ANTIMONY						
0.1	3.816+01	1.248+01	3.816+01	3.993+01	3.816+01	9.165+02
0.3	3.621+00	1.184+00	3.621+00	3.789+00	3.621+00	8.697+01
0.6	7.255+00	2.373+00	7.255+00	7.592+00	7.255+00	1.743+00
0.8	4.416+11	3.336+11	4.416+11	5.459+11	4.416+11	3.887+11
1.0	1.539+11	1.163+11	1.539+11	1.903+11	1.539+11	1.215+11
1.25	2.235+11	1.688+11	2.235+11	2.763+11	2.235+11	1.765+11
1.6	2.970+10	2.243+10	2.970+10	3.671+10	2.970+10	2.345+10
2.0	3.912+11	2.955+11	3.912+11	4.836+11	3.912+11	3.089+11
TOTAL	1.126+01	3.682+00	1.126+01	1.178+01	1.126+01	2.704+00
AG-106M						
0.1	1.085+06	1.601+07	1.085+06	2.372+07	1.085+06	9.113+07
0.3	8.786+05	1.296+05	8.786+05	1.920+05	8.786+05	7.376+05
0.6	1.316+04	1.941+05	1.316+04	2.877+05	1.316+04	1.105+04
0.8	1.492+04	2.200+05	1.492+04	3.260+05	1.492+04	1.252+04
1.0	1.998+06	2.947+07	1.998+06	4.366+07	1.998+06	1.677+06
TOTAL	3.717+04	5.483+05	3.717+04	8.124+05	3.717+04	3.121+04
AG-110M						
0.1	1.378+06	1.930+06	1.378+06	2.050+06	1.378+06	1.450+06
0.3	1.159+04	1.624+04	1.159+04	1.725+04	1.159+04	1.220+04
0.6	5.692+03	7.974+03	5.692+03	4.467+03	5.692+03	5.988+03
0.8	7.583+03	1.062+02	7.583+03	1.128+02	7.583+03	7.977+03
1.0	2.251+03	3.153+03	2.251+03	3.348+03	2.251+03	2.368+03
1.25	2.484+03	3.480+03	2.484+03	3.695+03	2.484+03	2.613+03
1.6	1.898+03	2.659+03	1.898+03	2.823+03	1.898+03	1.997+03
2.0	1.194+05	1.672+05	1.194+05	1.776+05	1.194+05	1.256+05
2.4	1.235+05	1.730+05	1.235+05	1.837+05	1.235+05	1.300+05
TOTAL	2.005+02	2.809+02	2.005+02	2.982+02	2.005+02	2.109+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.

SILVER						
0.1	2.464-06	2.091-06	2.464-06	2.287-06	2.464-06	2.361-06
0.3	2.038-04	1.754-04	2.038-04	1.917-04	2.038-04	1.957-04
0.6	5.824-03	7.993-03	5.824-03	8.495-03	5.824-03	6.099-03
0.8	7.732-03	1.064-02	7.732-03	1.131-02	7.732-03	8.102-03
1.0	2.253-03	3.154-03	2.253-03	3.349-03	2.253-03	2.370-03
1.25	2.484-03	3.480-03	2.484-03	3.695-03	2.484-03	2.613-03
1.6	1.898-03	2.659-03	1.898-03	2.823-03	1.898-03	1.947-03
2.0	1.194-05	1.672-05	1.194-05	1.776-05	1.194-05	1.256-05
2.4	1.235-05	1.730-05	1.235-05	1.837-05	1.235-05	1.300-05
TOTAL	2.042-02	2.814-02	2.042-02	2.490-02	2.042-02	2.140-02
RH-106						
0.3	6.924-03	9.264-03	6.924-03	6.073-03	6.924-03	6.949-03
0.6	2.008+00	2.687+00	2.008+00	1.762+00	2.008+00	2.016+00
0.8	4.393-02	5.878-02	4.393-02	3.853-02	4.393-02	4.409-02
1.0	1.773-01	2.372-01	1.773-01	1.555-01	1.773-01	1.779-01
1.25	5.900-02	7.893-02	5.900-02	5.174-02	5.900-02	5.921-02
1.6	4.072-02	5.448-02	4.072-02	3.571-02	4.072-02	4.087-02
2.0	1.502-02	2.010-02	1.502-02	1.317-02	1.502-02	1.507-02
2.4	1.501-02	2.008-02	1.501-02	1.317-02	1.501-02	1.507-02
2.9	2.465-03	3.298-03	2.465-03	2.162-03	2.465-03	2.474-03
TOTAL	2.369+00	3.169+00	2.369+00	2.078+00	2.369+00	2.377+00
KRUDIUM						
0.3	6.924-03	9.264-03	6.924-03	6.073-03	6.924-03	6.949-03
0.6	2.008+00	2.687+00	2.008+00	1.762+00	2.008+00	2.016+00
0.8	4.393-02	5.878-02	4.393-02	3.853-02	4.393-02	4.409-02
1.0	1.773-01	2.372-01	1.773-01	1.555-01	1.773-01	1.779-01
1.25	5.900-02	7.893-02	5.900-02	5.174-02	5.900-02	5.921-02
1.6	4.072-02	5.448-02	4.072-02	3.571-02	4.072-02	4.087-02
2.0	1.502-02	2.010-02	1.502-02	1.317-02	1.502-02	1.507-02
2.4	1.501-02	2.008-02	1.501-02	1.317-02	1.501-02	1.507-02
2.9	2.465-03	3.298-03	2.465-03	2.162-03	2.465-03	2.474-03
TOTAL	2.369+00	3.169+00	2.369+00	2.078+00	2.369+00	2.377+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
NB-95						
0.8	8.540-05	3.087-05	8.540-05	3.001-05	8.540-05	2.287-05
TOTAL	8.540-05	3.087-05	8.540-05	3.001-05	8.540-05	2.287-05
NIUBIUM						
0.8	8.540-05	3.087-05	8.540-05	3.001-05	8.540-05	2.287-05
TOTAL	8.540-05	3.087-05	8.540-05	3.001-05	8.540-05	2.287-05
ZR-95						
0.3	6.853-08	2.477-08	6.853-08	2.408-08	6.853-08	1.835-08
0.8	3.603-05	1.302-05	3.603-05	1.266-05	3.603-05	9.648-06
TOTAL	3.610-05	1.305-05	3.610-05	1.269-05	3.610-05	9.666-06
ZIRCONIUM						
0.3	6.853-08	2.477-08	6.853-08	2.408-08	6.853-08	1.835-08
0.8	3.603-05	1.302-05	3.603-05	1.266-05	3.603-05	9.648-06
TOTAL	3.610-05	1.305-05	3.610-05	1.269-05	3.610-05	9.666-06
CU-58						
0.6	1.048-11	0.000	1.048-11	0.000	1.048-11	0.000
0.8	5.435-11	0.000	5.435-11	0.000	5.435-11	0.000
1.6	6.174-13	0.000	6.174-13	0.000	6.174-13	0.000
TOTAL	6.545-11	0.000	6.545-11	0.000	6.545-11	0.000
CU-60						
1.25	3.400-04	2.278-05	3.400-04	3.376-05	3.400-04	1.297-04
TOTAL	3.400-04	2.278-05	3.400-04	3.376-05	3.400-04	1.297-04
COBALT						
0.6	1.048-11	0.000	1.048-11	0.000	1.048-11	0.000
0.8	5.435-11	0.000	5.435-11	0.000	5.435-11	0.000
1.25	3.400-04	2.278-05	3.400-04	3.376-05	3.400-04	1.297-04
1.6	6.174-13	0.000	6.174-13	0.000	6.174-13	0.000
TOTAL	3.400-04	2.278-05	3.400-04	3.376-05	3.400-04	1.297-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23WS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25WS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
ALL ELEMENTS						
0.1	1.940+00	2.999+00	1.940+00	2.818+00	1.940+00	2.250+00
0.3	3.954+00	1.077+00	3.954+00	4.285+00	3.954+00	1.245+00
0.6	4.353+02	7.908+02	4.353+02	7.016+02	4.353+02	5.896+02
0.8	1.142+02	3.094+02	1.142+02	2.422+02	1.142+02	2.308+02
1.0	3.836+00	1.035+01	3.836+00	7.378+00	3.836+00	7.806+00
1.25	1.262+01	3.446+01	1.262+01	2.593+01	1.262+01	2.584+01
1.6	6.873+01	1.180+00	6.873+01	8.725+01	6.873+01	8.924+01
2.0	1.096+00	9.827+01	1.096+00	7.830+01	1.096+00	7.372+01
2.4	8.753+01	2.024+02	8.753+01	9.417+01	8.753+01	1.566+02
2.9	2.465+03	3.298+03	2.465+03	2.162+03	2.465+03	2.474+03
TOTAL	5.744+02	1.152+03	5.744+02	9.868+02	5.744+02	8.592+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV *****	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
*****	*****	*****	*****	*****	*****	*****
U-235						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
URANIUM						
0.1	3.717-07	2.805-06	3.717-07	1.361-06	3.717-07	2.193-06
0.3	9.898-07	7.469-06	9.898-07	3.624-06	9.898-07	5.840-06
TOTAL	1.362-06	1.027-05	1.362-06	4.985-06	1.362-06	8.033-06
PA-234						
0.3	0.000	5.364-07	0.000	2.345-11	0.000	4.001-06
0.6	0.000	5.462-07	0.000	2.388-11	0.000	4.075-06
0.8	0.000	2.687-07	0.000	1.174-11	0.000	2.004-06
1.0	0.000	5.021-06	0.000	2.195-10	0.000	3.746-05
1.25	0.000	3.739-07	0.000	1.635-11	0.000	2.789-06
1.6	0.000	8.872-07	0.000	3.878-11	0.000	6.618-06
TOTAL	0.000	7.633-06	0.000	3.337-10	0.000	5.694-05
PRUTACINIUM						
0.3	0.000	5.364-07	0.000	2.345-11	0.000	4.001-06
0.6	0.000	5.462-07	0.000	2.388-11	0.000	4.075-06
0.8	0.000	2.687-07	0.000	1.174-11	0.000	2.004-06
1.0	0.000	5.021-06	0.000	2.195-10	0.000	3.746-05
1.25	0.000	3.739-07	0.000	1.635-11	0.000	2.789-06
1.6	0.000	8.872-07	0.000	3.878-11	0.000	6.618-06
TOTAL	0.000	7.633-06	0.000	3.337-10	0.000	5.694-05
AC-228						
0.3	1.466-05	0.000	1.466-05	1.089-11	1.466-05	0.000
0.6	7.465-06	0.000	7.465-06	5.545-12	7.465-06	0.000
0.8	1.836-05	0.000	1.836-05	1.364-11	1.836-05	0.000
1.0	1.654-04	0.000	1.654-04	1.228-10	1.654-04	0.000
1.6	5.173-05	0.000	5.173-05	3.842-11	5.173-05	0.000
2.0	1.193-05	0.000	1.193-05	8.858-12	1.193-05	0.000
TOTAL	2.695-04	0.000	2.695-04	2.002-10	2.695-04	0.000

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
ACTINIUM						
0.3	1.466=05	0.000	1.466=05	1.089=11	1.466=05	0.000
0.6	7.465=06	0.000	7.465=06	5.545=12	7.465=06	0.000
0.8	1.836=05	0.000	1.836=05	1.364=11	1.836=05	0.000
1.0	1.654=04	0.000	1.654=04	1.228=10	1.654=04	0.000
1.6	5.173=05	0.000	5.173=05	3.842=11	5.173=05	0.000
2.0	1.193=05	0.000	1.193=05	8.858=12	1.193=05	0.000
TOTAL	2.695=04	0.000	2.695=04	2.002=10	2.695=04	0.000
RA-223						
0.1	1.770=06	1.409=09	1.770=06	8.993=07	1.770=06	5.737=09
0.3	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
TOTAL	6.483=06	5.160=09	6.483=06	3.294=06	6.483=06	2.101=08
RADIUM						
0.1	1.770=06	1.409=09	1.770=06	8.993=07	1.770=06	5.737=09
0.3	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
TOTAL	6.483=06	5.160=09	6.483=06	3.294=06	6.483=06	2.101=08
RN-219						
0.3	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
TOTAL	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
RADON						
0.3	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
TOTAL	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
BI-211						
0.3	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
TOTAL	4.713=06	3.751=09	4.713=06	2.394=06	4.713=06	1.527=08
BI-212						
0.8	7.616=02	1.245=05	7.616=02	7.411=02	7.616=02	5.163=05
1.0	1.217=02	1.989=06	1.217=02	1.184=02	1.217=02	8.247=06
1.6	3.353=02	5.483=06	3.353=02	3.263=02	3.353=02	2.273=05
TOTAL	1.219=01	1.992=05	1.219=01	1.186=01	1.219=01	8.261=05

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
BI-213						
0.3	1.587-04	4.822-10	1.587-04	1.140-04	1.587-04	1.988-09
1.0	1.089-05	3.307-11	1.089-05	7.820-06	1.089-05	1.363-10
TOTAL	1.696-04	5.153-10	1.696-04	1.218-04	1.696-04	2.124-09
BISMUTH						
0.3	1.635-04	4.234-09	1.635-04	1.164-04	1.635-04	1.726-08
0.8	7.616-02	1.245-05	7.616-02	7.411-02	7.616-02	5.163-05
1.0	1.218-02	1.989-06	1.218-02	1.185-02	1.218-02	8.247-06
1.6	3.353-02	5.483-06	3.353-02	3.263-02	3.353-02	2.273-05
TOTAL	1.220-01	1.993-05	1.220-01	1.187-01	1.220-01	8.263-05
PB-211						
0.3	2.828-06	2.251-09	2.828-06	1.437-06	2.828-06	9.164-09
0.8	2.833-06	2.255-09	2.833-06	1.439-06	2.833-06	9.181-09
TOTAL	5.661-06	4.506-09	5.661-06	2.876-06	5.661-06	1.835-08
PB-212						
0.3	1.520-01	2.486-05	1.520-01	1.480-01	1.520-01	1.031-04
TOTAL	1.520-01	2.486-05	1.520-01	1.480-01	1.520-01	1.031-04
LEAD						
0.3	1.520-01	2.486-05	1.520-01	1.480-01	1.520-01	1.031-04
0.8	2.833-06	2.255-09	2.833-06	1.439-06	2.833-06	9.181-09
TOTAL	1.520-01	2.487-05	1.520-01	1.480-01	1.520-01	1.031-04
TL-208						
0.3	9.122-03	1.491-06	9.122-03	8.878-03	9.122-03	6.184-08
0.6	2.880-01	4.708-05	2.880-01	2.803-01	2.880-01	1.952-04
0.8	5.483-02	8.964-06	5.483-02	5.336-02	5.483-02	3.717-05
2.4	9.109-01	1.489-04	9.109-01	8.865-01	9.109-01	6.175-04
TOTAL	1.263+00	2.065-04	1.263+00	1.229+00	1.263+00	8.561-04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NUCLIDE AND GAMMA ENERGY IN MEV -----	GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE					
	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
THALLIUM						
0.3	9.122-03	1.491-06	9.122-03	8.878-03	9.122-03	8.184-06
0.6	2.880-01	4.708-05	2.880-01	2.803-01	2.880-01	1.952-04
0.8	5.483-02	8.964-06	5.483-02	5.336-02	5.483-02	3.717-05
2.4	9.109-01	1.489-04	9.109-01	8.865-01	9.109-01	6.175-04
TOTAL	1.263+00	2.065-04	1.263+00	1.229+00	1.263+00	8.561-04
TR-158						
0.3	6.201-10	1.100-10	6.201-10	7.808-10	6.201-10	1.223-10
0.8	5.315-09	9.425-10	5.315-09	6.692-09	5.315-09	1.048-09
1.0	4.068-08	7.215-09	4.068-08	5.123-08	4.068-08	8.023-09
1.25	1.281-09	2.271-10	1.281-09	1.613-09	1.281-09	2.526-10
TOTAL	4.790-08	8.494-09	4.790-08	6.032-08	4.790-08	9.446-09
TERBIUM						
0.3	6.201-10	1.100-10	6.201-10	7.808-10	6.201-10	1.223-10
0.8	5.315-09	9.425-10	5.315-09	6.692-09	5.315-09	1.048-09
1.0	4.068-08	7.215-09	4.068-08	5.123-08	4.068-08	8.023-09
1.25	1.281-09	2.271-10	1.281-09	1.613-09	1.281-09	2.526-10
TOTAL	4.790-08	8.494-09	4.790-08	6.032-08	4.790-08	9.446-09
EU-152						
0.1	9.946-04	1.624-03	9.946-04	1.106-03	9.946-04	1.278-03
0.3	2.637-03	4.306-03	2.637-03	2.933-03	2.637-03	3.388-03
0.6	4.307-04	7.034-04	4.307-04	4.791-04	4.307-04	5.534-04
0.8	2.733-03	4.463-03	2.733-03	3.040-03	2.733-03	3.512-03
1.0	7.858-03	1.283-02	7.858-03	8.741-03	7.858-03	1.010-02
1.25	6.184-03	1.010-02	6.184-03	6.878-03	6.184-03	7.946-03
1.6	2.252-04	3.678-04	2.252-04	2.505-04	2.252-04	2.694-04
TOTAL	2.106-02	3.440-02	2.106-02	2.343-02	2.106-02	2.706-02
EU-154						
0.1	2.880-01	8.131-01	2.880-01	5.393-01	2.880-01	6.185-01
0.3	1.251-01	3.532-01	1.251-01	2.343-01	1.251-01	2.687-01
0.6	3.290-01	9.290-01	3.290-01	6.162-01	3.290-01	7.067-01
0.8	1.791+00	5.055+00	1.791+00	3.353+00	1.791+00	3.846+00
1.0	1.697+00	4.792+00	1.697+00	3.179+00	1.697+00	3.646+00
1.25	2.609+00	7.365+00	2.609+00	4.885+00	2.609+00	5.603+00
1.6	2.014-01	5.687-01	2.014-01	3.772-01	2.014-01	4.327-01
TOTAL	7.040+00	1.988+01	7.040+00	1.318+01	7.040+00	1.512+01

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
EUROPIUM						
0.1	2.890+01	8.147+01	2.890+01	5.404+01	2.890+01	6.198+01
0.3	1.277+01	3.575+01	1.277+01	2.372+01	1.277+01	2.721+01
0.6	3.295+01	9.297+01	3.295+01	6.166+01	3.295+01	7.072+01
0.8	1.793+00	5.060+00	1.793+00	3.356+00	1.793+00	3.849+00
1.0	1.705+00	4.805+00	1.705+00	3.187+00	1.705+00	3.656+00
1.25	2.615+00	7.375+00	2.615+00	4.892+00	2.615+00	5.611+00
1.6	2.017+01	5.691+01	2.017+01	3.775+01	2.017+01	4.350+01
TOTAL	7.061+00	1.991+01	7.061+00	1.321+01	7.061+00	1.515+01
PR-144						
0.6	1.017+02	9.060+03	1.017+02	7.245+03	1.017+02	6.796+03
0.8	1.906+04	1.698+04	1.906+04	1.357+04	1.906+04	1.273+04
1.25	8.842+05	7.876+05	8.842+05	6.298+05	8.842+05	5.908+05
1.6	3.609+03	3.214+03	3.609+03	2.570+03	3.609+03	2.411+03
2.0	1.254+02	1.117+02	1.254+02	8.929+03	1.254+02	8.376+03
TOTAL	2.660+02	2.369+02	2.660+02	1.894+02	2.660+02	1.777+02
PRASEODYMIUM						
0.6	1.017+02	9.060+03	1.017+02	7.245+03	1.017+02	6.796+03
0.8	1.906+04	1.698+04	1.906+04	1.357+04	1.906+04	1.273+04
1.25	8.842+05	7.876+05	8.842+05	6.298+05	8.842+05	5.908+05
1.6	3.609+03	3.214+03	3.609+03	2.570+03	3.609+03	2.411+03
2.0	1.254+02	1.117+02	1.254+02	8.929+03	1.254+02	8.376+03
TOTAL	2.660+02	2.369+02	2.660+02	1.894+02	2.660+02	1.777+02
BA-137M						
0.1	1.069+00	1.659+00	1.069+00	1.557+00	1.069+00	1.238+00
0.6	2.822+02	4.379+02	2.822+02	4.110+02	2.822+02	3.267+02
TOTAL	2.833+02	4.396+02	2.833+02	4.125+02	2.833+02	3.279+02
BAKTIUM						
0.1	1.069+00	1.659+00	1.069+00	1.557+00	1.069+00	1.238+00
0.6	2.822+02	4.379+02	2.822+02	4.110+02	2.822+02	3.267+02
TOTAL	2.833+02	4.396+02	2.833+02	4.125+02	2.833+02	3.279+02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CS-134						
0.3	2.683+03	7.275+03	2.683+03	5.710+03	2.683+03	5.424+03
0.6	1.981+01	5.373+01	1.981+01	4.217+01	1.981+01	4.006+01
0.8	2.056+01	5.575+01	2.056+01	4.376+01	2.056+01	4.156+01
1.0	2.808+01	7.613+01	2.808+01	5.976+01	2.808+01	5.677+01
1.25	1.711+00	4.639+00	1.711+00	3.641+00	1.711+00	3.459+00
1.6	9.467+03	2.567+02	9.467+03	2.015+02	9.467+03	1.914+02
TOTAL	4.238+01	1.149+02	4.238+01	9.019+01	4.238+01	8.568+01
CESIUM						
0.3	2.683+03	7.275+03	2.683+03	5.710+03	2.683+03	5.424+03
0.6	1.981+01	5.373+01	1.981+01	4.217+01	1.981+01	4.006+01
0.8	2.056+01	5.575+01	2.056+01	4.376+01	2.056+01	4.156+01
1.0	2.808+01	7.613+01	2.808+01	5.976+01	2.808+01	5.677+01
1.25	1.711+00	4.639+00	1.711+00	3.641+00	1.711+00	3.459+00
1.6	9.467+03	2.567+02	9.467+03	2.015+02	9.467+03	1.914+02
TOTAL	4.238+01	1.149+02	4.238+01	9.019+01	4.238+01	8.568+01
SB-125						
0.1	1.063+01	3.475+02	1.063+01	1.112+01	1.063+01	2.552+02
0.3	1.008+00	3.297+01	1.008+00	1.055+00	1.008+00	2.422+01
0.6	2.020+00	6.607+01	2.020+00	2.114+00	2.020+00	4.853+01
TOTAL	3.135+00	1.025+00	3.135+00	3.280+00	3.135+00	7.529+01
ANTIMONY						
0.1	1.063+01	3.475+02	1.063+01	1.112+01	1.063+01	2.552+02
0.3	1.008+00	3.297+01	1.008+00	1.055+00	1.008+00	2.422+01
0.6	2.020+00	6.607+01	2.020+00	2.114+00	2.020+00	4.853+01
TOTAL	3.135+00	1.025+00	3.135+00	3.280+00	3.135+00	7.529+01
AG-108M						
0.1	1.057+06	1.559+07	1.057+06	2.310+07	1.057+06	8.873+07
0.3	8.555+05	1.262+05	8.555+05	1.870+05	8.555+05	7.182+05
0.6	1.282+04	1.690+05	1.282+04	2.801+05	1.282+04	1.076+04
0.8	1.452+04	2.142+05	1.452+04	3.174+05	1.452+04	1.219+04
1.0	1.945+06	2.869+07	1.945+06	4.252+07	1.945+06	1.633+06
TOTAL	3.619+04	5.339+05	3.619+04	7.910+05	3.619+04	3.039+04

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E.		23RS RECYCLE U-235 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.

AG-110M						
0.1	9.642-09	1.351-08	9.642-09	1.434-08	9.642-09	1.014-08
0.3	8.112-07	1.136-06	8.112-07	1.207-06	8.112-07	6.534-07
0.6	3.983-05	5.579-05	3.983-05	5.924-05	3.983-05	4.190-05
0.8	5.306-05	7.432-05	5.306-05	7.892-05	5.306-05	5.582-05
1.0	1.575-05	2.206-05	1.575-05	2.343-05	1.575-05	1.657-05
1.25	1.738-05	2.435-05	1.738-05	2.585-05	1.738-05	1.829-05
1.6	1.328-05	1.860-05	1.328-05	1.975-05	1.328-05	1.397-05
2.0	8.354-08	1.170-07	8.354-08	1.243-07	8.354-08	8.788-08
2.4	8.643-08	1.211-07	8.643-08	1.286-07	8.643-08	9.093-08
TOTAL	1.403-04	1.965-04	1.403-04	2.087-04	1.403-04	1.476-04
SILVER						
0.1	1.067-06	1.694-07	1.067-06	2.453-07	1.067-06	8.975-07
0.3	8.636-05	1.375-05	8.636-05	1.990-05	8.636-05	7.267-05
0.6	1.680-04	7.469-05	1.680-04	8.725-05	1.680-04	1.495-04
0.8	1.983-04	9.574-05	1.983-04	1.107-04	1.983-04	1.778-04
1.0	1.770-05	2.235-05	1.770-05	2.385-05	1.770-05	1.820-05
1.25	1.738-05	2.435-05	1.738-05	2.585-05	1.738-05	1.829-05
1.6	1.328-05	1.860-05	1.328-05	1.975-05	1.328-05	1.397-05
2.0	8.354-08	1.170-07	8.354-08	1.243-07	8.354-08	8.788-08
2.4	8.643-08	1.211-07	8.643-08	1.286-07	8.643-08	9.093-08
TOTAL	5.022-04	2.499-04	5.022-04	2.878-04	5.022-04	4.514-04
NH-106						
0.3	2.224-04	2.976-04	2.224-04	1.951-04	2.224-04	2.232-04
0.6	6.452-02	6.633-02	6.452-02	5.659-02	6.452-02	6.475-02
0.8	1.411-03	1.888-03	1.411-03	1.238-03	1.411-03	1.416-03
1.0	5.695-03	7.620-03	5.695-03	4.995-03	5.695-03	5.716-03
1.25	1.895-03	2.536-03	1.895-03	1.662-03	1.895-03	1.902-03
1.6	1.308-03	1.750-03	1.308-03	1.147-03	1.308-03	1.313-03
2.0	4.825-04	6.456-04	4.825-04	4.232-04	4.825-04	4.843-04
2.4	4.823-04	6.452-04	4.823-04	4.230-04	4.823-04	4.840-04
2.9	7.920-05	1.060-04	7.920-05	6.946-05	7.920-05	7.948-05
TOTAL	7.610-02	1.018-01	7.610-02	6.674-02	7.610-02	7.637-02

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

GAMMA DOSE RATES IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE AND GAMMA ENERGY IN MEV -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
RHODIUM						
0.3	2.224=04	2.976=04	2.224=04	1.951=04	2.224=04	2.232=04
0.6	6.452=02	8.633=02	6.452=02	5.659=02	6.452=02	6.475=02
0.8	1.411=03	1.888=03	1.411=03	1.238=03	1.411=03	1.416=03
1.0	5.695=03	7.620=03	5.695=03	4.995=03	5.695=03	5.716=03
1.25	1.895=03	2.538=03	1.895=03	1.662=03	1.895=03	1.902=03
1.6	1.308=03	1.750=03	1.308=03	1.147=03	1.308=03	1.313=03
2.0	4.825=04	6.456=04	4.825=04	4.232=04	4.825=04	4.843=04
2.4	4.823=04	6.452=04	4.823=04	4.230=04	4.823=04	4.840=04
2.9	7.920=05	1.060=04	7.920=05	6.946=05	7.920=05	7.948=05
TOTAL	7.610=02	1.018=01	7.610=02	6.674=02	7.610=02	7.637=02
CO-60						
1.25	1.759=04	1.178=05	1.759=04	1.746=05	1.759=04	6.708=05
TOTAL	1.759=04	1.178=05	1.759=04	1.746=05	1.759=04	6.708=05
COBALT						
1.25	1.759=04	1.178=05	1.759=04	1.746=05	1.759=04	6.708=05
TOTAL	1.759=04	1.178=05	1.759=04	1.746=05	1.759=04	6.708=05
ALL ELEMENTS						
0.1	1.464+00	2.509+00	1.464+00	2.209+00	1.464+00	1.883+00
0.3	1.300+00	6.949=01	1.300+00	1.455+00	1.300+00	5.201=01
0.6	3.047+02	4.933+02	3.047+02	4.562+02	3.047+02	3.680+02
0.8	2.249+01	6.081+01	2.249+01	4.724+01	2.249+01	4.542+01
1.0	2.004+00	5.574+00	2.004+00	3.802+00	2.004+00	4.229+00
1.25	4.328+00	1.202+01	4.328+00	8.535+00	4.328+00	9.072+00
1.6	2.496=01	5.996=01	2.496=01	4.340=01	2.496=01	4.559=01
2.0	1.303=02	1.181=02	1.303=02	9.352=03	1.303=02	8.860=03
2.4	9.114=01	7.943=04	9.114=01	8.869=01	9.114=01	1.102=03
2.9	7.920=05	1.060=04	7.920=05	6.946=05	7.920=05	7.948=05
TOTAL	3.375+02	5.755+02	3.375+02	5.208+02	3.375+02	4.296+02

NEUTRON SOURCE STRENGTHS

TABLE D-9
NEUTRON SOURCE STRENGTHS FOR FUEL ELEMENTS DISCHARGED AT BEGINNING
OF RELOAD 1 AND ORIGINALLY LOADED AT RELOAD 0

and

TABLE D-10
NEUTRON SOURCE STRENGTHS FOR FUEL ELEMENTS DISCHARGED AT BEGINNING
OF RELOAD 5 AND ORIGINALLY LOADED AT RELOAD 1

NOTE: Tables D-9 and D-10 consist of 10 pages
of computer print-out, with the two tables
appearing side by side (pages D-279 through
D-288).

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM-242	2.614+03	7.523+03	3.842+01	1.461+05
CM-244	1.404+03	1.796+04	7.225+02	1.137+06
CURIUM	1.404+03	2.548+04	7.609+02	1.283+06
AM-241	1.218+04	2.386+01	4.271+02	1.203+02
AM-243	5.333+02	2.494+00	5.344+03	4.656+01
AMERICIUM	5.345+02	2.636+01	4.806+02	1.668+02
PU-238	1.042+00	7.074+03	4.509+02	1.807+05
PU-239	9.248+05	3.141+01	8.239+02	9.072+01
PU-240	8.980+04	2.567+02	8.732+01	7.868+02
PLUTONIUM	1.043+00	7.362+03	4.519+02	1.816+05
NP-237	1.862+04	9.084+01	3.109+02	6.660+00
NEPTUNIUM	1.862+04	9.084+01	3.109+02	6.660+00
U-232	3.520+02	7.130+02	1.667+03	5.140+01
U-233	5.173+02	9.584+06	8.077+02	1.959+05
U-234	2.479+01	1.278+01	1.124+02	1.092+01
U-235	8.654+04	3.829+01	1.091+02	8.748+02
U-236	7.907+04	1.960+00	4.001+02	4.805+00
U-238	0.000	3.795+01	0.000	5.067+01
URANIUM	8.940+02	1.558+01	2.587+03	1.684+01
PA-231	9.157+01	1.631+04	1.287+00	3.548+04
PROTACTINIUM	9.157+01	1.631+04	1.287+00	3.548+04
TH-228	9.439+01	1.964+02	7.980+02	2.567+01
TH-229	3.974+02	9.674+08	1.245+01	5.937+06
TH-230	4.943+00	3.303+04	2.023+00	4.676+04
TH-232	1.703+01	0.000	1.446+01	0.000
THORIUM	9.954+01	1.997+02	8.003+02	2.572+01
AC-225	9.020+02	2.293+07	2.626+01	1.407+05
ACTINIUM	9.020+02	2.293+07	2.626+01	1.407+05
RA-223	1.341+01	8.892+06	2.122+01	3.025+05
RA-224	1.223+02	2.552+02	1.034+03	3.335+01
RADIUM	1.224+02	2.553+02	1.034+03	3.336+01
FR-221	1.340+01	3.595+07	4.196+01	2.206+05
FRANCIUM	1.340+01	3.595+07	4.196+01	2.206+05
RN-219	2.945+01	1.913+05	4.659+01	6.508+05
RN-220	1.994+02	4.315+02	1.686+03	5.640+01
RADON	1.997+02	4.317+02	1.686+03	5.641+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
AT-217	2.393-01	5.888-07	7.498-01	3.613-05
AT-218	7.846-06	0.000	6.898-06	0.000
ASTATINE	2.394-01	5.888-07	7.498-01	3.613-05
PU-210	4.256-01	8.897-05	4.657-01	1.830-04
PU-212	5.957+02	9.638-02	5.288+03	1.322+00
PU-213	5.394-01	1.194-06	1.690+00	7.329-05
PU-215	4.767-01	3.007-05	7.542-01	1.023-04
PU-216	2.885+02	5.893-02	2.439+03	7.701-01
POLONIUM	8.857+02	1.554-01	7.730+03	2.093+00
BI-211	2.741-01	1.778-05	4.536-01	6.050-05
BI-212	6.129+01	1.276-02	5.182+02	1.668-01
BISMUTH	6.156+01	1.278-02	5.186+02	1.668-01
ALL ELEMENTS	3.670+03	3.288+04	1.557+04	1.465+06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM=242	1.454+03	3.423+03	1.751+01	6.647+04
CM=244	1.377+03	1.761+04	7.084+02	1.115+06
CURIUM	1.377+03	2.103+04	7.259+02	1.181+06
AM=241	1.703+04	4.145+01	7.258+02	1.905+02
AM=243	5.333+02	2.494+00	5.344+03	4.656+01
AMERICIUM	5.350+02	4.394+01	7.792+02	2.371+02
PU=238	1.037+00	7.046+03	4.491+02	1.799+05
PU=239	9.247+05	3.141+01	8.239+02	9.071+01
PU=240	8.980+04	2.567+02	8.731+01	7.868+02
PLUTONIUM	1.038+00	7.334+03	4.501+02	1.808+05
NP=237	1.862+04	9.084+01	3.109+02	6.660+00
NEPTUNIUM	1.862+04	9.084+01	3.109+02	6.660+00
U=232	3.503+02	7.095+02	1.659+03	5.115+01
U=233	5.182+02	9.584+06	8.085+02	1.959+05
U=234	2.479+01	1.278+01	1.124+02	1.092+01
U=235	8.654+04	3.829+01	1.091+02	8.748+02
U=236	7.907+04	1.960+00	4.001+02	4.805+00
U=238	0.000	3.795+01	0.000	5.067+01
URANIUM	8.932+02	1.558+01	2.580+03	1.683+01
PA=231	9.157+01	1.671+04	1.287+00	3.557+04
PROTACTINIUM	9.157+01	1.671+04	1.287+00	3.557+04
TH=228	1.430+02	2.966+02	9.692+02	3.096+01
TH=229	6.720+02	9.722+08	1.673+01	5.938+06
TH=230	4.944+00	3.835+04	2.023+00	5.131+04
TH=232	1.703+01	0.000	1.446+01	0.000
THORIUM	1.482+02	3.004+02	9.716+02	3.101+01
AC=225	1.525+01	2.304+07	3.798+01	1.407+05
ACTINIUM	1.525+01	2.304+07	3.798+01	1.407+05
RA=223	1.320+01	1.412+05	2.088+01	4.136+05
RA=224	1.853+02	3.853+02	1.256+03	4.022+01
RADIUM	1.854+02	3.855+02	1.256+03	4.022+01
FR=221	2.265+01	3.613+07	5.641+01	2.206+05
FRANCIUM	2.265+01	3.613+07	5.641+01	2.206+05
RN=219	2.898+01	3.039+05	4.584+01	8.899+05
RN=220	3.021+02	6.516+02	2.048+03	6.801+01
RADON	3.024+02	6.519+02	2.048+03	6.802+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AT-217	4.047-01	5.917-07	1.008+00	3.614-05
AT-218	8.961-06	0.000	7.353-06	0.000
ASTATINE	4.047-01	5.917-07	1.008+00	3.614-05
PU-210	1.697-01	4.031-05	1.914-01	8.542-05
PU-212	9.698+02	1.564-01	6.605+03	1.640+00
PU-213	9.121-01	1.200-06	2.271+00	7.330-05
PU-215	4.691-01	4.777-05	7.421-01	1.399-04
PU-216	4.370+02	8.897-02	2.962+03	9.287-01
POLONIUM	1.408+03	2.454-01	9.571+03	2.569+00
BI-211	2.697-01	2.825-05	4.266-01	8.271-05
BI-212	9.285+01	1.927-02	6.293+02	2.011-01
BISMUTH	9.312+01	1.929-02	6.297+02	2.012-01
ALL ELEMENTS	4.411+03	2.843+04	1.624+04	1.362+06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL.		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL.	
CM=242	5.722+04	1.556+02	8.418+01	2.997+03
CM=244	1.274+03	1.629+04	6.556+02	1.032+06
CURIUM	1.274+03	1.645+04	6.565+02	1.035+06
AM=241	3.504+04	1.068+02	1.835+01	4.515+02
AM=243	5.332+02	2.493+00	5.343+03	4.655+01
AMERICIUM	5.367+02	1.093+02	1.889+01	4.981+02
PU=238	1.021+00	6.935+03	4.421+02	1.771+05
PU=239	9.247+05	3.141+01	8.239+02	9.071+01
PU=240	8.978+04	2.567+02	8.729+01	7.866+02
PLUTONIUM	1.022+00	7.224+03	4.430+02	1.780+05
NP=237	1.862+04	9.084+01	3.109+02	6.660+00
NEPTUNIUM	1.862+04	9.084+01	3.109+02	6.660+00
U=232	3.436+02	6.960+02	1.627+03	5.017+01
U=233	5.182+02	9.584+06	8.085+02	1.959+05
U=234	2.479+01	1.278+01	1.124+02	1.092+01
U=235	8.654+04	3.829+01	1.091+02	8.748+02
U=236	7.907+04	1.960+00	4.001+02	4.805+00
U=238	0.000	3.795+01	0.000	5.067+01
URANIUM	8.866+02	1.557+01	2.548+03	1.682+01
PA=231	9.156+01	1.830+04	1.286+00	3.594+04
PROTACTINIUM	9.156+01	1.830+04	1.286+00	3.594+04
TH=228	2.646+02	5.470+02	1.394+03	4.407+01
TH=229	1.755+01	9.910+08	3.363+01	5.940+06
TH=230	4.944+00	5.935+04	2.025+00	6.925+04
TH=232	1.703+01	0.000	1.446+01	0.000
THURIUM	2.698+02	5.530+02	1.397+03	4.414+01
AC=225	3.984+01	2.349+07	7.634+01	1.408+05
ACTINIUM	3.984+01	2.349+07	7.634+01	1.408+05
RA=223	1.238+01	3.520+05	1.958+01	8.374+05
RA=224	3.428+02	7.107+02	1.806+03	5.725+01
RADIUM	3.429+02	7.111+02	1.807+03	5.726+01
FR=221	5.917+01	3.683+07	1.134+00	2.207+05
FRANCIUM	5.917+01	3.683+07	1.134+00	2.207+05
RN=219	2.718+01	7.575+05	4.299+01	1.802+04
RN=220	5.589+02	1.202+01	2.945+03	9.682+01
RAUUN	5.592+02	1.203+01	2.946+03	9.683+01

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
AT-217	1.057+00	6.032-07	2.026+00	3.616-05
AT-218	1.336-05	0.000	9.149-06	0.000
ASTATINE	1.057+00	6.032-07	2.026+00	3.616-05
Pu-210	6.642+03	1.768-06	1.616+02	8.077-06
Pu-212	1.808+03	2.906-01	9.535+03	2.343+00
Pu-213	2.382+00	1.223-06	4.565+00	7.334-05
Pu-215	4.399-01	1.191-04	6.960-01	2.832-04
Pu-216	8.086+02	1.641-01	4.261+03	1.322+00
POLONIUM	2.619+03	4.548-01	1.380+04	3.665+00
BI-211	2.529-01	7.041-05	4.001-01	1.675-04
BI-212	1.718+02	3.554-02	9.052+02	2.863-01
BISMUTH	1.720+02	3.561-02	9.056+02	2.864-01
ALL ELEMENTS	6.128+03	2.380+04	2.451+04	1.213+06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM=242	5.671-04	9.371+00	9.530+02	1.568+02
CM=244	1.179+03	1.508+04	6.068+02	9.549+05
CURIUM	1.179+03	1.509+04	6.069+02	9.551+05
AM=241	5.140-04	1.661+02	2.843+01	6.885+02
AM=243	5.331-02	2.493+00	5.342+03	4.654+01
AMERICIUM	5.382-02	1.686+02	2.896+01	7.351+02
PU=238	1.005+00	6.827+03	4.352+02	1.743+05
PU=239	9.246-05	3.141+01	8.238+02	9.070+01
PU=240	8.976-04	2.566+02	8.727+01	7.865+02
PLUTONIUM	1.006+00	7.115+03	4.361+02	1.752+05
NP=237	1.862-04	9.084-01	3.109+02	6.660+00
NEPTUNIUM	1.862-04	9.084-01	3.109+02	6.660+00
U=232	3.370+02	6.827+02	1.596+03	4.921+01
U=233	5.182+02	9.584+06	8.085+02	1.959+05
U=234	2.479+01	1.278+01	1.124+02	1.092+01
U=235	8.654-04	3.829+01	1.091+02	8.748+02
U=236	7.907-04	1.960+00	4.001+02	4.805+00
U=238	0.000	3.795+01	0.000	5.067+01
URANIUM	8.800+02	1.557+01	2.517+03	1.681+01
PA=231	9.156-01	1.989+04	1.286+00	3.630+04
PROTACTINIUM	9.156-01	1.989+04	1.286+00	3.630+04
TH=228	3.197+02	6.605+02	1.582+03	4.986+01
TH=229	2.838+01	1.010+07	5.053+01	5.943+06
TH=230	4.944+00	8.035+04	2.027+00	8.719+04
TH=232	1.703+01	0.000	1.446+01	0.000
THORIUM	5.251+02	6.686+02	1.585+03	4.994+01
AC=225	6.442+01	2.394+07	1.147+00	1.409+05
ACTINIUM	6.442+01	2.394+07	1.147+00	1.409+05
RA=223	1.161+01	5.697+05	1.836+01	1.239+04
RA=224	4.142+02	8.582+02	2.050+03	6.478+01
RADIUM	4.143+02	8.588+02	2.050+03	6.479+01
FR=221	9.567-01	3.753+07	1.703+00	2.208+05
FRANCIUM	9.567-01	3.753+07	1.703+00	2.208+05
RN=219	2.549+01	1.226+04	4.032+01	2.667+04
RN=220	6.753+02	1.451+01	3.342+03	1.095+00
RADON	6.756+02	1.452+01	3.343+03	1.096+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AT-217	1.709+00	6.147+07	3.043+00	3.617+05
AT-218	1.775+05	0.000	1.094+05	0.000
ASTATINE	1.709+00	6.147+07	3.043+00	3.617+05
PO-210	2.301+03	0.000	1.092+02	0.000
PO-212	2.188+03	3.515+01	1.083+04	2.653+00
PO-213	3.852+00	1.247+06	6.858+00	7.337+05
PO-215	4.126+01	1.927+04	6.927+01	4.192+04
PO-216	9.770+02	1.982+01	4.835+03	1.496+00
POLONIUM	3.169+03	5.498+01	1.568+04	4.150+00
BI-211	2.572+01	1.139+04	3.752+01	2.479+04
BI-212	2.076+02	4.291+02	1.027+03	3.239+01
BISMUTH	2.078+02	4.302+02	1.028+03	3.241+01
ALL ELEMENTS	8.856+03	2.239+04	2.725+04	1.131+06

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
CM-242	5,543+04	2,922+00	7,001+02	2,748+01
CM-244	9,717+02	1,243+04	4,999+02	7,868+05
CURIUM	9,717+02	1,243+04	5,000+02	7,868+05
AM-241	8,599+04	2,916+02	4,974+01	1,190+03
AM-243	5,328+02	2,491+00	5,539+03	4,652+01
AMERICIUM	5,414+02	2,941+02	5,028+01	1,236+03
PU-238	9,663+01	6,563+03	4,183+02	1,676+05
PU-239	9,245+05	3,141+01	8,237+02	9,069+01
PU-240	8,971+04	2,565+02	8,723+01	7,860+02
PLUTONIUM	9,673+01	6,851+03	4,193+02	1,685+05
NP-237	1,862+04	9,084+01	3,109+02	6,660+00
NEPTUNIUM	1,862+04	9,084+01	3,109+02	6,660+00
U-232	3,212+02	6,507+02	1,521+03	4,690+01
U-233	5,182+02	9,583+06	8,085+02	1,959+05
U-234	2,479+01	1,278+01	1,124+02	1,092+01
U-235	8,654+04	3,829+01	1,091+02	8,748+02
U-236	7,907+04	1,960+00	4,001+02	4,805+00
U-238	0,000	3,795+01	0,000	5,067+01
URANIUM	8,642+02	1,557+01	2,442+03	1,679+01
PA-231	9,155+01	2,387+04	1,286+00	3,720+04
PROTACTINIUM	9,155+01	2,387+04	1,286+00	3,720+04
TH-228	3,510+02	7,251+02	1,673+03	5,263+01
TH-229	5,545+01	1,057+07	9,276+01	5,950+06
TH-230	4,945+00	1,328+03	2,031+00	1,320+03
TH-232	1,703+01	0,000	1,446+01	0,000
THURIUM	3,567+02	7,384+02	1,677+03	5,276+01
AC-225	1,258+00	2,506+07	2,105+00	1,410+05
ACTINIUM	1,258+00	2,506+07	2,105+00	1,410+05
RA-223	9,887+02	1,141+04	1,564+01	2,158+04
RA-224	4,548+02	9,421+02	2,168+03	6,838+01
RADIUM	4,549+02	9,432+02	2,169+03	6,840+01
FR-221	1,869+00	3,928+07	3,127+00	2,211+05
FRANCIUM	1,869+00	3,928+07	3,127+00	2,211+05
RN-219	2,171+01	2,456+04	3,434+01	4,643+04
RN-220	7,416+02	1,593+01	3,535+03	1,156+00
RADON	7,416+02	1,596+01	3,536+03	1,157+00

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 1 AND WAS
ORIGINALLY LOADED AT RELOAD 0

THIS SEGMENT WAS DISCHARGED AT
THE BEGINNING OF RELOAD 5 AND WAS
ORIGINALLY LOADED AT RELOAD 1

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE -----	IS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		M8 FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AT-217	3.339+00	6.434-07	5.586+00	3.621-05
AT-218	2.871-05	0.000	1.543-05	0.000
ASTATINE	3.339+00	6.434-07	5.586+00	3.621-05
PU-210	1.848-03	0.000	9.110-03	0.000
PU-212	2.405+03	3.861-01	1.146+04	2.803+00
PU-213	7.526+00	1.305-06	1.259+01	7.346-05
PU-215	3.514-01	3.860-04	5.559-01	7.298-04
PD-216	1.073+03	2.175-01	5.114+03	1.579+00
POLONIUM	3.485+03	6.040-01	1.659+04	4.383+00
BI-211	2.020-01	2.283-04	3.196-01	4.316-04
BI-212	2.279+02	4.710-02	1.087+03	3.419-01
BISMUTH	2.261+02	4.733-02	1.087+03	3.423-01
ALL ELEMENTS	7.111+03	1.959+04	2.843+04	9.566+05

TABLE D-11
NEUTRON SOURCE STRENGTHS FOR FUEL ELEMENTS DISCHARGED AT BEGINNING
OF RELOAD 10 AND ORIGINALLY LOADED AT RELOAD 6

NOTE: Table D-11 consists of 10 pages of
computer print-out (pages D-291
through D-300).

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 100 DAYS AFTER DISCHARGE

NUCLIDE -----	23KS RECYCLE U=233 F.E. FERTILE PTL. FISSILE PTL. -----		25KS RECYCLE U=235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM=242	2.716+01	5.076+03	2.716+01	6.671+05
CM=244	1.359+03	8.875+03	1.359+03	4.214+06
CURIUM	1.387+03	1.195+04	1.387+03	4.881+06
AM=241	3.234+02	4.357+00	3.234+02	5.816+02
AM=243	9.693+03	4.940+01	9.693+03	1.913+02
AMERICIUM	4.203+02	4.851+00	4.203+02	7.728+02
PU=238	3.688+02	2.213+04	3.688+02	9.526+05
PU=239	6.609+02	5.030+00	6.609+02	4.302+02
PU=240	6.794+01	5.741+01	6.794+01	5.744+03
PLUTONIUM	3.695+02	2.218+04	3.695+02	9.567+05
NP=237	2.673+02	9.797+01	2.673+02	3.077+01
NEPTUNIUM	2.673+02	9.797+01	2.673+02	3.077+01
U=232	1.668+03	2.806+03	1.668+03	1.191+00
U=233	8.243+02	2.534+02	8.243+02	6.486+05
U=234	1.079+02	3.911+02	1.079+02	2.881+01
U=235	1.029+02	6.140+02	1.029+02	8.679+02
U=236	3.530+02	7.162+01	3.530+02	2.055+01
U=238	0.000	2.313+05	0.000	1.991+00
URANIUM	2.600+03	3.451+03	2.600+03	5.263+01
PA=231	1.365+00	5.066+02	1.365+00	9.165+04
PROTACTINIUM	1.365+00	5.066+02	1.365+00	9.165+04
TH=228	7.992+02	2.932+03	7.992+02	5.831+01
TH=229	1.291+01	2.295+01	1.291+01	1.235+05
TH=230	2.150+00	6.845+02	2.150+00	1.233+03
TH=232	1.449+01	0.000	1.449+01	0.000
THORIUM	8.016+02	2.932+03	8.016+02	5.843+01
AC=225	2.931+01	5.440+01	2.931+01	2.928+05
ACTINIUM	2.931+01	5.440+01	2.931+01	2.928+05
RA=223	2.170+01	5.924+03	2.170+01	7.847+05
RA=224	1.036+03	5.809+03	1.036+03	7.576+01
RADIUM	1.036+03	5.809+03	1.036+03	7.576+01
FR=221	4.353+01	8.528+01	4.353+01	4.590+05
FRANCIUM	4.353+01	8.528+01	4.353+01	4.590+05
RN=219	4.766+01	8.443+03	4.766+01	1.688+04
RN=220	1.688+03	8.441+03	1.688+03	1.281+00
RADON	1.689+03	8.441+03	1.689+03	1.281+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6
NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE -----	23RS RECYCLE FERTILE PTL. -----	U-233 F.E. FISSILE PTL. -----	25RS RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
AT-217	7.778-01	1.397+00	7.778-01	7.518-05
AT-218	7.258-06	0.000	7.258-06	0.000
ASTATINE	7.778-01	1.397+00	7.778-01	7.518-05
PU-210	4.409-01	1.600-01	4.409-01	4.227-04
PU-212	5.295+03	1.562+04	5.295+03	3.003+00
PU-213	1.753+00	2.833+00	1.753+00	1.525-04
PU-215	7.715-01	1.327-02	7.715-01	2.654-04
PU-216	2.443+03	6.795+03	2.443+03	1.749+00
POLONIUM	7.741+03	2.442+04	7.741+03	4.753+00
BI-211	4.435-01	7.848-03	4.435-01	1.569-04
BI-212	5.189+02	1.905+03	5.189+02	3.788-01
BISMUTH	5.193+02	1.905+03	5.193+02	3.789-01
ALL ELEMENTS	1.615+04	7.709+04	1.615+04	5.839+06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE -----	23R8 RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL. -----		25R8 RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
CM-242	1.238+01	1.399+03	1.238+01	3.035+05
CM-244	1.333+03	8.702+03	1.333+03	4.132+06
CURIUM	1.345+03	1.010+04	1.345+03	4.436+06
AM-241	5.480+02	7.108+00	5.480+02	9.145+02
AM-243	9.693+03	4.940+01	9.693+03	1.913+02
AMERICIUM	6.449+02	7.602+00	6.449+02	1.106+03
PU-238	3.673+02	2.205+04	3.673+02	9.487+05
PU-239	6.609+02	5.030+00	6.609+02	4.302+02
PU-240	6.794+01	5.741+01	6.794+01	3.744+03
PLUTONIUM	3.680+02	2.209+04	3.680+02	9.529+05
NP-237	2.673+02	9.797+01	2.673+02	3.077+01
NEPTUNIUM	2.673+02	9.797+01	2.673+02	3.077+01
U-232	1.660+03	2.792+03	1.660+03	1.185+00
U-233	8.251+02	2.534+02	8.251+02	6.487+05
U-234	1.079+02	3.911+02	1.079+02	2.881+01
U-235	1.029+02	6.140+02	1.029+02	8.679+02
U-236	3.530+02	7.162+01	3.530+02	2.055+01
U-238	0.000	2.313+05	0.000	1.991+00
URANIUM	2.593+03	3.437+03	2.593+03	5.262+01
PA-231	1.365+00	5.066+02	1.365+00	9.175+04
PROTACTINIUM	1.365+00	5.066+02	1.365+00	9.175+04
TH-228	9.703+02	2.932+03	9.703+02	7.075+01
TH-229	1.729+01	2.422+01	1.729+01	1.235+05
TH-230	2.150+00	7.007+02	2.150+00	1.353+03
TH-232	1.449+01	0.000	1.449+01	0.000
THURIUM	9.728+02	2.932+03	9.728+02	7.089+01
AC-225	3.924+01	5.742+01	3.924+01	2.929+05
ACTINIUM	3.924+01	5.742+01	3.924+01	2.929+05
RA-223	2.136+01	5.363+03	2.136+01	1.071+04
RA-224	1.257+03	3.809+03	1.257+03	9.192+01
RADIUM	1.257+03	3.809+03	1.257+03	9.193+01
FR-221	5.827+01	9.002+01	5.827+01	4.591+05
FRANCIUM	5.827+01	9.002+01	5.827+01	4.591+05
RN-219	4.689+01	1.154+02	4.689+01	2.308+04
RN-220	2.050+03	0.441+03	2.050+03	1.554+00
RADON	2.050+03	0.441+03	2.050+03	1.555+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE -----	238S RECYCLE FERTILE PTL. -----	U-233 F.E. FISSILE PTL. -----	238S RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
AT-217	1.041+00	1.474+00	1.041+00	7.520-05
AT-218	7.742-06	0.000	7.742-06	0.000
ASTATINE	1.041+00	1.474+00	1.041+00	7.520-05
PU-210	1.820-01	6.604-02	1.820-01	1.982-04
PU-212	6.613+03	1.562+04	6.613+03	3.748+00
PO-213	2.346+00	2.991+00	2.346+00	1.525-04
PO-215	7.591-01	1.814-02	7.591-01	3.624-04
PO-216	2.966+03	6.795+03	2.966+03	2.122+00
POLONIUM	9.582+03	2.442+04	9.582+03	5.871+00
BI-211	4.364-01	1.073-02	4.364-01	2.143-04
BI-212	6.300+02	1.905+03	6.300+02	4.596-01
BISMUTH	6.304+02	1.905+03	6.304+02	4.598-01
ALL ELEMENTS	1.880+04	7.514+04	1.880+04	5.390+06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE -----	23KS RECYCLE U-233 F.E.		25KS RECYCLE U-235 F.E.	
	FERTILE PTL. -----	FISSILE PTL. -----	FERTILE PTL. -----	FISSILE PTL. -----
CM=242	5.982+01	6.332+01	5.982+01	1.370+04
CM=244	1.234+03	6.053+03	1.234+03	3.824+06
CURIUM	1.234+03	6.117+03	1.234+03	3.838+06
AM=241	1.382+01	1.733+01	1.382+01	2.151+03
AM=243	9.691+03	4.939+01	9.691+03	1.912+02
AMERICIUM	1.479+01	1.782+01	1.479+01	2.342+03
PU=238	3.615+02	2.170+04	3.615+02	9.339+05
PU=239	6.609+02	5.029+00	6.609+02	4.302+02
PU=240	6.792+01	3.740+01	6.792+01	3.743+03
PLUTONIUM	3.623+02	2.174+04	3.623+02	9.361+05
NP=237	2.673+02	9.797+01	2.673+02	3.077+01
NEPTUNIUM	2.673+02	9.797+01	2.673+02	3.077+01
U=232	1.628+03	2.739+03	1.628+03	1.163+00
U=233	8.251+02	2.534+02	8.251+02	6.487+05
U=234	1.079+02	3.911+02	1.079+02	2.881+01
U=235	1.029+02	6.140+02	1.029+02	8.679+02
U=236	3.530+02	7.162+01	3.530+02	2.055+01
U=238	0.000	2.313+05	0.000	1.991+00
URANIUM	2.561+03	3.384+03	2.561+03	5.260+01
PA=231	1.365+00	5.066+02	1.365+00	9.210+04
PROTACTINIUM	1.365+00	5.066+02	1.365+00	9.210+04
TH=228	1.395+03	3.041+03	1.395+03	1.016+00
TH=229	3.453+01	2.925+01	3.453+01	1.237+05
TH=230	2.152+00	7.650+02	2.152+00	1.827+03
TH=232	1.449+01	0.000	1.449+01	0.000
THORIUM	1.398+03	3.042+03	1.398+03	1.018+00
AC=225	7.838+01	6.934+01	7.838+01	2.931+05
ACTINIUM	7.838+01	6.934+01	7.838+01	2.931+05
RA=223	2.003+01	1.130+02	2.003+01	2.161+04
RA=224	1.808+03	3.952+03	1.808+03	1.321+00
RADIUM	1.808+03	3.952+03	1.808+03	1.321+00
FR=221	1.164+00	1.087+00	1.164+00	4.595+05
FRANCIUM	1.164+00	1.087+00	1.164+00	4.595+05
RN=219	4.398+01	2.431+02	4.398+01	4.650+04
RN=220	2.948+03	6.682+03	2.948+03	2.233+00
RADON	2.948+03	6.682+03	2.948+03	2.233+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

NEUTRON SOURCE IN N/SEC PER P.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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AT=217	2.080+00	1.781+00	2.080+00	7.526+05
AT=218	9.651+06	0.000	9.651+06	0.000
ASTATINE	2.080+00	1.781+00	2.080+00	7.526+05
PU=210	1.641+02	5.958+03	1.641+02	2.003+05
PU=212	9.543+03	1.620+04	9.543+03	5.404+00
PU=213	4.687+00	3.612+00	4.687+00	1.527+04
PO=215	7.119+01	3.821+02	7.119+01	7.308+04
PO=216	4.264+03	9.124+03	4.264+03	3.049+00
POLONIUM	1.381+04	2.533+04	1.381+04	8.454+00
BI=211	4.093+01	2.259+02	4.093+01	4.322+04
BI=212	9.059+02	1.976+03	9.059+02	6.603+01
BISMUTH	9.063+02	1.976+03	9.063+02	6.607+01
ALL ELEMENTS	2.504+04	7.425+04	2.504+04	4.778+06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE -----	23RS RECYCLE U-233 F.E. FERTILE PTL. FISSILE PTL.		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL.	
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CM=242	7.046+02	3.517+00	7.046+02	7.250+02
CM=244	1.142+03	7.453+03	1.142+03	3.539+06
CURIUM	1.142+03	7.457+03	1.142+03	3.540+06
AM=241	2.140+01	2.661+01	2.140+01	3.274+03
AM=243	9.690+03	4.938+01	9.690+03	1.912+02
AMERICIUM	2.237+01	2.710+01	2.237+01	3.466+03
PU=238	3.559+02	2.136+04	3.559+02	9.193+05
PU=239	6.608+02	5.029+00	6.608+02	4.302+02
PU=240	6.791+01	3.739+01	6.791+01	3.742+03
PLUTONIUM	3.566+02	2.140+04	3.566+02	9.234+05
NP=237	2.673+02	9.797+01	2.673+02	3.077+01
NEPTUNIUM	2.673+02	9.797+01	2.673+02	3.077+01
U=232	1.597+03	2.686+03	1.597+03	1.140+00
U=233	8.251+02	2.534+02	8.251+02	6.487+05
U=234	1.079+02	3.911+02	1.079+02	2.881+01
U=235	1.029+02	6.140+02	1.029+02	8.679+02
U=236	3.530+02	7.162+01	3.530+02	2.055+01
U=238	0.000	2.313+05	0.000	1.991+00
URANIUM	2.530+03	3.332+03	2.530+03	5.258+01
PA=231	1.365+00	5.066+02	1.365+00	9.246+04
PROTACTINIUM	1.365+00	5.066+02	1.365+00	9.246+04
TH=228	1.583+03	3.041+03	1.583+03	1.153+00
TH=229	5.178+01	3.428+01	5.178+01	1.238+05
TH=230	2.154+00	8.292+02	2.154+00	2.300+03
TH=232	1.449+01	0.000	1.449+01	0.000
THURIUM	1.586+03	3.042+03	1.586+03	1.155+00
AC=225	1.175+00	8.127+01	1.175+00	2.934+05
ACTINIUM	1.175+00	8.127+01	1.175+00	2.934+05
RA=223	1.878+01	1.724+02	1.878+01	3.187+04
RA=224	2.051+03	3.952+03	2.051+03	1.498+00
RADIUM	2.052+03	3.952+03	2.052+03	1.498+00
FR=221	1.745+00	1.274+00	1.745+00	4.599+05
FRANCIUM	1.745+00	1.274+00	1.745+00	4.599+05
RN=219	4.124+01	3.708+02	4.124+01	6.857+04
RN=220	3.345+03	0.682+03	3.345+03	2.533+00
RADON	3.345+03	0.682+03	3.345+03	2.534+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6
NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE	23RS RECYCLE FERTILE PTL.	U-233 F.E. FISSILE PTL.	25RS RECYCLE FERTILE PTL.	U-235 F.E. FISSILE PTL.
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AT-217	3.118+00	2.087+00	3.118+00	7.533+05
AT-218	1.156+05	4.197+07	1.156+05	0.000
ASTATINE	3.118+00	2.087+00	3.118+00	7.533+05
PO-210	1.139+02	0.000	1.139+02	0.000
PO-212	1.084+04	1.620+04	1.084+04	6.137+00
PO-213	7.028+00	4.233+00	7.028+00	1.528+04
PO-215	6.676+01	5.829+02	6.676+01	1.078+03
PO-216	4.839+03	9.124+03	4.839+03	3.459+00
POLONIUM	1.569+04	2.533+04	1.569+04	9.597+00
BI-211	3.838+01	5.447+02	3.838+01	6.374+04
BI-212	1.028+03	1.976+03	1.028+03	7.490+01
BISMUTH	1.028+03	1.976+03	1.028+03	7.497+01
ALL ELEMENTS	2.773+04	7.320+04	2.773+04	4.467+06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6
NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE -----	23MS RECYCLE FERTILE PTL. -----	U-233 F.E. FISSILE PTL. -----	25MS RECYCLE FERTILE PTL. -----	U-235 F.E. FISSILE PTL. -----
CM=242	5.307+02	8.292+01	5.307+02	1.361+02
CM=244	9.408+02	8.141+03	9.408+02	2.916+06
CURIUM	9.408+02	8.142+03	9.408+02	2.916+06
AM=241	3.743+01	4.824+01	3.743+01	5.650+03
AM=243	9.685+03	4.936+01	9.685+03	1.911+02
AMERICIUM	3.840+01	4.673+01	3.840+01	5.841+03
PU=238	3.421+02	2.053+04	3.421+02	8.837+05
PU=239	6.607+02	5.028+00	6.607+02	4.301+02
PU=240	6.787+01	3.737+01	6.787+01	3.740+03
PLUTONIUM	3.428+02	2.058+04	3.428+02	8.878+05
NP=237	2.673+02	9.797+01	2.673+02	3.077+01
NEPTUNIUM	2.673+02	9.797+01	2.673+02	3.077+01
U=232	1.522+03	2.560+03	1.522+03	1.087+00
U=233	8.251+02	2.534+02	8.251+02	6.487+05
U=234	1.079+02	3.911+02	1.079+02	2.881+01
U=235	1.029+02	8.140+02	1.029+02	8.679+02
U=236	3.530+02	7.162+01	3.530+02	2.055+01
U=238	0.000	2.313+05	0.000	1.991+00
URANIUM	2.455+03	3.206+03	2.455+03	5.253+01
PA=231	1.365+00	5.066+02	1.365+00	9.335+04
PROTACTINIUM	1.365+00	5.066+02	1.365+00	9.335+04
TH=228	1.674+03	2.904+03	1.674+03	1.219+00
TH=229	9.487+01	4.685+01	9.487+01	1.240+05
TH=230	2.158+00	9.898+02	2.158+00	3.483+03
TH=232	1.449+01	0.000	1.449+01	0.000
THORIUM	1.678+03	2.905+03	1.678+03	1.223+00
AC=225	2.153+00	1.111+00	2.153+00	2.940+05
ACTINIUM	2.153+00	1.111+00	2.153+00	2.940+05
RA=223	1.600+01	2.987+02	1.600+01	5.501+04
RA=224	2.170+03	3.774+03	2.170+03	1.584+00
RADIUM	2.170+03	3.774+03	2.170+03	1.585+00
FR=221	3.198+00	1.741+00	3.198+00	4.609+05
FRANCIUM	3.198+00	1.741+00	3.198+00	4.609+05
RN=219	3.513+01	8.428+02	3.513+01	1.184+03
RN=220	3.537+03	8.381+03	3.537+03	2.679+00
RADON	3.538+03	8.381+03	3.538+03	2.680+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6
NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE	23KS RECYCLE U-233 F.E. FERTILE PTL.	FISSILE PTL.	25KS RECYCLE U-235 F.E. FERTILE PTL.	FISSILE PTL.
AT=217	5.713+00	2.852+00	5.713+00	7.549+05
AT=218	1.633+05	7.063+07	1.633+05	0.000
ASTATINE	5.713+00	2.852+00	5.713+00	7.549+05
PU=210	9.514+03	0.000	9.514+03	0.000
PU=212	1.147+04	1.547+04	1.147+04	6.493+00
PU=213	1.288+01	5.784+00	1.288+01	1.531+04
PU=215	5.687+01	1.010+01	5.687+01	1.860+03
PU=216	5.118+03	8.713+03	5.118+03	3.658+00
POLONIUM	1.660+04	2.419+04	1.660+04	1.015+01
BI=211	3.269+01	5.975+02	3.269+01	1.100+03
BI=212	1.087+03	1.887+03	1.087+03	7.920+01
BISMUTH	1.088+03	1.887+03	1.088+03	7.931+01
ALL ELEMENTS	2.883+04	6.911+04	2.883+04	3.810+06

TABLE D-12
NEUTRON SOURCE STRENGTH FOR FUEL ELEMENTS DISCHARGED AT BEGINNING OF
RELOAD 13 AND ORIGINALLY LOADED AT RELOAD 9

NOTE: Table D-12 consists of 10 pages of
computer read-out (pages D-303 through
D-312).

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE	MS FRESH U=235 F.E.		23RS RECYCLE U=233 F.E.		25RS RECYCLE U=235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM=242	2.368+01	1.681+05	2.368+01	3.459+03	2.368+01	1.357+06
CM=244	1.196+03	1.069+06	1.196+03	8.541+03	1.196+03	8.356+06
CURIUM	1.220+03	1.237+06	1.220+03	1.200+04	1.220+03	9.713+06
AM=241	2.889+02	1.387+02	2.889+02	4.904+00	2.889+02	1.117+03
AM=243	6.444+03	3.706+01	6.444+03	5.397+01	6.444+03	3.808+02
AMERICIUM	3.534+02	1.757+02	3.534+02	5.444+00	3.534+02	1.498+03
PU=238	3.394+02	1.946+05	3.394+02	2.469+04	3.394+02	1.515+06
PU=239	6.047+02	1.020+02	6.047+02	5.642+00	6.047+02	7.910+02
PU=240	6.175+01	8.834+02	6.175+01	4.220+01	6.175+01	6.992+03
PLUTONIUM	3.401+02	1.956+05	3.401+02	2.474+04	3.401+02	1.523+06
NP=237	2.499+02	7.645+00	2.499+02	1.056+00	2.499+02	4.953+01
NEPTUNIUM	2.499+02	7.645+00	2.499+02	1.056+00	2.499+02	4.953+01
U=232	1.686+03	5.218+01	1.686+03	3.118+03	1.686+03	2.163+00
U=233	8.249+02	2.426+05	8.249+02	2.405+02	8.249+02	1.300+04
U=234	1.064+02	1.291+01	1.064+02	3.842+02	1.064+02	5.356+01
U=235	1.002+02	1.270+01	1.002+02	6.164+02	1.002+02	9.933+02
U=236	3.359+02	5.413+00	3.359+02	7.564+01	3.359+02	4.958+01
U=238	0.000	5.740+01	0.000	2.509+05	0.000	4.282+00
URANIUM	2.618+03	1.955+01	2.618+03	3.743+03	2.618+03	1.097+02
PA=231	1.369+00	4.107+04	1.369+00	2.715+01	1.369+00	1.711+03
PROTACTINIUM	1.369+00	4.107+04	1.369+00	2.715+01	1.369+00	1.711+03
TH=228	8.027+02	2.517+01	8.027+02	3.206+03	8.027+02	1.041+00
TH=229	1.293+01	5.231+06	1.293+01	1.015+00	1.293+01	2.153+05
TH=230	2.190+00	5.468+04	2.190+00	3.443+01	2.190+00	2.296+03
TH=232	1.450+01	0.000	1.450+01	0.000	1.450+01	0.000
THORIUM	8.051+02	2.523+01	8.051+02	3.207+03	8.051+02	1.043+00
AC=225	2.935+01	1.240+05	2.935+01	2.406+00	2.935+01	5.104+05
ACTINIUM	2.935+01	1.240+05	2.935+01	2.406+00	2.935+01	5.104+05
RA=223	2.214+01	3.515+05	2.214+01	2.145+02	2.214+01	1.463+04
RA=224	1.040+03	3.270+01	1.040+03	4.165+03	1.040+03	1.352+00
RADIUM	1.040+03	3.271+01	1.040+03	4.165+03	1.040+03	1.353+00
FR=221	4.358+01	1.944+05	4.358+01	3.772+00	4.358+01	8.002+05
FRANCIUM	4.358+01	1.944+05	4.358+01	3.772+00	4.358+01	8.002+05
RN=219	4.860+01	7.563+05	4.860+01	4.614+02	4.860+01	3.148+04
RN=220	1.696+03	5.530+01	1.696+03	7.043+03	1.696+03	2.287+00
RADON	1.696+03	5.531+01	1.696+03	7.043+03	1.696+03	2.287+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		23R8 RECYCLE U-233 F.E.		23R8 RECYCLE U-235 F.E.	
-----	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
AT=217	7.787+01	3.184+05	7.787+01	6.179+00	7.787+01	1.311+04
AT=218	7.382+06	0.000	7.382+06	1.094+06	7.382+06	0.000
ASTATINE	7.787+01	3.184+05	7.787+01	6.179+00	7.787+01	1.311+04
PU=210	4.427+01	1.888+04	4.427+01	8.587+01	4.427+01	7.872+04
PU=212	5.318+03	1.296+00	5.318+03	1.708+04	5.318+03	5.380+00
PU=213	1.755+00	6.458+05	1.755+00	1.253+01	1.755+00	2.658+04
PU=215	7.888+01	1.189+04	7.888+01	7.253+02	7.888+01	4.948+04
PU=216	2.453+03	7.551+01	2.453+03	9.817+03	2.453+03	3.123+00
POLONIUM	7.773+03	2.052+00	7.773+03	2.671+04	7.773+03	8.484+00
BI=211	4.523+01	7.030+05	4.523+01	4.289+02	4.523+01	2.926+04
BI=212	5.212+02	1.635+01	5.212+02	2.083+03	5.212+02	6.762+01
BISMUTH	5.216+02	1.636+01	5.216+02	2.083+03	5.216+02	6.765+01
ALL ELEMENTS	1.602+04	1.433+06	1.602+04	8.371+04	1.602+04	1.124+07

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE	MS FRESH U-235 F.E.		238B RECYCLE U-235 F.E.		258B RECYCLE U-235 F.E.	
-----	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
CM=242	1.079+01	7.649+04	1.079+01	1.574+03	1.079+01	6.172+03
CM=244	1.173+03	1.049+06	1.173+03	8.375+03	1.173+03	8.193+06
CURIUM	1.184+03	1.125+06	1.184+03	9.949+03	1.184+03	8.811+06
AM=241	4.914+02	2.178+02	4.914+02	8.017+00	4.914+02	1.753+03
AM=243	6.444+03	4.813+01	6.444+03	5.397+01	6.444+03	3.808+02
AMERICIUM	5.558+02	2.659+02	5.558+02	8.557+00	5.558+02	2.133+03
PU=238	3.381+02	1.938+05	3.381+02	2.459+04	3.381+02	1.509+06
PU=239	6.047+02	1.020+02	6.047+02	5.642+00	6.047+02	7.918+02
PU=240	6.174+01	8.833+02	6.174+01	4.220+01	6.174+01	6.991+03
PLUTONIUM	3.388+02	1.948+05	3.388+02	2.464+04	3.388+02	1.517+06
NP=237	2.499+02	7.645+00	2.499+02	1.056+00	2.499+02	4.953+01
NEPTUNIUM	2.499+02	7.645+00	2.499+02	1.056+00	2.499+02	4.953+01
U=232	1.678+03	5.192+01	1.678+03	3.103+03	1.678+03	2.153+00
U=233	8.257+02	2.427+05	8.257+02	2.405+02	8.257+02	1.301+04
U=234	1.064+02	1.291+01	1.064+02	3.842+02	1.064+02	3.358+01
U=235	1.002+02	1.270+01	1.002+02	6.184+02	1.002+02	9.433+02
U=236	3.359+02	5.413+00	3.359+02	7.584+01	3.359+02	4.958+01
U=238	0.000	5.740+01	0.000	2.509+05	0.000	4.282+00
URANIUM	2.610+03	1.955+01	2.610+03	3.728+03	2.610+03	1.097+02
PA=231	1.369+00	4.121+04	1.369+00	2.715+01	1.369+00	1.712+03
PROTACTINIUM	1.369+00	4.121+04	1.369+00	2.715+01	1.369+00	1.712+03
TH=228	9.766+02	3.069+01	9.766+02	3.219+03	9.766+02	1.270+00
TH=229	1.731+01	5.232+06	1.731+01	1.027+00	1.731+01	2.154+05
TH=230	2.190+00	6.006+04	2.190+00	3.459+01	2.190+00	2.519+03
TH=232	1.450+01	0.000	1.450+01	0.000	1.450+01	0.000
THURIUM	9.791+02	3.075+01	9.791+02	3.221+03	9.791+02	1.273+00
AC=225	3.928+01	1.240+05	3.928+01	2.435+00	3.928+01	5.105+05
ACTINIUM	3.928+01	1.240+05	3.928+01	2.435+00	3.928+01	5.105+05
RA=223	2.178+01	4.801+05	2.178+01	2.915+02	2.178+01	1.998+04
RA=224	1.265+03	3.987+01	1.265+03	4.183+03	1.265+03	1.650+00
RADIUM	1.266+03	3.987+01	1.266+03	4.183+03	1.266+03	1.650+00
FR=221	5.833+01	1.944+05	5.833+01	3.817+00	5.833+01	8.004+05
FRANCIUM	5.833+01	1.944+05	5.833+01	3.817+00	5.833+01	8.004+05
RN=219	4.782+01	1.033+04	4.782+01	6.273+02	4.782+01	4.299+04
RN=220	2.063+03	6.742+01	2.063+03	7.073+03	2.063+03	2.790+00
RADON	2.064+03	6.743+01	2.064+03	7.074+03	2.064+03	2.791+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

NUCLIDE -----	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
AT=217	1.042+00	3.185+05	1.042+00	6.252+00	1.042+00	1.311+04
AT=218	7.875+06	0.000	7.875+06	1.173+06	7.875+06	0.000
ASTATINE	1.042+00	3.185+05	1.042+00	6.252+00	1.042+00	1.311+04
PD=210	1.829+01	8.853+05	1.829+01	3.549+01	1.829+01	3.696+04
PU=212	6.655+03	1.626+00	6.655+03	1.715+04	6.655+03	6.728+00
PU=213	2.349+00	6.459+05	2.349+00	1.268+01	2.349+00	2.659+04
PD=215	7.742+01	1.624+04	7.742+01	9.860+02	7.742+01	6.787+04
PU=216	2.985+03	9.206+01	2.985+03	9.658+03	2.985+03	3.810+00
POLONIUM	9.643+03	2.547+00	9.643+03	2.682+04	9.643+03	1.054+01
BI=211	4.451+01	9.602+05	4.451+01	5.831+02	4.451+01	3.496+04
BI=212	6.341+02	1.993+01	6.341+02	2.091+03	6.341+02	6.250+01
BISMUTH	6.346+02	1.994+01	6.346+02	2.092+03	6.346+02	4.254+01
ALL ELEMENTS	1.872+04	1.320+06	1.872+04	8.172+04	1.872+04	1.033+07

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE -----	MS FRESH U-235 F.E.		23RS RECYCLE U-233 F.E.		25RS RECYCLE U-235 F.E.	
	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
CM-242	5.214+01	3.450+03	5.214+01	7.120+01	5.214+01	2.784+04
CM-244	1.085+03	9.704+05	1.085+03	7.751+03	1.085+03	7.583+06
CURIUM	1.086+03	9.738+05	1.086+03	7.822+03	1.086+03	7.611+06
AM-241	1.243+01	5.116+02	1.243+01	1.958+01	1.243+01	4.113+03
AM-243	6.443+03	4.812+01	6.443+03	5.396+01	6.443+03	3.807+02
AMERICIUM	1.308+01	5.597+02	1.308+01	2.012+01	1.308+01	4.494+03
PU-238	3.328+02	1.908+05	3.328+02	2.420+04	3.328+02	1.485+06
PU-239	6.047+02	1.020+02	6.047+02	5.642+00	6.047+02	7.916+02
PU-240	6.173+01	8.831+02	6.173+01	4.219+01	6.173+01	6.989+03
PLUTONIUM	3.335+02	1.918+05	3.335+02	2.425+04	3.335+02	1.493+06
NP-237	2.499+02	7.645+00	2.499+02	1.056+00	2.499+02	4.953+01
NEPTUNIUM	2.499+02	7.645+00	2.499+02	1.056+00	2.499+02	4.953+01
U-232	1.646+03	5.093+01	1.646+03	3.044+03	1.646+03	2.112+00
U-233	8.257+02	2.427+05	8.257+02	2.405+02	8.257+02	1.301+04
U-234	1.064+02	1.291+01	1.064+02	3.842+02	1.064+02	5.356+01
U-235	1.002+02	1.270+01	1.002+02	6.164+02	1.002+02	9.933+02
U-236	3.359+02	5.413+00	3.359+02	7.564+01	3.359+02	4.958+01
U-238	0.000	5.740+01	0.000	2.509+05	0.000	4.282+00
URANIUM	2.578+03	1.954+01	2.578+03	3.669+03	2.578+03	1.096+02
PA-231	1.369+00	4.173+04	1.369+00	2.715+01	1.369+00	1.716+03
PROTACTINIUM	1.369+00	4.173+04	1.369+00	2.715+01	1.369+00	1.716+03
TH-228	1.408+03	4.438+01	1.408+03	3.329+03	1.408+03	1.839+00
TH-229	3.456+01	5.236+06	3.456+01	1.075+00	3.456+01	2.156+05
TH-230	2.192+00	8.127+04	2.192+00	3.522+01	2.192+00	3.999+03
TH-232	1.450+01	0.000	1.450+01	0.000	1.450+01	0.000
THORIUM	1.411+03	4.446+01	1.411+03	3.331+03	1.411+03	1.842+00
AC-225	7.845+01	1.241+05	7.845+01	2.548+00	7.845+01	5.111+05
ACTINIUM	7.845+01	1.241+05	7.845+01	2.548+00	7.845+01	5.111+05
RA-223	2.043+01	9.716+05	2.043+01	6.093+02	2.043+01	4.029+04
RA-224	1.825+03	5.766+01	1.825+03	4.325+03	1.825+03	2.389+00
RADIUM	1.825+03	5.767+01	1.825+03	4.325+03	1.825+03	2.390+00
FR-221	1.165+00	1.946+05	1.165+00	3.994+00	1.165+00	8.012+05
FRANCIUM	1.165+00	1.946+05	1.165+00	3.994+00	1.165+00	8.012+05
RN-219	4.485+01	2.091+04	4.485+01	1.311+01	4.485+01	8.669+04
RN-220	2.976+03	9.750+01	2.976+03	7.314+03	2.976+03	4.040+00
RADON	2.976+03	9.752+01	2.976+03	7.314+03	2.976+03	4.041+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

NUCLIDE	45 FRESH U-235 F.E.		2385 RECYCLE U-235 F.E.		2585 RECYCLE U-235 F.E.	
-----	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.	FERTILE PTL.	FISSILE PTL.
-----	-----	-----	-----	-----	-----	-----
AT=217	2.082+00	3.187+05	2.082+00	8.542+00	2.082+00	1.312+04
AT=218	9.820+06	0.000	9.820+06	1.488+06	9.820+06	0.000
ASTATINE	2.082+00	3.187+05	2.082+00	8.542+00	2.082+00	1.312+04
PO=210	1.679+02	9.104+06	1.679+02	3.257+02	1.679+02	3.800+05
PO=212	9.632+03	2.359+00	9.632+03	1.773+04	9.632+03	9.777+00
PO=213	4.691+00	6.464+05	4.691+00	1.327+01	4.691+00	2.662+04
PO=215	7.260+01	3.286+04	7.260+01	2.061+01	7.260+01	1.363+03
PO=216	4.305+03	1.331+00	4.305+03	9.987+03	4.305+03	5.517+00
POLONIUM	1.394+04	3.691+00	1.394+04	2.773+04	1.394+04	1.530+01
BI=211	4.174+01	1.943+04	4.174+01	1.219+01	4.174+01	8.058+04
BI=212	9.145+02	2.883+01	9.145+02	2.163+03	9.145+02	1.195+00
BISMUTH	9.149+02	2.885+01	9.149+02	2.163+03	9.149+02	1.195+00
ALL ELEMENTS	2.507+04	1.166+06	2.507+04	8.064+04	2.507+04	9.108+06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELJAO 13 AND WAS ORIGINALLY LOADED AT RELJAO 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL.		23MS RECYCLE U-233 F.E. FERTILE PTL. FISSION PTL.		25MS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL.	
	-----	-----	-----	-----	-----	-----
CM-242	6.145-02	1.814+02	6.145-02	3.948+00	6.145-02	1.465+03
CM-244	1.005+03	8.981+05	1.005+03	7.173+03	1.005+03	7.018+06
CURIUM	1.005+03	8.982+05	1.005+03	7.177+03	1.005+03	7.019+06
AM-241	1.926-01	7.785+02	1.926-01	3.009+01	1.926-01	6.256+03
AM-243	6.441-03	4.811+01	6.441-03	5.395-01	6.441-03	3.807+02
AMERICIUM	1.991-01	8.266+02	1.991-01	3.063+01	1.991-01	6.637+03
PU-238	3.276+02	1.878+05	3.276+02	2.383+04	3.276+02	1.462+06
PU-239	6.047-02	1.020+02	6.047-02	5.641+00	6.047-02	7.915+02
PU-240	6.172-01	8.830+02	6.172-01	4.218+01	6.172-01	6.988+03
PLUTONIUM	3.282+02	1.888+05	3.282+02	2.387+04	3.282+02	1.470+06
NP-237	2.499-02	7.645+00	2.499-02	1.056+00	2.499-02	4.953+01
NEPTUNIUM	2.499-02	7.645+00	2.499-02	1.056+00	2.499-02	4.953+01
U-232	1.615+03	4.996-01	1.615+03	2.986+03	1.615+03	2.072+00
U-233	8.257+02	2.427+05	8.257+02	2.405+02	8.257+02	1.301+04
U-234	1.064+02	1.291+01	1.064+02	3.842+02	1.064+02	5.355+01
U-235	1.002-02	1.270-01	1.002-02	6.164-02	1.002-02	9.933-02
U-236	3.359-02	5.413+00	3.359-02	7.564-01	3.359-02	4.958+01
U-238	0.000	5.740-01	0.000	2.509-05	0.000	4.282+00
URANIUM	2.547+03	1.953+01	2.547+03	3.611+03	2.547+03	1.096+02
PA-231	1.369+00	4.226-04	1.369+00	2.715-01	1.369+00	1.720+03
PROTACTINIUM	1.369+00	4.226-04	1.369+00	2.715-01	1.369+00	1.720+03
TH-228	1.600+03	5.644-01	1.600+03	3.329+03	1.600+03	2.091+00
TH-229	5.182-01	5.240-06	5.182-01	1.122+00	5.182-01	2.158-05
TH-230	2.193+00	1.025-03	2.193+00	3.585-01	2.193+00	4.278-03
TH-232	1.450-01	0.000	1.450-01	0.000	1.450-01	0.000
THORIUM	1.602+03	5.055-01	1.602+03	3.331+03	1.602+03	2.095+00
AC-225	1.176+00	1.242-05	1.176+00	2.661+00	1.176+00	5.116-05
ACTINIUM	1.176+00	1.242-05	1.176+00	2.661+00	1.176+00	5.116-05
RA-223	1.916-01	1.439-04	1.916-01	9.272-02	1.916-01	5.939+04
RA-224	2.073+03	6.554-01	2.073+03	4.325+03	2.073+03	2.717+00
RADIUM	2.073+03	6.555-01	2.073+03	4.325+03	2.073+03	2.717+00
FR-221	1.747+00	1.947-05	1.747+00	4.171+00	1.747+00	8.020-05
FRANCIUM	1.747+00	1.947-05	1.747+00	4.171+00	1.747+00	8.020-05
RN-219	4.206-01	3.097-04	4.206-01	1.995-01	4.206-01	1.278-03
RN-220	3.379+03	1.108+00	3.379+03	7.314+03	3.379+03	4.594+00
RADON	3.380+03	1.109+00	3.380+03	7.314+03	3.380+03	4.595+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9
NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

NUCLIDE -----	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL. -----		23KS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----		25KS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL. -----	
AT-217	3.121+00	3.189+05	3.121+00	6.832+00	3.121+00	1.314+04
AT-218	1.176+05	0.000	1.176+05	1.813+06	1.176+05	0.000
ASTATINE	3.121+00	3.189+05	3.121+00	6.832+00	3.121+00	1.314+04
PU-210	1.172+02	0.000	1.172+02	0.000	1.172+02	0.000
PO-212	1.095+04	2.685+00	1.095+04	1.773+04	1.095+04	1.113+01
PU-213	7.034+00	6.469+05	7.034+00	1.386+01	7.034+00	2.664+04
PU-215	6.809+01	4.867+04	6.809+01	3.136+01	6.809+01	2.008+03
PO-216	4.889+03	1.513+00	4.889+03	9.987+03	4.889+03	6.273+00
POLONIUM	1.585+04	4.198+00	1.585+04	2.773+04	1.585+04	1.740+01
HI-211	3.915+01	2.878+04	3.915+01	1.854+01	3.915+01	1.188+03
BI-212	1.039+03	3.277+01	1.039+03	2.163+03	1.039+03	1.358+00
BISMUTH	1.039+03	3.280+01	1.039+03	2.163+03	1.039+03	1.360+00
ALL ELEMENTS	2.783+04	1.088+06	2.783+04	7.957+04	2.783+04	8.496+06

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE -----	MS FRESH U-235 F.E. FERTILE PTL. FISSILE PTL.		23RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL.		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSILE PTL.	
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CM=242	4,631-02	3,279+01	4,631-02	9,250-01	4,631-02	2,658+02
CM=244	8,277+02	7,399+05	8,277+02	5,911+03	8,277+02	5,782+06
CURIUM	8,277+02	7,400+05	8,277+02	5,912+03	8,277+02	5,782+06
AM=241	3,371-01	1,343+03	3,371-01	5,230+01	3,371-01	1,079+04
AM=243	6,439-03	4,809+01	6,439-03	5,392-01	6,439-03	3,805+02
AMERICIUM	3,436-01	1,391+03	3,436-01	5,284+01	3,436-01	1,117+04
PU=238	3,149+02	1,805+05	3,149+02	2,290+04	3,149+02	1,405+06
PU=239	6,046-02	1,020+02	6,046-02	5,641+00	6,046-02	7,914+02
PU=240	6,169-01	8,825+02	6,169-01	4,216+01	6,169-01	6,984+03
PLUTONIUM	3,156+02	1,815+05	3,156+02	2,295+04	3,156+02	1,413+06
NP=237	2,499-02	7,645+00	2,499-02	1,056+00	2,499-02	4,953+01
NEPTUNIUM	2,499-02	7,645+00	2,499-02	1,056+00	2,499-02	4,953+01
U=232	1,539+03	4,761-01	1,539+03	2,845+03	1,539+03	1,974+00
U=233	6,256+02	2,426-05	6,256+02	2,405+02	6,256+02	1,301-04
U=234	1,064+02	1,291+01	1,064+02	3,842+02	1,064+02	5,355+01
U=235	1,002-02	1,270-01	1,002-02	6,164-02	1,002-02	9,933-02
U=236	3,359-02	5,413+00	3,359-02	7,564-01	3,359-02	4,958+01
U=238	0,000	5,740-01	0,000	2,509-05	0,000	4,282+00
URANIUM	2,471+03	1,950+01	2,471+03	3,471+03	2,471+03	1,095+02
PA=231	1,369+00	4,357-04	1,369+00	2,715-01	1,369+00	1,730-03
PROTACTINIUM	1,369+00	4,357-04	1,369+00	2,715-01	1,369+00	1,730-03
TH=228	1,693+03	5,340-01	1,693+03	3,178+03	1,693+03	2,214+00
TH=229	9,494-01	5,249-06	9,494-01	1,241+00	9,494-01	2,164-05
TH=230	2,198+00	1,555-03	2,198+00	3,742-01	2,198+00	6,477-03
TH=232	1,450-01	0,000	1,450-01	0,000	1,450-01	0,000
THORIUM	1,696+03	5,356-01	1,696+03	3,180+03	1,696+03	2,221+00
AC=225	2,155+00	1,244-05	2,155+00	2,942+00	2,155+00	5,129-05
ACTINIUM	2,155+00	1,244-05	2,155+00	2,942+00	2,155+00	5,129-05
RA=223	1,632-01	2,513-04	1,632-01	1,604-01	1,632-01	1,023-03
RA=224	2,193+03	6,939-01	2,193+03	4,130+03	2,193+03	2,877+00
RADIUM	2,193+03	6,941-01	2,193+03	4,130+03	2,193+03	2,878+00
FR=221	3,200+00	1,951-05	3,200+00	4,613+00	3,200+00	8,040-05
FRANCIUM	3,200+00	1,951-05	3,200+00	4,613+00	3,200+00	8,040-05
RN=219	3,583-01	5,407-04	3,583-01	3,451-01	3,583-01	2,201-03
RN=220	3,576+03	1,173+00	3,576+03	6,983+03	3,576+03	4,865+00
RADON	3,576+03	1,174+00	3,576+03	6,984+03	3,576+03	4,867+00

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

NUCLIDE -----	MS FRESH U-235 F.E. FERTILE PTL. FISSION PTL. -----		238 RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----		25RS RECYCLE U-235 F.E. FERTILE PTL. FISSION PTL. -----	
AT=217	5.718+00	3.195+05	5.718+00	7.555+00	5.718+00	1.317+04
AT=218	1.662+05	0.000	1.662+05	2.669+06	1.662+05	0.000
ASTATINE	5.718+00	3.195+05	5.718+00	7.555+00	5.718+00	1.317+04
PU=210	9.799+03	0.000	9.799+03	0.000	9.799+03	0.000
PU=212	1.160+04	2.844+00	1.160+04	1.693+04	1.160+04	1.179+01
PU=213	1.289+01	6.481+05	1.289+01	1.532+01	1.289+01	2.671+04
PU=215	5.800+01	8.498+04	5.800+01	5.424+01	5.800+01	3.460+03
PU=216	5.173+03	1.602+00	5.173+03	9.535+03	5.173+03	6.643+00
POLONIUM	1.678+04	4.447+00	1.678+04	2.648+04	1.678+04	1.844+01
BI=211	3.334+01	5.026+04	3.334+01	3.208+01	3.334+01	2.046+03
BI=212	1.099+03	3.469+01	1.099+03	2.065+03	1.099+03	1.438+00
BISMUTH	1.099+03	3.474+01	1.099+03	2.065+03	1.099+03	1.440+00
ALL ELEMENTS	2.897+04	9.229+05	2.897+04	7.524+04	2.897+04	7.207+06

IMPORTANT ISOTOPIC CONTRIBUTORS
TO DECAY HEAT, GAMMA DOSE RATES,
AND NEUTRON SOURCE STRENGTHS

TABLE D-13
IMPORTANT ISOTOPIC CONTRIBUTORS TO DECAY HEAT

NOTE: Table 13 consists of 20 pages of computer print-out (pages D-315 through D-334).

CONTENTS OF TABLE D-13

Fuel Elements discharged at the beginning of reload 1 and originally loaded at reload 0	D-315
Fuel Elements discharged at the beginning of reload 5 and originally loaded at reload 1	D-315
Fuel Elements discharged at the beginning of reload 10 and originally loaded at reload 6	D-320
Fuel Elements discharged at the beginning of reload 13 and originally loaded at reload 9	D-325

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	1.59+01 (24.2)	PR-144	6.94+01 (39.5)
NB-95	1.53+01 (23.2)	NB-95	4.13+01 (23.5)
PA-233	1.24+01 (18.8)	ZR-95	2.13+01 (12.1)
ZR-95	6.12+00 (12.3)	SH-89	6.90+00 (3.9)
SH-89	3.78+00 (5.7)	NB-95M	6.25+00 (3.5)
NB-95M	2.37+00 (3.6)	CE-144	6.01+00 (3.4)
CE-144	1.38+00 (2.1)	RH-106	5.85+00 (3.3)
Y-91	1.35+00 (2.0)	CS-134	4.22+00 (2.4)
RH-106	1.00+00 (1.5)	Y-90	3.33+00 (1.9)
Y-90	8.83+01 (1.3)	Y-91	2.98+00 (1.7)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	6.86+01 (36.0)	PR-144	4.81+01 (36.3)
NB-95	3.33+01 (17.5)	CS-134	3.29+01 (24.8)
ZR-95	1.73+01 (9.1)	Y-90	9.05+00 (6.8)
CS-134	1.45+01 (7.6)	NB-95	8.71+00 (6.6)
PA-233	1.02+01 (5.4)	BA-137M	6.37+00 (4.8)
SH-89	7.49+00 (3.9)	RH-106	5.28+00 (4.0)
Y-90	7.39+00 (3.9)	ZR-95	4.47+00 (3.4)
CE-144	5.93+00 (3.1)	CE-144	4.16+00 (3.1)
NB-95M	5.07+00 (2.7)	PU-238	3.60+00 (2.7)
RH-106	4.93+00 (2.6)	SH-90	1.92+00 (1.5)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	1.01+01 (53.7)	PR-144	4.42+01 (59.0)
NB-95	2.42+00 (12.8)	NB-95	6.39+00 (8.5)
ZR-95	1.14+00 (6.1)	RH-106	4.13+00 (5.5)
CE-144	8.76+01 (4.6)	CE-144	3.82+00 (5.1)
Y-90	8.72+01 (4.6)	CS-134	3.55+00 (4.7)
RH-106	7.09+01 (3.8)	Y-90	3.29+00 (4.4)
BA-137M	5.73+01 (3.0)	ZR-95	3.01+00 (4.0)
CS-134	4.26+01 (2.3)	BA-137M	2.29+00 (3.1)
NB-95M	3.35+01 (1.8)	NB-95M	8.81+01 (1.2)
SR-90	3.31+01 (1.8)	SR-90	6.99+01 (.9)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

NB FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	4.36+01 (48.6)	PR-144	3.06+01 (33.6)
CS-134	1.22+01 (13.6)	CS-134	2.77+01 (30.4)
Y-90	7.30+00 (8.1)	Y-90	8.94+00 (9.8)
NB-95	5.17+00 (5.8)	BA-137M	6.50+00 (6.9)
BA-137M	4.82+00 (5.4)	RH-106	3.72+00 (4.1)
CE-144	3.77+00 (4.2)	PU-238	3.58+00 (3.9)
RH-106	3.48+00 (3.9)	CE-144	2.65+00 (2.9)
ZR-95	2.44+00 (2.7)	SR-90	1.90+00 (2.1)
SR-90	1.55+00 (1.7)	CS-137	1.63+00 (1.8)
CS-137	1.27+00 (1.4)	NB-95	1.34+00 (1.5)

10 HIGHEST CONTRIBUTING ISOTOPEs TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	1.70+00 (39.9)	PR-144	7.43+00 (40.8)
Y-90	8.30-01 (19.4)	Y-90	3.13+00 (17.2)
BA-137M	5.47-01 (12.8)	BA-137M	2.19+00 (12.0)
CS-134	2.16-01 (5.1)	CS-134	1.80+00 (9.9)
RH-106	1.79-01 (4.2)	RH-106	1.04+00 (5.7)
SR-90	1.76-01 (4.1)	SR-90	6.65-01 (3.7)
CE-144	1.47-01 (3.4)	CE-144	6.43-01 (3.5)
CS-137	1.44-01 (3.4)	CS-137	5.76-01 (3.2)
KR-85	6.98-02 (1.6)	PM-147	2.72-01 (1.5)
PM-147	5.99-02 (1.4)	KR-85	1.70-01 (.9)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	7.34+00 (23.6)	CS-134	1.41+01 (32.7)
Y-90	6.94+00 (22.4)	Y-90	8.50+00 (19.7)
CS-134	6.19+00 (20.0)	BA-137M	6.01+00 (13.9)
BA-137M	4.60+00 (14.8)	PR-144	5.14+00 (11.9)
SR-90	1.48+00 (4.8)	PU-238	3.53+00 (8.2)
CS-137	1.21+00 (3.9)	SR-90	1.81+00 (4.2)
RH-106	8.79-01 (2.8)	CS-137	1.58+00 (3.7)
CE-144	6.35-01 (2.0)	RH-106	9.41-01 (2.2)
KR-85	4.42-01 (1.4)	CE-144	4.45-01 (1.0)
SB-125	2.77-01 (.9)	EU-154	3.41-01 (.8)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	7.89-01 (33.3)	Y-90	2.97-00 (31.8)
BA-137M	5.23-01 (22.0)	BA-137M	2.09+00 (22.4)
PR-144	2.87-01 (12.1)	PR-144	1.25+00 (13.4)
SR-90	1.68-01 (7.1)	CS-134	9.17-01 (9.8)
CS-137	1.37-01 (5.8)	SR-90	6.32-01 (6.8)
CS-134	1.10-01 (4.6)	CS-137	5.50-01 (5.9)
KR-85	6.14-02 (2.6)	RH-106	2.64-01 (2.8)
RH-106	4.53-02 (1.9)	PM-147	1.60-01 (1.7)
U-233	3.74-02 (1.6)	KR-85	1.50-01 (1.6)
PM-147	3.53-02 (1.5)	PU-238	1.36-01 (1.5)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	6.60+00 (33.4)	Y-90	4.09+00 (27.1)
BA-137M	4.40+00 (22.2)	CS-134	7.16+00 (24.0)
CS-134	3.15+00 (15.9)	BA-137M	5.74+00 (19.2)
SR-90	1.40+00 (7.1)	PU-238	3.47+00 (11.6)
PR-144	1.23+00 (6.2)	SR-90	1.72+00 (5.8)
CS-137	1.16+00 (5.8)	CS-137	1.51+00 (5.1)
KR-85	3.88-01 (2.0)	PH-144	8.65-01 (2.9)
RH-106	2.22-01 (1.1)	EU-154	3.12-01 (1.0)
SB-125	1.66-01 (.8)	KH-85	2.39-01 (.8)
PM-147	1.39-01 (.7)	RH-106	2.38-01 (.8)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	6.96-01 (41.3)	Y-90	2.62+00 (43.1)
BA-137M	4.66-01 (27.6)	BA-137M	1.86+00 (30.6)
SR-90	1.48-01 (8.8)	SR-90	5.58-01 (9.2)
CS-137	1.22-01 (7.3)	CS-137	4.90-01 (8.1)
KR-85	4.45-02 (2.6)	CS-134	1.69-01 (2.8)
U-233	3.74-02 (2.2)	PU-238	1.31-01 (2.1)
PO-216	2.02-02 (1.2)	KR-85	1.08-01 (1.8)
CS-134	2.02-02 (1.2)	EU-154	4.90-02 (.8)
RN-220	1.87-02 (1.1)	PM-147	4.28-02 (.7)
RA-224	1.69-02 (1.0)	PH-144	1.45-02 (.2)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	5.82+00 (42.4)	Y-90	7.13+00 (34.8)
BA-137M	3.92+00 (28.5)	BA-137M	5.11+00 (29.0)
SR-90	1.24+00 (9.0)	PU-238	3.34+00 (16.3)
CS-137	1.03+00 (7.5)	SR-90	1.52+00 (7.4)
CS-134	5.79-01 (4.2)	CS-137	1.34+00 (6.6)
KR-85	2.81-01 (2.0)	CS-134	1.32+00 (6.4)
EU-154	1.09-01 (.8)	EU-154	2.52-01 (1.2)
PO-216	9.64-02 (.7)	CM-244	1.85-01 (.9)
RN-220	8.94-02 (.7)	KR-85	1.73-01 (.8)
RA-224	8.07-02 (.6)	AM-241	2.62-02 (.1)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23R8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	6.58+01 (36.0)	PN-144	5.05+01 (35.7)
NB-95	3.21+01 (17.6)	CS-134	3.18+01 (22.5)
ZR-95	1.67+01 (9.1)	NB-95	1.17+01 (8.3)
CS-134	1.34+01 (7.3)	Y-90	1.13+01 (8.0)
PA-233	1.00+01 (5.5)	BA-137M	7.54+00 (5.3)
SR-89	7.23+00 (4.0)	ZH-95	6.04+00 (4.3)
Y-90	7.03+00 (3.8)	RH-106	4.47+00 (3.2)
CE-144	5.69+00 (3.1)	CE-144	4.37+00 (3.1)
NB-95M	4.88+00 (2.7)	SR-90	2.41+00 (1.7)
RH-106	4.72+00 (2.6)	SR-89	2.29+00 (1.6)

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	6.58+01 (36.0)	PN-144	4.12+01 (31.7)
NB-95	3.21+01 (17.6)	CS-134	2.63+01 (20.2)
ZR-95	1.67+01 (9.1)	PU-238	1.90+01 (14.6)
CS-134	1.34+01 (7.3)	NB-95	7.65+00 (5.9)
PA-233	1.00+01 (5.5)	Y-90	7.23+00 (5.6)
SR-89	7.23+00 (4.0)	BA-137M	5.20+00 (4.0)
Y-90	7.03+00 (3.8)	RH-106	4.47+00 (3.4)
CE-144	5.69+00 (3.1)	ZH-95	3.93+00 (3.0)
NB-95M	4.88+00 (2.7)	CE-144	3.56+00 (2.7)
RH-106	4.72+00 (2.6)	CM-242	2.61+00 (2.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER P.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U=233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	4.19+01 (48.9)	PR-144	3.21+01 (34.2)
CS-134	1.13+01 (13.2)	CS-134	2.68+01 (28.5)
Y-90	6.94+00 (8.1)	Y-90	1.12+01 (11.9)
NB-95	4.99+00 (5.8)	BA-137M	7.46+00 (7.9)
BA-137M	4.58+00 (5.4)	RH-106	3.15+00 (3.4)
CE-144	3.62+00 (4.2)	CE-144	2.78+00 (3.0)
RH-106	3.33+00 (3.9)	SR-90	2.38+00 (2.5)
ZR-95	2.35+00 (2.7)	CS-137	1.96+00 (2.1)
SR-90	1.48+00 (1.7)	NB-95	1.81+00 (1.9)
CS-137	1.20+00 (1.4)	ZR-95	8.51-01 (.9)

25RS RECYCLE U=235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	4.19+01 (48.9)	PR-144	2.62+01 (28.1)
CS-134	1.13+01 (13.2)	CS-134	2.21+01 (23.8)
Y-90	6.94+00 (8.1)	PU-238	1.89+01 (20.3)
NB-95	4.99+00 (5.8)	Y-90	7.14+00 (7.7)
BA-137M	4.58+00 (5.4)	BA-137M	5.14+00 (5.5)
CE-144	3.62+00 (4.2)	RH-106	3.16+00 (3.4)
RH-106	3.33+00 (3.9)	CE-144	2.26+00 (2.4)
ZR-95	2.35+00 (2.7)	SR-90	1.52+00 (1.6)
SR-90	1.48+00 (1.7)	CS-137	1.35+00 (1.5)
CS-137	1.20+00 (1.4)	CM-242	1.19+00 (1.3)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	7.05+00 (23.9)	CB-134	1.36+01 (30.5)
Y-90	6.60+00 (22.4)	Y-90	1.06+01 (23.9)
CB-134	5.74+00 (19.5)	BA-137M	7.12+00 (16.0)
BA-137M	4.38+00 (14.8)	PR-144	5.40+00 (12.1)
SR-90	1.40+00 (4.8)	SR-90	2.26+00 (5.1)
CS-137	1.15+00 (3.9)	CS-137	1.87+00 (4.2)
HM-106	8.42+01 (2.9)	HM-106	7.96+01 (1.8)
CE-144	6.09+01 (2.1)	KR-85	4.94+01 (1.1)
KR-85	4.28+01 (1.5)	CE-144	4.67+01 (1.0)
SB-125	2.64+01 (.9)	PU-238	4.32+01 (1.0)

25RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	7.05+00 (23.9)	PU-238	1.86+01 (36.0)
Y-90	6.60+00 (22.4)	CB-134	1.12+01 (21.7)
CB-134	5.74+00 (19.5)	Y-90	6.79+00 (13.1)
BA-137M	4.38+00 (14.8)	BA-137M	4.90+00 (9.5)
SR-90	1.40+00 (4.8)	PR-144	4.40+00 (8.5)
CS-137	1.15+00 (3.9)	SR-90	1.44+00 (2.8)
HM-106	8.42+01 (2.9)	CB-137	1.29+00 (2.5)
CE-144	6.09+01 (2.1)	CM-244	9.00+01 (1.7)
KR-85	4.28+01 (1.5)	HM-106	7.98+01 (1.5)
SB-125	2.64+01 (.9)	CE-144	3.81+01 (.7)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U-233 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y=90	6.28+00 (33.4)	Y=90	1.01+01 (32.7)
BA=137M	4.18+00 (22.3)	CS=134	6.91+00 (22.3)
CS=134	2.92+00 (15.5)	BA=137M	6.80+00 (21.9)
SR=90	1.33+00 (7.1)	SR=90	2.15+00 (6.9)
PR=144	1.18+00 (6.3)	CS=137	1.79+00 (5.8)
CS=137	1.10+00 (5.8)	PR=144	9.09+01 (2.9)
KR=85	3.76+01 (2.0)	KR=85	4.35+01 (1.4)
HM=106	2.13+01 (1.1)	PU=238	4.25+01 (1.4)
SB=125	1.59+01 (.8)	EU=154	2.66+01 (.9)
PM=147	1.36+01 (.7)	HM=106	2.01+01 (.6)

25RS RECYCLE U-235 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y=90	6.28+00 (33.4)	PU=238	1.83+01 (45.4)
BA=137M	4.18+00 (22.3)	Y=90	6.46+00 (16.0)
CS=134	2.92+00 (15.5)	CS=134	5.71+00 (14.2)
SR=90	1.33+00 (7.1)	BA=137M	4.68+00 (11.6)
PR=144	1.18+00 (6.3)	SR=90	1.37+00 (3.4)
CS=137	1.10+00 (5.8)	CS=137	1.23+00 (3.1)
KR=85	3.76+01 (2.0)	CM=244	8.33+01 (2.1)
HM=106	2.13+01 (1.1)	PR=144	7.41+01 (1.8)
SB=125	1.59+01 (.8)	EU=154	2.63+01 (.7)
PM=147	1.36+01 (.7)	HM=106	2.02+01 (.5)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U=233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y=90	5.54+00 (42.3)	Y=90	8.92+00 (41.8)
BA=137M	3.72+00 (28.4)	BA=137M	6.06+00 (28.4)
SR=90	1.18+00 (9.0)	SR=90	1.90+00 (8.9)
CS=137	9.79+01 (7.5)	CS=137	1.59+00 (7.5)
CS=134	5.37+01 (4.1)	CS=134	1.27+00 (6.0)
KR=85	2.72+01 (2.1)	PU=238	4.09+01 (1.9)
EU=154	1.04+01 (.8)	KR=85	3.15+01 (1.5)
PO=216	9.65+02 (.7)	EU=154	2.15+01 (1.0)
NN=220	8.94+02 (.7)	PO=216	8.67+02 (.4)
HA=224	8.07+02 (.6)	NN=220	8.04+02 (.4)

25RS RECYCLE U=235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y=90	5.54+00 (42.3)	PU=238	1.76+01 (54.8)
BA=137M	3.72+00 (28.4)	Y=90	5.70+00 (17.8)
SR=90	1.18+00 (9.0)	BA=137M	4.17+00 (15.0)
CS=137	9.79+01 (7.5)	SR=90	1.21+00 (5.8)
CS=134	5.37+01 (4.1)	CS=137	1.10+00 (5.4)
KR=85	2.72+01 (2.1)	CS=134	1.05+00 (5.3)
EU=154	1.04+01 (.8)	CM=244	6.86+01 (2.1)
PO=216	9.65+02 (.7)	EU=154	2.12+01 (.7)
NN=220	8.94+02 (.7)	KR=85	1.44+01 (.4)
HA=224	8.07+02 (.6)	AM=241	1.24+01 (.4)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	6.57+01 (35.9)	PR-144	5.85+01 (37.4)
NB-95	3.25+01 (17.8)	CS-134	3.53+01 (22.6)
ZR-95	1.69+01 (9.2)	NB-95	1.19+01 (7.6)
CS-134	1.30+01 (7.1)	Y-90	1.00+01 (6.4)
PA-233	1.01+01 (5.5)	BA-137M	7.06+00 (4.5)
SR-89	7.33+00 (4.0)	RM-106	6.28+00 (4.0)
Y-90	6.89+00 (3.8)	ZR-95	6.11+00 (3.9)
CE-144	5.68+00 (3.1)	CE-144	5.06+00 (3.2)
NB-95M	4.95+00 (2.7)	PU-238	3.88+00 (2.5)
RM-106	4.69+00 (2.6)	SR-90	2.13+00 (1.4)

23MS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	6.57+01 (35.9)	PR-144	4.68+01 (36.1)
NB-95	3.25+01 (17.8)	CS-134	2.77+01 (21.4)
ZR-95	1.69+01 (9.2)	NB-95	1.15+01 (8.9)
CS-134	1.30+01 (7.1)	Y-90	9.93+00 (7.7)
PA-233	1.01+01 (5.5)	BA-137M	6.62+00 (5.1)
SR-89	7.33+00 (4.0)	ZR-95	5.94+00 (4.6)
Y-90	6.89+00 (3.8)	RM-106	4.11+00 (3.2)
CE-144	5.68+00 (3.1)	CE-144	4.05+00 (3.1)
NB-95M	4.95+00 (2.7)	SR-89	2.25+00 (1.7)
RM-106	4.69+00 (2.6)	SR-90	2.11+00 (1.6)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	6.57+01 (35.9)	PR-144	4.39+01 (29.2)
NB-95	3.25+01 (17.8)	PU-238	3.02+01 (20.1)
ZR-95	1.69+01 (9.2)	CS-134	2.63+01 (17.5)
CB-134	1.30+01 (7.1)	NB-95	8.81+00 (5.9)
PA-233	1.01+01 (5.5)	Y-90	7.31+00 (4.9)
BR-89	7.33+00 (4.0)	CM-242	5.30+00 (3.5)
Y-90	6.89+00 (3.8)	BA-137M	5.26+00 (3.5)
CE-144	5.68+00 (3.1)	KH-106	4.71+00 (3.1)
NB-95M	4.95+00 (2.7)	ZK-95	4.53+00 (3.0)
RH-106	4.69+00 (2.6)	CE-144	3.80+00 (2.5)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	4.18+01 (49.2)	PR-144	3.72+01 (35.6)
CS-134	1.10+01 (12.9)	CS-134	2.97+01 (28.4)
Y-90	6.80+00 (8.0)	Y-90	9.91+00 (9.5)
NB-95	5.05+00 (5.9)	BA-137M	6.97+00 (6.7)
BA-137M	4.49+00 (5.3)	HM-106	4.43+00 (4.2)
CE-144	3.61+00 (4.3)	PU-238	3.86+00 (3.7)
HM-106	3.31+00 (3.9)	CE-144	3.22+00 (3.1)
ZR-95	2.38+00 (2.8)	SR-90	2.11+00 (2.0)
SR-90	1.45+00 (1.7)	CS-137	1.83+00 (1.8)
CS-137	1.18+00 (1.4)	NB-95	1.83+00 (1.8)

23RS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	4.18+01 (49.2)	PR-144	2.98+01 (35.1)
CS-134	1.10+01 (12.9)	CS-134	2.33+01 (27.5)
Y-90	6.80+00 (8.0)	Y-90	9.81+00 (11.6)
NB-95	5.05+00 (5.9)	BA-137M	6.55+00 (7.7)
BA-137M	4.49+00 (5.3)	HM-106	2.90+00 (6.4)
CE-144	3.61+00 (4.3)	CE-144	2.57+00 (5.0)
HM-106	3.31+00 (3.9)	SH-90	2.08+00 (2.5)
ZR-95	2.38+00 (2.8)	NB-95	1.78+00 (2.1)
SR-90	1.45+00 (1.7)	CS-137	1.72+00 (2.0)
CS-137	1.18+00 (1.4)	ZR-95	8.38+01 (1.0)

10 HIGHEST CONTRIBUTING ISOTOPE TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

2SR9 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	4.18+01 (49.2)	PU-238	3.01+01 (27.5)
CS-134	1.10+01 (12.9)	PK-144	2.79+01 (25.6)
Y-90	6.80+00 (8.0)	CS-134	2.22+01 (20.3)
NB-95	5.05+00 (5.9)	Y-90	7.22+00 (6.6)
BA-137M	4.49+00 (5.3)	BA-137M	5.20+00 (4.8)
CE-144	3.61+00 (4.3)	RH-106	3.32+00 (3.0)
RH-106	3.31+00 (3.9)	CE-144	2.41+00 (2.2)
ZH-95	2.38+00 (2.8)	CM-242	2.41+00 (2.2)
SR-90	1.45+00 (1.7)	CM-244	1.93+00 (1.8)
CS-137	1.18+00 (1.4)	SR-90	1.53+00 (1.4)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS UNIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	7.03+00 (24.2)	CS-134	1.51+01 (31.5)
Y-90	6.47+00 (22.3)	Y-90	9.42+00 (19.6)
CS-134	5.57+00 (19.2)	BA-137M	6.66+00 (13.9)
BA-137M	4.29+00 (14.8)	PR-144	6.26+00 (13.1)
SR-90	1.38+00 (4.7)	PU-238	3.80+00 (7.9)
CS-137	1.13+00 (3.9)	SR-90	2.00+00 (4.2)
RH-106	8.37+01 (2.9)	CS-137	1.75+00 (3.6)
CE-144	6.08+01 (2.1)	RH-106	1.12+00 (2.3)
KR-85	4.23+01 (1.5)	CE-144	5.41+01 (1.1)
SB-125	2.61+01 (.9)	EU-154	3.67+01 (.8)

23RB RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PR-144	7.03+00 (24.2)	CS-134	1.18+01 (30.9)
Y-90	6.47+00 (22.3)	Y-90	9.33+00 (23.6)
CS-134	5.57+00 (19.2)	BA-137M	6.25+00 (15.8)
BA-137M	4.29+00 (14.8)	PR-144	5.01+00 (12.7)
SR-90	1.38+00 (4.7)	SR-90	1.98+00 (5.0)
CS-137	1.13+00 (3.9)	CS-137	1.64+00 (4.2)
RH-106	8.37+01 (2.9)	RH-106	7.34+01 (1.9)
CE-144	6.08+01 (2.1)	PU-238	4.82+01 (1.2)
KR-85	4.23+01 (1.5)	KR-85	4.43+01 (1.1)
SB-125	2.61+01 (.9)	CE-144	4.33+01 (1.1)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE DECAY HEAT IN WATTS PER P.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RS RECYCLE U-235 P.E.

ISOTOPE	FERTILE PTL,	ISOTOPE	FISSILE PTL,
PR-144	7.03+00 (24.2)	PU-238	2.96+01 (46.1)
Y-90	6.47+00 (22.3)	CS-134	1.13+01 (17.5)
CS-134	5.57+00 (19.2)	Y-90	6.86+00 (10.7)
BA-137M	4.29+00 (14.8)	BA-137M	4.97+00 (7.7)
SR-90	1.38+00 (4.7)	PR-144	4.70+00 (7.3)
CS-137	1.13+00 (3.9)	CM-244	1.79+00 (2.8)
RH-106	8.37+01 (2.9)	SR-90	1.46+00 (2.3)
CE-144	6.08+01 (2.1)	CS-137	1.31+00 (2.0)
KR-85	4.23+01 (1.5)	RH-106	8.40+01 (1.3)
SB-125	2.61+01 (.9)	CE-144	4.06+01 (.6)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.				23MS RECYCLE U-235 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.	ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	6.15+00 (33.4)	Y-90	8.96+00 (27.3)	Y-90	6.15+00 (33.4)	Y-90	8.87+00 (32.3)
BA-137M	4.10+00 (22.2)	CS-134	7.67+00 (23.4)	BA-137M	4.10+00 (22.2)	CS-134	6.02+00 (21.9)
CS-134	2.83+00 (15.3)	BA-137M	6.36+00 (19.4)	CS-134	2.83+00 (15.3)	BA-137M	5.97+00 (21.8)
SM-90	1.31+00 (7.1)	PU-238	3.74+00 (11.4)	SM-90	1.31+00 (7.1)	SM-90	1.89+00 (6.9)
PR-144	1.18+00 (6.4)	SM-90	1.91+00 (5.8)	PR-144	1.18+00 (6.4)	CS-137	1.57+00 (5.7)
CS-137	1.08+00 (5.8)	CS-137	1.67+00 (5.1)	CS-137	1.08+00 (5.8)	PR-144	8.42+01 (3.1)
KR-85	3.72+01 (2.0)	PR-144	1.05+00 (3.2)	KR-85	3.72+01 (2.0)	PU-238	4.75+01 (1.7)
RH-106	2.11+01 (1.1)	EU-154	3.55+01 (1.1)	RH-106	2.11+01 (1.1)	KR-85	3.89+01 (1.4)
SB-125	1.56+01 (.8)	KR-85	2.83+01 (.9)	SB-125	1.56+01 (.8)	EU-154	2.33+01 (.9)
PM-147	1.36+01 (.7)	RH-106	2.83+01 (.9)	PM-147	1.36+01 (.7)	RH-106	1.85+01 (.7)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	6.15+00 (33.4)	PU-238	2.91+01 (55.7)
BA-137M	4.10+00 (22.2)	Y-90	6.53+00 (12.5)
CS-134	2.83+00 (15.3)	CS-134	5.72+00 (10.9)
SR-90	1.31+00 (7.1)	BA-137M	4.74+00 (9.1)
PR-144	1.18+00 (6.4)	CM-244	1.65+00 (3.2)
CS-137	1.08+00 (5.8)	SR-90	1.39+00 (2.7)
KR-85	3.72+01 (2.0)	CS-137	1.25+00 (2.4)
RH-106	2.11+01 (1.1)	PR-144	7.90+01 (1.5)
SB-125	1.56+01 (.8)	EU-154	2.70+01 (.5)
PM-147	1.36+01 (.7)	RH-106	2.12+01 (.4)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MB FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	5.43+00 (42.3)	Y-90	7.91+00 (35.1)
BA-137M	3.65+00 (28.4)	BA-137M	5.67+00 (25.1)
SR-90	1.15+00 (9.0)	PU-238	3.60+00 (16.0)
CS-137	9.60+01 (7.5)	SR-90	1.68+00 (7.5)
CS-134	5.20+01 (4.0)	CS-137	1.49+00 (6.6)
KR-85	2.69+01 (2.1)	CS-134	1.41+00 (6.3)
EU-154	1.01+01 (.8)	EU-154	2.86+01 (1.3)
PD-216	9.75+02 (.8)	KR-85	2.05+01 (.9)
RN-220	9.04+02 (.7)	CM-244	1.74+01 (.8)
RA-224	8.16+02 (.6)	PM-147	3.15+02 (.1)

23RB RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y-90	5.43+00 (42.3)	Y-90	7.83+00 (41.4)
BA-137M	3.65+00 (28.4)	BA-137M	5.32+00 (28.1)
SR-90	1.15+00 (9.0)	SR-90	1.66+00 (8.8)
CS-137	9.60+01 (7.5)	CS-137	1.40+00 (7.4)
CS-134	5.20+01 (4.0)	CS-134	1.11+00 (5.9)
KR-85	2.69+01 (2.1)	PU-238	4.56+01 (2.4)
EU-154	1.01+01 (.8)	KR-85	2.82+01 (1.5)
PD-216	9.75+02 (.8)	EU-154	1.90+01 (1.0)
RN-220	9.04+02 (.7)	PU-216	9.49+02 (.5)
RA-224	8.16+02 (.6)	RN-220	8.80+02 (.5)

10 HIGHEST CONTRIBUTING ISOTOPE TO THE DECAY HEAT IN WATTS PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL HEATING RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RB RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
Y=90	5.43+00 (42.3)	PU-238	2.80+01 (64.4)
BA=137M	3.65+00 (28.4)	Y=90	5.76+00 (13.2)
BR=90	1.15+00 (9.0)	BA=137M	4.23+00 (9.7)
CB=137	9.60+01 (7.5)	CM=244	1.36+00 (3.1)
CB=134	5.20+01 (4.0)	BR=90	1.22+00 (2.8)
KR=85	2.69+01 (2.1)	CB=137	1.11+00 (2.6)
EU=154	1.01+01 (.8)	CB=134	1.05+00 (2.4)
PU=216	9.75+02 (.8)	AM=241	2.37+01 (.5)
RN=220	9.04+02 (.7)	EU=154	2.18+01 (.5)
RA=224	8.16+02 (.6)	KR=85	1.49+01 (.3)

TABLE D-14
IMPORTANT ISOTOPIC CONTRIBUTORS TO GAMMA DOSE RATE

NOTE: Table D-14 consists of 20 pages of
computer print-out (pages D-337 through
D-356).

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Fuel Elements discharged at the beginning of reload 1 and originally loaded at reload 0	D-337
Fuel Elements discharged at the beginning of reload 5 and originally loaded at reload 1	D-337
Fuel Elements discharged at the beginning of reload 10 and originally loaded at reload 6	D-342
Fuel Elements discharged at the beginning of reload 13 and originally loaded at reload 9	D-347

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	1.30+03 (42.6)	NB-95	3.51+03 (57.7)
PA-233	9.36+02 (30.6)	ZH-95	1.66+03 (27.2)
ZR-95	6.31+02 (20.7)	CS-134	3.44+02 (5.6)
BA-137M	4.50+01 (1.5)	BA-137M	1.80+02 (3.0)
CS-134	4.12+01 (1.3)	RU-103	1.56+02 (2.6)
RU-103	3.97+01 (1.3)	PR-144	1.35+02 (2.2)
PR-144	3.09+01 (1.0)	RH-106	6.55+01 (1.1)
RH-106	1.15+01 (.4)	PM-148M	1.66+01 (.3)
SB-125	5.74+00 (.2)	SB-125	5.75+00 (.1)
TE-129M	4.21+00 (.1)	EU-154	5.14+00 (.1)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.83+03 (41.3)	CS-134	2.68+03 (59.6)
ZR-95	1.35+03 (19.6)	NB-95	7.40+02 (10.4)
CS-134	1.18+03 (17.2)	BA-137M	4.94+02 (11.0)
PA-233	7.69+02 (11.2)	ZH-95	3.47+02 (7.7)
BA-137M	3.79+02 (5.5)	PM-144	9.32+01 (2.1)
PR-144	1.33+02 (1.9)	RH-106	5.91+01 (1.3)
RU-103	7.65+01 (1.1)	RU-103	3.16+01 (.7)
RH-106	5.52+01 (.8)	EU-154	2.64+01 (.6)
SB-125	3.78+01 (.6)	PM-148M	1.12+01 (.2)
PM-148M	1.60+01 (.2)	SB-125	1.03+01 (.2)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.05+02 (49.3)	NB-95	5.43+02 (39.0)
ZR-95	8.89+01 (21.3)	CS-134	2.89+02 (20.8)
BA-137M	4.45+01 (10.7)	ZR-95	2.34+02 (16.8)
CS-134	3.47+01 (8.3)	BA-137M	1.78+02 (12.8)
PR-144	1.97+01 (4.7)	PR-144	8.57+01 (6.2)
PA-233	8.05+00 (1.9)	RH-106	4.62+01 (3.3)
RH-106	7.94+00 (1.9)	HU-103	6.18+00 (.4)
SB-125	5.04+00 (1.2)	SB-125	5.05+00 (.4)
HU-103	1.58+00 (.4)	EU-154	5.03+00 (.4)
EU-154	5.89+01 (.1)	PM-148M	7.76+01 (.1)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	9.93+02 (45.6)	CS-134	2.26+03 (74.1)
NB-95	4.40+02 (20.2)	BA-137M	4.88+02 (16.0)
BA-137M	3.74+02 (17.2)	NB-95	1.14+02 (3.7)
ZR-95	1.90+02 (8.7)	PH-144	5.93+01 (1.9)
PR-144	8.47+01 (3.9)	ZR-95	4.90+01 (1.6)
RH-106	3.89+01 (1.8)	RH-106	4.17+01 (1.4)
SB-125	3.32+01 (1.5)	EU-154	2.58+01 (.8)
EU-154	1.12+01 (.5)	SB-125	9.03+00 (.3)
PA-233	6.61+00 (.3)	AG-110M	1.35+00 (.0)
HU-103	3.04+00 (.1)	HU-103	1.25+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	4.25+01 (61.2)	BA-137M	1.70+02 (48.4)
CS-134	1.76+01 (25.4)	CS-134	1.47+02 (41.9)
PR-144	3.31+00 (4.8)	PR-144	1.44+01 (4.1)
SH-125	3.02+00 (4.4)	RH-106	1.17+01 (3.3)
RH-106	2.01+00 (2.9)	EU-154	4.61+00 (1.3)
EU-154	5.40+01 (.8)	SB-125	3.03+00 (.9)
TL-208	1.97+01 (.3)	NB-95	2.44+01 (.1)
NB-95	9.28+02 (.1)	ZR-95	1.03+01 (.0)
ZR-95	3.92+02 (.1)	EU-152	5.74+02 (.0)
EU-152	3.49+02 (.1)	AG-110M	4.65+02 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MB FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	5.05+02 (55.0)	CS-134	1.15+03 (69.0)
BA-137M	3.57+02 (38.9)	BA-137M	4.66+02 (28.0)
SB-125	1.99+01 (2.2)	EU-154	2.37+01 (1.4)
PR-144	1.42+01 (1.6)	RH-106	1.05+01 (.6)
EU-154	1.03+01 (1.1)	PR-144	9.98+00 (.6)
RH-106	9.84+00 (1.1)	SB-125	5.41+00 (.3)
TL-208	1.04+00 (.1)	AG-110M	1.85+01 (.0)
NB-95	1.98+01 (.0)	NB-95	5.11+02 (.0)
AG-110M	1.59+01 (.0)	EU-152	3.98+02 (.0)
PB-212	1.25+01 (.0)	ZR-95	2.16+02 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HK PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	4.05+01 (76.2)	BA-137M	1.62+02 (65.3)
CS-134	8.95+00 (16.8)	CS-134	7.47+01 (30.1)
SB-125	1.81+00 (3.4)	EU-154	4.23+00 (1.7)
PR-144	5.56+01 (1.0)	RH-106	2.95+00 (1.2)
RH-106	5.07+01 (1.0)	PR-144	2.42+00 (1.0)
EU-154	4.95+01 (.9)	SB-125	1.82+00 (.7)
TL-208	2.38+01 (.4)	EU-152	5.15+02 (.0)
EU-152	3.13+02 (.1)	AG-110M	6.38+03 (.0)
PB-212	2.87+02 (.1)	NB-95	1.08+04 (.0)
BI-212	2.30+02 (.0)	ZK-95	4.56+05 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.41+02 (54.6)	CS-134	5.83+02 (55.1)
CS-134	2.56+02 (41.0)	BA-137M	4.45+02 (42.1)
SB-125	1.19+01 (1.9)	EU-154	2.17+01 (2.1)
EU-154	9.44+00 (1.5)	SB-125	3.23+00 (.3)
RH-106	2.49+00 (.4)	RH-106	2.66+00 (.3)
PR-144	2.39+00 (.4)	PR-144	1.68+00 (.2)
TL-208	1.18+00 (.2)	EU-152	3.57+02 (.0)
PB-212	1.42+01 (.0)	AG-110M	2.54+02 (.0)
BI-212	1.14+01 (.0)	TL-208	1.93+04 (.0)
EU-152	2.71+02 (.0)	AG-108M	3.12+05 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.61+01 (92.5)	BA-137M	1.45+02 (89.0)
CS-134	1.65+00 (4.2)	CS-134	1.37+01 (8.5)
SB-125	5.04+01 (1.3)	EU-154	3.41+00 (2.1)
EU-154	3.99+01 (1.0)	SB-125	5.06+01 (.3)
TL-208	2.62+01 (.7)	HM-106	9.49+02 (.1)
PB-212	3.15+02 (.1)	EU-152	3.92+02 (.0)
BI-212	2.53+02 (.1)	PR-144	2.81+02 (.0)
EU-152	2.38+02 (.1)	AG-110M	4.47+05 (.0)
HM-106	1.63+02 (.0)	U-235	3.10+05 (.0)
PR-144	6.45+03 (.0)	TL-208	2.80+05 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.04+02 (83.6)	BA-137M	3.97+02 (75.9)
CS-134	4.72+01 (13.0)	CS-134	1.07+02 (20.5)
EU-154	7.60+00 (2.1)	EU-154	1.75+01 (3.3)
SB-125	3.33+00 (.9)	SB-125	9.04+01 (.2)
TL-208	1.25+00 (.3)	HM-106	8.56+02 (.0)
PB-212	1.50+01 (.0)	EU-152	2.72+02 (.0)
BI-212	1.20+01 (.0)	PR-144	1.95+02 (.0)
HM-106	7.94+02 (.0)	TL-208	2.04+04 (.0)
PR-144	2.78+02 (.0)	AG-110M	1.78+04 (.0)
EU-152	2.06+02 (.0)	AG-108M	3.04+05 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23R8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.73+03 (41.5)	CB-134	2.59+03 (52.8)
ZR-95	1.30+03 (19.7)	NB-95	9.96+02 (20.3)
CB-134	1.09+03 (16.6)	BA-137M	5.85+02 (11.9)
PA-233	7.54+02 (11.5)	ZR-95	4.69+02 (9.6)
BA-137M	3.60+02 (5.5)	PH-144	9.80+01 (2.0)
PH-144	1.28+02 (1.9)	RH-106	5.00+01 (1.0)
HU-103	7.36+01 (1.1)	SB-125	4.26+01 (.9)
RH-106	5.29+01 (.8)	RU-103	3.22+01 (.7)
SB-125	3.61+01 (.6)	EU-154	2.25+01 (.5)
PM-148M	1.60+01 (.2)	PM-148M	1.18+01 (.2)

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.73+03 (41.5)	CB-134	2.14+03 (57.8)
ZR-95	1.30+03 (19.7)	NB-95	6.50+02 (17.6)
CB-134	1.09+03 (16.6)	BA-137M	4.03+02 (10.9)
PA-233	7.54+02 (11.5)	ZR-95	3.05+02 (8.3)
BA-137M	3.60+02 (5.5)	PH-144	7.98+01 (2.2)
PH-144	1.28+02 (1.9)	RH-106	5.01+01 (1.4)
HU-103	7.36+01 (1.1)	RU-103	2.80+01 (.8)
RH-106	5.29+01 (.8)	EU-154	2.23+01 (.6)
SB-125	3.61+01 (.6)	PM-148M	1.02+01 (.3)
PM-148M	1.60+01 (.2)	SB-125	0.35+00 (.2)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23R8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	9.20+02 (44.8)	CS-134	2.18+03 (69.4)
NB-95	4.24+02 (20.6)	BA-137M	5.78+02 (18.4)
BA-137M	3.56+02 (17.3)	NB-95	1.54+02 (4.9)
ZR-95	1.83+02 (8.9)	ZR-95	6.61+01 (2.1)
PR-144	6.13+01 (4.0)	PR-144	6.23+01 (2.0)
RM-106	3.73+01 (1.8)	SB-125	3.74+01 (1.2)
SB-125	3.17+01 (1.5)	RM-106	3.53+01 (1.1)
EU-154	1.07+01 (.5)	EU-154	2.20+01 (.7)
PA-233	6.48+00 (.3)	AG-110M	1.79+00 (.1)
RU-103	2.92+00 (.1)	RU-103	1.28+00 (.0)

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	9.20+02 (44.8)	CS-134	1.80+03 (73.2)
NB-95	4.24+02 (20.6)	BA-137M	3.98+02 (10.2)
BA-137M	3.56+02 (17.3)	NB-95	1.00+02 (4.1)
ZR-95	1.83+02 (8.9)	PH-144	5.08+01 (2.1)
PR-144	6.13+01 (4.0)	ZR-95	4.30+01 (1.7)
RM-106	3.73+01 (1.8)	RM-106	3.54+01 (1.4)
SB-125	3.17+01 (1.5)	EU-154	2.16+01 (.9)
EU-154	1.07+01 (.5)	SB-125	7.33+00 (.3)
PA-233	6.48+00 (.3)	RU-103	1.11+00 (.0)
RU-103	2.92+00 (.1)	AG-110M	1.09+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	4.68+02 (54.3)	CS-134	1.11+03 (64.2)
BA-137M	3.40+02 (39.5)	BA-137M	5.52+02 (32.1)
SB-125	1.90+01 (2.2)	SB-125	2.24+01 (1.3)
PR-144	1.37+01 (1.6)	EU-154	2.02+01 (1.2)
EU-154	9.82+00 (1.1)	PR-144	1.05+01 (.6)
RH-106	9.43+00 (1.1)	RH-106	8.92+00 (.5)
TL-208	1.04+00 (.1)	TL-208	1.18+00 (.1)
NB-95	1.91+01 (.0)	AG-110M	2.46+01 (.0)
AG-110M	1.49+01 (.0)	PB-212	1.42+01 (.0)
PB-212	1.25+01 (.0)	BI-212	1.13+01 (.0)

23RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	4.68+02 (54.3)	CS-134	9.15+02 (68.4)
BA-137M	3.40+02 (39.5)	BA-137M	3.80+02 (28.4)
SB-125	1.90+01 (2.2)	EU-154	2.00+01 (1.5)
PR-144	1.37+01 (1.6)	RH-106	8.94+00 (.7)
EU-154	9.82+00 (1.1)	PR-144	8.54+00 (.6)
RH-106	9.43+00 (1.1)	SB-125	4.40+00 (.3)
TL-208	1.04+00 (.1)	AG-110M	1.50+01 (.0)
NB-95	1.91+01 (.0)	NB-95	4.49+02 (.0)
AG-110M	1.49+01 (.0)	EU-152	3.66+02 (.0)
PB-212	1.25+01 (.0)	ZH-95	1.90+02 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER P.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.24+02 (55.1)	CS-134	5.62+02 (49.9)
CS-134	2.38+02 (40.4)	BA-137M	5.27+02 (46.8)
SB-125	1.14+01 (1.9)	EU-154	1.85+01 (1.6)
EU-154	9.01+00 (1.5)	SB-125	1.34+01 (1.2)
NH-106	2.38+00 (.4)	NH-106	2.25+00 (.2)
PR-144	2.30+00 (.4)	PR-144	1.76+00 (.2)
TL-208	1.18+00 (.2)	TL-208	1.18+00 (.1)
PB-212	1.42+01 (.0)	PB-212	1.42+01 (.0)
BI-212	1.14+01 (.0)	BI-212	1.13+01 (.0)
EU-152	2.81+02 (.0)	AG-110M	3.38+02 (.0)

25RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.24+02 (55.1)	CS-134	4.65+02 (54.5)
CS-134	2.38+02 (40.4)	BA-137M	3.63+02 (42.6)
SB-125	1.14+01 (1.9)	EU-154	1.83+01 (2.1)
EU-154	9.01+00 (1.5)	SB-125	2.64+00 (.3)
NH-106	2.38+00 (.4)	NH-106	2.26+00 (.3)
PR-144	2.30+00 (.4)	PR-144	1.44+00 (.2)
TL-208	1.18+00 (.2)	EU-152	3.28+02 (.0)
PB-212	1.42+01 (.0)	AG-110M	2.06+02 (.0)
BI-212	1.14+01 (.0)	TL-208	4.46+04 (.0)
EU-152	2.81+02 (.0)	AG-108M	9.33+05 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23KS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	2.89+02 (83.8)	BA-137M	4.70+02 (79.2)
CB-134	4.37+01 (12.7)	CB-134	1.03+02 (17.4)
EU-154	7.26+00 (2.1)	EU-154	1.49+01 (2.5)
SB-125	3.18+00 (.9)	SB-125	3.74+00 (.6)
TL-208	1.25+00 (.4)	TL-208	1.12+00 (.2)
PB-212	1.50+01 (.0)	PB-212	1.35+01 (.0)
BI-212	1.21+01 (.0)	BI-212	1.08+01 (.0)
RH-106	7.66+02 (.0)	RH-106	7.24+02 (.0)
PR-144	2.67+02 (.0)	EU-152	2.56+02 (.0)
EU-152	2.14+02 (.0)	PR-144	2.04+02 (.0)

25KS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	2.89+02 (83.8)	BA-137M	3.24+02 (76.2)
CB-134	4.37+01 (12.7)	CB-134	8.55+01 (20.1)
EU-154	7.26+00 (2.1)	EU-154	1.48+01 (3.5)
SB-125	3.18+00 (.9)	SB-125	7.34+01 (.2)
TL-208	1.25+00 (.4)	RH-106	7.26+02 (.0)
PB-212	1.50+01 (.0)	EU-152	2.50+02 (.0)
BI-212	1.21+01 (.0)	PR-144	1.67+02 (.0)
RH-106	7.66+02 (.0)	TL-208	4.71+04 (.0)
PR-144	2.67+02 (.0)	AG-110M	1.44+04 (.0)
EU-152	2.14+02 (.0)	AG-108M	9.08+05 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

23RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.76+03 (42.0)	CS-134	2.87+03 (55.3)
ZR-95	1.31+03 (20.0)	NB-95	1.01+03 (19.5)
CS-134	1.06+03 (16.1)	BA-137M	5.47+02 (10.5)
PA-233	7.59+02 (11.5)	ZR-95	4.75+02 (9.1)
BA-137M	3.53+02 (5.4)	PM-144	1.13+02 (2.2)
PR-144	1.27+02 (1.9)	RM-106	7.03+01 (1.4)
RU-103	7.45+01 (1.1)	RU-103	4.32+01 (.8)
RM-106	5.26+01 (.8)	EU-154	3.00+01 (.6)
SB-125	3.56+01 (.5)	PM-148M	1.45+01 (.3)
PM-148M	1.58+01 (.2)	SB-125	1.17+01 (.2)

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.76+03 (42.0)	CS-134	2.26+03 (50.6)
ZR-95	1.31+03 (20.0)	NB-95	9.81+02 (22.0)
CS-134	1.06+03 (16.1)	BA-137M	5.14+02 (11.5)
PA-233	7.59+02 (11.5)	ZR-95	4.62+02 (10.4)
BA-137M	3.53+02 (5.4)	PM-144	9.08+01 (2.0)
PR-144	1.27+02 (1.9)	RM-106	4.61+01 (1.0)
RU-103	7.45+01 (1.1)	SB-125	3.73+01 (.8)
RM-106	5.26+01 (.8)	RU-103	3.20+01 (.7)
SB-125	3.56+01 (.5)	EU-154	1.99+01 (.4)
PM-148M	1.58+01 (.2)	PM-148M	1.10+01 (.2)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
NB-95	2.76+03 (42.0)	CS-134	2.14+03 (55.4)
ZR-95	1.31+03 (20.0)	NB-95	7.49+02 (19.4)
CS-134	1.06+03 (16.1)	BA-137M	4.08+02 (10.6)
PA-233	7.59+02 (11.5)	ZR-95	3.52+02 (9.1)
BA-137M	3.53+02 (5.4)	PR-144	8.51+01 (2.2)
PR-144	1.27+02 (1.9)	RH-106	5.27+01 (1.4)
HU-103	7.45+01 (1.1)	HU-103	3.23+01 (.8)
RH-106	5.26+01 (.8)	EU-154	2.28+01 (.6)
SB-125	3.56+01 (.5)	PM-148M	1.09+01 (.3)
PM-148M	1.56+01 (.2)	SB-125	8.56+00 (.2)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	8.93+02 (44.0)	CS-134	2.42+03 (72.3)
NB-95	4.30+02 (21.2)	BA-137M	5.41+02 (16.2)
BA-137M	3.49+02 (17.2)	NB-95	1.56+02 (4.6)
ZR-95	1.85+02 (9.1)	PR-144	7.22+01 (2.2)
PR-144	8.11+01 (4.0)	ZR-95	6.70+01 (2.0)
RH-106	3.71+01 (1.8)	RH-106	4.96+01 (1.5)
SB-125	3.13+01 (1.5)	EU-154	2.93+01 (.9)
EU-154	1.04+01 (.5)	SB-125	1.02+01 (.3)
PA-233	6.53+00 (.3)	RU-103	1.71+00 (.1)
RU-103	2.96+00 (.1)	AG-110M	1.49+00 (.0)

23MS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	8.93+02 (44.0)	CS-134	1.90+03 (60.5)
NB-95	4.30+02 (21.2)	BA-137M	5.08+02 (16.3)
BA-137M	3.49+02 (17.2)	NB-95	1.51+02 (5.5)
ZR-95	1.85+02 (9.1)	ZR-95	6.51+01 (2.3)
PR-144	8.11+01 (4.0)	PR-144	5.77+01 (2.1)
RH-106	3.71+01 (1.8)	SB-125	3.28+01 (1.2)
SB-125	3.13+01 (1.5)	RH-106	3.25+01 (1.2)
EU-154	1.04+01 (.5)	EU-154	1.95+01 (.7)
PA-233	6.53+00 (.3)	AG-110M	1.58+00 (.1)
RU-103	2.96+00 (.1)	RU-103	1.27+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS UNIGINALLY LOADED AT RELOAD 9

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	8.93+02 (44.0)	CS-134	1.80+03 (72.3)
NB-95	4.30+02 (21.2)	BA-137M	4.04+02 (16.2)
BA-137M	3.49+02 (17.2)	NB-95	1.15+02 (4.6)
ZR-95	1.85+02 (9.1)	PR-144	5.42+01 (2.2)
PR-144	8.11+01 (4.0)	ZR-95	4.96+01 (2.0)
RH-106	3.71+01 (1.8)	RH-106	3.72+01 (1.5)
SB-125	3.13+01 (1.5)	EU-154	2.23+01 (.9)
EU-154	1.04+01 (.5)	SB-125	7.52+00 (.3)
PA-233	6.53+00 (.3)	RU-103	1.28+00 (.1)
RU-103	2.96+00 (.1)	AG-110M	1.12+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	4.53+02 (54.0)	CS-134	1.23+03 (68.1)
BA-137M	3.33+02 (39.7)	BA-137M	5.17+02 (28.6)
SB-125	1.88+01 (2.2)	EU-154	2.69+01 (1.5)
PH-144	1.36+01 (1.6)	RH-106	1.25+01 (.7)
EU-154	9.53+00 (1.1)	PR-144	1.21+01 (.7)
RH-106	9.37+00 (1.1)	SB-125	6.14+00 (.3)
TL-208	1.05+00 (.1)	AG-110M	2.04+01 (.0)
NB-95	1.93+01 (.0)	NB-95	6.99+02 (.0)
AG-110M	1.46+01 (.0)	EU-152	5.04+02 (.0)
PB-212	1.27+01 (.0)	ZR-95	2.96+02 (.0)

2386 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CS-134	4.53+02 (54.0)	CS-134	9.65+02 (64.0)
BA-137M	3.33+02 (39.7)	BA-137M	4.85+02 (32.2)
SB-125	1.88+01 (2.2)	SB-125	1.96+01 (1.3)
PR-144	1.36+01 (1.6)	EU-154	1.79+01 (1.2)
EU-154	9.53+00 (1.1)	PH-144	9.71+00 (.6)
RH-106	9.37+00 (1.1)	RH-106	8.22+00 (.5)
TL-208	1.05+00 (.1)	TL-208	1.29+00 (.1)
NB-95	1.93+01 (.0)	AG-110M	2.17+01 (.0)
AG-110M	1.46+01 (.0)	PB-212	1.55+01 (.0)
PB-212	1.27+01 (.0)	BI-212	1.24+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPE TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISILE PTL.
CS-134	4.53+02 (54.0)	CS-134	9.17+02 (68.1)
BA-137M	3.33+02 (39.7)	BA-137M	3.85+02 (28.6)
SB-125	1.88+01 (2.2)	EU-154	2.05+01 (1.5)
PR-144	1.36+01 (1.6)	RH-106	9.40+00 (.7)
EU-154	9.53+00 (1.1)	PR-144	9.11+00 (.7)
RH-106	9.37+00 (1.1)	SB-125	4.51+00 (.3)
TL-208	1.05+00 (.1)	AG-110M	1.54+01 (.0)
NB-95	1.93+01 (.0)	NB-95	5.18+02 (.0)
AG-110M	1.46+01 (.0)	EU-152	3.96+02 (.0)
PB-212	1.27+01 (.0)	ZR-95	2.19+02 (.0)

10 HIGHEST CONTRIBUTING ISOTOPE8 TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.18+02 (55.3)	CS-134	6.25+02 (54.2)
CS-134	2.30+02 (40.1)	BA-137M	4.93+02 (42.8)
SB-125	1.13+01 (2.0)	EU-154	2.47+01 (2.1)
EU-154	8.74+00 (1.5)	SB-125	3.68+00 (.3)
RH-106	2.37+00 (.4)	RH-106	3.17+00 (.3)
PR-144	2.29+00 (.4)	PR-144	2.04+00 (.2)
TL-208	1.19+00 (.2)	EU-152	4.52+02 (.0)
PB-212	1.44+01 (.0)	AG-110M	2.81+02 (.0)
BI-212	1.15+01 (.0)	TL-208	1.95+04 (.0)
EU-152	2.77+02 (.0)	AG-108M	5.48+05 (.0)

23RB RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.18+02 (55.3)	CS-134	4.90+02 (49.7)
CS-134	2.30+02 (40.1)	BA-137M	4.63+02 (46.9)
SB-125	1.13+01 (2.0)	EU-154	1.64+01 (1.7)
EU-154	8.74+00 (1.5)	SB-125	1.18+01 (1.2)
RH-106	2.37+00 (.4)	RH-106	2.08+00 (.2)
PR-144	2.29+00 (.4)	PH-144	1.63+00 (.2)
TL-208	1.19+00 (.2)	TL-208	1.29+00 (.1)
PB-212	1.44+01 (.0)	PB-212	1.55+01 (.0)
BI-212	1.15+01 (.0)	BI-212	1.24+01 (.0)
EU-152	2.77+02 (.0)	EU-152	3.08+02 (.0)

10 HIGHEST CONTRIBUTING ISOTOPE8 TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	3.18+02 (55.3)	CS-134	4.66+02 (54.2)
CS-134	2.30+02 (40.1)	BA-137M	3.66+02 (42.8)
SB-125	1.13+01 (2.0)	EU-154	1.86+01 (2.2)
EU-154	8.74+00 (1.5)	SB-125	2.70+00 (.3)
RH-106	2.37+00 (.4)	RH-106	2.38+00 (.3)
PR-144	2.29+00 (.4)	PR-144	1.53+00 (.2)
TL-208	1.19+00 (.2)	EU-152	3.55+02 (.0)
PB-212	1.44+01 (.6)	AG-110M	2.11+02 (.0)
BI-212	1.15+01 (.6)	TL-208	8.08+04 (.0)
EU-152	2.77+02 (.0)	AG-108M	3.12+04 (.0)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE GAMMA DOSE RATE IN RAD/HR PER P.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	2.83+02 (83.9)	BA-137M	4.40+02 (76.4)
CS-134	4.24+01 (12.6)	CS-134	1.15+02 (20.0)
EU-154	7.04+00 (2.1)	EU-154	1.99+01 (3.5)
SB-125	3.13+00 (.9)	SB-125	1.03+00 (.2)
TL-208	1.26+00 (.4)	RH-106	1.02+01 (.0)
PB-212	1.52+01 (.0)	EU-152	3.44+02 (.0)
BI-212	1.22+01 (.0)	PR-144	2.37+02 (.0)
RH-106	7.61+02 (.0)	TL-208	2.06+04 (.0)
PR-144	2.66+02 (.0)	AG-110M	1.97+04 (.0)
EU-152	2.11+02 (.0)	AG-108M	5.34+05 (.0)

23RS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	2.83+02 (83.9)	BA-137M	4.13+02 (79.8)
CS-134	4.24+01 (12.6)	CS-134	9.02+01 (17.3)
EU-154	7.04+00 (2.1)	EU-154	1.32+01 (2.5)
SB-125	3.13+00 (.9)	SB-125	3.28+00 (.6)
TL-208	1.26+00 (.4)	TL-208	1.23+00 (.2)
PB-212	1.52+01 (.0)	PB-212	1.48+01 (.0)
BI-212	1.22+01 (.0)	BI-212	1.19+01 (.0)
RH-106	7.61+02 (.0)	RH-106	6.67+02 (.0)
PR-144	2.66+02 (.0)	EU-152	2.34+02 (.0)
EU-152	2.11+02 (.0)	PR-144	1.89+02 (.0)

10 HIGHEST CONTRIBUTING ISOTOPE8 TO THE GAMMA DOSE RATE IN RAD/HR PER F.E. AT ONE METER AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL DOSE RATE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
BA-137M	2.83+02 (83.9)	BA-137M	3.28+02 (76.3)
CB-134	4.24+01 (12.6)	CB-134	8.57+01 (19.9)
EU-154	7.04+00 (2.1)	EU-154	1.51+01 (3.5)
SB-125	3.13+00 (.9)	SB-125	7.53+01 (.2)
TL-208	1.26+00 (.4)	RH-106	7.64+02 (.0)
PB-212	1.52+01 (.0)	EU-152	2.71+02 (.0)
BI-212	1.22+01 (.0)	PR-144	1.78+02 (.0)
RH-106	7.61+02 (.0)	TL-208	8.56+04 (.0)
PR-144	2.66+02 (.0)	AG-108M	3.04+04 (.0)
EU-152	2.11+02 (.0)	AG-110M	1.48+04 (.0)

TABLE D-15
IMPORTANT ISOTOPIC CONTRIBUTORS TO NEUTRON SOURCE STRENGTH

NOTE: Table D-15 consists of 20 pages of
computer print-out (pages D-359 through
D-378).

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Fuel Elements discharged at the beginning of reload 1 and originally loaded at reload 0	D-359
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10 HIGHEST CONTRIBUTING ISOTOPE8 TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

18 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FIS8ILE PTL.
CM=244	1.40+03 (38.3)	CM=244	1.80+04 (54.6)
PU=212	5.96+02 (16.2)	CM=242	7.52+03 (22.9)
U=233	5.17+02 (14.1)	PU=238	7.07+03 (21.5)
U=232	3.52+02 (9.6)	PU=240	2.57+02 (8)
PU=216	2.88+02 (7.9)	PU=239	3.14+01 (.1)
RN=220	1.99+02 (5.4)	AM=241	2.39+01 (.1)
RA=224	1.22+02 (3.3)	U=234	1.28+01 (.0)
TH=228	9.44+01 (2.6)	AM=243	2.49+00 (.0)
BI=212	6.13+01 (1.7)	U=236	1.96+00 (.0)
U=234	2.48+01 (.7)	NP=237	9.08+01 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

18 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FIS8ILE PTL.
PO=212	5.29+03 (34.0)	CM=244	1.14+06 (77.6)
PO=216	2.44+03 (15.7)	PU=238	1.81+05 (12.3)
RN=220	1.69+03 (10.8)	CM=242	1.46+05 (10.0)
U=232	1.67+03 (10.7)	PU=240	7.87+02 (.1)
RA=224	1.03+03 (6.6)	AM=241	1.20+02 (.0)
U=233	8.08+02 (5.2)	PU=239	9.07+01 (.0)
TH=228	7.98+02 (5.1)	AM=243	4.66+01 (.0)
CM=244	7.22+02 (4.6)	U=234	1.09+01 (.0)
BI=212	5.18+02 (3.3)	NP=237	6.66+00 (.0)
PU=238	4.51+02 (2.9)	U=236	4.80+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
CM-244	1.38+03 (31.2)	CM-244	1.76+04 (61.9)
PD-212	9.70+02 (22.0)	PU-238	7.05+03 (24.8)
U-233	5.18+02 (11.7)	CM-242	3.42+03 (12.0)
PD-216	4.37+02 (9.9)	PU-240	2.57+02 (8.9)
U-232	3.50+02 (7.9)	AM-241	4.14+01 (1.1)
RN-220	3.02+02 (6.8)	PU-239	3.14+01 (1.1)
RA-224	1.85+02 (4.2)	U-234	1.28+01 (0.4)
TH-228	1.43+02 (3.2)	AM-243	2.49+00 (0.0)
BI-212	9.28+01 (2.1)	U-236	1.96+00 (0.0)
U-234	2.48+01 (0.6)	NP-237	9.08+01 (0.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PD-212	6.61+03 (36.2)	CM-244	1.11+06 (81.8)
PD-216	2.96+03 (16.2)	PU-238	1.80+05 (13.2)
RN-220	2.05+03 (11.2)	CM-242	6.65+04 (4.9)
U-232	1.66+03 (9.1)	PU-240	7.87+02 (0.1)
RA-224	1.26+03 (6.9)	AM-241	1.91+02 (0.0)
TH-228	9.69+02 (5.3)	PU-239	9.07+01 (0.0)
U-233	8.09+02 (4.4)	AM-243	4.66+01 (0.0)
CM-244	7.08+02 (3.9)	U-234	1.09+01 (0.0)
BI-212	6.29+02 (3.5)	NP-237	6.66+00 (0.0)
PU-238	4.49+02 (2.5)	U-236	4.80+00 (0.0)

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10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER P.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	1.81+03 (29.5)	CM-244	1.63+04 (68.5)
CM-244	1.27+03 (20.8)	PU-238	6.94+03 (29.1)
PU-216	8.09+02 (13.2)	PU-240	2.57+02 (1.1)
RN-220	5.59+02 (9.1)	CM-242	1.56+02 (.7)
U-233	5.18+02 (8.5)	AM-241	1.07+02 (.4)
U-232	3.44+02 (5.6)	PU-239	3.14+01 (.1)
RA-224	3.43+02 (5.6)	U-234	1.28+01 (.1)
TH-228	2.65+02 (4.3)	AM-243	2.49+00 (.0)
BI-212	1.72+02 (2.8)	U-236	1.96+00 (.0)
U-234	2.48+01 (.4)	NP-237	9.08+01 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	9.53+03 (38.9)	CM-244	1.03+06 (85.0)
PU-216	4.26+03 (17.4)	PU-238	1.77+05 (14.6)
RN-220	2.95+03 (12.0)	CM-242	3.00+03 (.8)
RA-224	1.81+03 (7.4)	PU-240	7.87+02 (.1)
U-232	1.63+03 (6.6)	AM-241	4.52+02 (.0)
TH-228	1.39+03 (5.7)	PU-239	9.07+01 (.0)
BI-212	9.05+02 (3.7)	AM-243	4.66+01 (.0)
U-233	8.09+02 (3.3)	U-234	1.09+01 (.0)
CM-244	6.56+02 (2.7)	NP-237	6.66+00 (.0)
PU-238	4.42+02 (1.8)	U-236	4.80+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPE TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	2.19+03 (31.9)	CM-244	1.51+04 (67.4)
CM-244	1.18+03 (17.2)	PU-238	6.83+03 (30.5)
PU-216	9.77+02 (14.2)	PU-240	2.57+02 (1.1)
RN-220	6.75+02 (9.8)	AM-241	1.66+02 (.7)
U-235	5.18+02 (7.6)	PU-239	3.14+01 (.1)
RA-224	4.14+02 (6.0)	U-234	1.28+01 (.1)
U-232	3.37+02 (4.9)	CM-242	9.37+00 (.0)
TH-228	3.20+02 (4.7)	AM-243	2.49+00 (.0)
BI-212	2.08+02 (3.0)	U-236	1.96+00 (.0)
U-234	2.48+01 (.4)	NP-237	9.08+01 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	1.08+04 (39.8)	CM-244	9.55+05 (84.4)
PU-216	4.84+03 (17.7)	PU-238	1.74+05 (15.4)
RN-220	3.34+03 (12.3)	PU-240	7.86+02 (.1)
RA-224	2.05+03 (7.5)	AM-241	6.89+02 (.1)
U-232	1.60+03 (5.9)	CM-242	1.57+02 (.0)
TH-228	1.58+03 (5.8)	PU-239	9.07+01 (.0)
BI-212	1.03+03 (3.8)	AM-243	4.65+01 (.0)
U-233	8.09+02 (3.0)	U-234	1.09+01 (.0)
CM-244	6.07+02 (2.2)	NP-237	6.66+00 (.0)
PU-238	4.35+02 (1.6)	U-236	4.80+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER P.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 1 AND WAS ORIGINALLY LOADED AT RELOAD 0

IS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	2.40+03 (33.8)	CM-244	1.24+04 (63.4)
PO-216	1.07+03 (15.1)	PU-238	6.56+03 (33.5)
CM-244	9.72+02 (13.7)	AM-241	2.92+02 (1.5)
RN-220	7.42+02 (10.4)	PU-240	2.56+02 (1.3)
U-233	5.18+02 (7.3)	PU-239	3.14+01 (.2)
RA-224	4.55+02 (6.4)	U-234	1.28+01 (.1)
TH-228	3.51+02 (4.9)	CM-242	2.92+00 (.0)
U-232	3.21+02 (4.5)	AM-243	2.49+00 (.0)
BI-212	2.28+02 (3.2)	U-236	1.96+00 (.0)
U-234	2.48+01 (.3)	NP-237	9.08+01 (.0)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF
RELOAD 5 AND WAS ORIGINALLY LOADED AT RELOAD 1

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.15+04 (40.3)	CM-244	7.87+05 (88.3)
PO-216	5.11+03 (18.0)	PU-238	1.68+05 (17.5)
HN-220	3.94+03 (12.4)	AM-241	1.19+03 (.1)
RA-224	2.17+03 (7.6)	PU-240	7.86+02 (.1)
TH-228	1.67+03 (5.9)	PU-239	9.07+01 (.0)
U-232	1.52+03 (5.3)	AM-243	4.65+01 (.0)
BI-212	1.09+03 (3.8)	CM-242	2.75+01 (.0)
U-233	8.08+02 (2.8)	U-234	1.09+01 (.0)
CM-244	5.00+02 (1.8)	NP-237	6.66+00 (.0)
PU-238	4.18+02 (1.5)	U-236	4.80+00 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23R8 RECYCLE U-233 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	5.30+03 (32.8)	PU-238	2.21+04 (28.7)
PU-216	2.44+03 (15.1)	PU-212	1.56+04 (20.3)
RN-220	1.69+03 (10.5)	CM-244	8.87+03 (11.5)
U-232	1.67+03 (10.3)	PU-216	8.80+03 (11.4)
CM-244	1.36+03 (8.4)	RN-220	6.44+03 (8.4)
RA-224	1.04+03 (6.4)	RA-224	3.81+03 (4.9)
U-233	8.24+02 (5.1)	CM-242	3.08+03 (4.0)
TH-228	7.99+02 (4.9)	TH-228	2.93+03 (3.8)
BI-212	5.19+02 (3.2)	U-232	2.81+03 (3.6)
PU-238	3.69+02 (2.3)	BI-212	1.90+03 (2.5)

25R8 RECYCLE U-235 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	5.30+03 (32.8)	CM-244	4.21+06 (72.2)
PU-216	2.44+03 (15.1)	PU-238	9.53+05 (16.3)
RN-220	1.69+03 (10.5)	CM-242	6.67+05 (11.4)
U-232	1.67+03 (10.3)	PU-240	3.74+03 (1.1)
CM-244	1.36+03 (8.4)	AM-241	5.82+02 (0.9)
RA-224	1.04+03 (6.4)	PU-239	4.39+02 (0.9)
U-233	8.24+02 (5.1)	AM-243	1.91+02 (0.3)
TH-228	7.99+02 (4.9)	NP-237	3.08+01 (0.5)
BI-212	5.19+02 (3.2)	U-234	2.88+01 (0.5)
PU-238	3.69+02 (2.3)	U-236	2.05+01 (0.3)

10 HIGHEST CONTRIBUTING ISOTOPE TO THE NEUTRON SOURCE IN N/SEC PER P.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23H8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	6.61+03 (35.2)	PU-238	2.20+04 (29.3)
PO-216	2.97+03 (15.8)	PO-212	1.56+04 (20.8)
RN-220	2.05+03 (10.9)	PO-216	8.80+03 (11.7)
U-232	1.66+03 (8.8)	CM-244	8.70+03 (11.6)
CM-244	1.33+03 (7.1)	RN-220	6.44+03 (8.6)
RA-224	1.26+03 (6.7)	RA-224	3.81+03 (5.1)
TH-228	9.70+02 (5.2)	TH-228	2.93+03 (3.9)
U-233	8.25+02 (4.4)	U-232	2.79+03 (3.7)
BI-212	6.30+02 (3.4)	BI-212	1.90+03 (2.5)
PU-238	3.67+02 (2.0)	CM-242	1.40+03 (1.9)

25H8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	6.61+03 (35.2)	CM-244	4.13+06 (76.7)
PO-216	2.97+03 (15.8)	PU-238	9.49+05 (17.6)
RN-220	2.05+03 (10.9)	CM-242	3.03+05 (5.6)
U-232	1.66+03 (8.8)	PU-240	3.74+03 (1)
CM-244	1.33+03 (7.1)	AM-241	9.14+02 (10)
RA-224	1.26+03 (6.7)	PU-239	4.30+02 (10)
TH-228	9.70+02 (5.2)	AM-243	1.91+02 (10)
U-233	8.25+02 (4.4)	NM-237	3.08+01 (10)
BI-212	6.30+02 (3.4)	U-234	2.88+01 (10)
PU-238	3.67+02 (2.0)	U-236	2.05+01 (10)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23RS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
-----	-----	-----	-----
PO-212	9.54+03 (38.1)	PU-238	2.17+04 (29.2)
PO-216	4.26+03 (17.0)	PU-212	1.62+04 (21.8)
RN-220	2.95+03 (11.8)	PO-216	9.12+03 (12.3)
RA-224	1.81+03 (7.2)	CM-244	8.05+03 (10.8)
U-232	1.63+03 (6.5)	RN-220	6.68+03 (9.0)
TH-228	1.40+03 (5.6)	RA-224	3.95+03 (5.3)
CM-244	1.23+03 (4.9)	TH-228	3.04+03 (4.1)
BI-212	9.06+02 (3.6)	U-232	2.74+03 (3.7)
U-233	8.25+02 (3.3)	BI-212	1.98+03 (2.7)
PU-238	3.62+02 (1.4)	U-234	3.91+02 (.9)

25RS RECYCLE U-235 P.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
-----	-----	-----	-----
PO-212	9.54+03 (38.1)	CM-244	3.82+06 (80.0)
PO-216	4.26+03 (17.0)	PU-238	9.34+05 (19.5)
RN-220	2.95+03 (11.8)	CM-242	1.37+04 (.3)
RA-224	1.81+03 (7.2)	PU-240	3.74+03 (.1)
U-232	1.63+03 (6.5)	AM-241	2.15+03 (.9)
TH-228	1.40+03 (5.6)	PU-239	4.30+02 (.0)
CM-244	1.23+03 (4.9)	AM-243	1.91+02 (.0)
BI-212	9.06+02 (3.6)	NP-237	3.08+01 (.0)
U-233	8.25+02 (3.3)	U-234	2.88+01 (.0)
PU-238	3.62+02 (1.4)	U-236	2.05+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER P.E. AT TIME 5 YEARS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23R8 RECYCLE U-233 P.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.08+04 (39.1)	PU-238	2.14+04 (29.2)
PO-216	4.84+03 (17.4)	PU-212	1.62+04 (22.1)
RN-220	3.34+03 (12.1)	PU-216	9.12+03 (12.5)
RA-224	2.05+03 (7.4)	CM-244	7.45+03 (10.2)
U-232	1.60+03 (5.8)	RN-220	6.66+03 (9.1)
TH-228	1.58+03 (5.7)	RA-224	3.95+03 (5.4)
CM-244	1.14+03 (4.1)	TH-228	3.04+03 (4.2)
BI-212	1.03+03 (3.7)	U-232	2.69+03 (3.7)
U-233	8.25+02 (3.0)	BI-212	1.98+03 (2.7)
PU-238	3.56+02 (1.3)	U-234	3.91+02 (.5)

25R8 RECYCLE U-235 P.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.08+04 (39.1)	CM-244	3.54+04 (79.2)
PO-216	4.84+03 (17.4)	PU-238	9.19+03 (20.6)
RN-220	3.34+03 (12.1)	PU-240	3.74+03 (.1)
RA-224	2.05+03 (7.4)	AM-241	3.27+03 (.1)
U-232	1.60+03 (5.8)	CM-242	7.25+02 (.0)
TH-228	1.58+03 (5.7)	PU-239	4.30+02 (.0)
CM-244	1.14+03 (4.1)	AM-243	1.91+02 (.0)
BI-212	1.03+03 (3.7)	NP-237	3.08+01 (.0)
U-233	8.25+02 (3.0)	U-234	2.88+01 (.0)
PU-238	3.56+02 (1.3)	U-236	2.05+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPE8 TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 10 AND WAS ORIGINALLY LOADED AT RELOAD 6

23R8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.15+04 (39.8)	PU-238	2.05+04 (29.7)
PU-216	5.12+03 (17.8)	PO-212	1.55+04 (22.4)
RN-220	3.54+03 (12.3)	PO-216	8.71+03 (12.6)
RA-224	2.17+03 (7.5)	RN-220	6.38+03 (9.2)
TH-228	1.67+03 (5.8)	CM-244	6.14+03 (8.9)
U-232	1.52+03 (5.3)	RA-224	3.77+03 (5.5)
BI-212	1.09+03 (3.8)	TH-228	2.90+03 (4.2)
CM-244	9.41+02 (3.3)	U-232	2.56+03 (3.7)
U-233	8.25+02 (2.9)	BI-212	1.89+03 (2.7)
PU-238	3.42+02 (1.2)	U-234	3.91+02 (.6)

25R8 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	1.15+04 (39.8)	CM-244	2.92+06 (76.8)
PO-216	5.12+03 (17.8)	PU-238	8.84+05 (25.2)
RN-220	3.54+03 (12.3)	AM-241	5.65+03 (.1)
RA-224	2.17+03 (7.5)	PU-240	3.74+03 (.1)
TH-228	1.67+03 (5.8)	PU-239	4.30+02 (.0)
U-232	1.52+03 (5.3)	AM-243	1.91+02 (.0)
BI-212	1.09+03 (3.8)	CM-242	1.36+02 (.0)
CM-244	9.41+02 (3.3)	NP-237	3.08+01 (.0)
U-233	8.25+02 (2.9)	U-234	2.88+01 (.0)
PU-238	3.42+02 (1.2)	U-236	2.05+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	5.32+03 (33.2)	CM-244	1.07+06 (74.6)
PU-216	2.45+03 (15.3)	PU-238	1.95+05 (13.6)
RN-220	1.70+03 (10.6)	CM-242	1.68+05 (11.7)
U-232	1.69+03 (10.5)	PU-240	8.83+02 (.1)
CM-244	1.20+03 (7.5)	AM-241	1.39+02 (.0)
RA-224	1.04+03 (6.5)	PU-239	1.02+02 (.0)
U-233	8.25+02 (5.2)	AM-243	3.71+01 (.0)
TH-228	8.03+02 (5.0)	U-234	1.29+01 (.0)
BI-212	5.21+02 (3.3)	NP-237	7.64+00 (.0)
PU-238	3.39+02 (2.1)	U-236	5.41+00 (.0)

2388 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	5.32+03 (33.2)	PU-238	2.47+04 (29.5)
PU-216	2.45+03 (15.3)	PU-212	1.71+04 (20.4)
RN-220	1.70+03 (10.6)	PU-216	9.62+03 (11.5)
U-232	1.69+03 (10.5)	CM-244	8.54+03 (10.2)
CM-244	1.20+03 (7.5)	RN-220	7.04+03 (8.4)
RA-224	1.04+03 (6.5)	RA-224	4.17+03 (5.0)
U-233	8.25+02 (5.2)	CM-242	3.46+03 (4.1)
TH-228	8.03+02 (5.0)	TH-228	3.21+03 (3.8)
BI-212	5.21+02 (3.3)	U-232	3.12+03 (3.7)
PU-238	3.39+02 (2.1)	BI-212	2.08+03 (2.5)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E., AT TIME 180 DAYS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25R8 RECYCLE U-235 F.E.

ISOTUPE	FERTILE PTL.	ISOTUPE	FIBBILE PTL.
PU-212	5.32+03 (33.2)	CM-244	8.36+06 (74.4)
PU-216	2.45+03 (15.3)	PU-238	1.51+06 (13.5)
RN-220	1.70+03 (10.6)	CM-242	1.36+06 (12.1)
U-232	1.69+03 (10.5)	PU-240	6.99+03 (.1)
CM-244	1.20+03 (7.5)	AM-241	1.12+03 (.0)
RA-224	1.04+03 (6.5)	PU-239	7.92+02 (.0)
U-235	8.25+02 (5.2)	AM-243	3.81+02 (.0)
TH-228	8.03+02 (5.0)	U-234	5.36+01 (.0)
BI-212	5.21+02 (3.3)	U-236	4.96+01 (.0)
PU-238	3.39+02 (2.1)	NP-237	4.95+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	0.66+03 (35.5)	CM-244	1.05+06 (79.4)
PU-216	2.98+03 (15.9)	PU-238	1.94+05 (14.7)
RN-220	2.06+03 (11.0)	CM-242	7.65+04 (5.8)
U-232	1.68+03 (9.0)	PU-240	8.83+02 (.1)
RA-224	1.27+03 (6.8)	AM-241	2.18+02 (.0)
CM-244	1.17+03 (6.3)	PU-239	1.02+02 (.0)
TH-228	9.77+02 (5.2)	AM-243	4.81+01 (.0)
U-233	8.26+02 (4.4)	U-234	1.29+01 (.0)
BI-212	6.34+02 (3.4)	NP-237	7.64+00 (.0)
PU-238	3.38+02 (1.8)	U-236	5.41+00 (.0)

23M8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	0.66+03 (35.5)	PU-238	2.46+04 (30.1)
PO-216	2.98+03 (15.9)	PU-212	1.71+04 (21.0)
RN-220	2.06+03 (11.0)	PU-216	9.66+03 (11.8)
U-232	1.68+03 (9.0)	CM-244	8.38+03 (10.2)
RA-224	1.27+03 (6.8)	RN-220	7.07+03 (8.7)
CM-244	1.17+03 (6.3)	RA-224	4.18+03 (5.1)
TH-228	9.77+02 (5.2)	TH-228	3.22+03 (3.9)
U-233	8.26+02 (4.4)	U-232	3.10+03 (3.8)
BI-212	6.34+02 (3.4)	BI-212	2.09+03 (2.6)
PU-238	3.38+02 (1.8)	CM-242	1.57+03 (1.9)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 1 YEAR AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

2500 RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FERTILE PTL.
PU-212	6.66+03 (35.5)	CM-244	8.19+06 (79.3)
PU-216	2.98+03 (15.9)	PU-238	1.51+06 (14.6)
RN-220	2.00+03 (11.0)	CM-242	6.17+05 (6.0)
U-232	1.68+03 (9.0)	PU-240	6.99+03 (.1)
RA-224	1.27+03 (6.8)	AM-241	1.75+03 (.0)
CM-244	1.17+03 (6.3)	PU-239	7.92+02 (.0)
TH-228	9.77+02 (5.2)	AM-243	3.81+02 (.0)
U-233	8.26+02 (4.4)	U-234	5.36+01 (.0)
BI-212	6.34+02 (3.4)	U-236	4.96+01 (.0)
PU-238	3.38+02 (1.8)	NP-237	4.95+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE

(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	9.63+03 (38.4)	CM-244	9.70+05 (83.2)
PO-216	4.30+03 (17.2)	PU-238	1.91+05 (16.4)
RN-220	2.98+03 (11.9)	CM-242	3.45+03 (.3)
RA-224	1.83+03 (7.3)	PU-240	8.83+02 (.1)
U-232	1.65+03 (6.6)	AM-241	5.12+02 (.0)
TM-228	1.41+03 (5.6)	PU-239	1.02+02 (.0)
CM-244	1.09+03 (4.3)	AM-243	4.81+01 (.0)
BI-212	9.14+02 (3.6)	U-234	1.29+01 (.0)
U-233	8.26+02 (3.3)	NP-237	7.64+00 (.0)
PU-238	3.33+02 (1.3)	U-236	5.41+00 (.0)

23MS RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	9.63+03 (38.4)	PU-238	2.42+04 (30.0)
PO-216	4.30+03 (17.2)	PU-212	1.77+04 (22.0)
RN-220	2.98+03 (11.9)	PU-216	9.99+03 (12.4)
RA-224	1.83+03 (7.3)	CM-244	7.75+03 (9.6)
U-232	1.65+03 (6.6)	RN-220	7.31+03 (9.1)
TM-228	1.41+03 (5.6)	RA-224	4.33+03 (5.4)
CM-244	1.09+03 (4.3)	TM-228	3.33+03 (4.1)
BI-212	9.14+02 (3.6)	U-232	3.04+03 (3.8)
U-233	8.26+02 (3.3)	BI-212	2.16+03 (2.7)
PU-238	3.33+02 (1.3)	U-234	3.84+02 (.8)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 3 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RS RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	9.63+03 (38.4)	CM-244	7.58+06 (83.3)
PU-216	4.30+03 (17.2)	PU-238	1.49+06 (16.3)
RN-220	2.98+03 (11.9)	CM-242	2.78+04 (.3)
RA-224	1.83+03 (7.3)	PU-240	6.99+03 (.1)
U-232	1.65+03 (6.6)	AM-241	4.11+03 (.0)
TH-228	1.41+03 (5.6)	PU-239	7.92+02 (.0)
CM-244	1.09+03 (4.3)	AM-243	3.81+02 (.0)
BI-212	9.14+02 (3.6)	U-234	5.36+01 (.0)
U-233	8.26+02 (3.3)	U-236	4.96+01 (.0)
PU-238	3.33+02 (1.3)	NP-237	4.95+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

MS FRESH U-235 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.10+04 (39.4)	CM-244	8.98+05 (82.6)
PO-216	4.89+03 (17.6)	PU-238	1.88+05 (17.3)
RN-220	3.38+03 (12.1)	PU-240	8.83+02 (.1)
RA-224	2.07+03 (7.4)	AM-241	7.79+02 (.1)
U-232	1.61+03 (5.8)	CM-242	1.81+02 (.0)
TH-228	1.60+03 (5.7)	PU-239	1.02+02 (.0)
BI-212	1.04+03 (3.7)	AM-243	4.81+01 (.0)
CM-244	1.00+03 (3.6)	U-234	1.29+01 (.0)
U-233	8.26+02 (3.0)	NP-237	7.64+00 (.0)
PU-238	3.28+02 (1.2)	U-236	5.41+00 (.0)

23MS RECYCLE U-233 F.E.			
ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.10+04 (39.4)	PU-238	2.38+04 (29.9)
PO-216	4.89+03 (17.6)	PU-212	1.77+04 (22.3)
RN-220	3.38+03 (12.1)	PU-216	9.99+03 (12.6)
RA-224	2.07+03 (7.4)	RN-220	7.31+03 (9.2)
U-232	1.61+03 (5.8)	CM-244	7.17+03 (9.0)
TH-228	1.60+03 (5.7)	RA-224	4.33+03 (5.4)
BI-212	1.04+03 (3.7)	TH-228	3.33+03 (4.2)
CM-244	1.00+03 (3.6)	U-232	2.99+03 (3.8)
U-233	8.26+02 (3.0)	BI-212	2.16+03 (2.7)
PU-238	3.28+02 (1.2)	U-234	3.84+02 (.5)

10 HIGHEST CONTRIBUTING ISOTOPIES TO THE NEUTRON SOURCE IN N/SEC PER P.E. AT TIME 5 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RB RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PO-212	1.10+04 (39.4)	CM-244	7.02+06 (82.6)
PO-216	4.89+03 (17.6)	PU-238	1.46+06 (17.2)
RN-220	3.38+03 (12.1)	PU-240	6.99+03 (.1)
RA-224	2.07+03 (7.4)	AM-241	6.26+03 (.1)
U-232	1.61+03 (5.8)	CM-242	1.47+03 (.0)
TH-228	1.60+03 (5.7)	PU-239	7.92+02 (.0)
BI-212	1.04+03 (3.7)	AM-243	3.81+02 (.0)
CM-244	1.00+03 (3.6)	U-234	5.36+01 (.0)
U-233	8.26+02 (3.0)	U-236	4.96+01 (.0)
PU-238	3.28+02 (1.2)	NP-237	4.95+01 (.0)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

M8 FRESH U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	1.16+04 (40.0)	CM-244	7.40+05 (80.2)
PD-216	5.17+03 (17.9)	PU-238	1.81+05 (19.6)
RN-220	3.58+03 (12.3)	AM-241	1.34+03 (.1)
RA-224	2.19+03 (7.6)	PU-240	8.82+02 (.1)
TH-228	1.69+03 (5.8)	PU-239	1.02+02 (.0)
U-232	1.54+03 (5.3)	AM-243	4.81+01 (.0)
BI-212	1.10+03 (3.8)	CM-242	3.28+01 (.0)
CM-244	8.28+02 (2.9)	U-234	1.29+01 (.0)
U-233	8.26+02 (2.8)	NP-237	7.64+00 (.0)
PU-238	3.15+02 (1.1)	U-236	5.41+00 (.0)

23N8 RECYCLE U-233 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PD-212	1.16+04 (40.0)	PU-238	2.29+04 (30.4)
PU-216	5.17+03 (17.9)	PU-212	1.69+04 (22.5)
RN-220	3.58+03 (12.3)	PU-210	9.54+03 (12.7)
RA-224	2.19+03 (7.6)	RN-220	6.98+03 (9.3)
TH-228	1.69+03 (5.8)	CM-244	5.91+03 (7.9)
U-232	1.54+03 (5.3)	RA-224	4.13+03 (5.5)
BI-212	1.10+03 (3.8)	TH-228	3.18+03 (4.2)
CM-244	8.28+02 (2.9)	U-232	2.85+03 (3.8)
U-233	8.26+02 (2.8)	BI-212	2.06+03 (2.7)
PU-238	3.15+02 (1.1)	U-234	3.84+02 (.5)

10 HIGHEST CONTRIBUTING ISOTOPES TO THE NEUTRON SOURCE IN N/SEC PER F.E. AT TIME 10 YEARS AFTER DISCHARGE
(PERCENT CONTRIBUTION TO TOTAL NEUTRON SOURCE IN PARENTHESES)

THIS SEGMENT WAS DISCHARGED AT THE BEGINNING OF RELOAD 13 AND WAS ORIGINALLY LOADED AT RELOAD 9

25RB RECYCLE U-235 F.E.

ISOTOPE	FERTILE PTL.	ISOTOPE	FISSILE PTL.
PU-212	1.16+04 (40.0)	CM-244	5.78+06 (80.2)
PD-216	5.17+03 (17.9)	PU-238	1.41+06 (19.5)
RN-220	3.58+03 (12.3)	AM-241	1.08+04 (.1)
RA-224	2.19+03 (7.6)	PU-240	6.98+03 (.1)
TH-228	1.69+03 (5.8)	PU-239	7.91+02 (.0)
U-232	1.54+03 (5.3)	AM-243	3.80+02 (.0)
BI-212	1.10+03 (3.8)	CM-242	2.66+02 (.0)
CM-244	8.28+02 (2.9)	U-234	5.36+01 (.0)
U-233	8.26+02 (2.8)	U-236	4.96+01 (.0)
PU-238	3.15+02 (1.1)	NP-237	4.95+01 (.0)