3. Modification of EDISTR's output by hand

You would realize that the modification of EDISTR's output is required in several cases. If you process the decay data in your PC, the following points must be changed by hand. The modifications have been made for the data files in the CD-ROM package.

- **Branching fraction (BF) and identification of isomeric state**

Nuclide	EDISTR's output	Modification
Fe-52	BF for Mn-52m = 1.0004	BF for Mn-52m = 1
Y-85	BF for Sr-85m = 9.978E-1 BF for Sr-85 = 2.163E-3	BF for Sr-85m = 1 BF for Sr-85 = 0
Y-87	BF for Sr-87m = 9.671E-1 BF for Sr-87 = 3.289E-2	BF for Sr-87m = 1 BF for Sr-87 = 0
Nb-89m	BF for Zr-89m = 9.985E-1 BF for Zr-89 = 1.475E-3	BF for Zr-89m = 1 BF for Zr-89 = 0
Ru-94	BF for Tc-94m = 1.007	BF for Tc-94m = 1
Pd-101	BF for Rh-101m = 1.004	BF for Rh-101m = 0.9973 BF for Rh-101 = 0.0027
Cd-104	BF for Ag-104m = 1.006	BF for Ag-104m = 1
Cd-115	BF for In-115m = 1.001	BF for In-115m = 1
Sn-108	BF for In-108m = 9.956E-1 BF for In-108 = 4.430E-3	BF for In-108m = 1 BF for In-108 = 0
Sn-126	BF for Sb-126m = 1.079	BF for Sb-126m = 1
Sn-128	BF for Sb-128m = 9.190E-1 BF for Sb-128 = 8.101E-2	BF for Sb-128m = 1 BF for Sb-128 = 0
Pr-134m	See 1	
Hf-172	BF for Lu-172m = 9.933E-1 BF for Lu-172 = 6.692E-3	BF for Lu-172m = 1 BF for Lu-172 = 0
Hf-180m	BF for Hf-180 = 9.97E-1 BF for Ta-180 = 3.00E-3	BF for Hf-180 = 9.97E-1 BF for Ta-180m (stable) = 3.00E-3
Os-182	BF for Re-182m = 1.005	BF for Re-182m = 1
Ir-192n	See 2	
Th-234	BF for Pa-234m = 9.974E-1 BF for Pa-234 = 2.561E-3	BF for Pa-234m = 1 BF for Pa-234 = 0
U-240	BF for Np-240m = 1.017	BF for Np-240m = 1
Np-242m	See 3	
Pu-239	BF for U-235m = 0.9781 BF for U-235 = 0.0219	BF for U-235m = 0.9994 BF for U-235 = 0.0006

Pu-246	BF for Am-246m = 1.0003	BF for Am-246m = 1

1.NUBASE cannot identify the excitation energy of Pr-134m. Then, EDISTR's output for Pr-134 includes the data of two kinds of ground state of Pr-134. The output of Pr-134 (17m) should be recognized as the isomeric state.

2. There are two isomers for Ir-192, e.g., Ir-192m (half-life = 1.45m) for the first isomeric state and Ir-192n (241y) for the second isomeric state. The second isomer, Ir-192n, directly transforms to the ground state of Ir-192. Therefore, the decay data for Ir-192m is not included in the present compilation. The EDISTR's output of Ir-192m should be recognized as "Ir-192n".

3. Similar to Pr-134m, NUBASE cannot identify the excitation energy of Np-242m. Then, EDISTR's output for Np-242 includes the data of two kinds of ground state of Np-242. The output of Np-242 (5.5m) should be recognized as the isomeric state.

- **Decay chain**

The summation of BF of the following nuclides dose not become unity, since the evaluated BF values in NUBASE have some uncertainty or the ENSDF data sets of small BF of these nuclides are not evaluated. However, the dose contribution from the decay modes of these small BF can be negligible.

Po-205, At-217, At-219, Ac-223, U-228, Np-236, Am-244m, Cm-240, Es-250 and Es-254m

- **Half-life**

To isolate the decay data of short half-lived nuclides ($T_{1/2} \leq 60s$) with multiple decay modes from those of their parent nuclides, "dummy" half-life values are inserted in the ENSDF cards to be recognized as isomeric states by EDISTR. Then, the dummy half-life values must be amended by hand after EDISTR processing. These nuclides are:

ENSDF data set	Level energy	Dummy half-life	Real half-life
Kr-76 EC decay	102.58keV of Br-76	60s	1.31s
Rb-81 EC decay	190.62keV of Kr-81	60s	13.10s
Rb-81m EC decay	190.62keV of Kr-81	60s	13.10s

Dy-151 EC decay	99.54keV of Tb-151	60s	25s
Hg-193 of EC decay	290.19keV of Au-193	60s	3.9s
Hg-193m of EC decay	290.19keV of Au-193	60s	3.9s

2. Modification of EDISTR's output by hand

Modification of EDISTR's output by handwork is required in several cases. If you process the decay data in your PC, the following points must be changed by hand. The modifications have been made for the data files in this package.

- **Branching fraction (BF) and identification of isomeric state**

Nuclide	EDISTR's output	Modification
Br-73	BF for Se-73m = 9.9506E-01 BF for Se-73 = 4.9446E-03	BF for Se-73m = 9.9881E-01 BF for Se-73 = 1.1920E-03
Mo-91m	BF for Nb-91m = 5.0231E-01 BF for Mo-91 = 5.0000E-01	BF for Nb-91m = 5.0000E-01 BF for Mo-91 = 5.0000E-01
Pd-96	BF for Rh-96m = 9.9206E-01 BF for Rh-96 = 7.9377E-03	BF for Rh-96m = 1.0 BF for Rh-96 = 0
Sn-106	BF for In-106m = 1.0152	BF for In-106m = 1.0
Sn-130	BF for Sb-130m = 9.9670E-01 BF for Sb-130 = 3.2951E-03	BF for Sb-130m = 1.0 BF for Sb-130 = 0
Nd-134	BF for Pr-134 = 1.0	BF for Pr-134m = 1.0

- **Decay chain**

The summation of BF of Po-212m dose not become unity, since the ENSDF data sets of the IT decay mode (BF=7e-4) is not evaluated in the ENSDF. The dose contribution from the IT decay mode is considered to be small for its small BF.

- **Half-life**

To isolate the decay data of short half-lived nuclides ($T_{1/2} \leq 60$s) with multiple decay modes from those of their parent nuclides, "dummy" half-life values are inserted in the ENSDF cards to be recognized as isomeric states by EDISTR. Then, the dummy half-life values must be amended by hand after EDISTR processing. These nuclides are:

ENSDF data set	Level energy	Dummy half-life	Real half-life
Bi-212n	2922keV of Po-212	60s	45.1s