# Release notes for ENDF/B-VII.1 gammas sublibrary

December 20, 2011

## ERROR SUMMARY

**checkr** Missing a section/file: `g-090_Th_232.endf`, `g-092_U_233.endf`, `g-092_U_234.endf`, `g-092_U_235.endf`, `g-092_U_236.endf`, `g-092_U_238.endf`, `g-093_Np_237.endf`, `g-094_Pu_238.endf`, `g-094_Pu_239.endf`, `g-094_Pu_240.endf`, `g-094_Pu_241.endf`, `g-095_Am_241.endf`

**checkr** Sections out of order in directory so your directory is messed up. This error will break everything else: `g-090_Th_232.endf`, `g-092_U_233.endf`, `g-092_U_234.endf`, `g-092_U_235.endf`, `g-092_U_236.endf`, `g-092_U_238.endf`, `g-093_Np_237.endf`, `g-094_Pu_238.endf`, `g-094_Pu_239.endf`, `g-094_Pu_240.endf`, `g-094_Pu_241.endf`, `g-095_Am_241.endf`

**checkr** Something is invalid, but I don't know what!: `g-092_U_235.endf`

**checkr** This file only allowed in neutron sublibrary: `g-090_Th_232.endf`, `g-090_Th_232.endf`, `g-092_U_233.endf`, `g-092_U_233.endf`, `g-092_U_234.endf`, `g-092_U_234.endf`, `g-092_U_235.endf`, `g-092_U_235.endf`, `g-092_U_236.endf`, `g-092_U_236.endf`, `g-092_U_238.endf`, `g-092_U_238.endf`, `g-093_Np_237.endf`, `g-093_Np_237.endf`, `g-094_Pu_238.endf`, `g-094_Pu_238.endf`, `g-094_Pu_239.endf`, `g-094_Pu_239.endf`, `g-094_Pu_240.endf`, `g-094_Pu_240.endf`, `g-094_Pu_241.endf`, `g-094_Pu_241.endf`, `g-095_Am_241.endf`

**fizcon** A level's energy is somehow off: `g-092_U_234.endf`, `g-092_U_236.endf`, `g-094_Pu_241.endf`

**fizcon** Implied intermediate level energy should be something else: `g-093_Np_237.endf`, `g-095_Am_241.endf`

**fizcon** Missing files (probably nubar for some such thing): `g-090_Th_232.endf`, `g-092_U_233.endf`, `g-092_U_234.endf`, `g-092_U_236.endf`, `g-094_Pu_238.endf`, `g-094_Pu_241.endf`

**fizcon** Missing files (probably spectra for outgoing particles): `g-004_Be_009.endf`, `g-007_N_014.endf`, `g-023_V_051.endf`, `g-074_W_180.endf`, `g-074_W_182.endf`, `g-074_W_183.endf`, `g-074_W_186.endf`, `g-090_Th_232.endf`, `g-092_U_233.endf`, `g-092_U_234.endf`, `g-092_U_235.endf`, `g-092_U_236.endf`, `g-092_U_238.endf`, `g-093_Np_237.endf`, `g-094_Pu_238.endf`, `g-094_Pu_239.endf`, `g-094_Pu_240.endf`, `g-094_Pu_241.endf`, `g-095_Am_241.endf`

**fizcon** Outgoing energy E' not energetically allow: E' .le. E-Q.: `g-092_U_234.endf`, `g-092_U_236.endf`, `g-094_Pu_238.endf`, `g-094_Pu_241.endf`

**fizcon** The cross section and an outgoing distribution don't span the same energy region.: `g-001_H_002.endf`, `g-094_Pu_239.endf`, `g-094_Pu_241.endf`

$\underline{\qquad\qquad\qquad\qquad}$ g-001_H_002.endf $\underline{\qquad\qquad\qquad\qquad}$

- `fizcon` Errors:

    1. The cross section and an outgoing distribution don't span the same energy region.

        ```
        ERROR(S) FOUND IN MAT= 128, MF= 6, MT= 50
            SECTION DOES NOT SPAN THE SAME ENERGY RANGE AS FILE   3, MT=  50
        ```

$\underline{\qquad\qquad\qquad\qquad}$ g-004_Be_009.endf $\underline{\qquad\qquad\qquad\qquad}$

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

        ```
        ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
            PRESENCE OF FILE 3, MT= 102 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 103 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 104 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 105 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 106 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        ```

$\underline{\qquad\qquad\qquad\qquad}$ g-006_C_012.endf $\underline{\qquad\qquad\qquad\qquad}$

- Passed All Checks!

$\underline{\qquad\qquad\qquad\qquad}$ g-006_C_013.endf $\underline{\qquad\qquad\qquad\qquad}$

- Passed All Checks!

$\underline{\qquad\qquad\qquad\qquad}$ g-007_N_014.endf $\underline{\qquad\qquad\qquad\qquad}$

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

        ```
        ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
            PRESENCE OF FILE 3, MT= 102 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 103 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        ```

$\underline{\qquad\qquad\qquad\qquad}$ g-007_N_015.endf $\underline{\qquad\qquad\qquad\qquad}$

- Passed All Checks!

$\underline{\qquad\qquad\qquad\qquad}$ g-008_O_016.endf $\underline{\qquad\qquad\qquad\qquad}$

- Passed All Checks!

$\underline{\qquad\qquad\qquad\qquad}$ g-008_O_017.endf $\underline{\qquad\qquad\qquad\qquad}$

- Passed All Checks!

g-008_O_018.endf

- Passed All Checks!

g-011_Na_023.endf

- Passed All Checks!

g-012_Mg_024.endf

- Passed All Checks!

g-012_Mg_025.endf

- Passed All Checks!

g-012_Mg_026.endf

- Passed All Checks!

g-013_Al_027.endf

- Passed All Checks!

g-014_Si_028.endf

- Passed All Checks!

g-014_Si_029.endf

- Passed All Checks!

g-014_Si_030.endf

- Passed All Checks!

g-016_S_032.endf

- Passed All Checks!

g-016_S_033.endf

- Passed All Checks!

g-016_S_034.endf

- Passed All Checks!

g-016_S_036.endf

- Passed All Checks!

g-017_Cl_035.endf

- Passed All Checks!

g-017_Cl_037.endf

- Passed All Checks!

$$\text{g-018\_Ar\_036.endf}$$

- Passed All Checks!

$$\text{g-018\_Ar\_038.endf}$$

- Passed All Checks!

$$\text{g-018\_Ar\_040.endf}$$

- Passed All Checks!

$$\text{g-020\_Ca\_040.endf}$$

- Passed All Checks!

$$\text{g-020\_Ca\_042.endf}$$

- Passed All Checks!

$$\text{g-020\_Ca\_043.endf}$$

- Passed All Checks!

$$\text{g-020\_Ca\_044.endf}$$

- Passed All Checks!

$$\text{g-020\_Ca\_046.endf}$$

- Passed All Checks!

$$\text{g-020\_Ca\_048.endf}$$

- Passed All Checks!

$$\text{g-022\_Ti\_046.endf}$$

- Passed All Checks!

$$\text{g-022\_Ti\_047.endf}$$

- Passed All Checks!

$$\text{g-022\_Ti\_048.endf}$$

- Passed All Checks!

$$\text{g-022\_Ti\_049.endf}$$

- Passed All Checks!

$$\text{g-022\_Ti\_050.endf}$$

- Passed All Checks!

————————————— g-023_V_051.endf —————————————

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

            ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
                PRESENCE OF FILE 3, MT= 102 REQUIRES AN EQUIVALENT SECTION IN FILE 6
                PRESENCE OF FILE 3, MT= 103 REQUIRES AN EQUIVALENT SECTION IN FILE 6
                PRESENCE OF FILE 3, MT= 104 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        . . .

————————————— g-024_Cr_050.endf —————————————

- Passed All Checks!

————————————— g-024_Cr_052.endf —————————————

- Passed All Checks!

————————————— g-024_Cr_053.endf —————————————

- Passed All Checks!

————————————— g-024_Cr_054.endf —————————————

- Passed All Checks!

————————————— g-025_Mn_055.endf —————————————

- Passed All Checks!

————————————— g-026_Fe_054.endf —————————————

- Passed All Checks!

————————————— g-026_Fe_056.endf —————————————

- Passed All Checks!

————————————— g-026_Fe_057.endf —————————————

- Passed All Checks!

————————————— g-026_Fe_058.endf —————————————

- Passed All Checks!

————————————— g-027_Co_059.endf —————————————

- Passed All Checks!

————————————— g-028_Ni_058.endf —————————————

- Passed All Checks!

g-028_Ni_060.endf

- Passed All Checks!

g-028_Ni_061.endf

- Passed All Checks!

g-028_Ni_062.endf

- Passed All Checks!

g-028_Ni_064.endf

- Passed All Checks!

g-029_Cu_063.endf

- Passed All Checks!

g-029_Cu_065.endf

- Passed All Checks!

g-030_Zn_064.endf

- Passed All Checks!

g-030_Zn_066.endf

- Passed All Checks!

g-030_Zn_067.endf

- Passed All Checks!

g-030_Zn_068.endf

- Passed All Checks!

g-030_Zn_070.endf

- Passed All Checks!

g-032_Ge_070.endf

- Passed All Checks!

g-032_Ge_072.endf

- Passed All Checks!

g-032_Ge_073.endf

- Passed All Checks!

g-032_Ge_074.endf

6

- Passed All Checks!

<div style="text-align: center;">g-032_Ge_076.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-038_Sr_084.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-038_Sr_086.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-038_Sr_087.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-038_Sr_088.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-038_Sr_090.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-040_Zr_090.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-040_Zr_091.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-040_Zr_092.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-040_Zr_093.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-040_Zr_094.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-040_Zr_096.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-041_Nb_093.endf</div>

- Passed All Checks!

<div style="text-align: center;">g-041_Nb_094.endf</div>

- Passed All Checks!

g-042_Mo_092.endf

- Passed All Checks!

g-042_Mo_094.endf

- Passed All Checks!

g-042_Mo_095.endf

- Passed All Checks!

g-042_Mo_096.endf

- Passed All Checks!

g-042_Mo_097.endf

- Passed All Checks!

g-042_Mo_098.endf

- Passed All Checks!

g-042_Mo_100.endf

- Passed All Checks!

g-046_Pd_102.endf

- Passed All Checks!

g-046_Pd_104.endf

- Passed All Checks!

g-046_Pd_105.endf

- Passed All Checks!

g-046_Pd_106.endf

- Passed All Checks!

g-046_Pd_107.endf

- Passed All Checks!

g-046_Pd_108.endf

- Passed All Checks!

g-046_Pd_110.endf

- Passed All Checks!

g-047_Ag_107.endf

- Passed All Checks!

<div align="center">g-047_Ag_108.endf</div>

- Passed All Checks!

<div align="center">g-047_Ag_109.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_106.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_108.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_110.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_111.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_112.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_113.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_114.endf</div>

- Passed All Checks!

<div align="center">g-048_Cd_116.endf</div>

- Passed All Checks!

<div align="center">g-050_Sn_112.endf</div>

- Passed All Checks!

<div align="center">g-050_Sn_114.endf</div>

- Passed All Checks!

<div align="center">g-050_Sn_115.endf</div>

- Passed All Checks!

<div align="center">g-050_Sn_116.endf</div>

- Passed All Checks!

g-050_Sn_117.endf

- Passed All Checks!

g-050_Sn_118.endf

- Passed All Checks!

g-050_Sn_119.endf

- Passed All Checks!

g-050_Sn_120.endf

- Passed All Checks!

g-050_Sn_122.endf

- Passed All Checks!

g-050_Sn_124.endf

- Passed All Checks!

g-051_Sb_121.endf

- Passed All Checks!

g-051_Sb_123.endf

- Passed All Checks!

g-052_Te_120.endf

- Passed All Checks!

g-052_Te_122.endf

- Passed All Checks!

g-052_Te_123.endf

- Passed All Checks!

g-052_Te_124.endf

- Passed All Checks!

g-052_Te_125.endf

- Passed All Checks!

g-052_Te_126.endf

- Passed All Checks!

g-052_Te_128.endf

- Passed All Checks!

$$\text{g-052\_Te\_130.endf}$$

- Passed All Checks!

$$\text{g-053\_I\_127.endf}$$

- Passed All Checks!

$$\text{g-053\_I\_129.endf}$$

- Passed All Checks!

$$\text{g-055\_Cs\_133.endf}$$

- Passed All Checks!

$$\text{g-055\_Cs\_135.endf}$$

- Passed All Checks!

$$\text{g-055\_Cs\_137.endf}$$

- Passed All Checks!

$$\text{g-059\_Pr\_141.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_144.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_147.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_148.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_149.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_150.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_151.endf}$$

- Passed All Checks!

$$\text{g-062\_Sm\_152.endf}$$

- Passed All Checks!

11

———————————————————— g-062_Sm_154.endf ————————————————————

- Passed All Checks!

———————————————————— g-065_Tb_158.endf ————————————————————

- Passed All Checks!

———————————————————— g-065_Tb_159.endf ————————————————————

- Passed All Checks!

———————————————————— g-067_Ho_165.endf ————————————————————

- Passed All Checks!

———————————————————— g-073_Ta_181.endf ————————————————————

- Passed All Checks!

———————————————————— g-074_W_180.endf ————————————————————

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

        ```
        ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
            PRESENCE OF FILE 3, MT= 102 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 103 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT= 104 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        ...
        ```

———————————————————— g-074_W_182.endf ————————————————————

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

        ```
        ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
            PRESENCE OF FILE 3, MT=  50 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT=  51 REQUIRES AN EQUIVALENT SECTION IN FILE 6
            PRESENCE OF FILE 3, MT=  52 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        ...
        ```

———————————————————— g-074_W_183.endf ————————————————————

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

```
          ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
             PRESENCE OF FILE 3, MT= 102 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT= 103 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT= 104 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT= 105 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT= 106 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT= 107 REQUIRES AN EQUIVALENT SECTION IN FILE 6
```

────────────────────── g-074_W_184.endf ──────────────────────

- Passed All Checks!

────────────────────── g-074_W_186.endf ──────────────────────

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

```
          ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
             PRESENCE OF FILE 3, MT=  50 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT=  51 REQUIRES AN EQUIVALENT SECTION IN FILE 6
             PRESENCE OF FILE 3, MT=  52 REQUIRES AN EQUIVALENT SECTION IN FILE 6
       ...
```

────────────────────── g-079_Au_197.endf ──────────────────────

- Passed All Checks!

────────────────────── g-082_Pb_206.endf ──────────────────────

- Passed All Checks!

────────────────────── g-082_Pb_207.endf ──────────────────────

- Passed All Checks!

────────────────────── g-082_Pb_208.endf ──────────────────────

- Passed All Checks!

────────────────────── g-083_Bi_209.endf ──────────────────────

- Passed All Checks!

────────────────────── g-090_Th_232.endf ──────────────────────

- `checkr` Errors:

    1. Missing a section/file

```
          ERROR(S) FOUND IN MAT=9040, MF= 1, MT=456
             THIS SECTION REQUIRES THE PRESENCE OF SECTION  1/SEQUENCE NUMBER     1
```

2. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9040, MF= 5, MT=  5
    FILE  5 NOT ALLOWED FOR NSUB =     0              SEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9040, MF= 4, MT= 16
    OUT OF SEQUENCE AT                               SEQUENCE NUMBER     1
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
...
```

4. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9040, MF= 4, MT=  5
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
```

- `fizcon` Errors:

  1. Missing files (probably spectra for outgoing particles)

  ```
  ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
      PRESENCE OF FILE 3, MT=   5 REQUIRES AN EQUIVALENT SECTION IN FILE 6
      PRESENCE OF FILE 3, MT=  16 REQUIRES AN EQUIVALENT SECTION IN FILE 6
      PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
  ```

  2. Missing files (probably nubar for some such thing)

  ```
  ERROR(S) FOUND IN MAT=9040, MF= 1, MT=456
      THIS SECTION REQUIRES THAT MISSING FILE  1, MT= 452  BE PRESENT
  ```

────────────── g-092_U_233.endf ──────────────

- `checkr` Errors:

  1. Missing a section/file

  ```
  ERROR(S) FOUND IN MAT=9222, MF= 1, MT=456
      THIS SECTION REQUIRES THE PRESENCE OF SECTION  1/SEQUENCE NUMBER     1
      LFI INCORRECT OR NUBAR-TOTAL MISSING   PRECEDING SEQUENCE NUMBER     1
  ```

  2. This file only allowed in neutron sublibrary

14

```
ERROR(S) FOUND IN MAT=9222, MF= 5, MT=  5
     FILE  5 NOT ALLOWED FOR NSUB =     0              SEQUENCE NUMBER     1
     SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9222, MF= 4, MT= 16
     OUT OF SEQUENCE AT                               SEQUENCE NUMBER     1
     FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
     SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
...
```

4. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9222, MF= 4, MT=  5
     FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
     SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
```

- `fizcon` Errors:

   1. Missing files (probably spectra for outgoing particles)

   ```
   ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
        PRESENCE OF FILE 3, MT=    5 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        PRESENCE OF FILE 3, MT=   16 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        PRESENCE OF FILE 3, MT=   18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
   ```

   2. Missing files (probably nubar for some such thing)

   ```
   ERROR(S) FOUND IN MAT=9222, MF= 1, MT=456
        THIS SECTION REQUIRES THAT MISSING FILE  1, MT= 452  BE PRESENT
        BOTH SECTIONS MF=1, MT=455 AND MT=456 MUST BE PRESENT
   ```

---

g-092_U_234.endf

---

- `checkr` Errors:

   1. Missing a section/file

   ```
   ERROR(S) FOUND IN MAT=9225, MF= 1, MT=456
        THIS SECTION REQUIRES THE PRESENCE OF SECTION  1/SEQUENCE NUMBER     1
        LFI INCORRECT OR NUBAR-TOTAL MISSING   PRECEDING SEQUENCE NUMBER     1
   ```

   2. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9225, MF= 5, MT=  5
    FILE  5 NOT ALLOWED FOR NSUB =     0            SEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER     1 TO   99999
```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9225, MF= 4, MT= 16
    OUT OF SEQUENCE AT                             SEQUENCE NUMBER     1
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER     1 TO   99999
 ...
```

4. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9225, MF= 4, MT=  5
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER     1 TO   99999
```

- `fizcon` Errors:

    1. Missing files (probably spectra for outgoing particles)

    ```
    ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
        PRESENCE OF FILE 3, MT=   5 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        PRESENCE OF FILE 3, MT=  16 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
    ```

    2. A level's energy is somehow off

    ```
    WARNING(S)     IN MAT=9225, MF= 3, MT= 18
        Q= 0.00000E+00 MIGHT BE UNREASONABLE           SEQUENCE NUMBER     1
    ```

    3. Outgoing energy E' not energetically allow: E' .le. E-Q.

    ```
    ERROR(S) FOUND IN MAT=9225, MF= 5, MT=  5
        FOR LF=1 EPMAX FOUND TO BE 4.00000E+05 SHOULD BE 0.00000E+00

    ERROR(S) FOUND IN MAT=9225, MF= 5, MT= 16
        FOR LF=1 EPMAX FOUND TO BE 4.00000E+05 SHOULD BE 0.00000E+00
    ```

    4. Missing files (probably nubar for some such thing)

    ```
    ERROR(S) FOUND IN MAT=9225, MF= 1, MT=456
        THIS SECTION REQUIRES THAT MISSING FILE  1, MT= 452  BE PRESENT
        BOTH SECTIONS MF=1, MT=455 AND MT=456 MUST BE PRESENT
    ```

- **checkr** Errors:

    1. This file only allowed in neutron sublibrary

        ```
        ERROR(S) FOUND IN MAT=9228, MF= 4, MT= 18
            FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER      1
            SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
        ```

    2. This file only allowed in neutron sublibrary

        ```
        ERROR(S) FOUND IN MAT=9228, MF= 5, MT= 18
            FILE  5 NOT ALLOWED FOR NSUB =     0             SEQUENCE NUMBER      1
            SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
        ```

    3. Sections out of order in directory so your directory is messed up. This error will break everything else

        ```
        ERROR(S) FOUND IN MAT=9228, MF= 5, MT=455
            OUT OF SEQUENCE AT                           SEQUENCE NUMBER      1
            FILE  5 NOT ALLOWED FOR NSUB =     0         SEQUENCE NUMBER      1
            SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
        ```

    4. Something is invalid, but I don't know what!

        ```
        ERROR(S) FOUND IN MAT=9228, MF= 1, MT=458
            MT= 458 FOR NSUB=     0 INVALID             SEQUENCE NUMBER      1
        ```

    5. Missing a section/file

        ```
        ERROR(S) FOUND IN MAT=9228, MF= 6, MT= 16
            SECTION MAT= 9228   MF=  4   MT=  18   IS MISSING
            SECTION MAT= 9228   MF=  5   MT=  18   IS MISSING
            SECTION MAT= 9228   MF=  5   MT= 455   IS MISSING
        ```

- **fizcon** Errors:

    1. Missing files (probably spectra for outgoing particles)

        ```
        ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
            PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
        ```

- **checkr** Errors:

    1. Missing a section/file

```
ERROR(S) FOUND IN MAT=9231, MF= 1, MT=456
    THIS SECTION REQUIRES THE PRESENCE OF SECTION  1/SEQUENCE NUMBER     1
    LFI INCORRECT OR NUBAR-TOTAL MISSING   PRECEDING SEQUENCE NUMBER     1
```

2. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9231, MF= 5, MT=  5
    FILE  5 NOT ALLOWED FOR NSUB =     0            SEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9231, MF= 4, MT= 16
    OUT OF SEQUENCE AT                             SEQUENCE NUMBER     1
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
...
```

4. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9231, MF= 4, MT=  5
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
```

- `fizcon` Errors:

   1. Missing files (probably spectra for outgoing particles)

```
ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
    PRESENCE OF FILE 3, MT=   5 REQUIRES AN EQUIVALENT SECTION IN FILE 6
    PRESENCE OF FILE 3, MT=  16 REQUIRES AN EQUIVALENT SECTION IN FILE 6
    PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
```

   2. A level's energy is somehow off

```
WARNING(S)     IN MAT=9231, MF= 3, MT= 18
    Q= 0.00000E+00 MIGHT BE UNREASONABLE          SEQUENCE NUMBER     1
```

   3. Outgoing energy E' not energetically allow: E' .le. E-Q.

```
ERROR(S) FOUND IN MAT=9231, MF= 5, MT=  5
    FOR LF=1 EPMAX FOUND TO BE 4.00000E-05 SHOULD BE 0.00000E+00

ERROR(S) FOUND IN MAT=9231, MF= 5, MT= 16
    FOR LF=1 EPMAX FOUND TO BE 4.00000E-05 SHOULD BE 0.00000E+00
```

4. Missing files (probably nubar for some such thing)

```
ERROR(S) FOUND IN MAT=9231, MF= 1, MT=456
    THIS SECTION REQUIRES THAT MISSING FILE  1, MT= 452  BE PRESENT
    BOTH SECTIONS MF=1, MT=455 AND MT=456 MUST BE PRESENT
```

─────────────────── g-092_U_238.endf ───────────────────

- checkr Errors:

  1. This file only allowed in neutron sublibrary

     ```
     ERROR(S) FOUND IN MAT=9237, MF= 4, MT= 18
         FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
         SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
     ```

  2. This file only allowed in neutron sublibrary

     ```
     ERROR(S) FOUND IN MAT=9237, MF= 5, MT= 18
         FILE  5 NOT ALLOWED FOR NSUB =     0           SEQUENCE NUMBER     1
         SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
     ```

  3. Sections out of order in directory so your directory is messed up. This error will break everything else

     ```
     ERROR(S) FOUND IN MAT=9237, MF= 5, MT=455
         OUT OF SEQUENCE AT                          SEQUENCE NUMBER     1
         FILE  5 NOT ALLOWED FOR NSUB =     0         SEQUENCE NUMBER     1
         SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
     ```

  4. Missing a section/file

     ```
     ERROR(S) FOUND IN MAT=9237, MF= 6, MT= 17
         SECTION MAT= 9237   MF=  4   MT=  18   IS MISSING
         SECTION MAT= 9237   MF=  5   MT=  18   IS MISSING
         SECTION MAT= 9237   MF=  5   MT= 455   IS MISSING
     ```

- fizcon Errors:

  1. Missing files (probably spectra for outgoing particles)

     ```
     ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
         PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
     ```

─────────────────── g-093_Np_237.endf ───────────────────

- checkr Errors:

19

1. This file only allowed in neutron sublibrary

   ```
   ERROR(S) FOUND IN MAT=9346, MF= 4, MT= 18
       FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER      1
       SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
   ```

2. This file only allowed in neutron sublibrary

   ```
   ERROR(S) FOUND IN MAT=9346, MF= 5, MT= 18
       FILE  5 NOT ALLOWED FOR NSUB =     0           SEQUENCE NUMBER      1
       SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
   ```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

   ```
   ERROR(S) FOUND IN MAT=9346, MF= 5, MT=455
       OUT OF SEQUENCE AT                        SEQUENCE NUMBER      1
       FILE  5 NOT ALLOWED FOR NSUB =     0           SEQUENCE NUMBER      1
       SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
   ```

4. Missing a section/file

   ```
   ERROR(S) FOUND IN MAT=9346, MF= 6, MT= 17
       SECTION MAT= 9346   MF=  4   MT=  18   IS MISSING
       SECTION MAT= 9346   MF=  5   MT=  18   IS MISSING
       SECTION MAT= 9346   MF=  5   MT= 455   IS MISSING
   ```

- `fizcon` Errors:

  1. Missing files (probably spectra for outgoing particles)

     ```
     ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
         PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
     ```

  2. Implied intermediate level energy should be something else

     ```
     ERROR(S) FOUND IN MAT=9346, MF= 3, MT=  5
         IMPLIED INTERMEDIATE LEVEL ENERGY SHOULD BE 0.0  SEQUENCE NUMBER      1
     ```

—————————————— g-094_Pu_238.endf ——————————————

- `checkr` Errors:

  1. Missing a section/file

     ```
     ERROR(S) FOUND IN MAT=9434, MF= 1, MT=456
         THIS SECTION REQUIRES THE PRESENCE OF SECTION  1/SEQUENCE NUMBER      1
         LFI INCORRECT OR NUBAR-TOTAL MISSING   PRECEDING SEQUENCE NUMBER      1
     ```

2. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9434, MF= 5, MT=  5
    FILE  5 NOT ALLOWED FOR NSUB =     0           SEQUENCE NUMBER    1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9434, MF= 4, MT= 16
    OUT OF SEQUENCE AT                             SEQUENCE NUMBER    1
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER    1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
...
```

4. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9434, MF= 4, MT=  5
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER    1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
```

- `fizcon` Errors:

  1. Missing files (probably spectra for outgoing particles)

  ```
  ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
      PRESENCE OF FILE 3, MT=   5 REQUIRES AN EQUIVALENT SECTION IN FILE 6
      PRESENCE OF FILE 3, MT=  16 REQUIRES AN EQUIVALENT SECTION IN FILE 6
      PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
  ```

  2. Outgoing energy E' not energetically allow: E' .le. E-Q.

  ```
  ERROR(S) FOUND IN MAT=9434, MF= 5, MT=  5
      FOR LF=1 EPMAX FOUND TO BE 4.00000E-05 SHOULD BE 0.00000E+00

  ERROR(S) FOUND IN MAT=9434, MF= 5, MT= 16
      FOR LF=1 EPMAX FOUND TO BE 4.00000E-05 SHOULD BE 0.00000E+00
  ```

  3. Missing files (probably nubar for some such thing)

  ```
  ERROR(S) FOUND IN MAT=9434, MF= 1, MT=456
      THIS SECTION REQUIRES THAT MISSING FILE  1, MT= 452  BE PRESENT
      BOTH SECTIONS MF=1, MT=455 AND MT=456 MUST BE PRESENT
  ```

--- g-094_Pu_239.endf ---

- `checkr` Errors:

1. This file only allowed in neutron sublibrary

   ```
   ERROR(S) FOUND IN MAT=9437, MF= 4, MT= 18
       FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
       SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
   ```

2. This file only allowed in neutron sublibrary

   ```
   ERROR(S) FOUND IN MAT=9437, MF= 5, MT= 18
       FILE  5 NOT ALLOWED FOR NSUB =     0           SEQUENCE NUMBER     1
       SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
   ```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

   ```
   ERROR(S) FOUND IN MAT=9437, MF= 5, MT=455
       OUT OF SEQUENCE AT                          SEQUENCE NUMBER     1
       FILE  5 NOT ALLOWED FOR NSUB =     0         SEQUENCE NUMBER     1
       SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
   ```

4. Missing a section/file

   ```
   ERROR(S) FOUND IN MAT=9437, MF= 6, MT= 17
       SECTION MAT= 9437   MF=  4   MT=  18   IS MISSING
       SECTION MAT= 9437   MF=  5   MT=  18   IS MISSING
       SECTION MAT= 9437   MF=  5   MT= 455   IS MISSING
   ```

- `fizcon` Errors:

  1. The cross section and an outgoing distribution don't span the same energy region.

     ```
     ERROR(S) FOUND IN MAT=9437, MF= 5, MT= 18
         SECTION DOES NOT SPAN THE SAME ENERGY RANGE AS FILE   3, MT=  18
     ```

  2. Missing files (probably spectra for outgoing particles)

     ```
     ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
         PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
     ```

---

g-094_Pu_240.endf

- `checkr` Errors:

  1. This file only allowed in neutron sublibrary

     ```
     ERROR(S) FOUND IN MAT=9440, MF= 4, MT= 18
         FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
         SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
     ```

2. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9440, MF= 5, MT= 18
    FILE  5 NOT ALLOWED FOR NSUB =    0              SEQUENCE NUMBER    1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      1 TO   99999
```

3. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9440, MF= 5, MT=455
    OUT OF SEQUENCE AT                              SEQUENCE NUMBER    1
    FILE  5 NOT ALLOWED FOR NSUB =    0              SEQUENCE NUMBER    1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      1 TO   99999
```

4. Missing a section/file

```
ERROR(S) FOUND IN MAT=9440, MF= 6, MT= 17
    SECTION MAT= 9440   MF=  4   MT=  18   IS MISSING
    SECTION MAT= 9440   MF=  5   MT=  18   IS MISSING
    SECTION MAT= 9440   MF=  5   MT= 455   IS MISSING
```

- `fizcon` Errors:

  1. Missing files (probably spectra for outgoing particles)

```
ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
    PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
```

──────────────────── g-094_Pu_241.endf ────────────────────

- `checkr` Errors:

  1. Missing a section/file

```
ERROR(S) FOUND IN MAT=9443, MF= 1, MT=456
    THIS SECTION REQUIRES THE PRESENCE OF SECTION  1/SEQUENCE NUMBER    1
    LFI INCORRECT OR NUBAR-TOTAL MISSING   PRECEDING SEQUENCE NUMBER    1
```

  2. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9443, MF= 5, MT=  5
    FILE  5 NOT ALLOWED FOR NSUB =    0              SEQUENCE NUMBER    1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      1 TO   99999
```

  3. Sections out of order in directory so your directory is messed up. This error will break everything else

23

```
ERROR(S) FOUND IN MAT=9443, MF= 4, MT= 16
    OUT OF SEQUENCE AT                                      SEQUENCE NUMBER     1
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
...
```

4. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9443, MF= 4, MT=  5
    FILE  4 ALLOWED ONLY IN A NEUTRON DATA SUBLIBRARYSEQUENCE NUMBER     1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER       1 TO   99999
```

- fizcon Errors:

   1. Missing files (probably spectra for outgoing particles)

   ```
   ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
       PRESENCE OF FILE 3, MT=   5 REQUIRES AN EQUIVALENT SECTION IN FILE 6
       PRESENCE OF FILE 3, MT=  16 REQUIRES AN EQUIVALENT SECTION IN FILE 6
       PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
   ```

   2. The cross section and an outgoing distribution don't span the same energy region.

   ```
   ERROR(S) FOUND IN MAT=9443, MF= 5, MT= 18
       SECTION DOES NOT SPAN THE SAME ENERGY RANGE AS FILE   3, MT=  18
   ```

   3. A level's energy is somehow off

   ```
   WARNING(S)     IN MAT=9443, MF= 3, MT= 18
       Q= 0.00000E+00 MIGHT BE UNREASONABLE              SEQUENCE NUMBER     1
   ```

   4. Outgoing energy E' not energetically allow: E' .le. E-Q.

   ```
   ERROR(S) FOUND IN MAT=9443, MF= 5, MT=  5
       FOR LF=1 EPMAX FOUND TO BE 4.00000E-05 SHOULD BE 0.00000E+00
   ```

   ```
   ERROR(S) FOUND IN MAT=9443, MF= 5, MT= 16
       FOR LF=1 EPMAX FOUND TO BE 4.00000E-05 SHOULD BE 0.00000E+00
   ```

   5. Missing files (probably nubar for some such thing)

   ```
   ERROR(S) FOUND IN MAT=9443, MF= 1, MT=456
       THIS SECTION REQUIRES THAT MISSING FILE  1, MT= 452  BE PRESENT
       BOTH SECTIONS MF=1, MT=455 AND MT=456 MUST BE PRESENT
   ```

_g-095_Am_241.endf_

- **checkr** Errors:

1. This file only allowed in neutron sublibrary

```
ERROR(S) FOUND IN MAT=9543, MF= 5, MT= 18
    FILE  5 NOT ALLOWED FOR NSUB =      0              SEQUENCE NUMBER      1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
```

2. Sections out of order in directory so your directory is messed up. This error will break everything else

```
ERROR(S) FOUND IN MAT=9543, MF= 5, MT=455
    OUT OF SEQUENCE AT                                SEQUENCE NUMBER      1
    FILE  5 NOT ALLOWED FOR NSUB =      0              SEQUENCE NUMBER      1
    SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER        1 TO   99999
```

3. Missing a section/file

```
ERROR(S) FOUND IN MAT=9543, MF= 6, MT= 16
    SECTION MAT= 9543   MF=  5   MT=  18   IS MISSING
    SECTION MAT= 9543   MF=  5   MT= 455   IS MISSING
```

- **fizcon** Errors:

1. Missing files (probably spectra for outgoing particles)

```
ERROR(S) - MISSING SECTIONS IN MAT   -1 MF  6
    PRESENCE OF FILE 3, MT=  18 REQUIRES AN EQUIVALENT SECTION IN FILE 6
```

2. Implied intermediate level energy should be something else

```
ERROR(S) FOUND IN MAT=9543, MF= 3, MT=  5
    IMPLIED INTERMEDIATE LEVEL ENERGY SHOULD BE 0.0  SEQUENCE NUMBER      1
```