

Erroneous E-LVL values

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This paper proposes a new action to NNDC, NEADB, CJD CNPD, and JCPRG to fix the remaining errors.

We extracted from the EXFOR Master File all values coded under E-LVL for γ , n, d, t, ^3He and α induced reaction and spontaneous fission datasets. The values do not agree within 5% with any level energy in the RIPL3 library were checked against the source articles. We found 177 items requiring corrections. Typical mistakes are

- wrong unit (e.g., KEV instead of MEV)
- wrong heading (e.g., E-LVL instead of E)
- wrong number (e.g., 3.61 MeV instead of 3.36 MeV)
- level energy not from the source article but from ENSDF etc. (LVL-NUMB must be used)
- wrong REACTION code (e.g., (HE3,A) instead of (A,INL))
- absence of EN-SEC for a level energy of other than the reaction product.

We also found use of E-LVL for a broad peak (e.g., giant resonance) for which E-EXC is more appropriate than E-LVL. But we did not include these cases in the list of errors.

Further details of the assessment are summarized in the full report appended to this memo.

Items registered in the Feedback List

Dataset #	Keyword	Suggested correction
10037.067	REACTION	SF1, SF4: 28-NI-58 -> 28-NI-60
10130.004	Data	E-LVL: 1.150 MeV -> 1.510 MeV
10362.018	Heading	E-LVL -> E and add SF7=G
10447.003	Data	E-LVL=0.08 MeV -> LVL-NUMB=2
10541.002	Common	E-LVL=1.98 MeV -> LVL-NUMB=1
10706.004	Heading	E-LVL -> E
11332.004	Data	E-LVL: 2.14 MeV -> 2.4 MeV
11451.002	Common	E-LVL: 0.8 MeV -> 0.870 MeV
11451.003	Common	E-LVL: 0.8 MeV -> 0.870 MeV
11451.006	Data	E-LVL: 0.8 MeV -> 0.870 MeV
11521.005	Heading	E-LVL -> E
11527.005	Data	E-LVL: 0.92 MeV -> 0.842 MeV+1.013 MeV
11552.003	Common	E-LVL=0.097 MeV -> LVL-NUMB=2
11686.004	Heading	E-LVL -> E
12681.005	Data	E-LVL: 0.447 MeV -> 0.477 MeV
20371.002	Heading	E-LVL -> E and restore SF7=G
20371.007	Heading	E-LVL -> E and restore SF7=G
20371.010	Heading	E-LVL -> E and restore SF7=G
20782.002	Heading	E-LVL -> E
20831.003	Unit	E-LVL: MEV -> KEV?

20935.003	Data	E-LVL: 1.5 MeV -> 1.37+1.62 MeV?
21268.002	REACTION	Use SF3=P and SF4=12-MG-27
21638.003	Data	E-LVL: 2.309 MeV -> 3.309 MeV, 2.448 MeV -> 3.448 MeV
21672.004	Data	E-LVL=1.071 MeV -> LVL-NUMB=1
21986.041	Common	Delete E-LVL values and SF5=PAR.
21986.042	Data	Delete E-LVL values and SF5=PAR.
21986.082	Common	Delete E-LVL values and SF5=PAR.
21986.083	Common	Delete E-LVL values and SF5=PAR.
22356.002	Data	E-LVL: 0.771 MeV -> 0.871 MeV
22532.010	REACTION	SF1: 24-CR-52 -> 24-CR-0; SF2: SCT -> INL
22532.010	Common	E-LVL=0.56 MeV -> LVL-NUMB=1
22532.020	REACTION	SF1: 24-CR-52 -> 24-CR-0; SF2: SCT -> INL
22532.020	Common	E-LVL=0.56 MeV -> LVL-NUMB=1
22588.008	Data	E-LVL: 0.9 MeV -> 0.84 MeV+1.01 MeV
22988.010	Common	E-LVL: 507 keV -> 570 keV
23242.007	Common	E-LVL: 832 keV -> 835 keV
30029.003	REACTION	Use (5-B-10(N,A)3-LI-7,PAR,IPA).
30029.005	REACTION	Use (5-B-10(N,A)3-LI-7,PAR,IPA).
30280.005	REACTION	Use (3-LI-7(N,INL)3-LI-7,PAR,SIG).
31683.002	Data	E-LVL: 1.6 MeV -> 1.51 MeV+1.75 MeV
40531.099	REACTION	SF1, SF4: 30-ZN-66 -> 30-ZN-68
40531.102	REACTION	SF1, SF4: 30-ZN-66 -> 30-ZN-68
40531.111	Common	E-LVL: 1.309 MeV -> 1.873 MeV
40531.112	Common	E-LVL: 1.0 MeV -> 1.08 MeV
40662.008	Unit	KEV -> MEV
40745.002	Data	E-LVL: 540.8 keV -> 640.8 KeV
40790.003	Heading	E-LVL -> E-EXC
40978.002	Heading	E-LVL -> Q-VAL
40828.002.1	Heading	E-LVL -> Q-VAL
40828.002.2	Heading	E-LVL -> Q-VAL
40828.008.1	Heading	E-LVL -> Q-VAL
40828.008.2	Heading	E-LVL -> Q-VAL
A0107.003	Data	E-LVL=0.1039 -> LVL-NUMB=1
A0130.022	Unit	MeV -> keV
A0370.005	Data	E-LVL=1 MeV -> LVL-NUMB=1
A0638.002	Common	E-LVL: 479 keV -> 429 keV
A1081.002	Common	E-LVL: 8.0 MeV -> 0 MeV
A1085.002	Common	Delete E-LVL=0.45 MeV
A1218.003	Common	E-LVL: 0.427 MeV -> LVL-NUMB=1
A1218.004	Common	E-LVL: 0.427 MeV -> LVL-NUMB=1
A1379.008	REACTION	SF1-SF4: Use 3-LI-7(D,HE3)2-HE-6.
A1425.002	Common	E-LVL=2.6 MeV -> LVL-NUMB=1
A1425.003	Common	E-LVL=2.6 MeV -> LVL-NUMB=1
A1426.008	Data	E-LVL=2 MeV -> 2.9 MeV
A1458.005	Heading	Swap EN and E-LVL
A1471.003	Common	E-LVL=0.43 MeV -> LVL-NUMB=1
A1543.005	Common	E-LVL=2.04 MeV -> LVL-NUMB=1
C0027.004	Common	Delete E-LVL=7.5 MeV
C0189.003	Data	E-LVL: 4.195 MeV -> 4.915 MeV
C0562.003	Unit	keV -> MeV

C0925.016	Data	E-LVL=3.61 MeV -> 3.36 MeV
C1021.005	REACTION	SF3: X -> D; SF4: 1-H-2 -> 26-FE-55
C1784.003	Common	Delete E-LVL=473.0 keV and delete SF5=PAR.
C2069.052	Common	E-LVL: 0.0048 MeV -> 0.048 MeV
C2335.005	Data	Delete these data points (compiled in 004)
C2611.005	Data	E-LVL: 0.058 MeV -> 0.056 MeV
D0325.006	REACTION	Must be (9-F-19(A,P)10-NE-22,PAR,TTY/MLT/DA,G).
D0325.007	Common	E-LVL=1.27 -> E-MIN=10.5 MeV
D0797.003	Unit	E-LVL: MeV -> keV
D0891.002	Data	E-LVL=151 keV -> LVL-NUMB=1
D4366.006	Unit	E-LVL: MeV -> keV
D5056.003	Common	E-LVL=3.310 MeV -> 2.310 MeV
D6058.002	Heading	E-LVL -> E
D6058.003	Heading	E-LVL -> E
D6258.003	REACTION	SF1-SF4: 13-AL-27(D,T)13-AL-26
E1206.010	Common	E-LVL=0.097 MeV -> 0.97 MeV
E1206.061	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.062	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.063	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.064	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.065	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.066	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.067	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.068	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.069	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1206.070	REACTION	SF1-SF4: 13-AL-27(A,HE3)13-AL-28
E1236.024	Data	E-LVL=0.138 MeV -> 0.148 MeV
E1236.025	Data	E-LVL=0.138 MeV -> 0.148 MeV
E1255.007	Common	E-LVL=3.19 MeV -> 3.91 MeV
E1363.012	Common	E-LVL=0.37 MeV -> LVL-NUMB=1
E1363.015	Common	E-LVL=0.51 MeV -> LVL-NUMB=1
E1363.030	Common	E-LVL=0.37 MeV -> LVL-NUMB=1
E1363.033	Common	E-LVL=0.51 MeV -> LVL-NUMB=1
E1403.006	Common	E-LVL: 0.82 MeV -> 0.081 MeV
E1415.009	Common	E-LVL=0.504 MeV -> 0.604 MeV
E1415.010	Common	E-LVL=0.567 MeV -> 0.667 MeV
E2264.004	Unit	keV -> MeV
E2264.005	Unit	keV -> MeV
E2503.009	Unit	keV -> MeV
F0013.002	Common	E-LVL=2.6 MeV -> LVL-NUMB=1
F0013.004	Common	E-LVL=2.6 MeV -> LVL-NUMB=1
F0013.005	Common	E-LVL=2.6 MeV -> LVL-NUMB=1
F0016.002	Data	E-LVL=0.304 MeV -> 2.9 MeV; 11.40 MeV -> 11.7 MeV
F0025.003	EN-SEC	Add (E-LVL,4-BE-8).
F0092.002	Data	E-LVL=0.72 MeV -> LVL-NUMB=1
F0117.006	Data	E-LVL: 1.7790/4.6180 MeV -> Q-VAL=-3.1819/-4.1500 MeV
F0132.004	Common	E-LVL=4.429 MeV -> 2.43 MeV
F0132.006	Common	E-LVL=4.429 MeV -> 2.43 MeV
F0153.002	Data	E-LVL=0.72 MeV -> LVL-NUMB=1
F0153.004	Data	E-LVL=0.72 MeV -> LVL-NUMB=1

F0391.003	Heading	Swap E-LVL and EN.
F0429.004	Data	E-LVL=1.02 MeV -> 0 MeV
F0588.004	Common	Delete E-LVL=2.43 MeV.
F0728.002	Data	E-LVL=109.89 keV -> LVL-NUMB=1
F0728.003	Data	E-LVL=109.89 keV -> LVL-NUMB=1
F0728.004	Data	E-LVL=109.89 keV -> LVL-NUMB=1
F0812.006	REACTION	SF1-SF4: Use 72-HF-179(A,T)73-TA-180
F0813.005	Data	E-LVL: 0.668 MeV -> 6.68 MeV
F0827.003	Heading	E-LVL -> E-LVL-MIN and E-LVL-MAX
F0827.005	Heading	E-LVL -> E-LVL-MIN and E-LVL-MAX
F0941.002	Data	E-LVL=0.96 MeV -> 0.096 MeV
F0941.003	Data	E-LVL: 0.96 MeV -> 0.096 MeV
F0966.005	REACTION	SF1-SF4: 13-AL-27(D,A)12-MG-25
F1035.004	Data	E-LVL=1.98 MeV -> 0.87 MeV
F1035.005	Data	E-LVL=1.98 MeV -> 0.87 MeV
F1065.010	REACTION	SF1-SF4: 6-C-12(D,A)5-B-10
F1146.007	Unit	E-LVL: MeV -> keV
F1166.004	REACTION	Must be (78-PT-194(P,D)78-PT-193,PAR,DA)
F1260.008	REACTION	SF1-SF4: 14-SI-30(D,P)14-SI-31
F1351.006	Data	E-LVL=1.840 MeV -> 0.840 MeV?
F1406.009	Common	E-LVL=0.5 MeV -> 0.58 MeV
L0036.004	REACTION	SF1-SF4: 8-O-16(G,N)8-O-15
L0036.006	REACTION	SF1-SF4: 8-O-16(G,N)8-O-15
L0194.009	Common	E-LVL=19.3 MeV -> E-LVL=19.1 MeV
M0154.002	REACTION	SF1-SF4: 5-B-11(G,X)0-G-0
M0428.006	Common	Delete E-LVL=45 keV.
M0428.011	Common	E-LVL=45 keV -> 136 keV
M0428.012	Common	E-LVL=45 keV -> 58 keV+138 keV
M0956.002	Common	E-LVL=0.46 MeV -> 0 MeV
M0956.003	Common	E-LVL=1.2 MeV -> 0 MeV
O0148.009	Common	E-LVL=0.46 MeV -> 0.90 MeV
O0246.008	Common	E-LVL=0.76471 MeV -> LVL-NUMB=1
O1209.002	Heading	E-LVL -> E and add SF7=G
O1822.002	Heading	E-LVL -> E
O1822.003	Heading	E-LVL -> E
O1822.004	Heading	E-LVL -> E
O2154.003	Data	E-LVL=3.205 MeV -> 3.204 MeV
O2158.005	Heading	E-LVL -> E
O2158.006	Heading	E-LVL -> E
O2158.007	Heading	E-LVL -> E
O2158.008	Heading	E-LVL -> E
O2158.009	Heading	E-LVL -> E
O2158.010	Heading	E-LVL -> E
O2285.002	Data	E-LVL value must be multiplied by 1000.
O2287.003	Unit	E-LVL: MeV -> keV
O2287.004	Unit	E-LVL: MeV -> keV
O2287.005	Unit	E-LVL: MeV -> keV
O2384.002	Unit	E-LVL: MeV -> keV
O2388.003	Heading	E-LVL -> E-EXC-CMP and add E-LVL=0
O2388.004	Heading	E-LVL -> E-EXC-CMP and add E-LVL=0

O2445.004	Common	Delete E-LVL=3 keV.
O2445.013	Unit	E-LVL: MeV -> keV
R0015.008	REACTION	SF1-SF4: 40-ZR-90(HE3,A)40-ZR-89
T0037.002	EN-SEC	Add (E-LVL,4-BE-8).
T0037.003	EN-SEC	Add (E-LVL,4-BE-8).
T0263.004	REACTION	SF1-SF4: 14-SI-28(A,P)15-P-31