MEMORANDUM 4C-2/34

From: Hans Potters

Subject: NNCSC EXFOR tapes

7th February 1973

Contents:

GENERAL

1. All details of the last Four-Centre meeting decisions have not been taken into account as neither the minutes nor the dictionary updates had been received at the time this memorandum was written.

2. Would you please put blanks between numbers and their units in free text. This will increase legibility.

3. When we study the overall number of errors in NNCSC tapes we sometimes see heavy bursts of serious errors concentrated in a few mostly big entries. We feel that perhaps NNCSC rely too much on data sent by authors in EXFOR format or on author proofs.

   CCDN's experience is that we discover sometimes more errors in data sent by private communication than the author discovers on author proofs. Most authors are pleased when we correct their errors.

   In addition, one cannot expect the author to be aware of all the subtitle terminology pedantries in EXFOR (e.g. in the ISO-QUANT formalism, or take the STANDARD Absolute).

   Many errors require immediate correction at CCDN (wrong numbers and often ISO-QUANTS), and this will slow down the conversion procedure.

TRANS 1005

10023.001		DETECTOR Line 17: over misprinted.
.002		ISO-QUANT Is this an activation measurement or is it a cross section branching ratio to delayed neutron decay? So FCT instead of PAR. In any case, the ISO-QUANT needs explanation in free text.
10052.023	A	COMMON Should not ℓ = 0 be entered here as in the other subentries?
10059.002		DATA Where are the data below 43 eV subentry 001 mentions under STANDARD?
10098.001		METHOD Code not expanded. STANDARD Drop.
10135.001		STANDARD Line 36: cross section misspelt. COMMENT Should be ANALYSIS.
10136.001		ERR-ANALYS Line 19: statistical misspelt.
10137.001		TITLE Where are the Ø-16 data? COMMON
	?	EN-ERR > EN-RSL: Is this correct?
10179.034-038		COMMON EN-ERR should be EN-RSL and Q-VAL-ERR should be Q-VAL-RSL.

TRANS 1006

10028.002-005 COMMON

EN-ERR should be EN-RSL.

10045.002-062 ISO-QUANT

On basis of the gamma energies a more detailed decision should be possible concerning the reaction (NG or ING). Use the = sign.

.002-076 COMMON

EN-ERR and ANG-ERR should be -RSL.

.063-076 COMMON

E should be E-LVL.

.076 COMMON

? E-LVL should be 1109 keV.

10048.001 STATUS

Author misspelt.

.086-088 BIB

Line 8 out of order.

COMMON

EN-ERR and Q-VAL-ERR should be -RSL.

.087-090 COMMON

A.? The discrepancies between the values of .088 and .089 and .087 and .090 (factor 10) lead to the conclusion that the Q-values of .089 and .090 have probably to be inverted.

.091 METHOD

Transmission.

10058.002 DATA

Where are the data below 35 eV subwork .001 mentions under STANDARD?

10073.125-135 COMMON

EN-ERR + Q-VAL-ERR should be -RSL.

10081.042 ISO-QUANT

Drop /G (even-even nuclide).

.063 ISO-QUANT

Enter RED function designation.

10086.001 METHOD

(ACTIV) should go to the relevant subentries.

.002-003 CORRECTION

Why is the absorption in the Uranium foil (9% correction) mentioned in .003 and not in .002? It is exactly the same foil according to SAMPLE.

..005 DATA

What is the difference between the two pairs of values?

10094.019,080 DATA

? ANG = 95 ADEG should be 90 ADEG.

.076,077 DATA

A.? E = .989 MEV should be .984 MEV?

10108.005,025,050 DATA

*DATA-ERR = 0.0%: what does this mean?

.008,009,016) COMMON
.017,026,027)
.037,038,073) E-LVL = 0.0 MEV can be dropped.

009,011,017) STATUS
019,027,029)
038,040) Dependent.

056-070 ISO-QUANT

? AV means Energy average. Here it is probably an average over angle. What are the angle boundaries? It is better to use free text in these cases.

071-087 STATUS

? Should this not be dependent on 058-070?

10109.001 COMMENT

Where are the Legendre expansions?

002-004,007,) COMMON
011,015,018,)
022,029,047) E-LVL = 0.0 MEV can be dropped.

015 DATA

+DATA-ERR = 0.0% ; what does this mean?

10114.001 REFERENCE (also TRANS 1009)

Wrong data: ,7101.

.006 DATA

DATA * 1.E-4.

10140.001 BIB

Line 14: Neutrons misspelt.

10229.001 BIB

Line 17: Germanium misspelt.

TRANS 1007

10060.001 ISO-QUANT/DATA

? Comparison with Paya's Np^{237} NF data shows that this is probably NF,,RTE with units B*RTE.

10062.002 DATA

Where are the data below 51 eV mentioned under STANDARD in subwork 001?

10095.028,029 COMMENT

Is the weak gamma the gamma actually measured or a contamination? In the first case the ISO-QUANT is wrong: in the second it should be stated in the comment.

Is the energy 7.40 or 7.44?

.041 BIB

Line 6: Gammas misspelt.

10096.001 BIB

Line 14: Separation misspelt.

10097.001 BIB

Line 24: Relative misspelt.

10175.001 FACILITY

Drop (NONE).

TRANS 1008

10090.001 N-SOURCE

From "Neutron flux ..." until end contains information which should go under STANDARD or possibly under DETECTOR.

ERR-ANALYS

Second paragraph belongs to ANALYSIS, as does the sentence "Data quoted ..." in the first paragraph.

Information should preferably be placed under the relevant subentries.

all COMMON

Subentry 001 should contain EN,EN-RSL (and not -ERR) which also applies to the temperature data.

10114.010 STANDARD

? Should it not be absolute too?

10138.001 REFERENCE

Date: 7105).

10139.001 DETECTOR

Counter, Monitor misspelt.

10149.001 COMMON

EN-ERR should be EN-RSL.

10172.001 STANDARD

Drop.

011 COMMON

A.? ℓ = 0 as in the others?

.028,029, .030,032 DATA/FLAG

For p-wave resonances $\Gamma n^{o}(\ell = 0)$ is a meaningless quantity (or is it $\Gamma n^{o}(\ell = 1)$ for these resonances?).

They therefore have to be deleted from .029 and flagged in .028 as p-wave. The p-wave resonances can then be deleted from .032 also.

What is the correct resonance energy, 74.2 and 185 keV (028,029) or 74.4 and 185.6 keV (032)?

.042,043 DATA

Last line is illegimate.

10174.001 ERR-ANALYS (Please put it after STANDARD)

Relative error also means error given in percent. In order to avoid confusion, it would be better to say error in relative cross section (excluding normalization error) and total error (including normalization error).

COMMON

ANG-ERR should be ANG-RSL and EN-ERR should be EN-RSL.

10180.001 ERR-ANALYS

Last sentence should go under ANALYSIS.

10181.001 METHOD

Code (TOF) missing.

Drop point after background.

10194.001 SAMPLE

Unclear sentence.

Which target is liquid? H_2 and D_2? In that case it should be under the relevant subentries .002 and .003.

.002-010 DATA

EN-ERR should be EN-RSL.

TRANS 1009

10051.001 SAMPLE

GD2Ø3: "Enrich ..." line missing.

REFERENCE

Date: 6904).

STANDARD

Drop.

.010 ISO-QUANT

Should be NG/WID.

.012 SAMPLE

GD-2Ø3.

.015 ANALYSIS

Line missing.

.015,019
.024,027
.030 ANALYSIS

AREA should be HIST histogram method on individual $\Gamma n^{o}(\ell = 0)$ obtained by area analysis.

.015-032 COMMON

? $\ell = 0$ appears to be put at random:

(a) STF

Values obtained from resonance parameters should probably have $\ell = 0$: 024 does not.

Values obtained by least square fit to average transmission may or may not have $\ell = 0$: please check .016 which has not $\ell = 0$ and 020,023 which have.

(b) EL/RAD

What is this quantity doing with $\ell = 0$? 022,026,029 have $\ell = 0$, 018,032 have not.

A We have assumed $\ell = 0$ for STF from resonance parameters and no ℓ for STF from transmission and for EL/RAD.

This entry is another good example that author proof in itself is not reliable.

10061.001)
10063.001)
10064.001) TITLE/PART-DET

Missing.

10063.002 DATA

Where are the data below 48 eV? (see .001 under STANDARD).

10072.001 TITLE

Two lines inverted.

10087.001 GEOMETRY

There is nothing of geometry in it: should go under DETECTOR.

.002,003 DATA

Combine in one table as more independent variables are allowed for.

Note the ambiguity of the units in DATA-ERR column: what is meant - percentage of the DATA column or the absolute error in the DATA? This might be confusing. Has anyone a solution?

10125.001 METHOD

Unclear sentence: coincidences between neutrons and fission fragments yielded ratios of prompt neutron fission yields relative to the standards.

PART-DET

Add FF.

.005 DATA

A Half-life missing (152 years?).

.006 ISO-QUANT/DATA

Should be SF/NU,,PR according to TITLE. Drop EN-DUMMY.

10131.001 ANALYSIS

Code wrongly used (only for resonance parameters).

.002 DATA

Right-adjust numbers.

Zero energy means extrapolated to 0. This should be added under ANALYSIS. Alternatively, if the value is unknown EN-DUMMY should be used.

10141.001

STANDARD

,NG missing in code.

METHOD/ANALYSIS

Information should all go under ANALYSIS in the relevant subentries.

Expand METHOD - code.

Add (AREA) under ANALYSIS where appropriate.

What is the ANALYSIS for Rn ?

.003,005

ISO-QUANT

Why different modifiers?

10157.001

METHOD

Add Activation.

COMMON

EN-ERR should be EN-RSL.

10171.001

METHOD/RESID-NUC

Add activation with Am^{243} as residual nucleus. ASSOP is not true as N-SOURCE is Reactor.

ERR-ANALYS

Unclear text: N = neutron flux, T = time. What is VNOT - some velocity? RMS error is total root-mean-square error: put a bar between lines 025 and 026.

10184.001

FACILITY

Dynamiton misspelt; also, code and expansion are wrong.

ERR-ANALYSIS

Unclear text: systematical error is the RMS sum: 0.12% = 3.0 MB.

Statistical error = 1.5 MB.

What is standard error? There is no normalization (Transmission measurement, Absolute) = 2.3 MB. The RMS adds up to 4.0 MB.

10185.001 ? ERR-ANALYS

Missing.

10211.001 ? TITLE

Missing.

.007-008 ? ERR-ANALYS

Missing.

10231.002 COMMON

E MEV 0.691.

DATA

EN-ERR should be EN-RSL.

Independent variable repeated :

1.0700E+00, 1.1650E+00, 1.1950E+00,
1.2210E+00, 1.3710E+00, 1.5820E+00,
1.7270E+00, 1.7790E+00, 2.0020E+00(3*),
2.3890E+00, 2.4750E+00, 2.5240E+00,
2.6820E+00, 2.7830E+00, 3.1080E+00,
3.1860E+00, 3.3900E+00, 3.5900E+00,
3.7960E+00, 3.9940E+00, 4.9960E+00.

10232.006 COMMENT

Should be STANDARD.

10233.001 STATUS

Expand SCSRS.

? ERR-ANALYS/FACILITY/N-SOURCE/PART-DET

Missing.

.002-049 COMMON

Enter the Q-values.

DATA

Independent variable repeated:

400., 450., 470., 500., 550., 600.

A We assume that the order of the data lines in .002 corresponds to the order of the subentries .003-.049. Please flag second measurements in future in

order to avoid different Legendre expansions being mixed up, especially when they go in one table in the future.

10234.002-009 A DATA

Assumed units MB/SR.

10252.001 ? TITLE/STANDARD

Missing.

TRANS 1010

10043.001 STANDARD

Information belongs under DETECTOR. Standard information missing.

COMMON

Move out ANG (double).

10074.001 REFERENCE

Add month (03).

METHOD

Take out second line.

STANDARD

Drop.

ANALYSIS

Which analysis belongs to which resonance parameter ? It should preferably go under relevant subentries.

.009-010 ? ISO-QUANT

G modifier correct? (even-even nuclide).

.013 DATA

Unit EV of DATA-column should be NO-DIM.

.016 ISO-QUANT

A in second term should be 53.

.026 DATA

Line 10: 4. under DATA column.

.030 DATA

Strength function * 1.E-4.

.033 ISO-QUANT

(24-CR-54,STF).

10093.001 METHOD

(TRNSM) should go under subwork 002.

STANDARD

Move out code.

.002 DATA

Independent variable repeated for 0.410, 0.425, 0.430, 0.435, 0.440, 0.450, 0.575, 0.700, 0.775, 0.925, 1.375, 1.400 & 1.750.

.071-138 DATA

A Unit DATA-ERR ambiguous. We took it as an absolute error.

.081 DATA

Line 17: Decimal point missing.

.206-210 DATA

These subentries should be deleted, stating that for these energies the calculation gave no meaningful results.

10191.001 INC-SPECT

Missprint: PI should be P1.

.002-009 DATA

EN-ERR should be EN-RSL.

10196.001 COMMON

Why not give the whole energy range 3.4-4.2 GEV (or 4.8 GEV) in COMMON?

10209.001 METHOD

Comparison misspelt.

STANDARD

Code absolute.

ISO-QUANTs

Add to dictionary 14 N3N,,PAR
N3N,DA,PAR
N3N,DA/DE,PAR

.005.006 ISO-QUANT

Should not both have (or not have) DE?

10230.001 BIB

Line 20: Separated misspelt.

CORRECTION/ERR-ANALYS

Unclear: 20 percent from the 0.5 percent correction? Etc.

.005 SAMPLE

AL2Ø3-AL.

TRANS 1011

10022.001 METHOD

(ACTIV) missing.

PART-DET

Move to appropriate subentries.

COMMON

EN-ERR should be EN-RSL.

.002,003 RESID-NUC/PART-DET

Anihilation gammas (AR).

.020-022 RESID-NUC

Wrong extension.

Half-life missing.

.024-026 PART-DET

? Should probably be beta or gamma of the fission product MØ-99. The corresponding fission fragments in the chain will probably have lower Z-values.

10037.001,003, .005,007, .009,011 STANDARD

? Is the hydrogen STANDARD in subwork 001 also valid for the total cross section subentries?

.012-074 COMMON

Add EN-RSL.

.054 EN-SEC

Line 5: level energy missing.

10039.001 STANDARD

EL should be CØH.

.002 DATA

Why EN-DUMMY with a monochromatic source? (is not thermal as stated in ANALYSIS of subentry 001).

FLAG

Spin state ± 0.5 means polarization in the direction or in inverse direction of the C-axis? Change wording.

10041.001 REFERENCE
Month 10).

10042.001 INSTITUTE
A Approved by author, so Institute is known: CRC?

METHOD
Part of it should go under ANALYSIS.

.004 ISO-QUANT
Add NP,RI to dictionary 14.

10123.001 STANDARD
Missing.

10147.001 SAMPLE
Last line unclear, put (RES.INT) and (THERMAL VAL.).

SAMPLE/CORRECTION
SAMPLE states isotopic impurities not observable and CORRECTION applies a 5 - 20% correction for it.

REFERENCE
Month should be 03.

.002,003 DATA
Blank out error column.

.006,007 COMMON
A RED parameter and no ℓ-value given (ℓ = 0?).

10148.001 METHOD
Should be: (PLSED)pulse die-away method.

STANDARD
Code Øbsolete.

10155.001 REFERENCE
Month should be 03).

DETECTOR
Invalid code.

STANDARD
Why not simply (79-AU-297,NG) ?

.002,003 — DATA
Flag 1. in .002 inconsistent with flag 2.in .003.

.004 — ISO-QUANT
Wrong Z-value.

10156.001 — ERR-ANALYS
Quoted misspelt.

.002,003 — DATA/INC-SPECT
EN should give either 1.335 Angstrom or 0.0459 eV or both.

10163.002-013 — COMMON
EN-ERR should be EN-RSL.

ISO-QUANT
DA function parameter missing. Are there any data for EL,ASY and EL,POL i.e. without angle given?

10213.001 — PART-DET
? Neutrons and He^3 recoils in coincidence?

HISTORY
Which table in which reference?

.003 — COMMENT
Should be STANDARD as in 10163.

10223.001 — METHOD
(TOF) missing.

STANDARD
Applies to subworks .002-004 only.

.002-004) .006) — DATA
Move out zeros at the beginning.

.005-010 — ISO-QUANT
Should be NF,DA,FCT,FF.

METHOD
Should become ANALYSIS.

10243.001 STANDARD

Should be (5-B-10,NA): Author's "Absolute" clearly means: expressed in barns normalized to a well-established reference value.

.002 DATA

A Line 21: DATA-ERR should be .04?

DATA-ERR has wrong units.

10247.001 METHOD

Add (TOF).

REFERENCE

Add month 03.

STANDARD

Drop.

.002-004 DATA

? Independent variable repeated 182.9 keV.

10253.001 FACILITY

Code (DYNAM) missing.

ERR-ANALYS

Absolute error is total error?

10276.001 STANDARD

Comma missing in code.

.002 DATA

? Independent variable repeated: 18.58, 26.52(3*), 34.43.

.003,005,007) STATUS
.009,011,013)
.016,019)

(DEP) missing.

.021 ISO-QUANT

Average over angle? Limits are not given.

TRANS 9012 (Dictionary tape)

Dict. 006	Lines 18 and 31: Duplicate code CP-.
Dict. 018	DYNOM: it should be Dynamitron. Ought we to change the code to DYNAM?

Distribution

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OECD

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DAT/324-0

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14/9/72

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