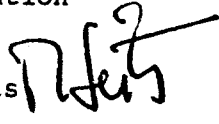


To: Distribution

1985-07-02

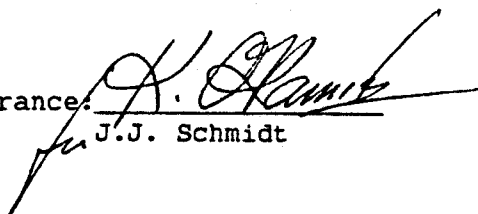
From: M.M.Seits 

Subject: CINDA Exchange System

With this memo I wish to define the planned 4-Center CINDA Exchange System (NNDC - NEA/DB - NDS - CJD). The description of the Exchange System (attached) is modeled on the current bilateral exchange system between NNDC and NEA/DB. For the time being, CJD is not included as a full member in the Exchange System.

I request that the centers let me know by 31 July, 1985 if you disagree with the interface as described. Otherwise, I assume you agree to establish the CINDA Exchange System as described and will start writing the required computer programs for NDS.

When NDS is ready to enter into the Exchange System, I will set up a timetable to coordinate the status of the master files at NDS and the other centers and to initiate the exchange of the update files; and notify the other centers. I assume that both NEA/DB and NNDC are ready to include NDS in the Exchange System at any time. If this is not the case, please let me know how long you would need after receiving my timetable.

Clearance: 
J.J. Schmidt

Distribution:

1. S.Pearlstein, NNDC
2. N.Tubbs, NEA/DB
4. V.N.Manokhin, CJD

NDS: D.E.Cullen
V.Goulo
M.Lammer
H.D.Lemmel
K.Okamoto
M.Oshomuvwe
J.J.Schmidt
O.Schwerer
M.Seits
file copies

CINDA Exchange System

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System Specifications

This document describes the exchange system of CINDA data between the 4 Centers: NDS, NNDC, NEA/DB and CJD. Included are the responsibilities of each center and detailed descriptions of the relevant CINDA formats.

(It is understood that these CINDA Exchange System Specifications must be updated when CJD is to be integrated as a full member of the System.)

M.M.Seits
IAEA, Nuclear Data Section
85-06-25

CINDA EXCHANGE System

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General

Each of the 4 centers is responsible for an "Area". NNDC is responsible for area 1, NEA/DB is responsible for area 2, and NDS is responsible for area 3 and also for area 4 until CJD assumes full responsibility for area 4.

NOTE that CINDA "Readers" scan literature that is PUBLISHED in a given area. This may contain work originating from LABs in another area, and the resulting CINDA entries are transmitted in "Reader Format" to that center which is responsible for the area of the respective LAB. Throughout this document, "Area" pertains to the area of the LAB.

Each center (except CJD) maintains its own master file which consists of all CINDA lines from all areas. The format of this master file as well as its storage and update method can vary from center to center according to local computing facilities. (CJD periodically receives a copy of the master file from NDS).

Each center is responsible for processing input (additions, deletions, modifications) to the CINDA System for their area (NDS also processes input for area 4). This input is always in the "Reader Format". Generally the "Reader Format" input is received from the readers of the respective area. If one center has input for an area other than its own, it sends this input in the "Reader Format" to the proper center for processing.

From the processed input records, the center creates update records in the "Exchange Format". These records are sent to all other centers who use them to update their copy of the CINDA Master File. Details are given under "Responsibilities of Centers" on Page 2.

All CINDA records (regardless of format) are transmitted as tape files. Generally the tape specifications for these transmissions are: 9 track tape, EBCDIC code, No Labels, 1600 bpi, blocking factor of 20. However, other tape specifications can be arranged between any two centers as desired. One or more files can be present on any tape.

Both "Reader Format" and "Exchange Format" transmissions should take place at least 4 times per year. Each center determines its own schedule for sending input (i.e. "Reader Format") and update (i.e. "Exchange Format") files to the other centers.

For the time being, NDS will send a copy of its Master File to CJD 4 times per year.

Responsibilities of Centers:

Area 1, NNDC

- maintaining area 1 entries
- receiving:
 - . area 1 entries from NEA/DB & NDS in "Reader Format"
 - . area 2 entries from NEA/DB in "Exchange Format"
 - . area 3 & 4 entries from NDS in "Exchange Format"
- sending:
 - . area 1 entries to NEA/DB & NDS in "Exchange Format"
 - . area 2 entries to NEA/DB in "Reader Format"
 - . area 3 & 4 entries to NDS in "Reader Format"
- maintaining an up to date copy of the CINDA Master

Area 2, NEA/DB

- maintaining area 2 entries
- receiving:
 - . area 1 entries from NNDC in "Exchange Format"
 - . area 2 entries from NNDC & NDS in "Reader Format"
 - . area 3 & 4 entries from NDS in "Exchange Format"
- sending:
 - . area 1 entries to NNDC in "Reader Format"
 - . area 2 entries to NNDC & NDS in "Exchange Format"
 - . area 3 & 4 entries to NDS in "Reader Format"
- maintaining an up to date copy of the CINDA Master
- maintaining the "CINDA Coding Manual"

Area 3, NDS

- maintaining area 3 and temporarily, area 4 entries
- receiving:
 - . area 1 entries from NNDC in "Exchange Format"
 - . area 2 entries from NEA/DB in "Exchange Format"
 - . area 3 & 4 entries from NNDC & NEA/DB in "Reader Format"
- sending:
 - . area 1 entries to NNDC in "Reader Format"
 - . area 2 entries to NEA/DB in "Reader Format"
 - . area 3 & 4 entries to NNDC & NEA/DB in "Exchange Format"
 - . complete file to CJD in "Transmission Format"
- maintaining an up to date copy of the CINDA Master

Area 4, CJD

- receiving:
 - . complete file from NDS in "Transmission Format"
- sending:
 - . area 4 entries to NDS in "Reader Format"
- preparing for maintaining area 4 entries
- preparing for maintaining own copy of the CINDA Master

CINDA Exchange System - "Exchange Format"

Record Format:

Location	Contents	Length	Notes
1	Operation	CHAR (01)	1)
2- 7	Serial Number	PIC '999999'	
8- 9	S = Element Symbol	CHAR (02)	2)
10- 12	A = Atomic Weight	CHAR (03)	2)
13- 15	Q = Mnemonic Quantity	CHAR (03)	
16- 18	Lab	CHAR (03)	
19- 21	Block Number	PIC '999'	
22	Work Type	CHAR (01)	
23- 27	En-Min	CHAR (05)	3)
28- 32	En-Max	CHAR (05)	3)
33	Hierarchy	CHAR (01)	4)
34	Reference Type	CHAR (01)	
35- 48	Reference	CHAR (14)	
49- 52	Reference Date (YYMM)	PIC '9999'	
53	Author Flag	CHAR (01)	5)
54- 89	Comments	CHAR (36)	
90	Reader	CHAR (01)	
91	Area	CHAR (01)	
92- 94	Country	CHAR (03)	
95-100	Date of last update (YYMMDD)	PIC '999999'	

Notes:

For Add or Mod operations, NO fields may be blank except possibly Energy field(s) in special cases, or Author Flag if no Author present. For Del operations, the first 6 fields MAY NOT be blank.

1) Operation: A Add new record
 D Delete existing record
 M Modify existing record (replace whole record)

2) Target: columns 8-12 can contain MANY or FPROD
 or (S-A): S . Element Symbol
 A . blank = Natural Isotope
 . 001 - 399 = Isotope
 . < 000 = Alphanumeric Compound Code

3) Energy fields
 Numeric: m.msn for positive energy range limits
 -.msn for negative resonance energies
 (m: mantissa
 n: exponent
 s: exponent sign)
 Alphabetic: alphabetic energy code listed in "CINDA Coding Manual"

4) Hierarchy: numeric Hierarchy code

5) Author Flag: blank - no author present in Comments field
 'X' - author(s) given in Comments field

Sort Order:

The CINDA Exchange file is sorted by Operation Code and Serial Number.

CINDA Exchange System - "Reader Format"

Record Format:

Location	Contents	Length	Notes
1- 2	S = Element Symbol	CHAR (02)	1)
3- 5	A = Atomic Weight	CHAR (03)	1)
6- 8	Q = Mnemonic Quantity	CHAR (03)	
9- 11	Lab	CHAR (03)	
12- 14	Block Number	PIC '999'	2)
15	Reader	CHAR (01)	
16	Operation	CHAR (01)	3)
17	Hierarchy	CHAR (01)	4)
18	Work Type	CHAR (01)	
19- 22	En-Min	CHAR (04)	5)
23- 26	En-Max	CHAR (04)	5)
27	Reference Type	CHAR (01)	
28- 41	Reference	CHAR (14)	
42- 44	Reference Date (MY)	CHAR (03)	
45- 80	Comments	CHAR (36)	

Notes:

The "Reader Format" records MUST conform to the rules as specified in the "CINDA Coding Manual".

- 1) Target: columns 1-5 can contain MANY or FPROD
or (S-A): S . Element Symbol
A . blank = Natural Isotope
. 001 - 399 = Isotope
. < 000 = Alphabetic Compound Code
- 2) Block Number: may be blank, to be filled in at relevant center
- 3) Operation: A Add new record
B Block record to existing block
D Delete existing record
K Kill - delete whole block
L Link - combine two blocks
M Modify existing record
- 4) Hierarchy: mnemonic or numeric Hierarchy code
- 5) Energy fields
Numeric: mmsn for positive energy range limits
-msn for negative resonance energies
(m: mantissa
n: exponent
s: exponent sign)
==a decimal point is assumed after the first digit
Alphabetic: alphabetic energy code listed in "CINDA Coding Manual"

Sort Order:

The CINDA Reader file is NOT sorted.

CINDA Exchange System - "Transmission Format"

Record Format:

Location	Contents	Length	Notes
1	Exchange Flag	CHAR (01)	1)
2- 4	Lab	CHAR (03)	
5- 7	Z = Atomic Number	CHAR (03)	2)
8- 10	A = Atomic Weight	CHAR (03)	3)
11- 12	Q = Numeric Quantity	PIC '99'	
13- 15	Block Number	PIC '999'	
16- 21	Serial Number	PIC '999999'	
22- 25	En-Min	CHAR (04)	4)
26- 29	En-Max	CHAR (04)	4)
30- 31	Energy Flag	CHAR (02)	5)
32- 37	Date of last update (YYMMDD)	PIC '999999'	
38- 39	S = Element Symbol	CHAR (02)	6)
40- 42	Q = Mnemonic Quantity	CHAR (03)	
43	Reader	CHAR (01)	
44	Hierarchy	CHAR (01)	7)
45	Work Type	CHAR (01)	
46	Area	CHAR (01)	
47	Data Flag	CHAR (01)	8)
48	Reference Type	CHAR (01)	
49- 62	Reference	CHAR (14)	
63- 66	Reference Date (YYMM)	PIC '9999'	
67	Author Flag	CHAR (01)	9)
68-103	Comments	CHAR (36)	
104	Filler	CHAR (01)	10)

Notes:

- 1) Exchange Flag: can be ignored
- 2) Atomic Number: 000-125 - atomic number
126 - MANY
127 - FPROD
128-999 - 128 + atomic number(denotes compound)
- 3) Atomic Weight: 000 - natural isotope
blank - MANY, FPROD
001-399 - atomic weight
400-999 - numeric compound code
- 4) Energy
 - Numeric: mmsn for positive energy range limits
-msn for negative resonance energies
(m: mantissa
n: exponent
s: exponent sign)
==a decimal point is assumed after the first digit
 - Alphabetic: alphabetic energy code listed in "CINDA Coding Manual"

5) Energy Flag:

1st char	blank	
2nd char	0	= E-Min numeric, E-Max numeric
	1	= E-Min alpha, E-Max numeric
	2	= E-Min alpha, E-Max alpha
	3	= E-Min alpha, E-Max alpha concatenated
	4	= E-Min numeric, E-Max alpha
	5	= E-Min blank, E-Max blank
	6	= E-Min alpha, E-Max blank
	7	= E-Min numeric, E-Max blank
	8	= E-Min blank, E-Max numeric
	9	= E-Min blank, E-Max alpha

6) Element Symbol: blank if Atomic Number = 126 or 127 (MANY, FPROD)

7) Hierarchy: numeric Hierarchy code

8) Data Flag: blank - Reference is NOT a reference to data
'X' - Reference is a reference to data

9) Author Flag: blank - no author present in Comments field
'X' - author(s) given in Comments field

10) Filler: can be ignored

Sort Order:

The CINDA Transmission file is sorted by ascending LAB, Z, A, Q-Numeric, Block Number, Hierarchy; and decending Reference Date.