WP 2005-12

Dictionary Transmission 9089 and Related Modifications

Memos: CP-D/439 Transmission 9089, Summary of changes
CP-D/438 Corrections of "Reaction Types"
CP-D/440 Updated description of Archive Dictionaries

International Atomic Energy Agency
P.O.Box 100, A-1400 Vienna, Austria

Memo CP-D/439

Date: 22 September 2005
To: Distribution
From: O. Schwerer

Subject: **Dictionary transmission 9089**
(with all new dictionaries in TRANS format and related format upgrades)

Dictionary transmission 9089 is available and can be downloaded, either from the NDS open area, subdirectories TRANS.DICTS and TRANS.DICTS.ARCHIVE_9089, or in zipped form from

http://www-nds.iaea.org/exfor-master/backup/DICTS-2005-09-21.zip

The CHEX version upgraded by V. Zerkin to work with the new dictionaries is available from

http://www-nds.iaea.org/exfor-master/programs/zchex07/

This time all "new" dictionaries introduced in 2004, such as the new quantity dictionary 236 and the new nuclides dictionary 227, are available in all formats including "TRANS" format. At the same time, some of the discrepancies between the TRANS and the Archive dictionaries were removed; e.g., the individual particle dictionaries 13, 28, 29 and 33 used in the TRANS format, were combined in one particle dictionary 33 as in the Archive (this was a conclusion of the 2003 NRDC meeting which is implemented with this transmission).

Apart from these structural changes, the update includes all changes proposed in memos since the last update (unless they need to be discussed at the NRDC meeting) and the "reaction type" modifications described in memo CP-D/438.

Below I give

- a brief summary of the most important structural changes and notes on individual dictionaries, and
- a table listing all TRANS and Archive dictionaries.

An updated description of the Archive dictionaries is submitted separately as memo CP-D/440.

Please note the following important changes and notes (all of which have been approved at earlier NRDC meetings):

- For the first time, the "EXFOR" dictionaries in "TRANS" format now contain all relevant old and new dictionaries (except for those which can be cancelled, see below).

- Dictionary 7 has now only conferences; book codes are moved to Dict. 207

- Dictionary 27 (Nuclides) was updated for the last time. It will be kept in the system, but from now on all programs should use the new dictionary 227 which is generated from the Nuclear Wallet Cards (with addition of codes for particles and natural elements).

- Dictionary 36 (Quantities) was updated for the last time. It will be kept in the system, but any additions and changes will from now on be made only in the new dictionary 236.

- TRANS dictionary 9 (Elements) is renamed 209 to be consistent with the new Archive dictionary 209.

- TRANS dictionaries 13, 28 and 29 are cancelled, and TRANS dictionary 33 (previously only for REACTION SF7 use) has now the same contents as Archive dictionary 33 (all particles with flags for use in different fields) (Implementation of Conclusion C4 of the 2003 NRDC meeting)

- TRANS dictionary 50 (List of dictionaries) is renamed 950 to remain at the end of the list

- The formats of the new dictionaries in the TRANS format follow as much as possible the archive format but because of the different record length in some cases there are some differences (like in some of the old dictionaries). These are obvious and trivial but will be documented separately.

- The EXFOR check program CHEX, which is using most of the dictionaries, was upgraded by V. Zerkin to work with the new dictionaries and can be downloaded from http://www-nds.iaea.org/exfor-master/programs/zchex07/

EXFOR (TRANS) Dictionaries				Archive / DANIEL Dictionaries		
EXFOR Dict. #	**Title**	**Arch. Source**	**Remarks**	**Arch / Daniel Dict. #**	**Title (Default: same as EXFOR)**	**Remarks**
1	EXFOR System Identifiers	1		1		
2	EXFOR Information Identifiers	2		2		
3	Institute Codes	3		3		
4	Reference Type	4		4		
5	Journal Codes	5		5		
6	Report Codes	6		6		
7	Book and Conference Codes	7	New version: Conferences only. Books will be in 207	7		New version: Conferences only. Books will be in 207
8	Elements	8		8		
9	Compounds ***Renamed 209 !***	27		-		
-				10	Standard reactions	Used where?
-				11	Forbidden reactions	Used where?
-				12	(Old) CINDA quantities	~=EXFOR Dict. 42
(13)	Particles (for keywords other than REACTION) ***Cancelled !***	33	- Superseded by new 33 - Different from archive Dict. 13	!		
!				13	REACTION type	Superseded by 213 ***No longer updated !***
-				14	REACTION "dimensions"	Used where?
15	History Codes	15		15		
16	Status Codes	16		16		
17	Related Reference Codes	17		17		
18	Facility Codes	18		18		
19	Incident Source	19		19		
20	Additional Information	20		20		
21	Method	21		21		
22	Detector	22		22		
23	Analysis	23		23		
24	Data Headings	24		24		
25	Data Units	25		25		
27	Nuclides (and natural elements)	27	Superseded by 227 + 209 ***No longer updated !***	27	Nuclides, Natural Elements and Compounds	Superseded by 227 + 209 ***No longer updated !***
(28)	Incident Particles (REACTION SF2) ***Cancelled !***	33	Superseded by new Dict.33	-		

(29)	Product Particles (REACTION SF3) ***Cancelled !***	33	Superseded by new Dict. 33	-		
30	Process Codes (REACTION SF3)	30		30		
31	Branch Codes (REACTION SF5)	31		31		
32	Parameter Codes (REACTION SF6)	32		32		
33	Particles Considered (REACTION SF7) ***Now: Particles (All)***	33	New version contains all particles as in archive	33	Particles (All)	
34	Modifiers (REACTION SF8)	34		34		
35	Data Type (REACTION SF9)	35		35		
36	Quantities (REACTION SF5-8)	36	Superseded by 236 ***No longer updated !***	36		Superseded by 236 ***No longer updated !***
37	Result	37		37		
42	CINDA Quantities	12		-		
43	NLIB for Evaluated Libraries	43		43		
-				44	Data Libraries	
add 45	(same as Archive)	45		45	New CINDA quantities	New (2004)
add 47	(same as Archive)	47		47	Old/New CINDA quantities	New (2004)
add 48	(same as Archive)	48		48	Alphabetic energy values	New (2004)
50	List of dictionaries ***Renamed 950 !***	-	Produced by DAN2X4	-		
add 52	(same as Archive)	52		52	CINDA Reader codes	New (2004)
Add 113	(same as Archive)	113		113	Web quantities	New (2004)
-				124	Data headings for plotting	(for old NNDC system)
-				125	Data units for plotting	(for old NNDC system)
-				136	Quantities for plotting	(for old NNDC system)
Add 144	(same as Archive)	144		144	Data Libraries for new CINDA	New (2004)
Add 207	(same as Archive)	207		207	Book codes	New (2004)
Add 209	(same as Archive)	209		209	Compounds	New (2004) Replacing 27 (together with 227)
Add 213	(same as Archive)	213		213	REACTION type with CINDA quantity	New (2004) Replacing archive Dict.13
Add 227	(same as Archive)	227		227	Nuclides and nat.isot.mixtures	New (2004) Replacing 27 (together with 209)
Add 235	(same as Archive)	235		235	Work types	New (2004) (for CINDA)
Add 236	(same as Archive)	236		236	Quantities (REACTION SF5-8)	New (2004) Replacing 36
950	List of dictionaries (previously 50)	-	Produced by DAN2X4	-		

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Memo CP-D/438

Date: 22 September 2005
To: Distribution
From: O. Schwerer

Subject: **Corrections and Streamlining of "Reaction Types" (EXFOR dictionaries 13/213, used in dictionaries 36/236) and relation to Archive dictionary 14**

During the preparations of the next dictionary transmission (9089), which, for the first time, will include all new dictionaries (e.g. 213, 227, 236) in all formats including EXFOR (TRANS) format, we undertook a cleanup of the Reaction Type codes given in dictionary 213 (replacing dict.13), which are used in the quantities dictionary 236 (replacing 36). Also, an e-mail by N. Otsuka of 2 July was pointing out some of the inconsistencies which are now being rectified.

The reaction type is, among other things, used to check the presence of the necessary independent variables in the respective subentry, and also determines the grouping of quantities into categories for output as TRANS dictionary 36/236.

1. Several previously existing reaction types had been removed because all related quantities are now obsolete. However, these obsolete quantities are still kept in dict. 36/236 (with obsolete flag) so that old entries using them can still be processed (until all of them are updated). To keep the proper sorting in the output of TRANS dictionary 236, these reaction types were re-introduced (with obsolete flag). These concerns the reaction types CO, COD, COP, LC, LCP, MC.

2. Missing reaction type P4A was introduced.

3. An ambiguity which has been existing in the Archive/Daniel dictionaries for many years, has been resolved. While the reaction type is defined as having a length of 3 characters, some of the codes in dict. 13/213 and/or 36/236 appear to be 4 characters long (in some cases with the 3rd position being blank). The 4th character has its own definition which is given in Archive Dictionary 14, called (somewhat misleadingly) "Reaction dimension".

   The entries of dict. 14 are:

4	* 4 PI
A	average
D	Adler-Adler
E	* sqrt(E)
M	Reich-Moore
N	ratio
P	spectrum average
S	reaction combination
T	R-Matrix
V	Vogt

We believe that there is no need to use this dictionary, respectively the 4th position in the reaction type, for the presently used software. With the exception of '4' (= times 4π), these codes make no difference for the purposes of the reaction type (i.e. checking of presence of independent variables, and grouping of quantities into categories). Therefore we convert all "apparent 4-character reaction types" into true 3-character-reaction types: The ones with '4' at the end must be a separate reaction type (because an angle is needed as variable), while the other ones can be joined with an existing pure 3-character reaction type. This implies updates of all concerned dictionaries, i.e., 36/236, and in some cases also 13/213. We do keep dictionary 14 for backwards compatibility, but we are not aware of any current actual use of it.

The following changes are therefore made:

4-character codes appearing only in Dict. 36/236 but not in 13/213:

CS N, CS E, CS S, CS+N: All changed to CS
CSPE, CSPN: All changed to CSP
DE E: Changed to DE
FFAN: Changed to FYA
FY N, FY S: All changed to FY
INP4: Changed to IP4 (new)
INTE: Changed to INT
RE D: Changed to RE
RP A, RP E, RP D, RP M, RP N, RP T, RP V: All changed to RP
RI S: Changed to RI
RPPA, RPPT: All changed to RPP

4-character codes appearing in Dict. 36/236 and in 13/213:

CS 4: Changed to CS4
CSP4: Changed to CP4
DE 4: Changed to DE4
INT4: Changed to IT4
PYPA: Changed to PYQ (note that in this case, the A in the 4th position was not coming from dictionary 14 but was, as in cases where it is in the 3rd position, referring to angular dependence. This was a genuine 4-character reaction type which actually contradicts the format, therefore it is now changed to the somewhat arbitrary 3-character code PYQ)

4. During these updates we decided to also modify those 3-character reaction type codes with embedded blanks in the 2nd position or with * in the 3rd position, because both cases may cause problems with some programs. Therefore the following reaction types are renamed:

   E A to EA
   E P to EP
   G * to GZ
   L P to LP
   P * to PZ

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Memo CP-D/440

Date: 22 September 2005
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Subject: **Updated description of Archive Dictionaries**

Please find attached an updated description of the Archive dictionaries, describing the format used in transmission 9089. This supersedes all earlier descriptions, including those in memo CP-D/432 (for dictionary 227) and memo CP-D/405 (all other dictionaries). The corrections are highlighted in ***bold italic***.

ARCHIVE DICTIONARIES

Victoria McLane, July 2003
1st Update by O. Schwerer, June 2004 (Draft) (Memo CP-D/405)
2nd Update by O. Schwerer, September 2005

The NRDC Dictionary Archive consists of a dictionary index file and a set of dictionary files, one for each dictionary, and contains all information necessary for the production of the DANIEL database, and the EXFOR and CINDA dictionaries.

The format and contents of the Archive Dictionary files are described on the following pages.

General Format

Dictionary Index

The dictionary index contains a list of all of the dictionary files stored, along with supplemental information.

The format of dictionary index line is:

Column(s)	1-3:	Dictionary number
	5-34:	Dictionary name
	36-37:	# of DANIEL keys
	39-78:	DANIEL record format

Dictionary Files

The dictionary files consist of two types of records: MASTER records and COMMENT records.

The general format of a MASTER record is:

Column(s)	1:	Alter flag
	2-4:	Status Code
	6-11:	Data of entry or last update

13-42: Key
44-118: Codes, expansions, *etc.* Format and contents are given under each dictionary.

The general format of a COMMENT record is (exceptions are noted under each dictionary):

Columns 1-33: blank
44-88: comment

Alteration Flags

Dictionary updates are recorded on the Master Archive files by adding an alteration flag and the date of alteration. When a new transmission is run the flags are used to process the records for the output files, and are deleted from the Master Archive files.

The following flags are used to indicate an alteration to a dictionary record.

A The record has been added
D The record is marked for deletion
M A modification has been made to the Code-expansion field
S The status has been changed

Status Codes

A list of legal status codes (for all dictionaries) follows.

CIN	CINDA	used only by CINDA
EXT	extinct	no longer applies, but valid for older data sets
INT	internal	used only by DANIEL System
OBS	obsolete	not to be used on EXFOR exchange files
PRE	preliminary	do not need approval or are approved
PRO	proposed	are not yet approved
TRA	transmitted	sent to all centers on Dictionary transmission file

Contents of Dictionaries

The contents of the archive dictionaries are given on the following pages, along with the format of the MASTER records and any exceptions to the format of the COMMENT records.

For each MASTER record, the primary key is given first with the actual length of the key. (Note, however, that all primary keys are stored as 20-character strings.) Following the primary key, the secondary key (for the DANIEL database), if it exists, and the contents of the dictionary line fields are given. Note that the secondary key is also the first dictionary line field. The dictionary line is stored as an 80-character string.

Dictionary 1: SYSTEM IDENTIFIERS
MASTER RECORD:
KEY: EXFOR CODE (A10)
field 1: INTERNAL NUMERICAL EQUIVALENT (I9)
field 2: EXPANSION (A55)

Dictionary 2: INFORMATION IDENTIFIERS
MASTER RECORD:
KEY: EXFOR CODE (A10)
field 1: EXPANSION (A25)
field 2: KEYWORD REQUIRED (A1)
R - required

B - one required
X - required when relevant
field 3: INTERNAL NUMERICAL EQUIVALENT (I2)
field 4: CODE REQUIRED OR OPTIONAL (A1)
R - required code
O - optional code
field 5: DICTIONARY FOR CODE (A3)

Dictionary 3: INSTITUTE CODES
MASTER RECORD:
KEY1: EXFOR CODE (A7)
KEY2: field 1: 3-character CINDA CODE (A3)
field 2: AREA, COUNTRY CODE (A4)
field 3: EXPANSION (A53)
field 4: COUNTRY, ORG. CODE FOR CINDA (A15)
COMMENTS:
Column 44: comment flag
= CINDA comment
Columns 45-88: comment

Dictionary 4: REFERENCE TYPE
MASTER RECORD:
KEY: EXFOR CODE (A1)
field 1: SHORT EXPANSION (A4)
field 2: POINTER TO RELATED DICTIONARY (A3)
field 3: LONG EXPANSION (A35)

Dictionary 5: JOURNAL CODES
MASTER RECORD
KEY1: EXFOR CODE (A6)
KEY2: field 1: CINDA CODE (A4)
field 2: AREA-COUNTRY CODE (A4)
field 3: ADDITIONAL AREA-COUNTRY OR ORGANIZATION CODE (A4)
1st character area code: 2nd country of origin
T: country of original publication
blank: organization code (1st code = *n*ZZZ)
field 4: SHORT EXPANSION (A20)
field 5: EXPANSION (A48)
COMMENTS:
Column 44: comment flag
\+ addition to title
* full title
. translation of title
= CINDA comment
Columns 45-88: comment

Dictionary 6: REPORT CODES
MASTER RECORD:
KEY: EXFOR CODE (A11) (CINDA key is 8-character truncation of code)
field 1: INSTITUTE CODE (A7)
field 2: EXPANSION (A48)
field 3: CINDA FLAG (A1)
* Expansion not entered in CINDA book dictionary

COMMENTS:
Column 44: comment flag
= CINDA comment
Columns 45-88: comment

Note: This dictionary contains CINDA codes flagged with the status code CIN, which are not simply truncations of the 10-character EXFOR code.

Dictionary 7: CONFERENCE CODES
MASTER RECORD:
KEY: EXFOR CODE (A10) (CINDA key is 8-character truncation of code)
field 1: EXPANSION (A53)
field 2: AREA-COUNTRY CODE (A4)
field 3: 2ND AREA-COUNTRY OR ORGANIZATION CODE (A4)
1st character area code: 2nd country of origin
T: country of original publication
blank: organization code (1st code = *n*ZZZ)
field 4: CINDA SHORT CODE (A10)
COMMENTS:
Column 44: comment flag
(EXFOR long expansion
= CINDA comment
Columns 45-88: comment

Dictionary 8: ELEMENTS
MASTER RECORD:
KEY1: Z-NUMBER OF ELEMENT (I3)
KEY2: field 1: ELEMENT SYMBOL (A2)
field 2: ELEMENT NAME (A20)

Dictionary 10: STANDARD REACTIONS (CSISRS)
MASTER RECORD:
KEY: CSISRS CODE line format output (A2)
field 1: EXPANSION (A24)
field 2: INTERNAL NUMERICAL EQUIVALENT (A56)

Dictionary 11: FORBIDDEN REACTIONS (CINDA)
MASTER RECORD:
KEY: EXFOR CODE (A8)
field 1: EXFOR CODE (A50)

Dictionary 12: CINDA QUANTITIES
MASTER RECORD:
KEY: CINDA CODE (A3)
field 1: FISSION FLAG (A1)
field 2: INTERNAL NUMERICAL EQUIVALENT (I4)
field 3: CINDA SHORT EXPANSION (A14)
field 3: EXPANSION (A50)

Dictionary 13: REACTION TYPE (for Dictionary 36)
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: COMPUTATION FORMAT (A5)
field 2: ONLINE SYSTEM CODE (A4)
field 3: INDEPENDENT VARIABLE FAMILY CODE (I10)
field 4: EXPANSION (A65)

Dictionary 14: REACTION DIMENSIONS (for Dictionary 36)
MASTER RECORD:
KEY: EXFOR CODE (A1)
field 1: EXPANSION (A55)

Dictionary 15: HISTORY CODES
MASTER RECORD:
KEY: EXFOR CODE (A1)
field 1: SHORT EXPANSION (A15)
field 2: LONG EXPANSION (A45)

Dictionary 16: STATUS CODES
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: INTERNAL NUMERICAL EQUIVALENT (I5)
field 2: EXPANSION (A55)
field 3: SUBACCESSION # FIELD FLAG (A1):

Dictionary 17: RELATED REFERENCE CODES
MASTER RECORD:
KEY: EXFOR CODE (A1)
field 1: EXPANSION (A53)

Dictionary 18: FACILITY
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)
field 2: SPECIAL USE CODE (A4)
NEUT, PHOT

Dictionary 19: INCIDENT SOURCE
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)
field 2: SPECIAL USE CODE (A4)
NEUT, PHOT
field 3: DELIMITER CODE (A1)

Dictionary 20: ADDITIONAL INFORMATION
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)

Dictionary 21: METHOD
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)
field 2: SPECIAL USE CODE (A4)
FY, NEUT, PHOT

Dictionary 22: DETECTOR
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)
field 2: SPECIAL USE CODE (A3)

FY, NEU, GAM

Dictionary 23: ANALYSIS
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)
field 2: SPECIAL USE CODE (A4)
PHOT, RP

Dictionary 24: DATA HEADINGS
MASTER RECORD:
KEY: EXFOR CODE (A10)
field 1: DATA TYPE (2I1)
1st integer 0: flags, *etc.*
2nd integer 1:flag
2: decay flag
3:level flag
4: miscellaneous data
1: assumed values
2nd integer 1: monitor
5:assumed
2: data
2nd integer 1:data
3: ratio
3: resonance parameter
2nd integer 1: quantum number
2: energy
4: incident energy
2nd integer 1: energy
2: momentum
3: spectrum energy
4: spectrum temperature
5: secondary energy
2nd integer 1: particle energy
2: level energy
3: excitation energy
4: Q value
5: energy degradation
6: energy gain
7: level number
8:linear momentum
9:polarity
6: angle
2nd integer 1: angle
2: cosine
7: q (momentum transfer)
8: wave number
7: number
2nd integer 5: coefficient number
6: kq

Dictionary 24: DATA HEADINGS (continued)
8: other variable
2nd integer 2: sample temperature
3: sample thickness

4: polarization
5: half-life
6: group number
7: decay constant
9: isotope/particle identification
2nd integer 1: element
2: mass
3: isomer
4: monitor element
5: monitor mass
9: emitted nucleons

field 2: FAMILY CODE (A1)
field 3: PLOTTING FLAGS (I7)
col 1-3 - independent variable
col 4-6 - dependent variable
col 1 & 4: variable
1 - value
2 - minimum
3 - maximum
4 - approximate
5 - one of multiple variables
9 - uncertainty or resolution
if col 1 = 1-5:
col 2: 1 - numerator
2 - denominator
if col 1 or 4 = 9:
col 2 & 5: +error; col 3 & 6: -error
1 - error
2 - resolution
3 - half resolution
4 - statistical error
5 - partial error
col 7 - reference frame flag
1 - c.m. system
field 4: UNIT CODE (A4)
field 5: SPECIAL USE FLAG (A1)
H = for relativistic heavy-ion data
field 6: EXPANSION (A55)

Dictionary 25: DATA UNITS
MASTER RECORD:
KEY: EXFOR CODE (A10)
field 1: EXPANSION (A35)
field 2: FAMILY CODE (A4)
field 3: CONVERSION FACTOR (E11)
field 4: SORTING CODE (A3)

Dictionary 26: UNIT FAMILY CODES
MASTER RECORD
KEY: UNIT FAMILY CODE (A4)
field 1: DICTIONARY 24 USE (I2)
field 2: DICTIONARY 25 USE (I2)
field 3: DICTIONARY 36 USE (I2)
field 4: EXPLANATION (A50)

Dictionary 27: NATURAL ISOTOPIC MIXTURES, NUCLIDES AND COMPOUNDS

MASTER RECORD:
KEY1: EXFOR CODE (A10)
KEY2: field 1: CINDA CODE (A5)
field 2: INTERNAL NUMERICAL EQUIVALENT (I6)
field 3: NUCLIDE USES (A13)
(See EXFOR Chapter 7 for field contents)
field 4: SPIN (E5)
field 5: for isotopes, ISOTOPIC ABUNDANCE (E11)
for natural element, ATOMIC WEIGHT (E11)
field 6: EXPANSION (A25)
filed 7: COMPOUND FLAG (A1) = '*'
COMMENT RECORD
Columns 44-45: OUTPUT DICTIONARY NUMBER FOR DANIEL (I2)
(blank after 1st MASTER Record).
Columns 46-98: COMMENT

Dictionary 30: PROCESS CODES
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: INTERNAL NUMERICAL EQUIVALENT (I10)
field 2: EXPANSION (A55)

Dictionary 31: BRANCH CODES
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: INTERNAL NUMERICAL EQUIVALENT (I10)
field 2: EXPANSION (A55)

Dictionary 32: PARAMETER CODES
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: INTERNAL NUMERICAL EQUIVALENT (I10)
field 2: EXPANSION (A55)
field 3: SPECIAL USE CODE (A4)

Dictionary 33: PARTICLES
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: INTERNAL NUMERICAL EQUIV: Reaction SF2,3 (I6)
field 2: INTERNAL NUMERICAL EQUIV: Reaction SF7 (I5)
field 3: ALLOWED SUBFIELD FLAG (A4)
field 4: EXPANSION (A40)
COMMENT RECORD
Columns 44-45: OUTPUT DICTIONARY NUMBER FOR DANIEL (I2)
Columns 46-98: COMMENT

Dictionary 34: MODIFIERS
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: INTERNAL NUMERICAL EQUIVALENT (I10)
field 2: GENERAL QUANTITY MODIFIER FLAG (A5)
field 3: EXPANSION (A55)
COMMENT RECORD
Column 1: Flag
* replaces EXFOR expansion
Columns 45-99: Comment

Dictionary 35: DATA TYPE
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: INTERNAL NUMERICAL EQUIVALENT (I10)
field 2: EXPANSION (A40)

Dictionary 36: QUANTITIES
MASTER RECORD:
KEY: EXFOR CODE (A30)
field 1: INTERNAL NUMERICAL EQUIV. Reaction SF5 (I6)
field 2: INTERNAL NUMERICAL EQUIV. Reaction SF6 (I6)
field 3: INTERNAL NUMERICAL EQUIV. Reaction SF7 (I6)
field 4: INTERNAL NUMERICAL EQUIV. Reaction SF8 (I6)
field 5: REACTION TYPE (A3)
field 6: REACTION DIMENSION (A1)
field 7: FAMILY CODE (A4)
field 8: EXPANSION (A48)
COMMENT RECORD
Columns 44-87: COMMENT

Dictionary 37: RESULT
MASTER RECORD:
KEY: EXFOR CODE (A5)
field 1: EXPANSION (A53)

Dictionary 43: NLIB for Evaluated Libraries
MASTER RECORD:
KEY: NLIB NUMBER (A2)
field 1: LIBRARY NAME (A40)

Dictionary 44: Data Libraries
MASTER RECORD:
KEY: LIBRARY NAME (A20)
field 1: AREA-COUNTRY CODE (A4)
field 2: AREA-COUNTRY, ORGANIZATION CODE (A4)
1st character: area code; 2nd country of origin
blank; organization code (1st code = *n*ZZZ)
field 3: EXPANSION (A55)

Dictionary 45: New CINDA Quantities *(new)*
MASTER RECORD:
KEY: NEW CINDA QUANTITY (A15)
field 1: WEB QUANTITY (A7)
field 2: EXPANSION (A53)

Dictionary 47: Old / New CINDA Quantities *(new)*
MASTER RECORD:
KEY: OLD CINDA QUANTITY (A15)
field 1: REACTION (A10)
field 2: NEW CINDA QUANTITY (A4)

Dictionary 48: Alphabetic energy values for CINDA *(new)*
MASTER RECORD:
KEY: ENERGY CODE (A15)
field 1: BOOK EXPANSION(A10)

field 2: DESCRIPTION (A44)

Dictionary 52: CINDA Reader Codes *(new)*
MASTER RECORD:
KEY: READER CODE (A15)
field 1: CINDA READER(A60)
field 2: COUNTRY (A15)

Dictionary 113: Web Quantities *(new)*
MASTER RECORD:
KEY: WEB QUANTITY (A15)
field 1: EXPANSION (A53)

Dictionary 144: Data Libraries for new CINDA *(new)*
MASTER RECORD:
KEY: REF-TYPE, LIBRARY NAME (A20)
field 1: AREA-COUNTRY CODE (A4)
field 2: AREA-COUNTRY, ORGANIZATION CODE (A4)
1st character: area code; 2nd country of origin
blank; organization code (1st code = *n*ZZZ)
field 3: EXPANSION (A55)

Dictionary 207: BOOK CODES *(new)*
MASTER RECORD:
KEY: EXFOR CODE (A10) (CINDA key is 8-character truncation of code)
field 1: EXPANSION (A53)
field 2: AREA-COUNTRY CODE (A4)
field 3: 2ND AREA-COUNTRY OR ORGANIZATION CODE (A4)
1st character area code: 2nd country of origin
T: country of original publication
blank: organization code (1st code = *n*ZZZ)
field 4: CINDA SHORT CODE (A10)

Dictionary 209: COMPOUNDS *(new)*
MASTER RECORD:
KEY1: EXFOR CODE (A10)
KEY2: field 1: CINDA CODE (A5)
field 2: INTERNAL NUMERICAL EQUIVALENT (I6)
field 3: NUCLIDE USES (A13)
(See EXFOR Chapter 7 for field contents)
[field 4: SPIN (E5)] not used
[field 5: for isotopes, ISOTOPIC ABUNDANCE (E11)
for natural element, ATOMIC WEIGHT (E11)] not used
field 6: EXPANSION (A25)
[field 7: COMPOUND FLAG (A1) = ''] not needed*
COMMENT RECORD
Columns 44-35: OUTPUT DICTIONARY NUMBER FOR DANIEL (I2)
(blank after 1st MASTER Record).
Columns 46-98: COMMENT

Dictionary 213: REACTION TYPE WITH NEW CINDA QUANTITY *(new)*
MASTER RECORD:
KEY: EXFOR CODE (A3)
field 1: NEW CINDA QUANTITY (A5)
field 2: WEB QUANTITY (A4)

field 3: INDEPENDENT VARIABLE FAMILY CODE (I13)
field 4: EXPANSION (A65)

Dictionary 227: NATURAL ISOTOPIC MIXTURES, AND NUCLIDES

KEY1: EXFOR CODE (A12)
KEY2: field 1: A-SYMBOL (A6)
field 2: INTERNAL NUMERICAL EQUIVALENT (I7)
field 3: USE FLAG (A1):
Z = not to be used in REACTION SF2,3,7, and in keywords DECAY-DATA, DECAY-MON, EN-SEC, HALF-LIFE, MOM-SEC, PART-DET, RAD-DET
(where the appropriate particle codes are to be used)
field 4: SPIN/PARITY (A6)
field 5: HALF-LIFE FLAG (A1)
field 6: HALF-LIFE (E11)
field 7: HALF-LIFE UNITS (A3)
field 8: ISOTOPIC ABUNDANCE (E11)
field 9: ATOMIC WEIGHT (E12)
field 10: EXPLANATION (A21)

Dictionary 235: WORK TYPE *(new)*
MASTER RECORD:
KEY: CINDA CODE (A1)
field 1: SHORT EXPANSION (A6)
field 2: LONG EXPANSION (A20)

Dictionary 236: QUANTITIES *(new)*
MASTER RECORD:
KEY: EXFOR CODE (A30)
field 1: REACTION TYPE (A3)
field 2: REACTION DIMENSION (A1)
field 3: FAMILY CODE (A4)
field 4: EXPANSION (A72)
COMMENT RECORD
Columns 44-87: COMMENT (LONG EXPANSION)