

2358-14

**Joint ICTP-IAEA Workshop on Nuclear Structure Decay Data: Theory and
Evaluation**

6 - 17 August 2012

ENSDF WebAccess

T. Johnson
*Brookhaven National Lab.
USA*



ENSDF Web Access

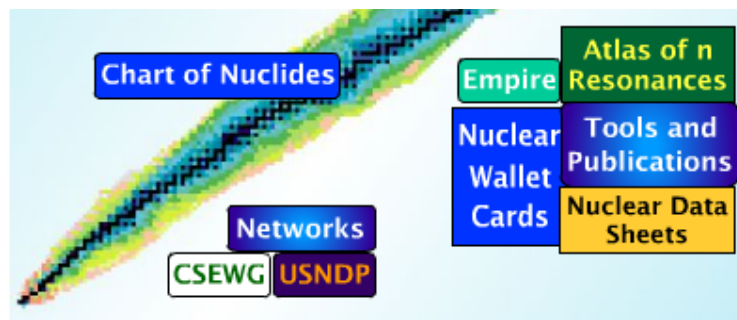
Tim Johnson*

***National Nuclear Data Center
Brookhaven National Laboratory***

***For the IAEA Workshop on Nuclear Structure
And Decday Data: Theory and Evaluation
Trieste - 2012***

****Email: johnsont@bnl.gov***

From the NNDC Site



Jagdish K. Tuli
National Nuclear
Data Center
www.nndc.bnl.gov
Brookhaven National Laboratory
P.O. Box 500
Upton, New York 11973-5000
U.S.A.



ND2013 Registration now open!

ENDF/B-VII.0 Milestone

Nuclear Wallet Cards (8th Edition) Release

Main **Structure & Decay** Reactions Bibliography Networks & Links Publications Meetings

Databases

- ▶ [Chart of Nuclides](#) Basic Properties of Atomic Nuclei
- ▶ [ENSDF](#) Evaluated Nuclear Structure Data File
- ▶ [MIRD](#) Medical Internal Radiation Dose
- ▶ [NuDat](#) Nuclear Structure & Decay Data
- ▶ [XUNDL](#) Experimental Unevaluated Nuclear Data List

Codes

- ▶ [BrIcc](#) Band-Raman Internal Conversion Coefficients
- ▶ [ENSDF Codes](#) Analysis and Utility Programs
- ▶ [HSlcc](#) Hager-Seltzer Internal Conversion Coefficients
- ▶ [LOGFT](#) Analysis Program

Evaluations

- ▶ [Atomic Mass](#) Evaluation
- ▶ [ββ-decay](#) Double Beta Decay Data
- ▶ [B\(E2\)](#) Reduced Transition Probabilities
- ▶ [DDEP](#) Decay Data Evaluation Project
- ▶ [Evaluators' Corner](#) Nuclear Structure and Decay Data Network
- ▶ [Nuclear Wallet Cards](#) Ground & Isomeric States

Manuals

- ▶ [ENSDF Manual](#) Data Sets Preparation

Tools

- ▶ [CapGam](#) Thermal Neutron Capture γ-rays
- ▶ [Palm Pilot](#) Applications
- ▶ [Q-value](#) Calculator
- ▶ [USNDP/CSEWG GForge](#) Collaboration Server
- ▶ [Web tools for ENSDF evaluators](#)

The Evaluators' Corner

**National Nuclear Data Center**

NNDC Databases: NuDat | NSR | XUNDL | ENSDF | MIRD | ENDF | CSISRS | Sigma

Search the NNDC:

NNDC Site Index

Nuclear Data Resources

Evaluated Nuclear Structure Data File (ENSDF)

Nuclear Science References (NSR)

NSDD Website (IAEA)

NSDD Website (NNDC)

NSDD Data Centers

US Nuclear Data Program

ENSDF Analysis & Utility Codes

NSDFLIB

SETMDC

Analysis

Utility

Calculational Tools

Band-Raman ICC's (ANU)

Band-Raman ICC's (NNDC)

Hager-Seltzer ICC's

Nuclear Structure and Decay Data Evaluators' Corner

This is the site of the future NSDD Evaluators' Corner which will allow evaluators to upload ENSDF-formatted files and use the latest versions of the ENSDF analysis, utility, and processing codes to check their evaluations. At present the only options available are:

[Retrieve ENSDF mass-chains and nuclides](#) in a basic format. That is, ComTrans has not been run on the datasets.

NSR for Evaluators is no longer being maintained. Please use NSR "View All" checkbox in combination with "Text" radio button to produce an ASCII text output that has no limitations on the number of entries retrieved.

General information about the ENSDF evaluators' list service (established September 1, 2006) may be found at <http://lists.bnl.gov/mailman/listinfo/ensdf-l>.

ENSDF Evaluators' Workshops

IAEA Workshop on Nuclear Structure and Decay Data: Theory and Evaluation	11-15 October 2010, ICTP, Miramare-Trieste, Italy.
Joint ICTP-IAEA Workshop on Nuclear Structure and Decay Data: Theory and Evaluation	ICTP, April 28-May 9, 2008 (Announcement)
Workshop on Nuclear Structure and Decay Data: Theory and Evaluation Manual Addendum - 2006	ICTP, February 20-March 3, 2006 (INDC(NDS)-496)
Workshop on Nuclear Structure and Decay Data: Theory and Evaluation Manual	ICTP April 4-15, 2006 (INDC(NDS)-473)

ENSDF Retrieval

 **National Nuclear Data Center** 

NNDC Databases: [NuDat](#) | [NSR](#) | [XUNDL](#) | **[ENSDF](#)** | [MIRD](#) | [ENDF](#) | [CSISRS](#) | [Sigma](#)

Search the NNDC:

go

[NNDC Site Index](#)

[NSDD Evaluators' Corner](#)

[Evaluated Nuclear Structure Data File \(ENSDF\)](#)

[Browse](#)

[Nuclide Search](#)

[Decay Search](#)

[Reaction Search](#)

[Recently added](#)

[Index to ENSDF](#)

[Index to XUNDL](#)

Basic ENSDF Retrievals

The purpose of this page is to allow Nuclear Structure and Decay Data Evaluators to retrieve all data sets for a mass chain or Nuclide in a more basic form than available to the general user community. The only difference between these retrievals and similar retrievals from the Archival ENSDF is that the Comments have not been translated into the rich text format. That is, ComTrans has not been run prior to inclusion in the database.

Nuclide:

Search

Reset

Enter a mass number (valid mass numbers are 1 through 294) or a nuclide in the form of AAZZ (e.g., 235U) or ZZ-AAA (e.g., U-235). Use the last two digits of the atomic number as the chemical symbol for $Z > 111$ (e.g., 12 for $Z=112$). Use "NN" as the symbol for neutron and "N" for nitrogen.

Database Manager: [Jagdish K. Tuli](#), NNDC, Brookhaven National Laboratory
Web and Programming: [Thomas W. Burrows](#) and David Winchell, NNDC, Brookhaven National Laboratory
Data Source: ENSDF is compiled by the [International Network of Nuclear Structure and Decay Data Evaluators](#)

ENSDF -- Narrowing the Search

Most Visited Getting Started Latest Headlines http://www.nndc.bnl...

Dataset retrieval by Z,A, or Nuclide

Use this form to select datasets based on atomic number, atomic mass, or nuclide. First, choose the databases and types of dataset (ENSDF or XUNDL, Adopted, Reaction, etc.), then enter the retrieval criterion in the corresponding box below and click the matching "Search" button. For more information, see the [help](#) page.

Databases: ☒ ENSDF ☒ XUNDL

Dataset types: ☒ Adopted ☒ Decay ☒ Reaction ☐ Comments ☐ Reference

Retrieve by Z, A, or nuclide :

Nuclide Z range: (56, 80-82, 102-, Ca, zr-mo, -Na, ...)

Nuclide A range: (56, 120-130, 208-, ...)

Nuclide: (58Ni, pb-208, ...)

Q-Calc

From 2011AuZZ and 2003Au03

Site: www.nndc.bnl.gov/qcalc/qcalc4eval.jsp

The screenshot shows the NNDC (National Nuclear Data Center) website interface. At the top, there is a blue header with the NNDC logo and the text "National Nuclear Data Center". To the right of the header is the Brookhaven National Laboratory logo. Below the header, a navigation bar lists various databases: NuDat, NSR, XUNDL, ENSDF, MIRD, ENDF, CSISRS, and Sigma. On the left side, there is a search bar with the text "Search the NNDC:" and a "Go" button. Below the search bar are links to "NNDC Site Index", "Additional Resources", "Atomic Mass Data Center (AMDC)", and "2003 Atomic Mass Evaluation". The main content area is titled "Q-value Calculator for ENSDF evaluators". It contains a "Nuclide" input field with a dropdown menu showing "56fe, Fe-56, fe, 56". Below the input field are radio buttons for "Uncertainties": "Nuclear Data Sheets style" (selected) and "Standard style". At the bottom of the form are "Submit" and "Reset" buttons. Below the form, there is a footer with the text: "Web programming: B. Pritychenko and A. Sonzogni, NNDC, Brookhaven National Laboratory" and "Data Source: Atomic Mass Data Center".

NNDC National Nuclear Data Center

BROOKHAVEN
NATIONAL LABORATORY
Home

NNDC Databases: NuDat | NSR | XUNDL | ENSDF | MIRD | ENDF | CSISRS | Sigma

Search the NNDC:
 Go

NNDC Site Index
Additional Resources
Atomic Mass Data Center (AMDC)
2003 Atomic Mass Evaluation

Q-value Calculator for ENSDF evaluators

Nuclide
56fe, Fe-56, fe, 56

Uncertainties ☒ Nuclear Data Sheets style
☐ Standard style

Web programming: B. Pritychenko and A. Sonzogni, NNDC, Brookhaven National Laboratory
Data Source: Atomic Mass Data Center

Qcalc : Mass 211 example


National Nuclear Data Center



NNDC Databases: [NuDat](#) | [NSR](#) | [XUNDL](#) | [ENSDF](#) | [MIRD](#) | [ENDF](#) | [CSISRS](#) | [Sigma](#)

Search the NNDC:

[NNDC Site Index](#)
[Additional Resources](#)
[Atomic Mass Data Center \(AMDC\)](#)
[2003 Atomic Mass Evaluation](#)

Q-value Calculator (QCalc)

Nucleus	KeyNumber	Q _{β-}	SY	ΔQ _{β-}	S _n	SY	ΔS _n	S _p	SY	ΔS _p	Q _α	SY	ΔQ _α	Q _{β-n}	SY	ΔQ _{β-n}	Q _{ECp}	SY	ΔQ _{ECp}
²¹¹ Hg	2003AU03																		
	2011AUZZ	5.5E+3	SY	3	3.2E+3	SY	3	1.01E+4	SY	4				7.1E+2	SY	20			
²¹¹ Tl	2003AU03	4.42E+3	SY	20	4.90E+3	SY	20	8.3E+3	SY	4				5.8E+2	SY	20			
	2011AUZZ	4.55E+3	SY	20	4.77E+3	SY	20	7.9E+3	SY	3	2.4E+3	SY	4	7.1E+2	SY	20	-1.56E+4	SY	4
²¹¹ Pb	2003AU03	1367		6	3834		3	8534		12	3.30E+3		15	-3771		3	-1.27E+4		3
	2011AUZZ	1368		6	3833		3	8533		12	3.30E+3		15	-3770		3	-1.241E+4		20
²¹¹ Bi	2003AU03	574		5	5138		5	4419		6	6750.3		5	-3977		5	-9901		13
	2011AUZZ	575		5	5137		5	4419		6	6750.3		5	-3976		5	-9901		13
²¹¹ Po	2003AU03	-785		3	4550.8		5	4929.7		9	7594.5		5	-8532		8	-4993.2		10
	2011AUZZ	-785		3	4550.8		5	4929.6		9	7594.5		5	-8532		8	-4993.1		10
²¹¹ At	2003AU03	-2892		7	7747		8	2983.1		25	5982.4		13	-10121		9	-4144.3		24
	2011AUZZ	-2892		7	7747		8	2983.1		25	5982.4		13	-10118		5	-4144.3		24
²¹¹ Rn	2003AU03	-4598		22	7229		11	4073		10	5965.4		14	-13481		23	-91		7
	2011AUZZ	-4616		14	7226		8	4073		10	5965.4		14	-13495		17	-91		7

BriCC Web Example

- BriCC Home
- BriCC Grapher
- Quick reference
- Data tables
- Program manual
- Obtaining BriCC
- Version history
- Authors

Nuclear Structure Links

- ANU Nuclear Physics
- National Nuclear Data Center
- IAEA Nuclear Data Centre
- NSDD network
- DDEP network

Conversion Coefficient Calculator

Z (atomic number or symbol)

79

γ -energy (in keV)

44.7

Uncertainty 2

Enter (optional) uncertainty in energy as x or +x-y

Multipolarity

M1+E2

δ 0.39

Uncertainty 5

Enter (optional) uncertainty in δ as x or +x-y

Show Subshells ☐

Data Set BriCCFO

Calculate

Reset

- Uncertainties on ICC`s from transition energy uncertainty is greater than 1.0%.

BriCCS v2.3 (9-Dec-2011)

Z=79 (Au, Gold)

γ -energy: 44.7 (+2 -2)keV

Mixing Ratio δ : 0.39 (+5 -5)

Data Sets: BriCCFO

Shell	E(ce)	M1	E2	Mixed ICC
Tot		1.370E+01	2.171E+02	41 (7)
L-tot	31.45	1.053E+01	1.629E+02	31 (5)
M-tot	41.64	2.444E+00	4.214E+01	7.7 (13)
L/M		4.307E+00	3.867E+00	4.0 (9)
N-tot	44.07	6.000E-01	1.033E+01	1.0 (3)

ENSDF – LOGFT on the Web

www.nndc.bnl.gov/logft/

[Home](#)

NNDC Databases: [NuDat](#) | [NSR](#) | [XUNDL](#) | [ENSDF](#) | [MIRD](#) | [ENDF](#) | [CSISRS](#) | [Sigma](#)

Search the NNDC:

Go

[NNDC Site Index](#)

[Additional Resources](#)

[Logft stand-alone package](#)

LOGFT

Parent Information

Nucleus

Decay Mode

B⁻ ▼

E_{level} (keV)

ΔE_{level}

T_½

Units

S ▼

ΔT_½

Q-value (keV)
(ground state to ground state)

ΔQ-value

Daughter Information

E_{level}(keV)

ΔE_{level}

Transition
Intensity (%)

ΔTI

Uniqueness

None ▼

Uncertainties

☒ Standard style ☐ Nuclear Data Sheets style

Calculate

[Help](#)

How to find the main ENSDF search site

NNDC National Nuclear Data Center **BROOKHAVEN NATIONAL LABORATORY** Site Index -

Navigation Menu: NSR, XUNDL, **ENSDF**, NuDat, Databases, MIRD, Sigma, CSISRS, ENDF, Chart of Nuclides, Empire, Atlas of n Resonances, Nuclear Wallet Cards, Tools and Publications, Nuclear Data Sheets, Networks, CSEWG, USNDP

Right Sidebar: Nuclear Wallet Cards just released for your Android phone! NUCLEAR WALLET CARDS October 2011 Jagdish K. Tuli National Nuclear Data Center www.nndc.bnl.gov Brookhaven National Laboratory P.O. Box 500 Upton, New York 11973-5000 U.S.A. ND2013 Registration now open! ENDF/B-VII.0 Milestone Nuclear Wallet Cards (8th Edition) Release

Footer Navigation: Main | Structure & Decay | Reactions | Bibliography | Networks & Links | Publications | Meetings

Footer Links:

AMDC Atomic Mass Data Center, Q-value Calculator	Atlas of Neutron Resonances Parameters & thermal values	CapGam Thermal Neutron Capture γ -rays	Chart of Nuclides Basic properties of atomic nuclei
Covariances of Neutron Reactions	CSEWG Cross Section Evaluation Working Group	CSISRS alias EXFOR Nuclear reaction experimental data	Empire Nuclear reaction model code system, Reference paper
ENDF Evaluated Nuclear Data File	ENSDF Evaluated Nuclear Data File	IRDF International Reactor Data File	MIRD Medical Internal Radiation Dose

ENSDF – Main site

NNDC National Nuclear Data Center

Brookhaven National Laboratory Home

NNDC Databases: NuDat | NSR | XUNDL | ENSDF | MIRD | ENDF | CSISRS | Sigma

Search the NNDC:

[ENSDF Format Manual](#)
[Procedures Manual](#)
[ENSDF Analysis and Utility Codes](#)
[Q Values](#)
[Log ft's](#)
[BrIcc](#)

Evaluated Nuclear Structure Data File (ENSDF) Retrieval

Last updated 2012-07-19

[Previous retrieval version](#)

The [ENSDF](#) database contains evaluated nuclear structure and decay information for over 3000 nuclides.

Continuously updated with new evaluations published in *Nuclear Data Sheets*.

[NNDC Home](#)

Send Feedback!

4 new datasets added in the last month!

[Experimental Unevaluated Data \(XUNDL\)](#)

Browse datasets by element or mass or search the ENSDF [indices](#).
For more detailed search criteria, select items from the following tabs.

[Quick Search](#) [By Nuclide](#) [By Reaction](#) [By Decay](#) [Recently Added](#)

Retrieve all ENSDF datasets for a given nuclide or mass: (208Pb, pb-208, 144, etc.)

XUNDL Site

 **National Nuclear Data Center**

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NNDC Databases: [NuDat](#) | [NSR](#) | [XUNDL](#) | [ENSDF](#) | [MIRD](#) | [ENDF](#) | [CSISRS](#) | [Sigma](#)

Search the NNDC:

[ENSDF Format Manual](#)

[Procedures Manual](#)

[ENSDF Analysis and Utility Codes](#)

[Q Values](#)

[Log ft's](#)

[BrIcc](#)

Experimental Unevaluated Nuclear Data List (XUNDL)

Last updated 2012-07-31

[Previous retrieval version](#)

The [XUNDL](#) database contains compiled experimental nuclear structure data from more than 3000 recent papers.

Referenced journals include [Physical Review C](#), [Physical Review Letters](#), [Nuclear Physics A](#), [European Physical Journal A](#), [Physics Letters B](#), [Journal of Physics G](#), and many more.

 [NNDC Home](#)

 **Send Feedback!**

126 datasets have been added/modified in the last month!

[Evaluated Nuclear Data \(ENSDF\)](#)

Browse datasets by element and mass or search the XUNDL [indices](#) or [Detailed Indices](#)

Search the XUNDL database by selecting from the following tabs.

[Quick Search](#) [By Nuclide](#) [By Reaction](#) [By Decay](#) [Recently Added](#)

Retrieve all XUNDL datasets for a given nuclide or mass: (*208Pb, pb-208, 144, etc.*)

Tab for specific types of searches

Experimental Unevaluated Data (XUNDL)

[Browse](#) datasets by element or mass or search the ENSDF [indices](#).
For more detailed search criteria, select items from the following tabs.

[Quick Search](#) [By Nuclide](#) [By Reaction](#) [By Decay](#) [Recently Added](#)

Use this page to retrieve datasets based on decay-related quantities. Non-blank criteria will be "anded" together to filter the datasets. The "Z range" and "A range" quantities refer to the nuclides for which datasets will be retrieved.

Indexed decay values : (non-blank fields will be "anded")

Nuclide Z range: (56, 80-82, 102-, Ca, Zr-mo, -Na, ...)

Nuclide A range: (56, 120-130, 208-, ...)

Parent: (60Co, d-252, ...)

Decay: (any, B-, 2B-)

Browsing ENSDF

Nuclides for A = 211 in ENSDF

[Return to browse](#)

211

^{211}Ac

^{211}Hg

^{211}Th

^{211}Tl

^{211}Pb

^{211}Bi

^{211}Po

^{211}At

^{211}Rn

^{211}Fr

211

ENSDF Listing


National Nuclear Data Center


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Home

NNDc Databases: NuDat | NSR | XUNDL | ENSDF | MIRD | ENDF | CSISRS | Sigma

Revise Search

Matching datasets in ENSDF

Nuclide	Dataset	Last Revised	References
	☐ Select All		
²¹¹	☐ COMMENTS	2004-10	All references
	☐ REFERENCES	2004-10	All references
²¹¹ Hg	☐ COMMENTS	2011-05	All references
	☐ ADOPTED LEVELS	2011-05	All references
²¹¹ Tl	☐ ADOPTED LEVELS	2004-10	All references
²¹¹ Pb	☐ ADOPTED LEVELS, GAMMAS	2004-10	All references
	☒ 215PO A DECAY	2004-10	All references
	☐ 210PB(T,D)	2004-10	All references
²¹¹ Bi	☐ ADOPTED LEVELS, GAMMAS	2004-10	All references
	☐ 211PB B- DECAY	2004-10	All references
	☐ 215AT A DECAY	2004-10	All references
	☐ 9BE(238U,XG) E=238 GEV	2004-10	All references

XUNDL Listing

Datasets for 211

Results from quick search

[Revise Search](#)

Matching datasets in XUNDL

Nuclide	Dataset	Last Revised	References
	☐ Select All		
²¹¹ Pb	☐ 238U(208PB,XG):XUNDL-1	2005-01	All references
²¹¹ Po	☐ 208PB(76GE,X):XUNDL-1	1999-07	All references
	☐ 208PB(9BE,A2NG):XUNDL-2	1999-09	All references
²¹¹ At	☐ 208PB(7LI,4NG):XUNDL-1	2001-11	All references
²¹¹ Fr	☒ 215AC A DECAY (170 MS):XUNDL-1	2005-04	All references
²¹¹ Ra	☐ 215TH A DECAY:1.2 S:XUNDL-1	2005-12	All references

Retrieve selected XUNDL datasets:

[View in web format](#)

[Download selected XUNDL datasets](#)

[View in ENSDF format](#)

ENSDF – Search by reference

doi: [10.1016/S0375-9474\(98\)00227-9](https://doi.org/10.1016/S0375-9474(98)00227-9)

[Return to References](#)

Matching datasets in ENSDF

Nuclide	Dataset	Last Revised	References
	☐ Select All		
²¹¹ Po	☐ ADOPTED LEVELS, GAMMAS	2004-10	All references
	☐ 208PB(9BE,A2NG)	2004-10	All references

Retrieve selected ENSDF datasets:

[View in web format](#)

[Download selected ENSDF datasets](#)

[View in ENSDF format](#)

Matching dataset in XUNDL

Nuclide	Dataset	Last Revised	References
²¹¹ Po	☐ 208PB(9BE,A2NG):XUNDL-2	1999-09	All references

Retrieve selected XUNDL datasets:

[View in web format](#)

[Download selected XUNDL datasets](#)

[View in ENSDF format](#)

ENSDF Index

Publication information for mass-chain evaluations is given in the following table. Individual nuclides are listed if they have been evaluated since the last full mass-chain evaluation. Further information on specific mass chains can be obtained by clicking on the mass number. "Cutoff" refers to the literature cutoff date for the evaluation.

Mass/Nuclide	Reference	Cutoff	XUNDL sets since cutoff	XUNDL Downloads
1	NDS 106 601 (2005)	31-Oct-2005	9	☐
2	Unpublished	1-May-2003	0	☐
3	NP A474 1(1987)	22-Jun-1987	0	☐
4	NP A541 1(1992)	8-Oct-1991	0	☐
5	NP A708 3(2002)	23-Aug-2001	2	☐
6	NP A708 3(2002)	23-Aug-2001	10	☐
7	NP A708 3(2002)	23-Aug-2001	20	☐
8	NP A745 155(2004)	31-Mar-2004	18	☐
9	NP A745 155(2004)	31-Mar-2004	19	☐
10	NP A745 155(2004)	31-Mar-2004	26	☐
	ND A880			

XUNDL datasets after cutoff

NNDC Databases: NuDat NSR XUNDL ENSDF MIRD ENDF CSISRS Sigma		
XUNDL Datasets after ENSDF cutoff of 23-Aug-2001		
Datasets for A=6		
Revise Search		
Matching datasets in XUNDL		
Dataset	Last Revised	References
☐ Select All		
☐ 12C(8HE,X):XUNDL-1	2008-12	All references
☐ 28SI(P,6HE):XUNDL-1	2012-03	All references
☐ 3H(A,6HE):XUNDL-2	2012-07	All references
☐ 6HE B- DECAY:T1/2:XUNDL-1	2008-12	All references
☐ 6HE B- DECAY:801 MS:XUNDL-2	2010-02	All references
☐ 9BE(7BE,6LI):XUNDL-3	2010-09	All references
☐ 6HE B- DECAY:XUNDL-4	2012-04	All references
☐ 9BE(10C,6BE):XUNDL-1	2009-09	All references
☐ 6LI(3HE,3H):XUNDL-2	2010-08	All references
☐ 1H(6LI,6BE):XUNDL-3	2012-02	All references

ENSDF – Web Access

Demo....