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MEMO 4C-4/198

Date:	12 April 2012
To:	Distribution
From:	M.Mikhaylyukova (CJD), N.Soppera (NEA DB)
Subject:	INC-SOURCE coding. For NRDC2012 discussion.

According to the EXFOR manual:

“**INC-SOURCE**. Gives information on the source of the incident particle beam used in the experiment.”

If there is no incident particles (e.g. spontaneous fission), this code INC-SOURCE has not to be used.

Nicolas Soppera checked EXFOR-2011-12-15 master file in December 2011 and the latest EXFOR-2012-03-28 for this rule – result is given in Table below.

From December 2011 – 11 Subentries were corrected for area 4:

40472.002, .003; 40535.002; 40644.002; 41421.002, .003, .004, .005; 41421.007; 41516.020, .021 .

Statistics of March 2012:

area 1 – 31 Subents,

area 2 – 118 Subents,

area 3 – 15 Subents,

area 4 – 51 Subents.

Proposal:

1. Correct (when time permits) these affected Entries by possible ways:

- a) move free text information in SAMPLE lines,
- b) move INC-SOURCE in relevant Subents, where it was used as incident beam source,
- c) delete INC-SOURCE, if there is no incident beam.

2. Add in EXFOR manual, chapter 7.15, INC-SOURCE:

“4. INC-SOURCE has not to be used for reactions, where there is no incident particle (SF2=0), for example-spontaneous fission.”

Table of affected Subents.

Subentry	REACTION	Code,[free text] of INC-SOURCE ("null" means that only free text is given)	Comment. * - inserted already in error list at NDS web- site
10125.006	(96-CM-244(0,F),PR,NU)/(98-CF-252(0,F),PR,NU)	REAC,[Collimated thermal beam, 3.0*(10**7) neutrons/cm**2*sec]	
12856.003	ELEM/MASS(0,B-),,PN	REAC,[BNL HIGH-FLUX BEAM REACTOR-THERMAL NEUTRON BEAM]	
12946.002	ELEM/MASS(0,B-),,PN	REAC,[BNL HFBR]	
13075.004	92-U-238(0,F)40-ZR-95,CUM,FY	D-T,[]	
13223.003	92-U-238(0,F)ELEM/MASS,CUM,FY	D-T,[]	
13981.002	104-RF-262(0,F)MASS,MAS,FY	null,[244Pu(22Ne,4n) reaction]	
14008.002	103-LR-259(0,F),PRE,DE,LF/HF,REL	null,[248Cm(15N,4n) reaction.]	
14008.003	103-LR-259(0,F)MASS,PRE,FY	null,[248Cm(15N,4n) reaction.]	
14008.004	103-LR-259(0,F)MASS,CHN,FY	null,[248Cm(15N,4n) reaction.]	
14055.002	102-NO-256(0,F),TER,DE,A,REL	null,[Target produced by 248Cm(12C,4n) reaction]	
14055.003	88-RA-214(0,F),TER,DE,A,REL	null,[Target produced by 248Cm(12C,4n) reaction]	
14055.004	102-NO-256(0,F)MASS,PRE,DE,LF+HF,REL	null,[Target produced by 248Cm(12C,4n) reaction]	
14064.002	98-CF-252(0,F)NPART,NUM,NU	CF252,[Spontaneous fission]	
14065.002	98-CF-252(0,F)MASS,,NU	CF252,[Spontaneous fission source]	
14065.003	98-CF-252(0,F)MASS,,AKE,N	CF252,[Spontaneous fission source]	
14065.004	98-CF-252(0,F)MASS,PAR,NU,FF	CF252,[Spontaneous fission source]	
14065.005	98-CF-252(0,F),PAR,NU,FF	CF252,[Spontaneous fission source]	
14065.006	98-CF-252(0,F)MASS,PAR,NU,FF	CF252,[Spontaneous fission source]	
14065.007	98-CF-252(0,F),PAR,AKE,N/FF	CF252,[Spontaneous fission source]	
14065.008	98-CF-252(0,F)MASS,PAR,AKE,N/FF	CF252,[Spontaneous fission source]	
14065.009	98-CF-252(0,F)MASS,PAR,NU,FF,REL	CF252,[Spontaneous fission source]	
14065.010	98-CF-252(0,F)MASS,PAR,AKE,N/FF	CF252,[Spontaneous fission source]	
14066.002	98-CF-252(0,F),TER,DA,A,REL	CF252,[Spontaneous fission]	
14066.003	98-CF-252(0,F),TER,DA/DE,A,REL	CF252,[Spontaneous fission]	
14066.004	98-CF-252(0,F),TER,DE,A,REL	CF252,[Spontaneous fission]	

14066.005	98-CF-252(0,F),TER,DA/DE,A,REL	CF252,[Spontaneous fission]	
14066.006	98-CF-252(0,F),TER,DA/DE,A,REL	CF252,[Spontaneous fission]	
14079.002	98-CF-252(0,F)ELEM/MASS,CUM,FY	CF252,[Spontaneous fission of Cf252]	
14259.008	98-CF-252(0,F)MASS,PRE,FY	PHOTO,[Neutrons were produced through a (gamma,n), reaction when electrons from the RPI 60-MeV electron, linac interact with a tantalum target, placed in the, center of lead slowing down spectrometer.The linac was, run at an average electron current of 8 mu-A,, delivering 58-MeV electrons in a pulse width of 200 ns, at 180 Hz.The neutron energy and flux are experimentaly, known functions of slowing down time and electron beam, intensity. The neutron-energy resolution (FWHM)] in, the energy range of 0.1 eV to 1 keV was, approximately 35%.]	
14259.009	98-CF-252(0,F)MASS,SEC,FY	PHOTO,[Neutrons were produced through a (gamma,n), reaction when electrons from the RPI 60-MeV electron, linac interact with a tantalum target, placed in the, center of lead slowing down spectrometer.The linac was, run at an average electron current of 8 mu-A,, delivering 58-MeV electrons in a pulse width of 200 ns, at 180 Hz.The neutron energy and flux are experimentaly, known functions of slowing down time and electron beam, intensity. The neutron-energy resolution (FWHM)] in, the energy range of 0.1 eV to 1 keV was, approximately 35%.]	
14259.010	98-CF-252(0,F),PRE,FY/DE	PHOTO,[Neutrons were produced through a (gamma,n), reaction when electrons from the RPI 60-MeV electron, linac interact with a tantalum target, placed in the, center of lead slowing down spectrometer.The linac was, run at an average electron current of 8 mu-A,, delivering 58-MeV electrons in a pulse width of 200 ns, at 180 Hz.The neutron energy and flux are experimentaly, known functions of slowing down time and electron beam, intensity. The neutron-energy resolution (FWHM)] in, the energy range of 0.1 eV to 1 keV was, approximately 35%.]	
20401.002	98-CF-252(0,F),PR,AKE,N	CF252,[SPONTANEOUS FISSION OF CF-252.]	
20401.003	98-CF-252(0,F),PR,DE,N	CF252,[SPONTANEOUS FISSION OF CF-252.]	
20401.004	98-CF-252(0,F),PR,DE,N	CF252,[SPONTANEOUS FISSION OF CF-252.]	
20575.007	98-CF-252(0,F),,AKE,N	P-LI7,[FOR THE MEASUREMENTS ON U-235 AND PU-239, AT 40 KEV, REACTION LI-7(P,N) INDUCED BY 2 MEV, PROTONS IN A THIN LITHIUM METAL TARGET WAS USED.]P-	

		T ,[FOR THE MEASUREMENTS ON U-235 AT 1.5 MEV,, REACTION T(P,N) IN A THIN ADSORBED TRITIUM-TITANIUM, TARGET.]	
20575.008	98-CF-252(0,F),,DE,N,REL	P-LI7,[FOR THE MEASUREMENTS ON U-235 AND PU-239, AT 40 KEV, REACTION LI-7(P,N) INDUCED BY 2 MEV, PROTONS IN A THIN LITHIUM METAL TARGET WAS USED.]P-T ,[FOR THE MEASUREMENTS ON U-235 AT 1.5 MEV,, REACTION T(P,N) IN A THIN ADSORBED TRITIUM-TITANIUM, TARGET.]	
20616.006	98-CF-252(0,F),PAR,AKE,N	THCOL,[THERMAL COLUMN OF KFK RESEARCH REACTOR FR2.]	
20616.007	98-CF-252(0,F),,DE,N	THCOL,[THERMAL COLUMN OF KFK RESEARCH REACTOR FR2.]	
20711.004	(98-CF-250(0,F),CUM,FY)/(98-CF-250(0,F),CHN,FY)	REAC,[TRIGA RESEARCH REACTOR OF MAINZ (3E+10, THERMAL NEUTRONS PER CM2 AND SEC..)]	
20878.002	(98-CF-249(0,F)ELEM/MASS,CUM,FY,,MXW)/(98-CF-249(0,F)MASS,CHN,FY,,MXW)	REAC,[THERMAL MAXWELLIAN FLUX, EXCEPT FOR, SPONTANEOUS FISSION VALUES.]	
20878.003	(98-CF-250(0,F)ELEM/MASS,CUM,FY)/(98-CF-250(0,F)MASS,CHN,FY)	REAC,[THERMAL MAXWELLIAN FLUX, EXCEPT FOR, SPONTANEOUS FISSION VALUES.]	
20954.003	94-PU-240(0,F),,AKE,FF	THCOL,[THERMAL COLUMN OF THE BR 1 REACTOR.]	
21252.003	(94-PU-240(0,F),PR,NU)/(98-CF-252(0,F),PR,NU) 94-PU-240(0,F),PR,NU	P-T ,[1.3 MEV PROTONS ON TRITIUM-ZIRCONIUM TARGET, FOR 75 KEV DEUTERONS.] D-D ,[1.0 MEV DEUTERONS ON DEUTERIUM-ZIRCONIUM, TARGET FOR 2.5 MEV NEUTRONS.] D-T ,[1.0 MEV DEUTERONS ON TRITIUM-ZIRCONIUM, TARGET FOR 14.2 MEV NEUTRONS.	
21393.004	92-U-235(0,F)ELEM/MASS,CUM,FY	REAC,[REACTOR NEUTRONS AND SPONTANEOUS FISSION.]	
21453.006	92-U-238(0,F),PR,NU	D-T,[DEUTERON-TRITIUM REACTION IN TRITIUM-TITANIUM, TARGET FOR THE PRODUCTION OF 14.2 MEV NEUTRONS.] REAC,[FOR THE MAXWELLIAN NEUTRON SPECTRUM AND FOR, THE EXTRACTION OF THE MONOCHROMATIC 0.0253 EV-BEAM., .U-235(N,F)-REACTION FOR THE CREATION OF THE FISSION, NEUTRON SPECTRUM. A 3 MM THICK LAYER OF 20 PERCENT, ENRICHMENT WAS USED.]	
21454.009	98-CF-252(0,F),PR,NU	REAC,[FOR THE THERMAL NEUTRONS.]	

		P-T,[PROTON-TRITIUM REACTION AND] P-LI7,[PROTON-LITHIUM REACTION FOR FAST NEUTRONS.]	
21454.010	98-CF-252(0,F),PR,NU	REAC,[FOR THE THERMAL NEUTRONS.] P-T,[PROTON-TRITIUM REACTION AND] P-LI7,[PROTON-LITHIUM REACTION FOR FAST NEUTRONS.]	
21465.002	98-CF-252(0,F),PR,DE,N	CF252,[THE IAEA CF-252 NEUTRON SOURCE CONSISTS OF, A CYLINDRICAL CAPSULE WITH AN OUTER LENGTH OF 22.0, MM AND AN EXTERNAL DIAMETER OF 2.80 MM, STRENGTH, CALIBRATED AGAINST A STANDARD CF-252 SOURCE.]	
21495.002	94-PU-240(0,F),PR,NU	null,[.NO DETAILS GIVEN.]	
21531.003	98-CF-252(0,F)MASS,CHN,FY	REAC,[THERMAL NEUTRON SPECTRUM FOR U-235, SPONTANEOUS, FISSION FOR CF-252.]	
21531.005	(98-CF-252(0,F)ELEM/MASS,IND,FY)/(98- CF-252(0,F)ELEM/MASS,CHN,FY)	REAC,[THERMAL NEUTRON SPECTRUM FOR U-235, SPONTANEOUS, FISSION FOR CF-252.]	
21615.002	92-U-238(0,F),,AKE,FF	A-BE,[AN AM-BE NEUTRON SOURCE, THERMALIZED BY A, PARAFFIN WALL OF 30 CM THICKNESS, USED FOR SATURATION CHARACTERISTICS AND ENERGY CALIBRATION.]	
21686.003	(98-CF-250(0,F)ELEM/MASS,CUM,FY)/(98- CF-250(0,F)MASS,CHN,FY)	REAC ,[]	*
21696.007	94-PU-240(0,F),PR,NU	D-T,[500 KEV DEUTERON BEAM ON TRITIUM TARGET.]	
21788.003	94-PU-242(0,F),SEC,AKE,LF+HF	null,[.Thermal neutrons were selected by time-of-flight, out of the moderated N-spectrum produced by GELINA.]	
21788.004	94-PU-244(0,F),SEC,AKE,LF+HF	null,[.Thermal neutrons were selected by time-of-flight, out of the moderated N-spectrum produced by GELINA.]	
21788.006	94-PU-242(0,F),SEC,AP,LF	null,[.Thermal neutrons were selected by time-of-flight, out of the moderated N-spectrum produced by GELINA.]	
21788.007	94-PU-244(0,F),SEC,AP,LF	null,[.Thermal neutrons were selected by time-of-flight, out of the moderated N-spectrum produced by GELINA.]	
21895.002	94-PU-240(0,F),SEC,AKE,LF+HF	REAC,[]	
21895.004	94-PU-240(0,F),PRV,AP,LF	REAC,[]	
21915.002	94-PU-242(0,F),SEC,AKE,LF+HF	REAC,[A well-thermalized and collimated beam from, the reactor.]	
21915.003	94-PU-242(0,F),PRV,AP,LF	REAC,[A well-thermalized and collimated beam from, the reactor.]	
21995.006	94-PU-240(0,F),SEC,AKE,LF+HF	PU240,[Spontaneous Fission]REAC,[Well Thermalized Neutron Beams 10**6, Neutrons/Cm2 Sec]	
21995.008	94-PU-240(0,F),PRE,AKE,LF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	

21995.009	94-PU-240(0,F),PRE,AP,LF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.013	94-PU-240(0,F),PRE,AKE,LF+HF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.015	94-PU-240(0,F),PRE,AKE,HF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.017	94-PU-240(0,F),PRE,AP,HF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.020	94-PU-240(0,F),SEC,AKE,LF+HF,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.021	94-PU-240(0,F),PRE,AKE,LF+HF,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.022	94-PU-240(0,F),PRE,AKE,LF,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.023	94-PU-240(0,F),PRE,AKE,HF,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.024	94-PU-240(0,F),PRE,AP,LF,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.025	94-PU-240(0,F),PRE,AP,HF,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.027	94-PU-240(0,F)MASS,PRE,FY	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.029	94-PU-240(0,F),PRE,FY/DE	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.031	94-PU-240(0,F)MASS,PRE,FY/DE	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.032	94-PU-240(0,F)MASS,PRE,FY/DE	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.033	94-PU-240(0,F),PRE,FY/DE,,,DERIV	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.037	94-PU-240(0,F)MASS,PRE,KE,FF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
21995.039	94-PU-240(0,F)MASS,PRE,KE,FF	PU240,[Spontaneous Fission] REAC,[Well Thermalized Neutron Beams 10**6 Neutrons/Cm2 Sec]	
22137.002	94-PU-236(0,F),PRE,AKE,FF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.003	94-PU-236(0,F),PRE,AP,HF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.004	94-PU-236(0,F),PRE,AP,LF	REAC ,[Thermal neutrons, used for the calibration.]	

22137.005	94-PU-238(0,F),PRE,AKE,FF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.006	94-PU-238(0,F),PRE,AP,HF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.007	94-PU-238(0,F),PRE,AP,LF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.008	94-PU-240(0,F),PRE,AKE,FF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.009	94-PU-240(0,F),PRE,AP,HF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.010	94-PU-240(0,F),PRE,AP,LF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.011	94-PU-242(0,F),PRE,AKE,FF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.012	94-PU-242(0,F),PRE,AP,HF	REAC ,[Thermal neutrons, used for the calibration.]	
22137.013	94-PU-242(0,F),PRE,AP,LF	REAC ,[Thermal neutrons, used for the calibration.]	
22202.003	(98-CF-252(0,F),PR,DE,N,,EXP)/(98-CF-252(0,F),PR,DE,N,,CALC)	CF252,[]	
22202.004	(98-CF-252(0,F),PR,DE,N,,EXP)/(98-CF-252(0,F),PR,DE,N,,CALC)	CF252,[]	
22268.002	98-CF-252(0,F)MASS,IND,FY/DE,,REL	CF252,[]	*
22268.003	(98-CF-252(0,F)ELEM/MASS,IND,FY/DE)/(98-CF-252(0,F)MASS,CHN,FY/DE)	CF252,[]	*
22268.004	98-CF-252(0,F)ELEM,IND,FY/DE,,RAW	CF252,[]	*
22268.005	98-CF-252(0,F)MASS,IND,FY/DE,,RAW	CF252,[]	*
22273.004	94-PU-238(0,F),PRE,AP,HF	REAC,[]	
22273.005	94-PU-238(0,F),PRE,AKE,HF	REAC,[]	
22273.006	94-PU-240(0,F),PRE,AP,HF	REAC,[]	
22273.007	94-PU-240(0,F),PRE,AKE,HF	REAC,[]	
22273.008	94-PU-242(0,F),PRE,AP,HF	REAC,[]	
22273.009	94-PU-240(0,F),PRE,AKE,HF	REAC,[]	
22369.002	98-CF-252(0,F)ELEM/MASS,IND,FY,,REL	CF252,[PREPARED BY ELECTRODEPOSITION ON A PLATINUM DISK, INTENSITY OF THE SOURCE IS ABOUT 500 kBq]	
22476.002	98-CF-251(0,F)ELEM/MASS,PAR,POL,G	CF252,[]	
22476.003	98-CF-251(0,F),PAR,POL,G	CF252,[]	
22476.004	98-CF-252(0,F),PAR,POL,G,AV	CF252,[]	
22695.002	98-CF-252(0,F),PRE,AP,LF	CF252,[]	
22695.003	98-CF-252(0,F),PRE,AP,HF	CF252,[]	
22695.004	98-CF-252(0,F),PRE,AKE,FF	CF252,[]	
22695.005	98-CF-252(0,F),PRE,AKE,LF	CF252,[]	
22695.006	98-CF-252(0,F),PRE,AKE,HF	CF252,[]	
22695.007	98-CF-252(0,F),PRE,AP,LF	CF252,[]	

22695.008	98-CF-252(0,F),PRE,AP,HF	CF252,[]	
22695.009	98-CF-252(0,F),PRE,AKE,FF	CF252,[]	
22695.010	98-CF-252(0,F),PRE,AKE,LF	CF252,[]	
22695.011	98-CF-252(0,F),PRE,AKE,HF	CF252,[]	
22695.012	98-CF-252(0,F),PRE,AP,LF	CF252,[]	
22695.013	98-CF-252(0,F),PRE,AP,HF	CF252,[]	
22695.014	98-CF-252(0,F),PRE,AKE,FF	CF252,[]	
22695.015	98-CF-252(0,F),PRE,AKE,LF	CF252,[]	
22695.016	98-CF-252(0,F),PRE,AKE,HF	CF252,[]	
22746.002	98-CF-252(0,F)MASS,CHN,FY	PHOTO,[White Neutron source of IRMM.]	
22900.002	96-CM-246(0,F),TER/BIN,FY/RAT,T	REAC,[]	
22900.003	96-CM-248(0,F),TER/BIN,FY/RAT,T	REAC,[]	
22900.004	98-CF-250(0,F),TER/BIN,FY/RAT,T	REAC,[]	
22900.005	98-CF-252(0,F),TER/BIN,FY/RAT,T	REAC,[]	
22900.006	100-FM-256(0,F),TER/BIN,FY/RAT,T	REAC,[]	
22900.007	94-PU-238(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.008	94-PU-240(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.009	94-PU-242(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.010	94-PU-244(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.011	96-CM-242(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.012	96-CM-244(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.013	96-CM-246(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.014	96-CM-248(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.015	98-CF-250(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.016	98-CF-252(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.017	100-FM-256(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
22900.018	100-FM-257(0,F),TER/BIN,FY/RAT,T,,DERIV	REAC,[]	
23048.002	96-CM-244(0,F)1-H-3,TER,FY	REAC,[PF1B cold neutron guide at ILL -for neutron induced fission.]	
23118.002	98-CF-252(0,F)MASS,PRE,FY	null,[Resonance neutrons .]	
23118.004	98-CF-252(0,F),PR,DA,N,REL	null,[Resonance neutrons .]	
23118.005	98-CF-252(0,F),PR/PAR,NU	null,[Resonance neutrons .]	
23118.006	98-CF-252(0,F)MASS,PR,NU	null,[Resonance neutrons .]	
30046.006	98-CF-252(0,F),PR,NU	THCOL,[Collimated beam of thermal neutrons 1 inch, in diameter. Maximum flux 2.5X10**3 n/cm2/sec]	

30516.002	(98-CF-252(0,F)ELEM/MASS,CUM,FY)/(98-CF-252(0,F)MASS,CHN,FY)	REAC,[Flux= 10**12 n/cm2*sec approx.]	
30516.004	98-CF-252(0,F)MASS,,ZP	REAC,[.Flux= 10**12 n/cm2*sec approx.]	
30536.002	98-CF-252(0,F),PR,NU	D-D,D-T,[]	
30597.002	98-CF-252(0,F),PR/TER,NU/DE,A	CF252,[]	
30598.002	98-CF-252(0,F),PR/TER,NU	CF252,[]	
30600.003	94-PU-240(0,F),PR,NU	P-LI7,[For 0.186 and 0.258 MeV neutrons,, Li-F thicknesses 0.51 and 0.67 mg/cm2.] P-T,[for 0.385 to 1.440 MeV neutrons,, T-Ti target, thickness of 0.96 mg/cm2.]	
30968.002	98-CF-252(0,F)ELEM,,FY,G	CF252,[Source with strength of 4*10**5 fissions/min, on an aluminum backing]	
30976.002	98-CF-252(0,F)46-PD-111-M/T,IND,FY/RAT	CF252,[]	
30976.003	98-CF-252(0,F)52-TE-131-M/T,IND,FY/RAT	CF252,[]	
30976.004	98-CF-252(0,F)52-TE-133-M/T,IND,FY/RAT	CF252,[]	
30976.005	98-CF-252(0,F)53-I-134-M/T,IND,FY/RAT	CF252,[]	
30976.006	98-CF-252(0,F)55-CS-138-M/T,IND,FY/RAT	CF252,[]	
30976.007	98-CF-252(0,F)48-CD-117-M/T,IND,FY/RAT	CF252,[]	
30980.003	98-CF-252(0,F)48-CD-115-M/T,CUM,FY/RAT	CF252,[Electrodeposited source (about 5 micro gram)]	
40176.002	96-CM-244(0,F)MASS,PRE,FY/DE,,RAW	CM244,[]	
40176.003	96-CM-244(0,F)MASS,PR,NU/DE,HF,AV	CM244,[]	
40176.004	96-CM-244(0,F),PR,NU/DE,HF,AV	CM244,[]	
40176.005	96-CM-244(0,F)MASS,PR,NU,,AV	CM244,[]	
40194.002	94-PU-242(0,F)MASS,PRE,KE,FF	P-T,[THERMAL NEUTRONS WERE OBTAINED BY SLOWIND-DOWN OF FAST NEUTRONS IN A BLOCK OF POLYETHYLENE]	
40194.004	94-PU-242(0,F),PRE,FY/DE	P-T,[THERMAL NEUTRONS WERE OBTAINED BY SLOWIND-DOWN OF FAST NEUTRONS IN A BLOCK OF POLYETHYLENE]	
40194.007	94-PU-242(0,F),,AKE,FF,RAW	P-T,[THERMAL NEUTRONS WERE OBTAINED BY SLOWIND-DOWN OF FAST NEUTRONS IN A BLOCK OF POLYETHYLENE]	
40194.008	94-PU-242(0,F)MASS,PRE,FY	P-T,[THERMAL NEUTRONS WERE OBTAINED BY SLOWIND-DOWN OF FAST NEUTRONS IN A BLOCK OF POLYETHYLENE]	
40282.007	94-PU-242(0,F),SEC,FY	null,[PROTON-HELIUM REACTION, DEUTERON-HELIUM REACTION]	
40284.007	94-PU-242(0,F),PRE,FY	D-D,[DEUTERON-DEUTERIUM REACTION]	
40284.010	94-PU-242(0,F),,KE,FF	D-D,[DEUTERON-DEUTERIUM REACTION]	

40423.002	98-CF-252(0,F),TER,DA,N,REL	CF252,[]	*
40450.002	98-CF-252(0,F),PR,DA,N,REL	CF252,[]	*
40459.002	(98-CF-252(0,F)ELEM/MASS,CUM,FY)/(98-CF-252(0,F)60-ND-147,CUM,FY)	CF252,[]	*
40479.004	94-PU-240(0,F)MASS,PRE,FY/DE,,RAW	PU240,[]	
40523.003	96-CM-244(0,F),PR,NU	null,[Spontaneous Fission Of Cm-244,Cm-246,Cm-248.]	
40523.004	96-CM-246(0,F),PR,NU	null,[Spontaneous Fission Of Cm-244,Cm-246,Cm-248.]	
40523.005	96-CM-248(0,F),PR,NU	null,[Spontaneous Fission Of Cm-244,Cm-246,Cm-248.]	
40555.002	98-CF-252(0,F),PR,DA,N,REL	CF252,[]	*
40555.003	98-CF-252(0,F),PR,DA,N,REL	CF252,[]	*
40674.002	92-U-238(0,F),,NU	null,[SPONTANEUS FISSION OF U-238 AND U-236]	
40674.003	92-U-236(0,F),,NU	null,[SPONTANEUS FISSION OF U-238 AND U-236]	
40895.002	98-CF-252(0,F)ELEM/MASS,CUM,FY,,RAW	CF252,[]	*
40895.003	98-CF-252(0,F)ELEM/MASS,CUM,FY	CF252,[]	*
40895.004	98-CF-252(0,F)ELEM/MASS,IND,FY	CF252,[]	*
40899.002	98-CF-252(0,F),PR,DA/DE,N,REL	CF252,[]	*
40899.003	98-CF-252(0,F),PR,DA/DE,N,REL	CF252,[]	*
41030.002	98-CF-252(0,F),TER,AKE,T	CF252,[]	*
41030.003	98-CF-252(0,F),TER,AKE,A	CF252,[]	*
41030.004	98-CF-252(0,F)2-HE-3,TER,AKE,LCP	CF252,[]	*
41030.005	98-CF-252(0,F)ELEM/MASS,TER,FY,LCP,REL	CF252,[]	*
41030.006	98-CF-252(0,F)ELEM,TER,FY,LCP,REL	CF252,[]	*
41030.007	98-CF-252(0,F),TER,AKE,FF	CF252,[]	*
41042.002	(92-U-236-M(0,F),PRE,FY)/(92-U-236-M(0,F)2-HE-4,PRE/TER,FY)	D-D,[]	
41042.006	(92-U-238-M(0,F),PRE,FY)/(92-U-238-M(0,F)2-HE-4,PRE/TER,FY)	D-D,[]	
41042.010	92-U-238-M(0,F)2-HE-4,TER,AKE,A	D-D,[]	
41061.006	92-U-238-M(0,F)2-HE-4,TER,AKE,A	D-D,[]	
41061.007	(92-U-238-M(0,F),PRE,FY)/(92-U-238-M(0,F)2-HE-4,PRE/TER,FY)	D-D,[]	
41308.002	96-CM-248(0,F)2-HE-4,PRE/TER,FY,,REL	CM248,[]	
41308.003	(96-CM-248(0,F)ELEM/MASS,PRE/TER,FY)/(96-CM-248(0,F)2-HE-4,PRE/TER,FY)	CM248,[]	
41308.004	96-CM-248(0,F)ELEM/MASS,,AKE	CM248,[]	
41308.005	98-CF-252(0,F)2-HE-4,PRE/TER,FY,,REL	CM248,[]	

41310.002	(96-CM-248(0,F)ELEM/MASS,PRE/TER,FY) /(96-CM-248(0,F)2-HE-4,PRE/TER,FY)	CM248,[]	
41310.003	96-CM-248(0,F)ELEM/MASS,TER,AKE,LCP	CM248,[]	
41310.004	(96-CM-248(0,F)2-HE-4,PRE/TER,FY)/(96- CM-248(0,F)2-HE-4,PRE/BIN,FY)	CM248,[]	
41310.005	(98-CF-252(0,F)2-HE-4,PRE/TER,FY)/(98- CF-252(0,F)2-HE-4,PRE/BIN,FY)	CM248,[]	
41421.006	94-PU-240(0,F),PR,KEM,N	CF252,[Standard Neutron Source]	*
41421.006	94-PU-240(0,F),PR,KEM,N	PU240,[]	*
41442.004	98-CF-252(0,F)2-HE-4,TER,FY/DE,,REL	P-T,[]	
41442.005	(98-CF-252(0,F)1-H-3,TER,FY)/(98-CF- 252(0,F)2-HE-4,TER,FY)	P-T,[]	
41442.006	(98-CF-252(0,F)1-H-1,TER,FY)/(98-CF- 252(0,F)2-HE-4,TER,FY)	P-T,[]	

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