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Title: README File for Running a LLNL Pulsed-Sphere Benchmark Calculation (U)

Author(s): Stephanie C. Frankle

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To/MS: Distribution
From/MS: S. Frankle, X-5, MS F663
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README file for Running a LLNL Pulsed-Sphere Benchmark Calculation

During FY2003, Oak Ridge National Laboratory (ORNL) completed a project to update the LLNL pulsed-sphere benchmark specifications and provide MCNP input decks, etc. to be used to benchmark future nuclear data libraries. ORNL (and LANL) completed a review of the benchmark specifications[1] and revised the MCNP input decks for the measurements that had been implemented in the past. A number of pulsed-sphere experiments have not been implemented as yet. Additionally, ORNL benchmarked the ENDF60, ENDL92 and ENDF66 nuclear data libraries with the revised MCNP input decks.[2] These documents (with the specified revisions), along with the associated files, have been archived on HPSS. This document will detail where the various files and information may be obtained and how a user may run a given benchmark with MCNP.

All files associated with the LLNL pulsed-sphere benchmarks are stored on HPSS under the
`/hpss/nucldata/benchmarks/LLNL_Pulsed_Sphere`
directory. All directory names and paths are given relative to the above in this memorandum.

First, here is a brief listing of the `LLNL Pulsed_Sphere` directory contents:

`Detectors`	directory of files describing the detector response functions
`Exptdata`	experimental data in a standardized format
`disp93in`	experimental data file from LLNL (Marchetti, 1990's)
`exptdata`	experimental data file from LLNL (1970's)
`Expt_text`	directory of notes on each experimental data set and model
`Expt_tally`	directory of experimental data in *mctal* format
`MCNP_input`	directory of input decks for each pulsed sphere

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[1] J. A. Bucholz, "A Master Library of High-Energy Measurements from the Lawerence Livermore National Laboratory Pulsed-Sphere Experiment Program," ORNL report, ORNL/TM-2003/92 (with revisions by S. Frankle).
[2] J. A. Bucholz, "Updated MCNP Analyses of High-Energy Measurements from the Lawrence Livermore National Laboratory Pulsed Sphere Experiment Program," ORNL report, ORNL/TM-2003/121 (with revisions by S. Frankle).

`MCNP_plot`	`norm_tally.f90` and command files for producing figures
`Reports`	various published reports/documents and associated files Of note: ORNL-03-92 describes the development of a set of final experimental data and parameters, etc. ORNL-03-121 describes the use of the above to benchmark ENDF60, ENDF66, and ENDL92 data libraries
`SINBAD_1998`	all files obtained from Hamilton Hunter in 1998
`Source_specs`	directory of files associated with old and new source specifications
`Sphere_figures`	GIF images of all the pulsed spheres

Experimental Data

The experimental data files are located under the `Exptdata` directory. The text files describing the experiment, data, and MCNP model are located under the `Exptdata/Expt_text` directory. The *mctal* files have been normalized to an area of 1.0 for the default plotting conditions for MCNP and are located under the `Exptdata/Expt_tally` directory. The experimental data are given as a function of time for tally # 105 and as a function of energy for tally # 115. The naming scheme for these files is

DM###	name of the experimental data file
DM###.txt	name of the text file describing the experiment
dm###m	name of the corresponding MCTAL file

Table 1 at the end of this memorandum contains a listing the experimental data, the DM#, and corresponding MCNP input file names.

MCNP Input Files

The MCNP input files are stored under the `MCNP_input` directory and use the default cross sections for each ZAID given by the XSDIR file. The filenames are more descriptive, such as `pu0.7a` for the first set of ^{239}Pu sphere data with sphere size of 0.7 mfp.

With the proper XSDIR file and `datapath` set, the user may run MCNP by using the command:

```
mcnp name=pu0.7a
```

The output file will be `pu0.7ao`, the `mctal` file will be `pu0.7am`, etc.

Comparing Experimental Data to MCNP Results by Plotting

The user must normalize the MCNP results for comparison to experiment. The MCNP *mctal* file contains a tally for the detected flux as a function of time as tally # 205 and by energy as tally # 215. The normalization factor may be obtained in 3 ways:

1) by looking in the outp (*o) file for the total for each tally
2) by looking in the *mctal* (*m) file (more difficult to do)
3) by running the program `norm_tally`

The program(s) and command plot files discussed in this section are stored under the `MCNP_plot` directory.

The program `norm_tally` can be compiled with

```
f90 -o  norm_tally norm_tally.f90
```

and will ask the user for the input filename for the *mctal* file of interest and output to the screen the area under the curve, as well as the `factor y` that needs to be applied for an area of 1.0. Note – the area and `factor y` are for the default plotting option in MCNP, ie flux per time bin. If the user chooses the `nonorm` option in MCNP, both the experimental data and the MCNP results would be adjusted in the same manner and remain normalized with respect to one another even though the area would no longer be equal to1.0.

The easiest way to produce a postscript file for the comparison plot is with a command file for plotting. The user may run MCNP in one of the following 2 ways to produce the plot with the command plotting file named `dm119_com`:

```
mcnp z < dm119_com
mcnp z com=dm119_com
```

An example of a plot command file such as `dm119_com` follows:

```
rmctal dm119m tally 105 free t noerrbar &
xlims 15 60 &
ylims 1e-4 1.0 &
title 1 " " &
title 2 "Pu-239 0.7 mfp, DM119" &
xtitle "Neutron Flight Time (shakes)" &
ytitle "Normalized Flux / Source Neutron / Bin"    &
legend 40 0.5 &
label "MEASURED" &
file coplot rmctal pu0.7cm tally 205 factor y 7828792 label "T16 eval"
end
```

This command file for plotting would produce a postscript file with the default name of `plotm.ps` or similar. The `factor y` and `label` on the next-to-last line would be dependent on the data library used in the simulation. An example of a plot that would be produced by the above command file is shown in Figure 1.

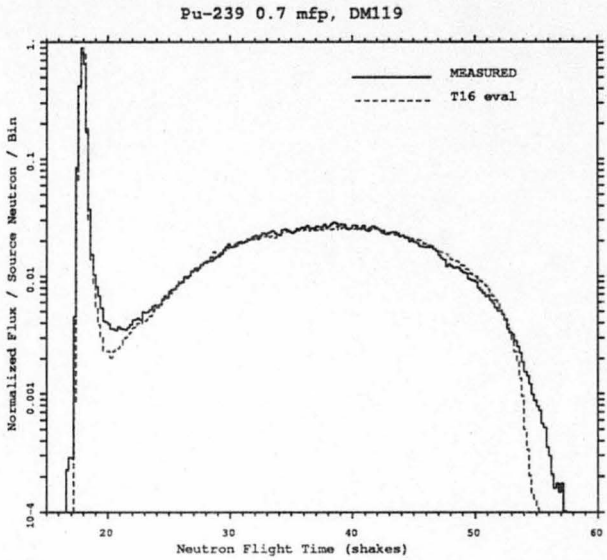

Figure 1. A comparison of the measured data for experiment DM119 with the MCNP calculated results using the latest T-16 evaluation for Pu-239 (2003) and ENDF66 data.

Table 1. Summary of key information about each pulsed sphere detector measurement (DMxxx) in the Master Library. The corresponding DMxxx file in the Master Library contains the experimentally measured count rates as a function of flight-time and energy, while the corresponding DMxxx.TXT file contains additional comments about both the experimental data and the MCNP model.

Det Meas. ID #	MCNP Input File	Input File Done?	Sph Matl	Size (mfp)	Outer Radius (cm)	FWHM (ns)	Beam Line ID	Det Ang wrt the Src(deg)	Flight Path (cm)	Detector Type	Det Bias MeV	Npts	Tmin (ns)	Tmax (ns)	EXPTDATA ID #	DISP93IN ID #	Reference Publication
DM001	6li0.5a	Yes	Li-6	0.5	8.970	4	30	38.8877	765.2	Pilot B	1.6	138	135.00	409.00	1	------	UCRL-51144
DM002	6li0.5b	Yes	Li-6	0.5	8.970	4	120	116.7050	977.2	NE213-A	1.6	162	185.00	507.00	2	------	UCRL-51144
DM003	6li0.5c	Yes	Li-6	0.5	8.970	2	26	26.0	746.34	NE213-B	1.6	170	129.00	467.00	102506	300602176	UCRL-ID-131461
DM004	6li1.1a	No	Li-6	1.1	16.520	2	26	26.0	746.34	NE213-B	1.6	178	129.00	483.00	102605	------	-------
DM005	6li1.1b	No	Li-6	1.1	16.520	4	30	38.8877	765.2	Pilot B	1.6	138	135.00	409.00	3	------	UCRL-51144
DM006	6li1.1c	No	Li-6	1.1	16.520	2	26	26.0	878.0	Stilbene	0.8	364	149.00	875.00	------	300604180	-------
DM007	6li1.6a	Yes	Li-6	1.6	25.520	4	30	38.8877	765.2	Pilot B	1.6	139	133.00	409.00	4	------	UCRL-51144
DM008	6li1.6b	Yes	Li-6	1.6	25.520	2	26	26.0	746.34	NE213-B	1.6	176	129.00	479.00	102606	300606176	UCRL-ID-131461
DM009	7li0.5a	Yes	Li-7	0.5	8.970	4	30	38.8877	765.2	Pilot B	1.6	140	131.00	409.00	5	------	UCRL-51144
DM010	7li0.5b	Yes	Li-7	0.5	8.970	4	120	116.7050	977.2	NE213-A	1.6	162	185.00	507.00	6	------	UCRL-51144
DM011	7li0.5c	Yes	Li-7	0.5	8.970	2	26	26.0	746.34	NE213-B	1.6	172	129.00	471.00	102507	300702176	UCRL-ID-131461
DM012	7li1.0a	No	Li-7	1.0	16.520	4	30	38.8877	765.2	Pilot B	1.6	138	135.00	409.00	7	------	UCRL-51144
DM013	7li1.0b	No	Li-7	1.0	16.520	2	26	26.0	746.34	NE213-B	1.6	176	129.00	479.00	102509	------	-------
DM014	7li1.0c	No	Li-7	1.0	16.520	2	26	26.0	878.0	Stilbene	0.8	370	149.00	887.00	------	300704180	UCRL-ID-131461
DM015	7li1.6a	Yes	Li-7	1.6	25.520	4	30	38.8877	765.2	Pilot B	1.6	137	137.00	409.00	8	------	UCRL-51144
DM016	7li1.6b	Yes	Li-7	1.6	25.520	2	26	26.0	746.34	NE213-B	1.6	176	129.00	479.00	102603	300706176	UCRL-ID-131461
DM017	lid1.0a	No	LiD	1.0	8.970	2	26	26.0	945.54	NE213-B	0.8	349	171.00	867.00	80818	301004178	UCRL-ID-131461
DM020	lid1.0b	No	LiD	1.0	8.970	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	67	------	-------
DM021	lid1.0c	No	LiD	1.0	8.970	2	26	26.0	945.54	NE213	1.6	260	166.00	684.00	80910	------	-------
DM027	lid1.9a	No	LiD	1.9	16.520	2	26	26.0	878.0	Stilbene	0.8	374	149.00	895.00	------	301008180	UCRL-ID-131461
DM028	lid1.9b	No	LiD	1.9	16.520	4	30	38.8877	765.2	Pilot B	1.6	138	139.00	413.00	68	------	-------
DM024	lid3.0a	No	LiD	3.0	25.520	2	26	26.0	731.52	NE213-C	0.8	310	133.00	751.00	80917	301012178	UCRL-ID-131461
DM029	lid3.0b	No	LiD	3.0	25.520	4	30	38.8877	765.2	Pilot B	1.6	136	139.00	409.00	69	------	-------
DM030	lih1.0	No	LiH	1.0	-----	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	64	------	-------
DM031	lih1.9	No	LiH	1.9	-----	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	65	------	-------
DM032	lih2.9	No	LiH	2.9	-----	4	30	38.8877	765.2	Pilot B	1.6	141	137.00	417.00	66	------	-------
DM033	al0.9a	Yes	Al	0.9	8.940	4	30	38.8877	765.2	Pilot B	1.6	136	133.00	403.00	24	------	UCRL-51144
DM034	al0.9b	Yes	Al	0.9	8.940	4	120	116.7050	977.2	NE213-A	1.6	162	185.00	507.00	25	------	UCRL-51144
DM035	al1.6	No	Al	1.6	16.500	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	26	------	UCRL-51144
DM036	al2.6	Yes	Al	2.6	25.500	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	27	------	UCRL-51144
DM037	au2.0a	No	Gold	2.0	6.210	2	26	26.0	878.0	Stilbene	0.8	327	149.00	801.00	------	7919708180	UCRL-ID-131461
DM038	au2.0b	No	Gold	2.0	6.210	2	30	38.8877	945.94	Stilbene	0.8	386	165.00	935.00	------	7919708178	UCRL-ID-131461

Table 1 (cont)

Det Meas. ID #	MCNP Input File	Input File Done?	Sph Matl	Size (mfp)	Outer Radius (cm)	FWHM (ns)	Beam Line ID	Det Ang wrt the Src(deg)	Flight Path (cm)	Detector Type	Det Bias MeV	Npts	Tmin (ns)	Tmax (ns)	EXPTDATA ID #	DISP93IN ID #	Reference Publication
DM039	be0.8a	Yes	Be-9	0.8	12.580	4	30	38.8877	765.2	Pilot B	1.6	137	137.00	409.00	9	------	UCRL-51144
DM040	be0.8b	Yes	Be-9	0.8	12.580	2	26	26.0	878.0	Stilbene	0.8	368	149.00	883.00	------	400903180	UCRL-ID-131461
DM041	be0.8c	Yes	Be-9	0.8	12.580	2	26	26.0	728.0	NE213-C	0.8	278	121.00	675.00	------	400963183	UCRL-ID-131461
DM042	be0.8d	Yes	Be-9	0.8	12.580	2	26	26.0	728.0	Stilbene	0.8	274	121.00	667.00	------	400903183	UCRL-ID-131461
DM043	be0.8e	Yes	Be-9	0.8	12.580	2	26	26.0	728.0	NE213-C	3.0	96	121.00	311.00	------	400943183	UCRL-ID-131461
DM044	be0.8f	Yes	Be-9	0.8	12.580	2	26	26.0	728.0	Stilbene	3.0	92	121.00	303.00	------	400923183	UCRL-ID-131461
DM045	be0.8g	No	Be-9	0.8	12.580	2	26	26.0	746.34	NE213-B	1.6	178	129.00	483.00	102703	------	-------
DM046	be2.5a	No	Be-9	2.5	21.840	2	26	26.0	728.0	Stilbene	0.8	276	121.00	671.00	------	400910183	UCRL-ID-131461
DM047	be2.5b	No	Be-9	2.5	21.840	2	26	26.0	728.0	NE213-C	0.8	282	121.00	683.00	------	400970183	UCRL-ID-131461
DM048	be2.5c	No	Be-9	2.5	21.840	2	26	26.0	728.0	Stilbene	3.0	88	121.00	295.00	------	400930183	UCRL-ID-131461
DM049	be2.5d	No	Be-9	2.5	21.840	2	26	26.0	728.0	NE213-C	3.0	96	121.00	311.00	------	400950183	UCRL-ID-131461
DM050	be3.5a	No	Be-9	3.5	27.940	2	26	26.0	728.0	NE213-C	0.8	280	121.00	679.00	------	400974183	UCRL-ID-131461
DM051	be3.5b	No	Be-9	3.5	27.940	2	26	26.0	728.0	Stilbene	0.8	274	121.00	667.00	------	400914183	UCRL-ID-131461
DM052	be3.5c	No	Be-9	3.5	27.940	2	26	26.0	728.0	Stilbene	3.0	88	121.00	295.00	------	400934183	UCRL-ID-131461
DM053	be3.5d	No	Be-9	3.5	27.940	2	26	26.0	728.0	NE213-C	3.0	96	121.00	311.00	------	400954183	UCRL-ID-131461
DM060	c0.5a	Yes	C	0.5	4.187	4	30	38.8877	766.0	NE213-A	1.6	137	139.00	411.00	10	601202171	UCRL-51144
DM061	c0.5b	Yes	C	0.5	4.187	4	120	116.7050	975.2	NE213-A	1.6	164	183.00	509.00	11	------	UCRL-51144
DM062	c1.3a	No	C	1.3	10.160	4	30	38.8877	766.0	NE213-A	1.6	146	139.00	429.00	12	601205171	UCRL-51144
DM063	c1.3b	No	C	1.3	10.160	4	120	116.7050	975.2	NE213-A	1.6	163	185.00	509.00	13	------	UCRL-51144
DM064	c2.9a	Yes	C	2.9	20.960	4	30	38.8877	766.0	NE213-A	1.6	135	141.00	409.00	14	601212171	UCRL-51144
DM065	c2.9b	Yes	C	2.9	20.960	4	120	116.7050	975.2	NE213-A	1.6	162	187.00	509.00	15	------	UCRL-51144
DM066	ply0.8a	Yes	Poly	0.8	16.500	2	26	26.0	878.0	Stilbene	0.8	328	149.00	803.00	------	631403180	UCRL-ID-131461
DM114	ply0.8d	Yes	Poly	0.8	16.500	6	30	38.8877	754.0	Pilot B	1.6	135	130.00	398.00	44	------	UCRL-51144
DM067	ply1.8a	No	Poly	1.8	25.500	2	26	26.0	728.0	Stilbene	0.8	254	121.00	627.00	------	631405183	UCRL-ID-131461
DM068	ply1.8b	No	Poly	1.8	25.500	2	26	26.0	728.0	NE213-C	0.8	272	121.00	663.00	------	631465183	UCRL-ID-131461
DM069	ply1.8c	No	Poly	1.8	25.500	2	26	26.0	728.0	Stilbene	3.0	88	121.00	295.00	------	631425183	UCRL-ID-131461
DM070	ply1.8d	No	Poly	1.8	25.500	2	26	26.0	728.0	NE213-C	3.0	96	121.00	311.00	------	631445183	UCRL-ID-131461
DM115	ply1.8e	No	Poly	1.8	25.500	6	30	38.8877	754.0	Pilot B	1.6	139	138.00	414.00	45	------	UCRL-51144
DM116	ply3.5	Yes	Poly	3.5	40.400	4	30	38.8877	765.0	Pilot B	1.6	138	135.00	409.00	46	------	UCRL-51144
DM071	con2.0a	Yes	Conc	2.0	21.000	3	120	116.7050	975.4	NE213-A	1.6	153	185.00	491.00	52	------	UCRL-51144
DM072	con2.0b	Yes	Conc	2.0	21.000	2	120	116.7050	975.4	NE213-B	1.6	153	186.00	492.00	32307	------	-------
DM073	con3.8a	Yes	Conc	3.8	35.500	3	120	116.7050	975.4	NE213-A	1.6	153	185.00	489.00	54	------	UCRL-51144
DM074	con3.8b	Yes	Conc	3.8	35.500	2	120	116.7050	975.4	NE213-B	1.6	153	186.00	490.00	32404	------	-------
DM075	cu1.0	No	Cu	1.0	4.000	2	26	26.0	945.54	NE213-B/C	1.6	349	171.00	867.00	------	2900004178	UCRL-ID-131461
DM076	cu3.0	No	Cu	3.0	12.000	2	26	26.0	945.54	NE213-B/C	1.6	349	171.00	867.00	------	2900012178	UCRL-ID-131461
DM077	cu5.0	No	Cu	5.0	20.000	2	26	26.0	731.52	NE213-B/C	1.6	312	133.00	755.00	------	2900020178	UCRL-ID-131461

Table 1 (cont)

Det Meas. ID #	MCNP Input File	Input File Done?	Sph Matl	Size (mfp)	Outer Radius (cm)	FWHM (ns)	Beam Line ID	Det Ang wrt the Src(deg)	Flight Path (cm)	Detector Type	Det Bias MeV	Npts	Tmin (ns)	Tmax (ns)	EXPTDATA ID #	DISP93IN ID #	Reference Publication
DM079	fe0.9a	Yes	Fe	0.9	4.460	3	30	38.8877	766.0	NE213-A	1.6	141	137.00	417.00	31	------	UCRL-51144
DM080	fe0.9b	Yes	Fe	0.9	4.460	2	30	38.8877	766.0	NE213-B	1.6	141	138.00	418.00	90110	2600004171	UCRL-ID-131461
DM081	fe0.9c	Yes	Fe	0.9	4.460	3	120	116.7050	975.2	NE213-A	1.6	164	183.00	509.00	32	------	UCRL-51144
DM082	fe2.9a	No	Fe	2.9	13.410	3	30	38.8877	766.0	NE213-A	1.6	140	139.00	417.00	33	------	UCRL-51144
DM083	fe2.9b	No	Fe	2.9	13.410	3	120	116.7050	975.2	NE213-A	1.6	164	183.00	509.00	34	------	UCRL-51144
DM084	fe2.9c	No	Fe	2.9	13.410	2	30	38.8877	766.0	NE213-B	1.6	176	133.00	483.00	90103	2600012171	UCRL-ID-131461
DM085	fe4.8a	Yes	Fe	4.8	22.300	3	30	38.8877	766.0	NE213-A	1.6	141	137.00	417.00	35	------	UCRL-51144
DM086	fe4.8b	Yes	Fe	4.8	22.300	3	120	116.7050	975.2	NE213-A	1.6	163	185.00	509.00	36	------	UCRL-51144
DM087	fe4.8c	Yes	Fe	4.8	22.300	2	30	38.8877	766.0	NE213-B	1.6	140	138.00	416.00	90108	2600019171	UCRL-ID-131461
DM088	fgl1.1a	No	FibGL	1.1	-----	4	30	38.8877	765.2	Pilot B	1.6	140	135.00	413.00	72	------	-------
DM089	fgl1.1b	No	FibGL	1.1	-----	4	120	116.7050	977.2	NE213-A	1.6	166	181.00	511.00	73	------	-------
DM090	fgl2.1	No	FibGL	2.1	-----	4	30	38.8877	765.2	Pilot B	1.6	139	137.00	413.00	74	------	-------
DM091	fgl3.2	No	FibGL	3.2	-----	4	30	38.8877	765.2	Pilot B	1.6	139	137.00	413.00	75	------	-------
DM092	ho1.0	No	Ho	1.0	4.604	2	2[illegible]	26.0	878.0	Stilbene	0.8	326	149.00	799.00	------	6716504181	UCRL-ID-131461
DM093	lair7.0	No	L-Air	7.0	129.30	2	26	26.0	953.77	NE213-B	1.6	202	169.00	571.00	40104	731428175	UCRL-ID-131461
DM094	mo1.0	No	LMo4	1.0	-----	5	30	38.8877	752.0	Pilot B	1.6	143	127.00	411.00	70	------	-------
DM095	mo2.2	No	LMo4	2.2	-----	5	30	38.8877	752.0	Pilot B	1.6	142	129.00	411.00	71	------	-------
DM096	mg0.7a	Yes	Mg	0.7	8.940	4	30	38.8877	765.2	Pilot B	1.6	141	131.00	411.00	20	------	UCRL-51144
DM097	mg0.7b	Yes	Mg	0.7	8.940	4	120	116.7050	977.2	NE213-A	1.6	162	185.00	507.00	21	------	UCRL-51144
DM098	mg1.2	No	Mg	1.2	16.500	4	30	38.8877	765.2	Pilot B	1.6	141	133.00	413.00	22	------	UCRL-51144
DM099	mg1.9	Yes	Mg	1.9	25.500	4	30	38.8877	765.2	Pilot B	1.6	142	133.00	415.00	23	------	UCRL-51144
DM100	n0.6	No	L-Nit	0.6	10.480	3.7	26	26.0	782.3	NE213-B	1.6	123	142.48	417.24	------	701402175	UCID-17332
DM101	n1.1a	Yes	L-Nit	1.1	19.050	5	30	38.8877	763.3	Pilot B	1.6	132	141.00	403.00	17	------	UCRL-51144
DM102	n1.1b	Yes	L-Nit	1.1	19.050	3.7	26	26.0	782.3	Ne213-B	1.6	117	142.32	421.60	------	701404175	UCID-17332
DM103	n3.1	Yes	L-Nit	3.1	55.880	4	30	38.8877	765.2	Pilot B	1.6	136	141.00	411.00	18	------	UCRL-51144
DM104	n7.7	No	L-Nit	7.7	129.30	2	26	26.0	955.04	NE213-B	1.6	194	163.00	549.00	41707	701431175	-------
DM105	nb1.0	No	Nb	1.0	4.000	2	26	26.0	945.54	NE213-B	0.8	349	171.00	867.00	------	4109304178	UCRL-ID-131461
DM106	nb3.0	No	Nb	3.0	14.610	2	26	26.0	945.54	NE213-B	0.8	349	171.00	867.00	------	4109312178	UCRL-ID-131461

Table 1 (cont)

Det Meas. ID #	MCNP Input File	Input File Done?	Sph Matl	Size (mfp)	Outer Radius (cm)	FWHM (ns)	Beam Line ID	Det Ang wrt the Src(deg)	Flight Path (cm)	Detector Type	Det Bias MeV	Npts	Tmin (ns)	Tmax (ns)	EXPTDATA ID #	DISP93IN ID #	Reference Publication
DM107	16o0.7a	Yes	L-Oxy	0.7	10.480	5	30	38.8877	754.0	Pilot B	1.6	138	139.00	413.00	19	------	UCRL-51144
DM108	16o0.7b	Yes	L-Oxy	0.7	10.480	3.5	26	26.0	782.3	NE213-B	1.6	140	142.89	402.42	------	801603176	UCID-17332
DM109	pb1.0	No	Pb	1.0	5.560	2	26	26.0	878.0	Stilbene	0.8	370	149.00	887.00	------	8200004180	UCRL-ID-131461
DM110	pb1.4a	Yes	Pb	1.4	8.970	3	30	38.8877	766.0	NE213-A	1.6	140	139.00	417.00	37	------	UCRL-51144
DM111	pb1.4b	Yes	Pb	1.4	8.970	3	120	116.7050	975.2	NE213-A	1.6	163	185.00	509.00	38	------	UCRL-51144
DM117	pu0.7a	Yes	Pu239	0.7	3.665	3	30	38.8877	766.0	NE213-A	1.6	141	135.00	415.00	62	------	UCID-16372
DM118	pu0.7b	Yes	Pu239	0.7	3.665	3	120	116.7050	975.2	NE213-A	1.6	166	185.00	515.00	63	------	UCID-16372
DM119	pu0.7c	Yes	Pu239	0.7	3.665	2	26	26.0	945.54	NE213-B	1.6	206	167.00	577.00	102804	9423903176	UCRL-ID-131461
DM120	pu1.3a	No	Pu239	1.3	5.492	2	26	26.0	945.54	NE213-B	1.6	240	167.00	645.00	21607	------	-------
DM121	pu1.3b	No	Pu239	1.3	5.492	2	26	26.0	879.48	Stilbene	0.8	336	161.00	831.00	------	9423905377	UCRL-ID-131461
DM122	sn1.0	No	Tin	1.0	5.973	2	26	26.0	945.45	NE213-B/C	0.8	349	171.00	867.00	------	5000004178	UCRL-ID-131461
DM123	ta1.0	No	Ta	1.0	3.400	2	26	26.0	878.0	Stilbene	0.8	276	149.00	699.00	------	7318104180	UCRL-ID-131461
DM124	ta3.0a	No	Ta	3.0	10.200	2	26	26.0	878.0	Stilbene	0.8	352	149.00	851.00	------	7318112180	UCRL-ID-131461
DM125	ta3.0b	No	Ta	3.0	10.200	2	26	26.0	945.54	NE213-B/C	0.8	265	171.00	699.00	------	7318112178	UCRL-ID-131461
DM126	tef0.9	Yes	Tef	0.9	16.500	6	30	38.8877	752.0	Pilot B	1.6	141	125.00	405.00	47	------	UCRL-51144
DM127	tef1.8a	No	Tef	1.8	16.500	6	30	38.8877	752.0	Pilot B	1.6	139	133.00	409.00	48	------	UCRL-51144
DM128	tef1.8b	No	Tef	1.8	16.500	2	26	26.0	878.0	Stilbene	0.8	328	149.00	803.00	------	635004180	UCRL-ID-131461
DM129	tef2.9a	Yes	Tef	2.9	25.500	6	30	38.8877	752.0	Pilot B	1.6	143	134.00	418.00	49	------	UCRL-51144
DM130	tef2.9b	Yes	Tef	2.9	25.500	3	120	116.7050	975.4	NE213-A	1.6	153	185.00	489.00	50	------	UCRL-51144
DM131	th1.0a	No	Th232	1.0	5.757	2	26	26.0	945.54	NE213-B	1.6	204	167.00	573.00	102808	------	-------
DM132	th1.0b	No	Th232	1.0	5.757	2	26	26.0	945.54	NE213-B/C	1.6	333	171.00	835.00	------	9023204178	UCRL-ID-131461
DM133	ti1.2	Yes	Ti	1.2	8.940	4	30	38.8877	765.2	Pilot B	1.6	140	131.00	409.00	28	------	UCRL-51144
DM134	ti2.2	No	Ti	2.2	16.500	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	29	------	UCRL-51144
DM135	ti3.5	Yes	Ti	3.5	25.500	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	30	------	UCRL-51144
DM136	w1.0a	Yes	W	1.0	10.360	4.1	26	26.0	801.4	NE213-B	1.6	90	145.59	420.57	60405	7400004175	UCID-17332
DM137	w1.0b	No	W	1.0	10.360	2	26	26.0	849.3	NE213-B	0.8	260	143.00	661.00	------	7400004186	UCRL-ID-131461
DM138	w2.0	No	W	2.0	10.360	4.1	26	26.0	801.4	NE213-B	1.6	123	146.08	428.99	60408	7400008175	UCID-17332
DM139	w3.0	Yes	W	3.0	10.360	4.1	26	26.0	801.4	NE213-B	1.6	91	145.98	429.89	60411	7400012175	UCID-17332

Table 1 (cont)

Det Meas. ID #	MCNP Input File	Input File Done?	Sph Matl	Size (mfp)	Outer Radius (cm)	FWHM (ns)	Beam Line ID	Beam Ang wrt the Src(deg)	Flight Path (cm)	Detector Type	Det Bias MeV	Npts	Tmin (ns)	Tmax (ns)	EXPTDATA ID #	DISP93IN ID #	Reference Publication
DM140	25u0.7a	Yes	U-235	0.7	3.195	3	30	38.8877	766.0	NE213-A	1.6	140	137.00	415.00	55	------	UCID-16372
DM141	25u0.7b	Yes	U-235	0.7	3.195	3	120	116.7050	975.2	NE213-A	1.6	167	183.00	515.00	56	------	UCID-16372
DM142	25u0.7c	Yes	U-235	0.7	3.195	2	26	26.0	945.54	NE213-B	1.6	208	167.00	581.00	102807	9223503176	UCRL-ID-131461
DM143	25u1.5a	Yes	U-235	1.5	5.938	3	30	38.8877	766.0	NE213-A	1.6	138	139.00	413.00	57	------	-------
DM144	25u1.5b	Yes	U-235	1.5	5.938	3	120	116.7050	975.2	NE213-A	1.6	166	185.00	515.00	58	------	-------
DM145	25u1.5c	Yes	U-235	1.5	5.938	2	26	26.0	879.0	Stilbene	0.8	336	161.00	831.00	------	9223506177	UCRL-ID-131461
DM146	25u1.5d	Yes	U-235	1.5	5.938	2	26	26.0	945.54	NE213-B	1.6	216	167.00	597.00	102810	------	-------
DM149	28u0.8a	Yes	U-238	0.8	3.630	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	59	------	UCID-16372
DM150	28u0.8b	Yes	U-238	0.8	3.630	4	120	116.7050	977.2	NE213-A	1.6	167	181.00	513.00	60	------	UCID-16372
DM151	28u0.8c	Yes	U-238	0.8	3.630	2	26	26.0	945.54	NE213-B	1.6	210	167.00	585.00	102806	------	-------
DM152	28u0.8d	y/n	U-238	0.8	3.630	2	26	26.0	945.54	NE213-B	0.8	335	171.00	839.00	------	9223803178	UCRL-ID-131461
DM153	28u2.8a	Yes	U-238	2.8	10.932	4	30	38.8877	765.2	Pilot B	1.6	141	135.00	415.00	61	------	-------
DM154	28u2.8b	Yes	U-238	2.8	10.932	2	26	26.0	746.34	NE213-B	1.6	164	129.00	455.00	102704	9223811176	UCRL-ID-131461
DM157	hwt1.2	Yes	HWtr	1.2	10.480	5	30	38.8877	765.2	Pilot B	1.6	119	142.00	378.00	42	------	UCRL-51144
DM078	hwt2.1	Yes	HWtr	2.1	19.050	5	30	38.8877	765.2	Pilot B	1.6	134	142.00	408.00	43	------	UCRL-51144
DM155	lwt1.1a	Yes	LWtr	1.1	10.480	5	30	38.8877	754.0	Pilot B	1.6	136	138.00	408.00	39	------	UCRL-51144
DM156	lwt1.1b	Yes	LWtr	1.1	10.480	2	26	26.0	731.52	NE213-B	1.6	156	127.00	437.00	21816	131804171	UCRL-ID-131461
DM158	lwt1.9a	Yes	LWtr	1.9	19.050	5	30	38.8877	754.0	Pilot B	1.6	134	132.00	408.00	40	------	UCRL-51144
DM159	lwt1.9b	Yes	LWtr	1.9	19.050	3	120	116.7050	975.4	NE213-A	1.6	153	185.00	489.00	41	------	UCRL-51144
DM160	lwt1.9c	Yes	LWtr	1.9	19.050	2	26	26.0	731.52	NE213-B	1.6	154	127.00	433.00	21812	------	-------
DM161	lwt1.9d	Yes	LWtr	1.9	19.050	2	26	26.0	879.48	Stilbene	0.8	298	161.00	755.00	------	131808177	UCRL-ID-131461

1) This table only contains information on the 145 detector measurements (DMxxx) in the final Master Library for high-energy measurements. Originally, there were 161 entries but: 2 were redundant entries, 2 were non-traceable, and 12 were moved to a similar library for low-energy measurements.
2) In those cases where experimental data existed on both the "EXPTDATA" and "DISP93IN" data tapes, the original ID number of the recommended dataset finally adopted in this Master Library is underlined. Notes of explanation are included in the DMxxx.doc files in the "TextFILS" subdirectory.
3) The first 5 numbers of the DISP93IN ID # are the 2-digit atomic number (Z) of the target element followed by a 3-digit mass number (A). Compounds were given special Z and A numbers. The last two digits of the DISP93IN ID # indicate the year that the measurement was performed. Further information can be found on pp.13-14 of UCRL-131461.