Appendix A

Fuel at Sites and Data Certification Needs

Appendix A

Fuel at Sites and Data Certification Needs

TABLE A.1XDOE SNF GROUPS

Table A.1 presents the fuels in the DOE SNF inventory in the form of three general groups. The central group consists of 34 subgroups which group the fuels according to variations in fuel meat/matrix type, cladding type, and enrichment. The grouping on the left condenses the 34 subgroups into 16 groups that have varying effects on the Total Systems Performance Analysis (TSPA) of the repository. The grouping on the right condenses the 34 subgroups into 14 groups that have varying effects on the Criticality Evaluation of the repository. The DOE SNF inventory has been subdivided into these groups in order to decrease the time, cost, and complexity of evaluating the system performance and criticality effects of the DOE SNF on the repository behavior, and to provide interested parties with a more comprehensible view of the DOE SNF inventory.

TABLE A.2XDOE SNF INVENTORY

Description of Terms and Headings

The table listed in the following pages presents the DOE SNF according to its location and the characteristics with which the fuel is recommended for qualification in preparing it for transfer to a national repository. The following are specific definitions associated with the table.

SNFID: This is an identification number used by the NSNFP Data Bank to uniquely differentiate the fuels.

Fuel Name: This is the common name used to describe the fuel.

Group Type/TSPA-CRIT: The DOE SNF has been placed in different groups to make it easier to qualify the fuel and compare the expected behavior of one fuel with another. Each fuel has been placed in groups under two categories—Total System Performance Analysis (TSPA) or Criticality Behavior (CRIT). A fuel custodian may look at the grouping of his/her particular fuel and compare it to the group identification of other fuels in order to determine the best process for fuel qualification.

Now & 4(A): These two columns indicate where the fuel is "Now" and where it is planned to go under the repositioning plan "Regionalization by Fuel Type - Alternative 4(A)" (Record of Decision on the DOE Programmatic Spent Nuclear Fuel Management and INEL Environmental Restoration and Waste Management Program Environmental Impact Statement).

Following are the characteristics that must be addressed according to the 10CFR60 regulations. Particular characteristics are, from Table 3.1.2. A "TBD" in any column indicates that the requirements on this particular parameter are still being developed.

Description:

1.1 The descriptors placed in this column indicate the degree of our knowledge of the fuel source (S), operating history (H), and physical condition (C).

Physical & Chemical Characteristics:

2.1 Particulate: A "PR" in this column indicates that the fuel may contain particulate matter and that corrective fixation may be needed in order to qualify the fuel.

2.2 Reactivity: An "R" in this column indicates that the fuel has the potential to be chemically reactive with its containment, other fuels, or the environment. The majority of this fuel is classified or such due to sodium. A "P" in this column indicates that the fuel must be qualified for possible pyrophoric behavior. A "C" in this column indicates that the fuel must be qualified for possible combustibility.

2.3 Criticality Evaluation: A "CE" in this column indicates that a criticality evaluation of this fuel in its planned package configuration must be performed.

2.4 Free Liquids: A "W" in this column indicates that the fuel has been stored wet and special actions must be taken and documented in order to qualify the fuel as being dry.

2.5 Gas Generation: A "G" in this column indicates that the fuel has a potential to generate or cause a gas to be generated.

2.6 Radiation Level: An “RL” in this column indicates that the fuel must be qualified with respect to the requirements on radiation level.

2.7 Heat Generation: An “HG” in this column indicates that the heat generation rate of the fuel must be evaluated and compared with repository requirements.

2.8 Isotopes: An “X” in this column indicates that the fuel must be evaluated for isotopic inventory. An “L” in this column indicates that the leachability of the fuel=s isotopic inventory must be evaluated in order to be qualified.

Status:

The National Spent Nuclear Fuel Program maintains the fuel database presented in Appendix A. Copies of the database, on PC floppy discs and usable with Windows 95, may be obtained by sending an e-mail request to aqb@inel.gov, or a surface mail request to:

National Spent Nuclear Fuel Program

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SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
	Argonne - East																
36	CP-5 CONVERTER CYLINDER [36]	2	2	ANL-E	INEL	TBD						TBD	1		7	3;7	TBD
.42	DOE TEST & EXPERIMENTAL [42]	16	16	ANL-E	INEL	TBD						TBD	1		7	3;7	TBD
50	DRESII, HBR, BR-3, BRP, TMI [50]	5	4	ANL-E	INEL	TBD				G		TBD	1		7	3;7	TBD
	Brookhaven National Laboratory																
21	BNL MEDICAL RX (BMRR) [21]	6	6	BNL	SRS	TBD						TBD	1	W	7	3;7	TBD
104	HIGH FLUX BEAM REACTOR [104]	5	3	BNL	SRS	TBD				G		TBD	1	W	7	3;7	TBD
	Foreign Research Reactors																
288	FRR MTR (U308-LEU) [288]	5	4	FRR	SRS	TBD				G		TBD	1	W	7	3;7	3
289	FRR MTR (U3SI2 LEU) [289]	7	8	FRR	SRS	TBD						TBD	1	W	7	3;7	3
290	FRR MTR (UALX-HEU) [290]	6	6	FRR	SRS	TBD						TBD	1	W	7	3;7	3
291	FRR MTR (UALX-LEU) [291]	6	7	FRR	SRS	TBD						TBD	1	W	7	3;7	3
292	FRR MTR (UALX-MEU) [292]	6	6	FRR	SRS	TBD						TBD	1	W	7	3;7	3
293	FRR PIN CLUSTER U3SI2-LEU [293]	7	8	FRR	SRS	TBD						TBD	1	W	7	3;7	3
294	FRR PIN CLUSTER UALX HEU [294]	6	6	FRR	SRS	TBD						TBD	1	W	7	3;7	3
295	FRR RHF (HEU) [295]	6	6	FRR	SRS	TBD						TBD	1	W	7	3;7	3
296	FRR SLOWPOKE (HEU) [296]	6	6	FRR	SRS	TBD						TBD	1	W	7	3;7	3
297	FRR TARGET [297]	16	16	FRR	SRS	TBD						TBD	1	W	7	3;7	3
298	FRR TUBES (U3SI2 LEU) [298]	7	8	FRR	SRS	TBD						TBD	1	W	7	3;7	3
300	FRR TUBES (UALX-HEU) [300]	6	6	FRR	SRS	TBD						TBD	1	W	7	3;7	3
299	FRR TUBES (UALX LEU) [299]	6	7	FRR	SRS	TBD						TBD	1	W	7	3;7	3
301	TRIGA (FLIP) FRR [301]	13	12	FRR	INEL	TBD						TBD	1	W	7	3;7	3
302	TRIGA (HIGH POWER) FRR [302]	13	12	FRR	INEL	TBD						TBD	1	W	7	3;7	3
303	TRIGA (STD ALUM) FRR [303]	13	13	FRR	INEL	TBD						TBD	1	W	7	3;7	3
304	TRIGA (STD) 45% FRR [304]	13	13	FRR	INEL	TBD						TBD	1	W	7	3;7	3
305	TRIGA (STD) FRR [305]	13	13	FRR	INEL	TBD						TBD	1	W	7	3;7	3
	Fort St. Vrain																
86	FSVR [86]	8	9	VRAIN	FSV	TBD		C		G		TBD	1		7	3;7	3

DOE SNF - Certification Requirements

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
	Hanford Reservation																
1	618 WASTE [1]	13	16	HR	HR	TBD						TBD	1		7	3;7	TBD
307	CALVERT CLIFFS 1 [307]	4	5	HR	HR	TBD						TBD	1		7	3;7	TBD
308	COOPER NUCLEAR [308]	4	5	HR	HR	TBD						TBD	1		7	3;7	TBD
39	DOE & COMMERCIAL [39]	5	4	HR	HR	TBD				G		TBD	1		7	3;7	TBD
40	DOE & COMMERCIAL TEST [40]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
41	DOE TEST [41]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
71	FFTF-DFA/TDFA [71]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
317	FFTF-TFA-AB-1 [317]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
318	FFTF-TFA-ABA-1 THRU 6 [318]	4	4	HR	HR	TBD						TBD	1		7	3;7	TBD
319	FFTF-TFA-AC-3 [319]	10	9	HR	HR	TBD				G		TBD	1		7	3;7	TBD
320	FFTF-TFA-AC0-1 THRU 16 [320]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
321	FFTF-TFA-ACN-1 [321]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
322	FFTF-TFA-CRBR-3 & CRBR-5 [322]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
323	FFTF-TFA-DE-9 [323]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
324	FFTF-TFA-DEA-2 [324]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
325	FFTF-TFA-FC-1 [325]	10	9	HR	HR	TBD				G		TBD	1		7	3;7	TBD
326	FFTF-TFA-FO-1 & FO-2 [326]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
327	FFTF-TFA-FSP-1 & FSP-1R [327]	16	16	HR	HR	TBD						TBD	1		7	3;7	TBD
328	FFTF-TFA-IFR-1 [328]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
329	FFTF-TFA-MFA-1 & 2, MBA-1 [329]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
330	FFTF-TFA-MFF-1 [330]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
331	FFTF-TFA-MFF-1A [331]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
332	FFTF-TFA-MFF-2 THRU 6 [332]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
333	FFTF-TFA-P0-1,2,4 & 5 [333]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
334	FFTF-TFA-SRF-3 & SRF-4 [334]	14	14	HR	HR	TBD			R			TBD	1		7	3;7	TBD
335	FFTF-TFA-UO-1 [335]	10	9	HR	HR	TBD				G		TBD	1		7	3;7	TBD
336	FFTF-TFA-WBO18 & WBO42 [336]	16	16	HR	HR	TBD						TBD	1		7	3;7	TBD
96	GE TEST [96]	11	10	HR	HR	TBD						TBD	1		7	3;7	TBD
309	GE VALLECITOS SCRAP [309]	5	5	HR	HR	TBD				G		TBD	1		7	3;7	TBD
310	H. B. ROBINSON [310]	5	5	HR	HR	TBD				G		TBD	1		7	3;7	TBD
306	LAMPRE [306]	16	16	HR	HR	TBD						TBD	1		7	3;7	TBD
130	LWR COMMERCIAL FUEL [130]	5	5	HR	HR	TBD				G		TBD	1		7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
132	LWR COMMERCIAL FUEL [132]	5	5	HR	HR	TBD	P			G		TBD	1		7	3;7	TBD
133	LWR COMMERCIAL FUEL [133]	5	5	HR	HR	TBD	P			G		TBD	1		7	3;7	TBD
147	N REACTOR [147]	1	1	HR	HR	TBD				G		TBD	1	W	7	3;7	TBD
148	N REACTOR [148]	1	1	HR	HR	TBD				G		TBD	1	W	7	3;7	TBD
312	POINT BEACH (PIECES) [312]	5	5	HR	HR	TBD				G		TBD	1		7	3;7	TBD
311	POINT BEACH [311]	4	5	HR	HR	TBD						TBD	1		7	3;7	TBD
313	SHIPPINGPORT PWR C1 BLKT [313]	5	5	HR	HR	TBD				G		TBD	1		7	3;7	TBD
193	SHIPPINGPORT PWR CORE II [193]	4	5	HR	HR	TBD						TBD	1	W	7	3;7	TBD
197	SINGLE PASS REACTOR FUEL [197]	1	1	HR	HR	TBD	P			G		TBD	1	W	7	3;7	TBD
198	SINGLE PASS REACTOR FUEL [198]	1	1	HR	HR	TBD	P			G		TBD	1	W	7	3;7	TBD
314	TRIGA (ALUM) [314]	13	13	HR	HR	TBD						TBD	1		7	3;7	TBD
315	TRIGA (FFCR) [315]	13	13	HR	HR	TBD						TBD	1		7	3;7	TBD
233	TRIGA (STD) [233]	13	13	HR	HR	TBD						TBD	1		7	3;7	TBD
316	TRIGA (STD) [316]	13	13	HR	HR	TBD						TBD	1		7	3;7	TBD
	Argonne West																
				INEL													
340	BR-3 FUEL [340]	4	4	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
357	EBR-II AXIAL BLANKET [357]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
358	EBR-II CARBIDE FUEL EXP [358]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
341	EBR-II METAL FUEL EXP [341]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
359	EBR-II METAL FUEL EXP [359]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
342	EBR-II MK-II/IIA [342]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
360	EBR-II MK-II/IIA [360]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
337	EBR-II MK-IIC/IICS [337]	14	14	ANL-W	INEL	TBD			R			TBD	1	W	7	3;7	TBD
343	EBR-II MK-IIC/IICS [343]	14	14	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
361	EBR-II MK-IIC/IICS [361]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
338	EBR-II MK-III/IIIA [338]	14	14	ANL-W	INEL	TBD			R			TBD	1	W	7	3;7	TBD
344	EBR-II MK-III/IIIA [344]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
362	EBR-II MK-III/IIIA [362]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
363	EBR-II NITRIDE FUEL EXPER [363]	16	16	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
345	EBR-II OXIDE FUEL EXPER [345]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
364	EBR-II OXIDE FUEL EXPER [364]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
339	EBR-II RADIAL BLANKET [339]	14	14	ANL-W	INEL	TBD			R			TBD	1	W	7	3;7	TBD
346	EBR-II RADIAL BLANKET [346]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	New	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
365	EBR-II RADIAL BLANKET [365]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
347	FFTF CARBIDE FUEL EXPER. [347]	10	9	ANL-W	INEL	TBD				G		TBD	1		7	3;7	TBD
348	FFTF METAL FUEL EXPER. [348]	14	14	ANL-W	INEL	TBD			R			TBD	1		7	3;7	TBD
349	FFTF OXIDE EXPERIMENTS [349]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
350	MISCELLANEOUS FUEL [350]	16	16	ANL-W	INEL	TBD						TBD	1	W	7	3;7	TBD
351	MISCELLANEOUS FUEL [351]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
366	MISCELLANEOUS FUEL [366]	16	16	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
369	MISCELLANEOUS FUEL [369]	16	16	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
352	SODIUM LOOP SAFETY FAC. [352]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
367	SODIUM LOOP SAFETY FAC. [367]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
232	TREAT DRIVER [232]	4	3	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
353	TRIGA (FLIP) ANL-W [353]	13	12	ANL-W	INEL	TBD						TBD	1	W	7	3;7	TBD
354	TRIGA (FLIP) ANL-W [354]	13	12	ANL-W	INEL	TBD						TBD	1	W	7	3;7	TBD
355	TRIGA (STD) ANL-W [355]	13	13	ANL-W	INEL	TBD						TBD	1	W	7	3;7	TBD
370	TRIGA (STD) ANL-W [370]	13	13	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
368	TRU SCRAP SNF [368]	16	16	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
356	US/UK FUEL PINS [356]	11	10	ANL-W	INEL	TBD						TBD	1		7	3;7	TBD
	Idaho National Engineering Lab																
4	Al [4]	13	12	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
6	APPR (AGE-2) [6]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
8	ARMF [8]	16	16	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
9	ARMF/CFRMF MARK I [9]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
10	ARMF/CFRMF MARK I LL [10]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
11	ARMF/CFRMF MARK II [11]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
12	ARMF/CFRMF MARK III [12]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
14	ATR [14]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
15	ATR [15]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
16	ATR [16]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
19	BCD B-17 [19]	4	5	INEL	INEL	TBD						TBD	1		7	3;7	TBD
236	BER-II (GERMANY) [236]	13	12	INEL	INEL	TBD						TBD	1		7	3;7	TBD
20	BMI [20]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
22	BORAX V [22]	4	3	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
387	CANDU SCRAP [387]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
34	CONNECTICUT YANKEE (S004) [34]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
35	CORE FILTER [35]	1	1	INEL	SRS	TBD	P			G		TBD	1	W	7	3;7	TBD
43	DRCT [43]	4	5	INEL	INEL	TBD						TBD	1		7	3;7	TBD
47	DRESDEN [47]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
388	DRESDEN SCRAP [388]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
58	EBR-II (ANL-6 TEST) [58]	14	14	INEL	INEL	TBD			R			TBD	1	W	7	3;7	TBD
54	EBR-II [54]	14	14	INEL	INEL	TBD			R			TBD	1	W	7	3;7	TBD
55	EBR-II [55]	14	14	INEL	INEL	TBD			R			TBD	1	W	7	3;7	TBD
69	FERMI CORE I & 2 [69]	3	2	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
70	FERMI I BLANKET [70]	14	14	INEL	INEL	TBD			R			TBD	1		7	3;7	TBD
85	FSVR [85]	8	9	INEL	INEL	TBD		C		G		TBD	1		7	3;7	TBD
389	GAP CONDUCTANCE (GC) SCRAP [389]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
94	GCRE CAN [94]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
95	GCRE PELLETS [95]	16	16	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
98	GETR FILTERS [98]	16	16	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
382	H. B. ROBINSON (ASSEMBLY) [382]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
383	H. B. ROBINSON (RODS) [383]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
384	H. B. ROBINSON (SCRAP) [384]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
390	H. B. ROBINSON [390]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
391	HALDEN (NORWAY) SCRAP [391]	11	10	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
101	HFBR [101]	5	3	INEL	SRS	TBD				G		TBD	1	W	7	3;7	TBD
102	HFBR [102]	5	3	INEL	SRS	TBD				G		TBD	1	W	7	3;7	TBD
392	IRRADIATION EFFECTS (IE) SCRAP [392]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
393	LOFT (LP-FP-1) SCRAP [393]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
127	LOFT CENTER FUEL MODULE [127]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
128	LOFT CORNER FUEL MODULE [128]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
394	LOFT LEAD ROD SCRAP [394]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
129	LOFT SQUARE FUEL MODULE [129]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
126	LOOSE FUEL RODS FOR BASKET (LFRSB) [126]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
395	LOSS OF COOLANT SCRAP [395]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
396	MAPI SCRAP [396]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
141	MURR (UALX) [141]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
142	MURR (UALX) [142]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
150	NAVAL [150]	15	15	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
151	NAVAL [151]	15	15	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
397	OPTRAN SCRAP [397]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
161	ORR [161]	5	3	INEL	SRS	TBD				G		TBD	1	W	7	3;7	TBD
166	PATHFINDER [166]	4	3	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
167	PBF DRIVER CORE [167]	4	4	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
398	PBF SCRAP [398]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
399	PCM SCRAP [399]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
385	PEACH BOTTOM (ASSEMBLY) [385]	4	5	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
386	PEACH BOTTOM (RODS) [386]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
169	PEACH BOTTOM CORE 1 [169]	9	9	INEL	INEL	TBD		C		G		TBD	1		7	3;7	TBD
170	PEACH BOTTOM CORE 1 [170]	9	9	INEL	INEL	TBD		C		G	PT	TBD	1		7	3;7	TBD
171	PEACH BOTTOM CORE 2 [171]	8	9	INEL	INEL	TBD		C		G		TBD	1		7	3;7	TBD
400	PEACH BOTTOM SCRAP [400]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
174	PULSTAR - BUFFALO [174]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
381	RESIDUE FAILED PBF RODS [381]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
401	RIA SCRAP [401]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
402	SAXTON SCRAP [402]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
403	SCRAP [403]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
404	SFD SCRAP [404]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
373	SHIPPINGPORT LWBR B SCRAP [373]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
374	SHIPPINGPORT LWBR BLKT I [374]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
375	SHIPPINGPORT LWBR BLKT II [375]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
376	SHIPPINGPORT LWBR BLKTIII [376]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
377	SHIPPINGPORT LWBR R SCRAP [377]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
378	SHIPPINGPORT LWBR S SCRAP [378]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
379	SHIPPINGPORT LWBR SCRAP [379]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
380	SHIPPINGPORT LWBR SEED [380]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
194	SHIPPINGPORT PWR-C1-S4 [194]	4	3	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
195	SHIPPINGPORT PWR-C2-S1 [195]	4	3	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
196	SHIPPINGPORT PWR-C2-S2 [196]	4	3	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
371	SHIP'PORT LWBR REFLCT. IV [371]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
372	SHIP'PORT LWBR REFLCT. V [372]	12	11	INEL	INEL	TBD						TBD	1		7	3;7	TBD
201	SM-1A [201]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
202	SNAP (14 UNITS) [202]	13	12	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
203	SNAP (5 UNITS) [203]	13	12	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
208	SPEC (ORME) [208]	16	16	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
213	SPSS (SPERT) [213]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
405	T.C. SCRAP [405]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
227	TEST TRAIN [227]	5	4	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
229	TMI-2 CORE DEBRIS [229]	5	5	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
230	TORY-IIA [230]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
231	TORY-IIC [231]	5	3	INEL	INEL	TBD				G		TBD	1		7	3;7	TBD
235	TRIGA (ALUM) [235]	13	13	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
239	TRIGA (FLIP) [239]	13	12	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
244	TRIGA (STD) [244]	13	13	INEL	INEL	TBD						TBD	1	W	7	3;7	TBD
271	TURKEY POINT [271]	4	5	INEL	INEL	TBD						TBD	1		7	3;7	TBD
281	UNIV OF WASHINGTON [281]	6	6	INEL	SRS	TBD						TBD	1	W	7	3;7	TBD
285	VBWR (GENEVA) [285]	5	3	INEL	INEL	TBD				G		TBD	1	W	7	3;7	TBD
286	VEPCO [286]	4	5	INEL	INEL	TBD						TBD	1		7	3;7	TBD
	Naval Reactor Facility																
				INEL													
152	NAVAL [152]	15	15	NRF	INEL	TBD						TBD	1	W	7	3;7	TBD
191	SHIPPINGPORT PWR C1 BLKT [191]	4	5	NRF	INEL	TBD						TBD	1	W	7	3;7	TBD
192	SHIPPINGPORT PWR C2 BLKT [192]	4	5	NRF	INEL	TBD						TBD	1	W	7	3;7	TBD
	Los Alamos National Laboratory																
406	OMEGA WEST (204) [406]	5	3	LANL	SRS	TBD				G		TBD	1		7	3;7	TBD
407	OMEGA WEST (236) [407]	5	3	LANL	SRS	TBD				G		TBD	1		7	3;7	TBD
408	OMEGA WEST (250) [408]	5	3	LANL	SRS	TBD				G		TBD	1		7	3;7	TBD
	Naval Systems																
				NAVAL													
153	NAVAL [153]	15	15	SY	INEL	TBD						TBD	1	W	7	3;7	TBD
	Non-DOE Domestic																
				NOND													
7	ARKANSAS [7]	5	5	OE	INEL	TBD				G		TBD	1		7	3;7	TBD
89	GA HTGR FUEL [89]	8	4	OE	INEL	TBD		C		G		TBD	1		7	3;7	TBD
90	GA RERTR [90]	13	13	OE	INEL	TBD						TBD	1		7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	NOW NOND	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
97	GENTR [97]	6	6	ORND	SRS	TBD						TBD	1	W	7	3;7	TBD
154	NBSR [154]	5	3	ORND	SRS	TBD				G		TBD	1	W	7	3;7	TBD
156	OCONEE [156]	4	5	ORND	INEL	TBD						TBD	1		7	3;7	TBD
228	TMI-2 [228]	5	5	ORND	INEL	TBD				G		TBD	1		7	3;7	TBD
238	TRIGA (CONV) ARRR [238]	13	13	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
409	TRIGA (FDT LOW POWER) [409]	13	12	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
248	TRIGA (FLIP) GA [248]	13	12	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
410	TRIGA (HIGH POWER) [410]	13	12	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
250	TRIGA (STD) AFRRI [250]	13	13	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
251	TRIGA (STD) DOW [251]	13	13	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
252	TRIGA (STD) GA [252]	13	12	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
254	TRIGA (STD) MCCLELLAN AFB [254]	13	13	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
266	TRIGA (STD) USGS [266]	13	13	ORND	INEL	TBD						TBD	1	W	7	3;7	TBD
267	TRIGA (STD) VA [267]	13	13	OE	INEL	TBD						TBD	1	W	7	3;7	TBD
	Oak Ridge National Laboratory																
411	ALUM CLAD SNF [411]	5	4	ORR	SRS	TBD				G		TBD	1		7	3;7	TBD
31	BSR REACTOR FUEL [31]	5	3	ORR	SRS	TBD				G		TBD	1		7	3;7	TBD
103	HFIR [103]	5	3	ORR	SRS	TBD				G		TBD	1	W	7	3;7	TBD
413	MARK 42 TARGETS (PU) [413]	16	16	ORR	SRS	TBD						TBD	1		7	3;7	TBD
138	MSRE FLUSH SALT [138]	16	16	ORR	INEL	TBD						TBD	1		7	3;7	TBD
139	MSRE FUEL SALT [139]	16	16	ORR	INEL	TBD						TBD	1		7	3;7	TBD
165	ORR FUEL [165]	7	8	ORR	SRS	TBD						TBD	1		7	3;7	TBD
206	PEACH BOTTOM CORE 2 TESTS [206]	8	9	ORR	INEL	TBD		C		G		TBD	1		7	3;7	TBD
412	SST & ZR CLAD SNF [412]	5	4	ORR	INEL	TBD				G		TBD	1		7	3;7	TBD
270	TSR FUEL [270]	6	6	ORR	SRS	TBD						TBD	1	W	7	3;7	TBD
	Sandia National Laboratory																
421	ACRR (NEW CORE) [421]	16	16	SAN	SRS	TBD						TBD	1		7	3;7	TBD
437	NPR FUEL [437]	16	16	SAN	SRS	TBD						TBD	1		7	3;7	TBD
420	PNL-3 [420]	16	16	SAN	INEL	TBD						TBD	1		7	3;7	TBD
423	PNL MIXED MAT'L EXP. D-10 [423]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD
424	PNL MIXED MAT'L EXP. D-13 [424]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
425	PNL MIXED MAT'L EXP. D-2 [425]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD
426	PNL MIXED MAT'L EXP. D-4 [426]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD
427	PNL MIXED MAT'L EXP. D-5 [427]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD
428	PNL MIXED MAT'L EXP. D-6 [428]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD
429	PNL MIXED MAT'L EXP. D-9 [429]	14	14	SAN	INEL	TBD			R			TBD	1		7	3;7	TBD
430	PNL MIXED MAT'L EXP.DCC-1 [430]	5	4	SAN	INEL	TBD				G		TBD	1		7	3;7	TBD
431	PNL MIXED MAT'L EXP.DCC-2 [431]	5	4	SAN	INEL	TBD				G		TBD	1		7	3;7	TBD
432	PNL MIXED MAT'L EXP.DCC-3 [432]	5	4	SAN	INEL	TBD				G		TBD	1		7	3;7	TBD
414	PNL MOX FUEL [414]	16	16	SAN	INEL	TBD						TBD	1		7	3;7	TBD
415	PNL MOX FUEL [415]	5	4	SAN	INEL	TBD				G		TBD	1		7	3;7	TBD
416	PNL MOX FUEL 7055 [416]	16	16	SAN	INEL	TBD						TBD	1		7	3;7	TBD
417	PNL MOX FUEL 7057 [417]	11	10	SAN	INEL	TBD						TBD	1		7	3;7	TBD
418	PNL MOX PELLETS 7057 [418]	16	16	SAN	INEL	TBD						TBD	1		7	3;7	TBD
419	PNL MOX PINS 7057 [419]	16	16	SAN	INEL	TBD						TBD	1		7	3;7	TBD
433	PNL MOX STAR 3 [433]	11	10	SAN	INEL	TBD						TBD	1		7	3;7	TBD
434	PNL MOX STAR 4 [434]	11	10	SAN	INEL	TBD						TBD	1		7	3;7	TBD
435	PNL MOX STAR 5 [435]	11	10	SAN	INEL	TBD						TBD	1		7	3;7	TBD
436	PNL MOX STAR 6 [436]	11	10	SAN	INEL	TBD						TBD	1		7	3;7	TBD
422	PNL MOX STAR 7 [422]	16	16	SAN	INEL	TBD						TBD	1		7	3;7	TBD
	Savannah River Site																
5	ANLJ [5]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
17	ATSR [17]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
18	BABCOCK & WILCOX SCRAP [18]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
33	CANDU PIECES [33]	5	5	SRS	INEL	TBD				G		TBD	1	W	7	3;7	TBD
32	CANDU RODS [32]	5	5	SRS	INEL	TBD				G		TBD	1	W	7	3;7	TBD
37	CVTR FUEL [37]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
44	DRESDEN (HEU) [44]	12	11	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
45	DRESDEN (LEU) [45]	16	16	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
46	DRESDEN (MEU) [46]	12	11	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
49	DRESDEN SCRAP (MEU) [49]	12	11	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
56	EBR-II (CAN 1) [56]	14	14	SRS	INEL	TBD			R			TBD	1	W	7	3;7	TBD
57	EBR-II (CAN 2) [57]	14	14	SRS	INEL	TBD			R			TBD	1	W	7	3;7	TBD

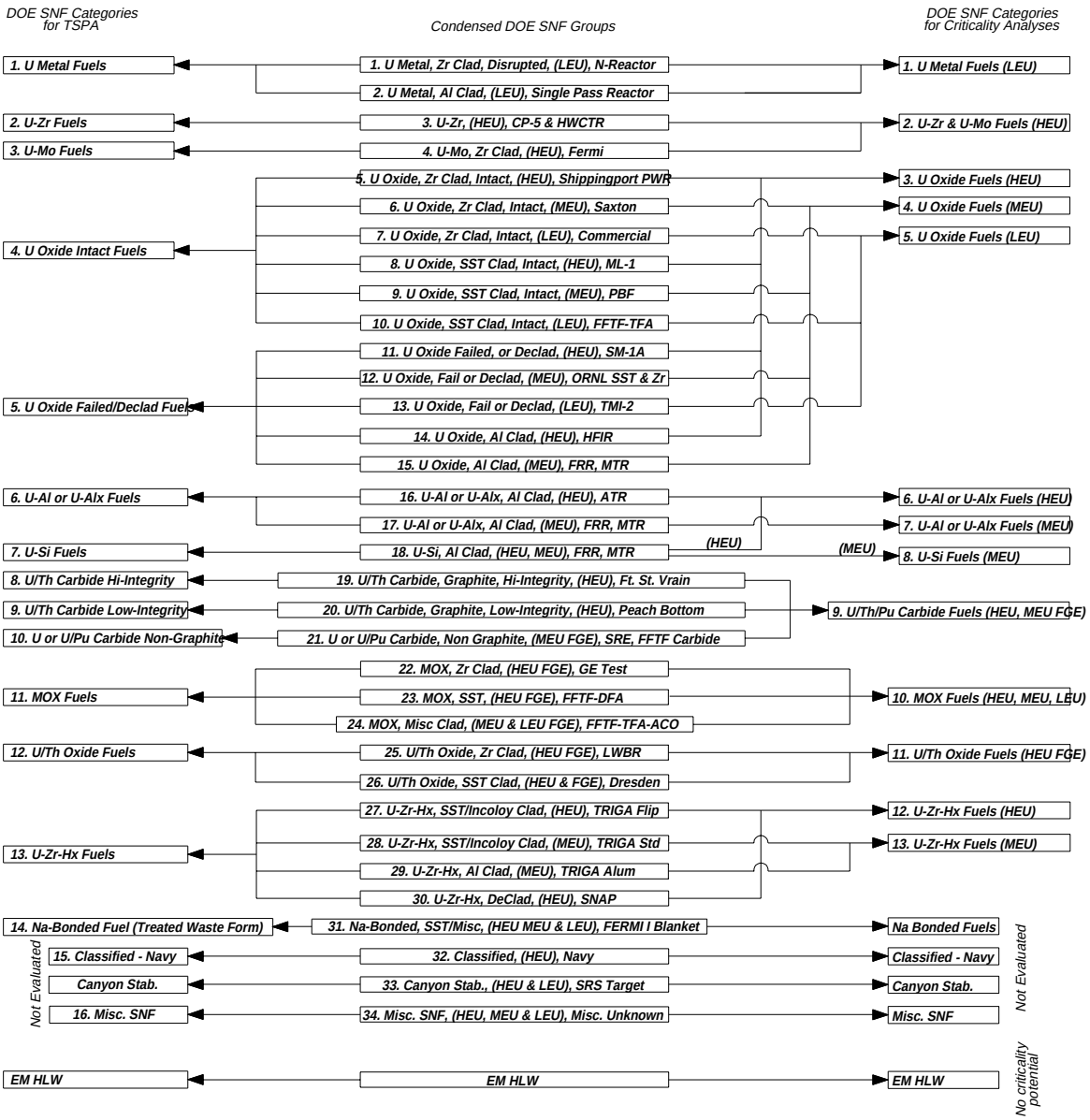
SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
438	EBR-II TARGETS [438]	1	1	SRS	SRS	TBD	P			G		TBD	1	W	7	3;7	TBD
60	EBWR (CAN) [60]	4	3	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
62	EBWR (DU) [62]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
65	EBWR (LEU) [65]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
63	EBWR (MEU) [63]	4	4	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
66	EBWR (NU) [66]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
64	EBWR (OXIDE) [64]	4	3	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
61	EBWR (OXIDE-1) [61]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
67	EPR-1 [67]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
68	ERR [68]	12	11	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
78	FOREIGN FROM RELIEF [78]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
87	GA INST OF TECH [87]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
91	GCRE (ASSEMBLY) [91]	16	16	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
92	GCRE (CAN) [92]	16	16	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
93	GCRE (SCRAP) [93]	5	3	SRS	INEL	TBD				G		TBD	1	W	7	3;7	TBD
440	GRR-1 [440]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
99	H. B. ROBINSON [99]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
105	HTRE (ANP) [105]	5	3	SRS	INEL	TBD				G		TBD	1	W	7	3;7	TBD
107	HWCTR (ASSEMBLY DU) [107]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
108	HWCTR (ASSEMBLY HEU) [108]	2	2	SRS	INEL	TBD					PT	TBD	1	W	7	3;7	TBD
109	HWCTR (ASSEMBLY LEU) [109]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
106	HWCTR (ASSEMBLY) [106]	16	16	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
110	HWCTR (BUNDLES DU) [110]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
111	HWCTR (BUNDLES OXIDE DU) [111]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
112	HWCTR (CAN LEU) [112]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
113	HWCTR (CAN OXIDE LEU) [113]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
115	HWCTR (CANS DU) [115]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
117	HWCTR (SCRAP CAN LEU) [117]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
116	HWCTR (SCRAP HEU) [116]	2	2	SRS	INEL	TBD					PT	TBD	1	W	7	3;7	TBD
118	HWCTR (SLUGS DU) [118]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
114	HWCTR (SLUGS LEU) [114]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
119	HWCTR (TUBES DU) [119]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
120	HWCTR (TUBES LEU) [120]	1	1	SRS	INEL	TBD	P			G		TBD	1	W	7	3;7	TBD
123	JMTR [123]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
124	K/L/P NON-U TARGETS [124]	16	16	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
134	LWR SAMPLES [134]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
136	MIT [136]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
137	ML-1 [137]	4	3	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
143	MURR (UALX) [143]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
441	MURR (UALX) [441]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
155	NEREIDE [155]	7	8	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
157	OHIO STATE (HEU) [157]	7	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
160	ORNL MIXED OXIDE [160]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
162	ORR (BUNDLES 11%) [162]	7	8	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
164	ORR (BUNDLES 16%) [164]	7	8	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
163	ORR (BUNDLES HEU) [163]	5	3	SRS	SRS	TBD				G		TBD	1	W	7	3;7	TBD
179	RHF [179]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
180	RINSC [180]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
443	SAPHIR (UALX) HEU [443]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
444	SAPHIR (UALX) MEU [444]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
185	SAXTON (ASSEMBLY) [185]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
183	SAXTON (CANS-1) [183]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
184	SAXTON (CANS-2) [184]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
186	SAXTON PINS [186]	4	4	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
187	SAXTON SCRAP [187]	11	10	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
188	SAXTON TUBES [188]	4	4	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
189	SHIPPINGPORT PWR BLANKET [189]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
200	SIW-1 [200]	2	2	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
209	SPERT-3 [209]	4	4	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
214	SRE (CAN) [214]	10	9	SRS	INEL	TBD				G		TBD	1	W	7	3;7	TBD
215	SRE (CANS HEU) [215]	16	16	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
216	SRS [216]			SRS	SRS												
217	SRS DRIVER FUEL [217]			SRS	SRS												
218	SRS DRIVER FUEL [218]			SRS	SRS												
219	SRS DRIVER FUEL [219]			SRS	SRS												
220	SRS DRIVER FUEL [220]			SRS	SRS												
221	SRS DRIVER FUEL [221]			SRS	SRS												
222	SRS TARGET SAMP. [222]			SRS	SRS												
223	SRS TARGETS [223]			SRS	SRS												
224	SRS TARGETS [224]			SRS	SRS												

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
225	STERLING (BUNDLES 1) [225]	5	3	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
226	STERLING (BUNDLES 2) [226]	6	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
445	TRR [445]	1	1	SRS	SRS	TBD	P					TBD	1	W	7	3;7	TBD
442	UMRR (HEU) [442]	5	3	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
276	UNIV OF MICHIGAN [276]	6	7	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
279	UNIV OF VIRGINIA [279]	7	6	SRS	SRS	TBD						TBD	1	W	7	3;7	TBD
282	VBWR (BUNDLE HEU) [282]	4	3	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
284	VBWR (BUNDLE MEU) [284]	4	4	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
283	VBWR (BUNDLES LEU) [283]	4	5	SRS	INEL	TBD						TBD	1	W	7	3;7	TBD
	University Research Reactor																
88	GA INST OF TECH (MTR-SI) [88]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
121	IOWA STATE (HEU) ARGONAUT [121]	6	6	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
122	IOWA STATE (LEU) ARGONAUT [122]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
135	MIT [135]	6	6	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
144	MURR (MTR-SI) [144]	6	6	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
158	OHIO STATE (LEU) [158]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
175	PULSTAR-N.C. STATE UNIV. [175]	4	5	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
176	PULSTAR-SUNY-BUFFALO [176]	5	5	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
178	PURDUE UNIVERSITY-MTR-SI [178]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
177	PURDUE UNIVERSITY [177]	6	6	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
181	RINSC [181]	6	7	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
447	TRIGA (ALUM) U OF IL [447]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
450	TRIGA (CONV) WSU [450]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
257	TRIGA (CONV) TEXAS A&M [257]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
262	TRIGA (CONV) U OF WISCONSIN [262]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
448	TRIGA (FFCR) U OF IL [448]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
240	TRIGA (FLIP) OSU [240]	13	12	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
241	TRIGA (FLIP) TEXAS A&M [241]	13	12	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
242	TRIGA (FLIP) U OF WISCONSIN [242]	13	12	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
243	TRIGA (FLIP) WSU [243]	13	12	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
264	TRIGA (STD) CAL-IRVINE [264]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
246	TRIGA (STD) CORNELL [246]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD

SNFID	Fuel Name	Group Type		Location		Physical & Chemical Characteristics							Performance Characteristics				
		TSPA	CRIT	Now	4(A)	2.1	2.2.1	2.2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5
253	TRIGA (STD) KS STATE UNIV [253]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
255	TRIGA (STD) OSU [255]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
256	TRIGA (STD) REED COLLEGE [256]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
258	TRIGA (STD) TEXAS A&M [258]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
59	TRIGA (STD) U OF AZ [59]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
449	TRIGA (STD) U OF IL [449]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
260	TRIGA (STD) U OF MD [260]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
265	TRIGA (STD) U OF TX AUSTIN [265]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
261	TRIGA (STD) U OF UTAH [261]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
263	TRIGA (STD) U OF WI [263]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
268	TRIGA (STD) WSU [268]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
237	TRIGA PENN STATE [237]	13	13	UNIV	INEL	TBD						TBD	1	W	7	3;7	TBD
145	UMRR (HEU) [145]	5	3	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
146	UMRR (LEU) [146]	5	4	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
272	UNIV OF FLORIDA (ARGONAUT) [272]	6	6	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
273	UNIV OF FLORIDA (MTR-SI) [273]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
275	UNIV OF MASS-LOWELL (MTR) [275]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
274	UNIV OF MASS-LOWELL [274]	6	6	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
278	UNIV OF MICHIGAN (MTR-SI) [278]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
277	UNIV OF MICHIGAN [277]	6	7	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
280	UNIV OF VIRGINIA [280]	7	8	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
287	WORCESTER POLY INSTITUTE [287]	6	7	UNIV	SRS	TBD						TBD	1	W	7	3;7	TBD
	West Valley																
23	BRP-B [23]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
24	BRP-C [24]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
25	BRP-D1 [25]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
26	BRP-D2 [26]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
27	BRP-E [27]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
28	BRP-EG [28]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
29	BRP-EP [29]	11	10	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
30	BRP-F [30]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD
182	ROBERT E. GINNA [182]	4	5	WVDP	INEL	TBD						TBD	1	W	7	3;7	TBD

DOE SNF Categories for Total System Performance Assessment (TSPA) and Criticality Analyses



Appendix B

Preparation of Data Package

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Preparation of Data Package

The Repository Data Package is the collection of data, files, drawings, calculations, etc. that verify compliance with RW requirements for acceptance of DOE-SNF into the repository.

The Spent Nuclear Fuel Data Sheet, shown in Attachment B.1, is the primary collection form for the required fuel data. Additional files, tables, drawings, etc. support the information in the Fuel Data Sheet.

Specific instructions for completing the data collection form are provided in Attachment B.2.

All of the information required in the Repository Data Package is placed on a CD-ROM for transmittal to the repository. An example of a completed CD-ROM is presented in Attachment B.3.

Attachment B.1

DOE SNF DATA COLLECTION FORM

1. SITE INFORMATION

Complete the following information for the site making the shipment.

1.1 Site Name .....

1.2 Site Location .....

.....

City _____ State .....

Zip Code _____ County .....

1.3 Person who may be contacted to verify information provided on this form

Name .....

Title .....

Mailing Address .....

.....

.....

Telephone Number _____ Fax Number .....

E-mail .....

1.4 Most likely shipping mode from this site (truck, rail, heavy-haul) .....

1.5 Is it your intent to ship any spent fuel from this facility that has NOT been placed in a sealed, multi-element canister? Yes _____ No _____

If yes, estimate the total number of assemblies/items .....

1.6 Provide the following transportation cask receiving and handling capability information:

Maximum dimensions acceptable (diameter and length, m) .....

Maximum weight acceptable (tons) .....

Special considerations .....

.....

.....

.....

2. DESCRIPTION OF SPENT FUEL

Describe the characteristics of the SNF type. All characteristics must be identical for all SNF described on this form.

2.1 Number of assemblies/items being described .....

2.2 Type of SNF assembly/item .....

2.3 Fuel compound (UO_2, U-metal, etc.) .....

2.4 Clad material (Zr, SS, etc.) and condition .....

2.5 Fuel rod pre-pressurization (Pa) .....

2.6 Initial enrichment (%, with tolerance) .....

2.7 Attach a detailed drawing of the assembly/item. If a drawing is not available, complete the following information:

Fuel meat mass (kg) .....

Fuel meat volume (m^3) .....

Pre-irradiation fuel dimensions (pellet diameter, clad inner and outer diameter, plate thickness, etc.) (cm) .....

.....

.....

.....

.....

Fuel rod pitch or plate spacing (cm) .....

Array arrangement and fuel rod arrangement in assembly/item .....

.....

.....

Identification and location of control components integral to fuel assembly/item .....

.....

.....

.....

2.8 Any organic or inorganic substances contained in the spent fuel which could radiolytically generate combustible gases

Substance Name	Average g per assembly or item
_____	_____
_____	_____
_____	_____
_____	_____

2.9 Maximum allowable design clad temperature (°C)

2.10 Pre-irradiation isotopics

The average fabricated content of the following isotopes applicable to this fuel type must be reported, in the units indicated:

U-233 (weight % and g) .....

U-234 (g) .....

U-235 (weight % and g) .....

U-238 (g) .....

Total Th (kg) .....

Total U (kg) .....

2.11 Post-irradiation isotopics

The average post-irradiation isotopic content, based upon a qualified isotopic code, must be submitted. If this information is not submitted, then sufficient information must be submitted to allow OCRWM to run such a code, including the operating history and a qualified cross-section data set. Report isotopic content in grams. The following isotopes must be reported in the units indicated: Total Th (kg), total U (kg), total Pu (g), Pu-238 (weight %), Pu-239 (weight % and g), Pu-240 (weight %), Pu-241 (weight % and g), U-232 (ppm), U-233 (weight % and g), U-235 (weight % and g).

2.12 Complete the attached table, AAssembly/Item Information≅ for each assembly/item intended for delivery.

3. CANISTER DATA

Complete the following information for the sealed, multi-element canisters (as defined in Item 1.5, above) that you intend to deliver to OCRWM. These canisters must be certified for transportation to be accepted.

3.1 If the canister being described contains non-fuel components, complete the following:

Density of waste (%) .....

Mass of waste (kg) .....

Volume of waste (m^3) .....

3.2 Concentration of neutron absorbers (g/m^3) .....

Total mass of neutron absorbers (g) .....

3.3 Known canister failure modes (under expected repository conditions) .....

.....

.....

3.4 Attach any previous analysis of radionuclide particle release under accident conditions.

3.5 Attach any previously completed shielding analysis for this canister design.

3.6 Total radionuclide source term for package (Ci) .....

3.7 Fission gases

Concentration (Ci/MTHM) .....

Total (Ci) .....

3.8 Fission product particulates

Concentration (Ci/MTHM) .....

Total (Ci) .....

3.9 Free liquid content of canister (g) .....

Additional free liquid sealed within canister (see instructions) (g) .....

ASSEMBLY/ITEM INFORMATION

Assembly/Item ID Number	Pre-Irradiation Heavy Metal Content (MTIHM)	Post-Irradiation Heavy Metal Content (MTHM)	Final Discharge Burnup (MWDt/MTHM)	Date of Last Irradiation	General Condition of the Assembly/Item

Attachment B.2

INSTRUCTIONS FOR COMPLETING DOE SNF DATA COLLECTION FORM

1. SITE INFORMATION

This information must be completed for the waste that is described elsewhere on the form. Complete the information for the site making the shipment.

1.1 Enter the site name.

1.2 Enter the complete site location. Do not enter mailbox or postal delivery locations; enter the physical address of the site making the shipment.

1.3 Enter the information for the individual who will act as the contact point for the information on this form.

1.4 Enter the most likely mode that will be used to ship material from this site.

1.5 The purpose of this item is to give you the opportunity to indicate if you intend to ship any Abare≅ spent fuel. Different arrangements must be made for the shipment of such material. The term Amulti-element canister≅ is used here to indicate a large container that you will seal at your site and which will be placed one-at-a-time in a transportation cask. Enter AYes≅ if you intend to ship spent fuel (whatever its configuration or condition) to OCRWM that has NOT been placed in such a canister. If you answer yes, indicate the estimated total number of assemblies or items you will deliver.

1.6 Describe the interfaces for transportation casks at your facility. Indicate the maximum dimensions that can be accommodated (be sure to consider the entire cask travel path), the maximum weight that can be accommodated at your facility, and describe any special considerations that should be made in the design of a transportation cask to service your facility (including necessary equipment and operating restrictions).

2. DESCRIPTION OF SPENT FUEL

This section describes the general characteristics of the material identified on this form. All of these characteristics must be the same for all of the material identified; if there are differences, a separate form should be filled out for each category of spent fuel.

2.1 Enter the total number of assemblies/items that are being described by the form.

2.2 Enter the general type of spent fuel (e.g., TRIGA, plate, N-reactor, etc.).

2.3 Enter the fabricated fuel compound.

2.4 Enter the clad material for the fuel as fabricated, and describe the current condition of the cladding (e.g., intact, minimal pinhole leaks, more than 50% degraded, etc.).

2.5 Indicate the fabricated rod pre-pressurization, if applicable.

2.6 Enter the fabricated enrichment for the fuel in percent. Also indicate the allowed tolerance for the enrichment.

2.7 Attach a detailed drawing of the fuel type being described. Complete the additional information in item 2.6 ONLY if a drawing is not available. If a drawing for the fuel type has been previously submitted, it is not necessary to submit an additional drawing.

Fuel meat mass: Enter the average kgs of fuel meat in each assembly or item

Fuel meat volume: Enter the average m^3 of fuel meat in each assembly or item. Do not include any voids. Repository designers must combine this information with the pre-irradiation fuel dimensions to determine the maximum volume of water that can theoretically be introduced into the SNF after placement in the repository.

Pre-irradiation fuel dimensions: Enter all pertinent dimensions for the fuel type as fabricated.

Fuel rod pitch or plate spacing: Enter the pitch for rod-type fuels or the plate spacing for plate fuels.

Array arrangement and fuel rod arrangement in the assembly/item: Enter the fabricated arrangement of fuel rods as well as the arrangement of assemblies within the array for

assembly-type fuels. If a non-assembly type fuel is being described, describe the arrangement of the items within the core.

Identification and location of control components integral to the fuel assembly/item: Describe any control components that will be delivered with the assembly/item.

2.8 Enter the name and individual average gram content of any organic or inorganic substances contained with the SNF that could theoretically degrade or react radiolytically to produce combustible gases.

2.9 Enter the maximum clad temperature allowed by the design of the fabricated fuel.

2.10 Enter the average fabricated isotopic content for the following isotopes, if applicable, in the units indicated: Uranium-233 and -235 (weight % and g), Uranium-234 and -238 (g), and total Thorium and Uranium content (kg).

2.11 Submit the results of a post-irradiation isotopic code run for the spent fuel described on this form. If this information is not submitted, sufficient information must be submitted to allow OCRWM to run an appropriate isotopic code, including the operating history and a qualified cross-section data set. All isotopic content should be reported in grams, except for the following isotopes, which must be reported in the indicated units: Total Thorium (kg), Total Uranium (kg), Total Plutonium (g), Plutonium-238 and -240 (weight %), Plutonium-239 and -241 (weight % and g), Uranium-232 (parts per million), Uranium-233 and -235 (weight % and g).

2.12 Enter the specific information requested for each individual assembly or item intended for delivery:

Assembly ID Number: Indicate the unique number assigned to this assembly/item at the time of fabrication. If no such number was assigned, indicated this and an identification system will be established. Each individual assembly/item will be required to have some unique identification to be accepted.

Pre-Irradiation Heavy Metal Content: Enter the average metric tons of initial heavy metal for this SNF type.

Post-Irradiation Heavy Metal Content: Enter the average metric tons of heavy metal for this SNF type as discharged following irradiation.

Final Discharge Burnup: Enter the final burnup for this assembly/item.

Date of Last Irradiation: Indicate the date that the last cycle in which this assembly/item was irradiated went subcritical.

Condition of Assembly: Indicate the general condition of the assembly, especially noting any features which may affect the operation of the repository (severely bent, no grappling hook, encapsulated, etc.)

3. CANISTER DATA

Complete the following information for the sealed, multi-element canister (as described in item 1.5, above) that will be delivered to OCRWM at the time of acceptance. All canisters MUST be certified for transportation to be accepted. If such certification does not exist, the material will require repackaging into a transportable canister prior to acceptance.

3.1 Complete the following only if the material contained in the canister is non-fuel:

Density of waste: Indicate the volume density in percent for waste within the canister to allow for theoretical calculations of the volume of water that could be contained within the canister if a leak were to occur (e.g., 90% of the contained volume is waste).

Mass of waste: Indicate the total kg of waste contained in the canister.

Volume of waste: Indicate the total m^3 of waste within the canister.

3.2 Enter the concentration (g/m^3) and total mass (g) of neutron absorbers contained in the canister.

3.3 Describe the known canister failure modes under expected repository conditions, based upon any applicable safety analysis completed for the canister design.

3.4 If a safety analysis was previously completed for this cask design regarding the expected particulate release in an accident, please attach this analysis.

3.5 If a shielding analysis was previously completed for this canister design, please attach this analysis.

3.6 Indicate the total package radionuclide source term, including fuel, non-fuel components and any contamination in curies.

3.7 Enter the concentration (Ci/MTHM) and total curies of fission gases contained within the canister.

3.8 Enter the concentration (Ci/MTHM) and total curies of fission product particulates contained within the canister.

3.9 Enter the maximum grams of free liquid contained within the sealed canister. If the canister contains smaller, sealed cans which also contain free liquid, enter the total maximum grams of free liquid sealed within these fuel assembly(ies)/item(s) under Aadditional free liquid sealed within canister.≅

Attachment B.3

1. CD-ROM VIEWER

1.1 Before you can run/install the NSNF CD Viewer you will need the following:

1) Windows 95 or Windows NT 4.0

2) CD Drive

3) An application to view Microsoft Word documents such as WORD or WORD VIEWER. A copy or WORD VIEWER is provided on this CD and can be installed from within the application.

4) An application to view Microsoft Excel spreadsheets such as EXCEL or EXCEL VIEWER. A copy of EXCEL VIEWER is provided on this CD and can be installed from within the application.

1.2 National Spent Nuclear Fuel Program CD Viewer Installation

To install and run this demonstration simply perform the tasks that follows:

1) Insert the NSNFP CD into your CD drive.

2) Press the Windows Start button

3) Select RUN from the Menu

4) Press the browse button on the RUN form.

5) Double Click the CD drive that contains the NSNFP CD.

6) Double Click the SETUP.EXE program.

7) Press the OK button on the RUN form.

8) Press NEXT.Press FINISH.

1.3 How to run the Viewer:

1) Place the NSNFP CD into your CD drive.

2) Press the Windows Start Button

3) NSNF CD Viewer should appear as a selection on the menu. Select it.

4) Table of Contents screen should come up.

5) If you require either the WORD viewer or the EXCEL viewer: click the **Add-Ins** menu selection, select the software required, and follow the install instructions.

1.4 How to remove the NSNF CD Viewer from your system

1) Click on the Windows START button

2) Select SETTINGS from the MENU

3) Select CONROL PANEL from the SUBMENU

4) Double click the ADD/REMOVE PROGRAMS icon

5) From the list on the ADD/REMOVE Program Properties form select NSNF CD Viewer

6) Press the Add/Remove button on “Add/Remove Programs Properties” panel

7) Press yes on the “Confirm File Deletion” panel

8) Press the OK button on “Remove Programs from your Computer” panel

9) Press the OK button on “Add/Remove Programs Properties” panel

10) **NOTE**: If you installed either the WORD viewer or the EXCEL viewer you will need to remove them separately from the NSNF CD Viewer.