Appendix B

History of Processing
For the
Experimental Breeder Reactor II at the INL

This page intentionally left blank.

EBR-II SNF Reprocessing

1965-1969 – Pyroprocessing I Demonstration. During the period 1965-1969, DOE successfully reprocessed approximately 35,000 EBR-II metallic fuel pins via pyroprocessing[1] at the Fuel Cycle Facility (FCF) located at the Materials and Fuels Complex (MFC).[2]

1977-1988 – Reprocessing at INTEC. Driver elements were sent to the Idaho Nuclear Technology and Engineering Center (INTEC)[3] for reprocessing via the **P**lutonium **U**ranium **R**edox **EX**traction (PUREX)[4] process.[5] During this period approximately 6.6 tons of fuel were processed.[6]

When DOE stopped processing at INTEC in 1992, elements from some 500 EBR-II SNF driver assemblies[7] (about 3,600 bottles)[8] remained in two wet storage facilities at INTEC. They were the Underwater Fuel Receiving and Storage Building (CPP-603) and the Fluorinel Dissolution Process and Fuel Storage Facility (CPP-666). That SNF has since been consolidated at the CPP-666.

1988-1994 – IFR Refurbishment. The Fuel Conditioning Facility (FCF) located at the MFC underwent refurbishment to prepare for the (IFR) pyroprocessing demonstration.[9]

October 1994 – IFR program cancelled. Congress acceded to the incumbent Administration's wishes and ordered that the project be terminated on October 1, 1994.[10]

September 1994 – DOE Requests NRC Review. DOE's Office of Nuclear Energy (NE)[11] asked the National Research Council (NRC) to form a committee to undertake a technical evaluation of the electrometallurgical processing technology [subsequently known as electrometallurgical treatment (EMT)] proposed by Argonne National Laboratory (ANL)[12] as a potential approach for treating DOE spent nuclear fuel (SNF) for disposal purposes.[13]

---

[1] PNE, 1997d; p.5.
[2] Formerly known as the Argonne National Laboratory-West (ANL-W).
[3] Formerly known as the Idaho Chemical Processing Plant (ICPP).
[4] A liquid-liquid extraction ion-exchange method used to reprocess spent nuclear fuel in order to extract primarily uranium and plutonium, independently of each other, from the other constituents.
[5] BEA 2013; p.1; and DOE, 1996; p.5.
[6] DOE, 1996; p.19.
[7] DOE, 1996; p.19.
[8] BEA 2013; p.1.
[9] PNE, 1997b; p.156.
[10] PNE, 1997b; p.155.
[11] Then known as the Office of Nuclear Energy, Science and Technology.
[12] The contract manager for the facility then known as Argonne National Laboratory-West (ANL-W), and now known as the Materials and Fuels Complex (MFC).
[13] NRC, 1995; p.1.

ANL's proposal asserted that EMT would: 1) produce a uniform waste; 2) remove enriched uranium and transuranics thereby reducing criticality concerns; and 3) reduce costs for interim storage and disposal.[14]

February 1995 – NRC Technology Assessment-Interim Report. In response to DOE's request, the NRC assembled the *Committee on Electrometallurgical Techniques for DOE Spent Nuclear Fuel Treatment*, and it chose to answer its charge in a phased manner. The *initial*, or interim report on technology assessment, responding to the question posed in the first task ("Do electrometallurgical techniques represent a potentially viable technology for DOE spent fuel treatment that warrants further research and development?"), concluded that:

> The technology of electrometallurgical processing appeared sufficiently promising for treating a variety of DOE spent fuels and that continued R&D would be warranted in federal FY96.[15]

1995[16] **– NRC Technology Assessment-Final Report.** In the *final* report on technology assessment, the committee responded to the second task to prepare an in depth evaluation of "the advantages and disadvantages of continued R&D into electrometallurgical processing as a candidate technology for disposition of DOE spent nuclear fuel," and to include consideration of "technical feasibility, cost-effectiveness, suitability of the metallic waste form for long-term storage or geological disposal, and nonproliferation implications."[17]

The committee evaluated EMT against other candidate treatment technologies and with the various DOE fuel types against the enumerated parameters. They provided a list of advantages and disadvantages in employing EMT, and recommended that:[18]

> ANL should proceed with its development plan in support of the EBR-II demonstration.

And,

> If the EBR-II demonstration is not accomplished successfully, the ANL program on electrometallurgical processing should be terminated. On the other hand, if the EBR-II demonstration is successful, the DOE should revisit the ANL program at that time in the context of a larger, "global" waste management plan to make a determination for possible continuance.

The report also proposed criteria for successful process demonstration should DOE decide to move forward with this proposal.[19]

---

[14] NRC, 1995; pp.A-5 & A-6.
[15] NRC, 1995; p.A-1 & A-2.
[16] The publication month was not provided, however, the final committee meeting concluded on April 28, 1995.
[17] NRC, 1995; p.1.
[18] NRC, 1995; p.38.
[19] NRC, 1995; pp. 34-35.

November 1995 – DOE SNF Program Plans. With the establishment of DOE's Office of Spent Fuel Management (EM-67) in 1994, a series of program documents were developed to describe program needs, requirements, objectives and strategies. Among them was the SNF Program Plan. In the section devoted to disposal, it asserts that management of certain fuels will be problematic:[20]

> The detailed acceptance criteria for the DOE SNF for disposal in the first repository have not yet been established; however, the first repository will not accept RCRA-regulated waste. Some DOE-owned SNF exhibits RCRA characteristics and should this SNF be deemed unacceptable for emplacement in its current condition, the DOE SNF Program will establish a path forward for ultimate disposition.

This potential problem was also acknowledged in the SNF Interim Storage Plan.[21]

May 1996 – EA and FONSI. DOE-NE prepared an Environmental Assessment (EA) under the National Environment Policy Act (NEPA)[22] for the evaluation of environmental impacts for a proposed action, commensurate with NRC recommendations,[23] to conduct a research and demonstration project involving electrometallurgical processing of up to 100 EBR-II driver assemblies and 25 blanket assemblies in the FCF at ANL-W. This process methodology would be technologically advanced over the demonstration conducted during the period 1965-1969.

In this document, DOE argued that:

1) EBR-II SNF might be unsuitable for direct disposal due to the reactivity of the sodium contained within the fuel;
2) Treatment to passivate the sodium may therefore be required; and
3) EMT may be a suitable treatment technology to achieve that end.

During this process, including the publication of a draft EA, DOE accepted and responded to public comments. DOE then published simultaneously the final EA and a determination in a Finding of No Significant Impact (FONSI) in which it determined that the Proposed Action did not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the NEPA, and further decided to proceed with the proposed demonstration.[24]

March 1997 – Technical Task Team Report on INL Managed SNF. In June 1996, DOE's Office of Spent Fuel Management assembled a group of specialists in SNF matters, from across the DOE complex and within industry, to evaluate and "develop a technical strategy for INL SNF, including stabilization (as required), near term storage, packaging, transport and ultimate disposal."[25]

---

[20] DOE, 1995; p.6.
[21] DOE, 1995a; p.6.
[22] The National Environmental Policy Act (NEPA) [42 U.S.C. 4321 et seq.], signed into law on January 1, 1970.
[23] NRC, 1995; p.38.
[24] DOE, 1996 and DOE, 1996a.
[25] DOE, 1997; p.i.

Among its conclusions, the report asserts that: "It is the DOE interpretation of 10 CFR 60 that these fuels [sodium-bonded fuels] will not be allowed into the repository until the metallic sodium is removed."[26] And, as a result, issued the finding that: "Sodium-bonded fuels are not considered suitable for repository disposal and therefore must be treated."[27]

December 1997 – RCRA Characteristics of DOE SNF. DOE-EM issued an evaluation and determination regarding the applicability of RCRA to eight conditions of fuel fabrication. The report concluded:[28]

> Of the eight conditions, all but one are considered resolved and require no further action. The remaining concern on sodium bonded fuels require further evaluation and analysis to determine whether they would be subject to regulation as a RCRA hazardous waste should they be determined to be a waste.

The report added that:

> Process knowledge supporting the possibility that the sodium bonded spent fuels exhibit the RCRA characteristic of reactivity is simply the reactive nature of sodium metal in water.

And, that:

> Process knowledge supporting the contention that the sodium bonded fuels do not exhibit the RCRA characteristic of reactivity due to the presence of sodium within the fuel includes:[29]
>
> - The subject spent fuels have been stored under water for many years without exhibiting the RCRA reactivity characteristic; and
> - Sodium bonded fuels in which the canister has been significantly breached did not violently self-destruct, although bubbling was observed.

The first two citations indicate that sodium-bonded fuels, at the least, require further evaluation. The last citation indicates that severe reactivity has not been demonstrated.

September 1998 – SNF Disposal Guidance. In 1998 DOE-EM issued its first attempt to define the likely requirements for disposal of DOE-owned SNF.[30] From the Office of Civilian Radioactive Waste Management (RW) requirements document, regarding reactive fuel materials, DOE-EM cited the following requirement:[31]

---

[26] DOE, 1997; p.37.
[27] DOE, 1997; p.3.
[28] DOE, 1997a; p.iii.
[29] DOE, 1997a; p.4-2.
[30] DOE, 1998b; p.30.
[31] DOE, 1998a.

3.6.1.3.5.D Confinement

1. The HLW and/or DOE SNF shall not contain or generate materials that are explosive, pyrophoric, or chemically reactive (in the repository environment) in a form or amount that could compromise the repository's ability to perform its waste isolation function in or satisfy its performance objectives.

From this, one can conclude that sodium-bonded fuels *may be* a fuel type of concern. Then from the RW disposability interface specification document, DOE-EM cited the following requirement:[32]

> Disposability Standard: Canistered SNF accepted into the MGR shall not ignite spontaneously in air at or below temperatures of 400 ^{0}C, at pressures of 1-5 atm, and at or above a relative humidity of 5 percent (To be verified). Trace quantities of pyrophoric material whose ignition can be shown to have no quantifiable effect on the pressure-temperature environment immediately adjacent to the assembly are exempt from this standard.

From this one can conclude that the subject fuel, packaged correctly, *may not be* of concern.

June 1996 through August 1999 – Pyroprocessing II Demonstration. During the period 1996-1999, DOE executed the demonstration proposed in its EA and FONSI of 1996. One hundred EBR-II driver and 13 EBR-II blanket assemblies were treated via pyroprocessing. The number selected was determined to be an adequate and representative quantity of sodium-bonded fuel for the demonstration. The development of waste forms for stabilizing the fission products and transuranics was part of the demonstration.

During the project period, ANL prepared a series of 15 technical topical reports detailing the requirements for equipment design and product disposition; evolution of the process, waste forms, and technical development for equipment and components. The collected reports and a summary document were made available to the NRC review committee detailing how the demonstration met the four major criteria and associated goals established by the committee.[33] In the summary report, ANL concluded that "all criteria were successfully met," and that

> The EBR-II Spent Nuclear Fuel Demonstration Project has established electrometallurgical technology as a viable option for treatment of DOE's 60 metric tons of sodium-bonded spent nuclear fuel.[34]

An additional five blanket assemblies (18 total) were subsequently processed after the completion of the formal demonstration. These assemblies were treated to minimize

[32] DOE, 1998.
[33] ANL, 1999; pp. xi, 1-14.
[34] ANL, 1999; pp. 62.

technical uncertainty while the formal demonstration evaluation was being completed by the NRC committee.[35]

2000 – NRC Technology Demonstration Review-Final Report. After issuance of its two reports on the potential of the technology, the committee continued, at the request of DOE, to monitor and evaluate the maturation of the pyroprocessing technology through completion of the demonstration project. It would issue another eight reports culminating in the tenth overall and final report.

Among its conclusions, the final report from the NRC committee regarding DOE's pyroprocessing demonstration noted the following:[36]

- The committee finds that ANL has met all of the criteria[37]developed for judging the success of its electrometallurgical demonstration project.
- The committee finds no technical barriers to the use of electrometallurgical technology to process the remainder of the EBR-II fuel.

July 2000 – Final EIS for the Treatment and Management of Sodium-Bonded SNF. DOE-NE prepared a NEPA evaluation of environmental impacts for a proposed action, a project, to treat and manage certain sodium-bonded fuels (approximately 25 MTHM) to facilitate their ultimate disposal in a geologic repository.

In this document, DOE asserts that:[38]

1) Sodium-bonded fuel, particularly that from EBR-II, is problematic because it contains sodium metal (a highly reactive material), metallic uranium and plutonium (a potentially reactive material), and is, therefore, a risk for long term management including storage and disposal;
2) The preliminary waste acceptance criteria for the repository[39] are intended to be conservative to allow for uncertainties, and therefore, might not permit untreated fuel of this type within the repository; and
3) The programmatic risk, the uncertainty of acceptability of the subject fuel within the repository, is best addressed by treatment of the sodium-bonded fuel.

During the preparation of this report, DOE evaluated the several sodium-bonded fuel types, seven fuel management and treatment technologies (including the "No Action" or no treatment option), and management or treatment at multiple site and facilities within those sites. From these considerations, six alternatives were considered.

The preferred alternative was EMT at the MFC facilities at the INL for all sodium-bonded fuel types (EBR-II driver and blanket, FFTF, and miscellaneous SNL mixed oxides) except for the Fermi-1 fuel (for which a determination was deferred).[40]

---

[35] ANL, 2000; p.2.
[36] NRC, 2000; p.9.
[37] Criteria prepared by the NRC in its Technology Assessment Report of 1995 (NRC, 1995; pp. 71-76.).
[38] DOE, 2000; p.1-1 – 1-3.
[39] DOE 1999.

September 2000 – SNF Treatment ROD. Two months following the release of the final EIS, DOE-NE published its Record of Decision (ROD) for the preceding EIS.

In this document, DOE states that:[41]

> DOE has decided to implement the preferred alternative identified in the final EIS. That is, DOE has decided to electrometallurgically treat the Experimental Breeder Reactor-II (EBR–II) spent nuclear fuel (about 25 metric tons of heavy metal) and miscellaneous small lots of sodium-bonded spent nuclear fuel. The fuel will be treated at Argonne National Laboratory-West (ANL–W). Because of the different physical characteristics of the Fermi-1 sodium-bonded blanket spent nuclear fuel (about 34 metric tons of heavy metal), DOE has decided to continue to store this material while alternative treatments are evaluated. Should no alternative prove more cost effective for this spent nuclear fuel, electrometallurgical treatment (EMT) of the Fermi-1 spent nuclear fuel remains a key option.

September 2000 – Program Implementation Plan. In response to DOE's ROD, the ANL prepared an Implementation Plan to execute the mission described in the EIS (the Spent Fuel Treatment Program), i.e., to treat the remaining EBR-II and FFTF fuels and recover the uranium for interim storage. Also, the fission products and transuranic elements from this fuel type and the previously treated demonstration fuel would be placed in waste forms suitable for geologic disposal. Table A.1 details these fuel quantities and the then storage locations. The miscellaneous sodium bonded fuels category is not included.[42]

Table A.1 – Sodium-bonded fuel included in spent fuel treatment activities

Fuel Type	EBR-II Driver at ANL-W (kg HM)	EBR-II Driver at INTEC (kg HM)	EBR-II Blanket at ANL-W (kg HM)	FFTF Fuel at ANL-W (kg HM)	Total Fuel (kg HM)
Driver Fuel	700	2,000	-	250	**2,950**
Blanket Fuel	-	-	21,800	-	**21,800**
Total	**700**	**2,000**	**21,800**	**250**	**24,750**

The Implementation Plan described the management organization, scope, assumptions and risks, costs, schedules, project reporting and change control processes, and environmental and safety issues. The total cost was estimated to be $435 million without contingency and $537 million with contingency.[43] The scheduled project completion date was September 2011. Success would require a significant amount of procedural,

---

[40] DOE, 2000; Chapter 2.
[41] DOE, 2000a; p.56565.
[42] ANL, 2000; p.3, 11.
[43] As the cost estimate did not speak to escalation, the total cost estimate is assumed to be in constant FY2000 dollars.

equipment and facility improvements sufficient to increase the process throughput from 2,200 kg/yr to 5,000 kg/yr. [44]

March 2001 – DOE Report to Congress. In response to a request from the House Committee on Appropriations, DOE-NE prepared a report describing the waste forms that will be produced from the treatment of 25 MTHM of sodium-bonded fuel. The data are presented in Table A.2.

Table A.2 – Disposition Paths for EMT Wastes and Uranium[45]

High-Level Wastes	**Waste Volumes (m^3)**	**Waste Mass (MT)**	**Final Disposition Path**
Metal Waste Form	3.8	5.85	Geological disposal in a HLW repository
Ceramic Waste Form	33	51	Geological disposal in a HLW repository
Secondary Wastes	**Waste Volumes (m^3)**	**Waste Mass (MT)**	**Final Disposition Path**
Low-Level Wastes	300	62	Radioactive Waste Management Complex (RWMC)
Transuranic Wastes	5	2.3	Waste Isolation Pilot Plant (WIPP)
Mixed-Transuranic Wastes	15	8.2	WIPP/RWMC/ Commercial Facility
Sanitary Wastes	2,150	750	INEEL Landfill
Uranium	**Disposal Volume* (m^3)**	**Mass (MT)**	**Final Disposition Option****
Low-enriched uranium from driver treatment	162	280	Downblended and disposed as LLW
Depleted uranium from blanket treatment	55	22	Dispose as transuranic waste at WIPP

Table Notes:

* These volumes include all packaging material for disposal of the uranium. They are not the same as the storage volumes noted elsewhere in the report.

** Process improvements are being pursued to allow for the potential use of the uranium as off-specification nuclear fuel.

The report included a schedule (treatment completion by 2013) and cost estimate (total life cycle cost estimate of $423M).

[44] ANL, 2000; p.1, 10.
[45] DOE, 2001; p.21, Table 3.

FY 2003 – Advanced Fuel Cycle Initiative. In FY2003, MFC fuel treatment operations were combined with the Advanced Accelerator Applications Program to form the Advanced Fuel Cycle Initiative (AFCI). At that point, the focus of operations was directed to change from treatment to research and development on the pyrochemical fuel cycle.[46]

October 2003 – DOE Report to Congress. In response to a request from the House of Representatives' Appropriations Subcommittee on Energy and Water Development (House Report 107-681), DOE-NE prepared a report affirming DOE's commitment to meet the terms of the Idaho Settlement Agreement regarding SNF and how sodium-bonded SNF would be managed, employing EMT for driver and perhaps other technologies for EBR-II blanket SNF, and that significant cost and schedule benefits could be achieved through the AFCI program. The report included a schedule and cost estimate.[47]

March 2006 – DOE Report to Congress. In response to Congressional direction included in the Energy and Water Development Appropriations Act for FY 2006, DOE-NE prepared a report answering the following requirement:

> The Committee directs the Department to undertake a study to evaluate and propose a disposal solution for the entire 62 tons of sodium-bonded spent nuclear fuel (SNF) and to consider what minimal amount of fuel is needed for future experiments under the Advanced Fuel Cycle Initiative (AFCI).[48]

This report: 1) again affirms DOE's commitment to meeting the terms of the Idaho Settlement Agreement regarding SNF, 2) proposes preferred methods for sodium-bonded SNF treatment and management, and 3) specifies the amount of SNF necessary to carry out needed testing.[49]

For the first time, NE proposes that certain fuels (Fermi-1 blanket and FFTF SNF) may best be dispositioned by direct disposal without treatment, depending on whether the fuel can be shown to not be regulated under the Resource Conservation and Recovery Act (RCRA). No process is proposed for making that determination. The report does not discuss a schedule, but does provide a cost estimate.[50]

[46] BEA, 2007; p.ii.
[47] DOE, 2003; p. 1, 8-9.
[48] DOE, 2006; p.1.
[49] DOE, 2006; p.8-10.
[50] DOE, 2006; p.iv.

January 2007 – Options Evaluation and Strategy for Implementation of Recommended SNF Management Path Forward.

In response to a contractual requirement,[51] that INL investigate "More cost effective alternatives to current treatment methods of EBR-II and other sodium bearing fuel prior to ultimate disposal," the NE contractor prepared two reports for NE : 1) an options analysis with a recommended path forward and, 2) a strategy for implementation of the recommendation for managing NE-owned sodium-bonded SNF.

The options analysis reminds the reader of the program consolidation that took place in 2003, and notes that since this programmatic change, funding for treatment of EBR-II and process testing has decreased from $22.3M in FY2003 to $7.5M under a continuing resolution in FY2007.[52]

Specifically, the options analysis report stated:[53]

> Based on this previous work, the recommendation of INL is to complete treatment of EBR-II fuel and treat FFTF fuel by pyroprocessing. Treatment of EBR-II blanket fuel by MEDEC is feasible, but does not offer any significant advantages. The plan put forward allows for fuel to be treated in a timely manner while also completing the demonstrations of the pyrochemical fuel cycle. Transuranics would be recovered for recycle instead of disposal. Treatment of driver fuel along with additional R&D would be completed in FY2014, and EBR-II blanket treatment would continue for an additional seven years. Final production of high-level waste would take an additional three years. The estimated total cost to completion for treatment of the EBR-II fuel, including R&D and waste disposal, is approximately $362.6 million in unescalated 2005 dollars. The cost for FFTF fuel receipt, storage, and treatment is an additional $50 million and is assumed to be provided by DOE-EM.

The implementation strategy outlined the ten alternatives analyzed, selected a modified form of one of them, presented four recommendations and seven actions required to complete the recommendations and thereby enabling implementation of the selected option.[54] The options analysis discusses both schedule and costs.

Both reports note that DOE is interested in direct disposal as an alternative for both FFTF fuel and Fermi-1, but neither report recommends that management option. Both reports, rather, note that planning has, in fact, begun for EMT processing of FFTF SNF at MFC and that treatment of Fermi-1 blanket SNF is outside the purview of MFC planning scope.

[51] The FY 2007 Performance Evaluation Measurement Plan (PEMP) for Idaho National Laboratory.
[52] BEA, 2007; p.ii.
[53] BEA, 2007; p.ii.
[54] BEA, 2007a; pp.ES-1, 3-5.

March 2008 – Repository Waste Acceptance Criteria. In DOE-RW's final waste acceptance criteria document, prior to the program's demise,[55] sodium-bonded fuels are not prohibited.[56]

> At this time, there is no numeric limit on the amount of pyrophorics, combustible, explosive, or chemically reactive materials allowed in Government Managed Nuclear Materials. However, RW must ensure, through information and data provided by the Federal Waste Custodians of HLW and SNF that the waste form does not cause the repository or transportation system to fail to meet the applicable NRC performance-based requirements or any conditions of an operating license or certificate of compliance.

1996 – 2013 Treatment of Sodium-Bonded SNF

During the Demonstration Project within the period 1996-1999, 100 driver assemblies (410kg HM) and 13 blanket assemblies (617 kg HM) of EBR-II SNF located at MFC were treated.

During subsequent additional demonstration testing within the period of 1999-2000, five blanket assemblies of EBR-II SNF located at MFC were treated.

During the Spent Fuel Treatment Project within the period 2000-2013, approximately 102.4 driver assemblies (420 kg HM) and approximately 58.4 blanket assemblies (2,773 kg HM) of EBR-II SNF located at MFC were treated. In addition, 219 kg HM of FFTF SNF transferred from Hanford were treated. And, in 2013, 15 kg HM of EBR-II driver SNF transferred from INTEC were treated.

The record of treatment is provided in Table A.3.

[55] The Office of Civilian Radioactive Waste Management, established by the NWPA, and its programs was shut down after the Yucca Mountain project was defunded in 2010. (Nuclear Waste Policy Act of 1982. 96 *Statutes at large* 2201, 42 *U.S. Code* 10101 *et seq*.)
[56] DOE, 2008; p.16.

Table A.3 – INL Pyroprocessing of Sodium-Bonded SNF (kgHM)[1]

Testing Period	Fiscal Year	EBR-II Driver MFC	EBR-II Blanket MFC	FFTF	EBR-II Driver INTEC
Start Amount[2]		1,100	22,400	250	2,000
Demonstration Project	1996	16	-	-	-
	1997	124	-	-	-
	1998	156	17	-	-
	1999 [3]	114	600	-	-
Subtotal	**Treated**	**410**	**617**		
Additional Demonstration Testing	1999 [4]		48		
	2000 [5]	-	190	-	-
Subtotal	**Treated**	**-**	**238**		
SNF Treatment Project	2000 [6]	-	25		
	2001	-	575	-	-
	2002	50	563	-	-
	2003	26	453	-	-
	2004	141	18	-	-
	2005	96	16	-	-
	2006	103	14	-	-
	2007	4	62	-	-
	2008	-	238	-	-
	2009	-	406	-	-
	2010	-	403	10	-
	2011	-	-	209	-
	2012	-	-	-	-
	2013	-	-	-	15
Subtotal	**Treated**	**420**	**2,773**	**219**	**15**
Total	**Treated**	**830**	**3,628**	**219**	**15**
Remaining	**Untreated**	**270**	**18,772**	**31**	**1,985**

Table Notes:

1. Ref: FCF Mass Tracking (MTG) Database accessed by GG Galbreth 10/25/2013.
2. Ref: DOE EIS and SFT Implementation Plan (kgHM includes est. weight of transuranics).
3. The SFT demonstration officially ended in August 1999 after processing a total of 100 driver assemblies and approximately 13 blanket assemblies.
4. SFT development testing using 48 kgHM (i.e., 1 assembly) of blanket material continued in September, resulting in a total of 648 kgHM of blanket processed in FY1999.
5. SFT development testing continued in the 1st quarter of FY2000, resulting in the processing of 190 kgHM (i.e., 4 assemblies) of blanket.
6. SFT project processing began in September, 2000, following DOE EIS ROD, with an additional 25 kgHM of blanket treated in FY2000.