

# Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Idaho**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory**

Project **ID-SNF-102 / Integrated SNF Program**

Report Number: **GEN-01b**

Print Date: **3/10/2000**

HQ ID: **0569**

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## General Project Information

### Project Description Narratives

#### Purpose, Scope, and Technical Approach:

Definition of Scope: Specific Work to be accomplished by the Integrated Spent Nuclear Fuel (SNF) Program, ID-SNF-102 (IDIN0569) includes program planning, program management and support, technology development, and coordination of SNF project activities for the overall spent nuclear fuel management program at the INEEL. The Integrated SNF Program provides program guidance and direction to coordinate and integrate activities of several PBSs including: (1) Emptied SNF Facilities, ID-SNF-103 (IDIN0177) encompassing SNF Facility Operations at INEEL and at the Ft. Saint Vrain Facility near Platteville, Colorado, (2) Constructed New Facilities, ID-SNF-104 (IDIN0178) for TMI-2 Line Item Construction Project, and, (3) Privatized Dry Transfer and Storage Project, ID-SNF-105 (IDIN0448).

Technical Approach: The Integrated SNF Program plan for bringing the multiple PBSs together into a cohesive INEEL program is to provide; (1) centralized identification and definition of work scope and funding including documented plans with an integrated high level schedule, defined requirements, programmatic milestones, and prioritized work scope, (2) centralized and coordinated program management, systems engineering expertise, and subject matter experts for direct support to DOE and INEEL SNF programs and projects, (3) focus for technology development to meet SNF management requirements including treatment and characterization, (4) development, implementation, and maintenance of program-wide Quality Assurance Programs to ensure conformance with, and satisfaction of all SNF receipt, consolidation, and storage requirements including NRC and repository requirements where appropriate, and, (5) facilitate and ensure appropriate independent oversight of all QA Program functions.

The PBS provides support in two major areas:

1. Program Direction and Integration ensures Operations and Project activities are consistent with requirements of the final Repository and the National SNF Program ID-SNF-101 (IDIN0175) and provides requirements for safe and stable interim storage and shipment for final disposal in a repository by January 1, 2035. (a) DOE-ID Managed Activities including provisions for DOE taxes, NEPA EIS support such as the Shipping and Treatment EISs, support for DOE QA oversight of NRC licensed facilities, Treatment costs for DOE SNF, and unit priced payments to the private contractor for operation of the privatized Dry Transfer and Storage Facility, (b) Program Direction and Integration including prioritization and coordination of work activities; maintaining SNF Program Plan documents; interfacing and coordination among other DOE facilities, National SNF activities, Repository requirements, NRC licensing requirements, and other INEEL Programs; and development of the Treatment Program, (c) SNF Project Definition and Support including support to the privatized Dry Transfer and Storage Facility, the Utility Interface Project, and feasibility studies and conceptual designs for future SNF Projects, (d) SNF Independent Performance Assessments and QA Program development and implementation activities to ensure independent QA support and oversight at INEEL SNF facilities, and, (e) Program/Project Management and Support for overall support to INEEL SNF activities.
2. Developed Technologies ensures that SNF conditioning and characterization technology needs are met consistent with requirements of dry interim storage and final disposition. (a) Demonstrated Conditioning Technologies - processes and systems are developed for removing epoxy from fuels, conditioning uranium metal fuels, (b) Demonstrated Storage Technologies - Drying processes and systems are developed for the various fuel types and geometries (e.g. crushed SNF), (c) INEEL SNF Disposition Data - collect, compile, and catalogue SNF data and provide SNF data in appropriate referencable form as needed by end users, and, (d) Demonstrated Characterization Technologies - Develop/refine the MDAS prototype system for

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## **Project Description Narratives**

measuring SNF composition.

### **Project Status in FY 2006:**

1. Completed inputs to Shipping and Treatment (DOE-NE managed) EISs and completed INEEL SNF program input for the first 10-year update to ER and WM EIS.
2. Completed EMT treatment of approximately 20% of FERMI Na-bonded SNF in preparation for packaging for final repository.
3. Completed Utility Interface Project to bring INTEC electrical, water, and other utilities to the new Dry Transfer and Storage Facility.
4. Completed privatized operation of the Dry Transfer and Storage Facility with preparations in 2006 for DOE to take over operation of the facility in 2007.
5. Completed Feasibility Studies and Conceptual Design of the Treatment, Conditioning, and Characterization and Additional Storage Modifications to the Dry Transfer and Storage Facility. Line Item Data Sheet submitted and validated for a FY-2007 LICP.
6. Completed development, demonstration and deployment of drying, dry storage canister monitoring, MDAS, and other technologies to support incorporation into the Treatment, Conditioning, and Characterization and Additional Storage Modifications to the Dry Transfer and Storage Facility.
8. Completed interactions with the DOE-RW repository program on the Site Recommendation Report, the Final EIS, and the NRC License Application on: (1) SNF characteristics, (2) Source Term, (3) Corrosion Data, (4) Standard canister and basket design such that NRC approves license including INEEL SNF in FY-2006.
9. INEEL SNF QA Program, in accordance with DOE/RW-0333P QARD, fully implemented and verified via several years of acceptable Independent Performance Assessments and DOE audits.

### **Post-2006 Project Scope:**

1. NEPA analyses completed as required.
2. Treatment of FERMI Na-bonded SNF and other SNF completed for acceptance at the final repository.
3. Total INEEL SNF inventory certified for shipment to the final repository.
4. Dry Transfer and Storage Facility modified as required to support packaging of INEEL SNF for shipment out of Idaho to the final repository.
5. INEEL SNF facilities construction upgrades conceptual designs provided to support Title design and construction under PBS SNF-103 to ensure safe and effective operations.

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## Project Description Narratives

6. Effective INEEL SNF QA Program maintained to ensure operational surety and acceptance of INEEL SNF at the repository.

### Project End State

The Integrated Spent Nuclear Fuel Program will be completed in FY-2035 following closure of the PBS SNF-103 when the last facility is turned over to Deactivation.

### Cost Baseline Comments:

An escalation factor of 2.7% has been applied to the costs for the years 1999 through 2035. Cost estimates for the FY-1998 submittal were originally developed as part of the EM Integration validation activity (murder board) performed at the INEEL during February and March 1996. Since this effort, work scope has been increased and other work scope has been further defined, resulting in a higher cost estimate than the previous baseline for the years beyond FY-98. Out-year projected costs are an extension of the "murder board" costs considering expected work scope. In FY-1999, Life Cycle Program Plans will be completed and validated and will be the basis for the FY-2002 submittal.

### Safety & Health Hazards:

Risks for the Integrated SNF Program are primarily related to Technology Development and include normal risks associated with development, test, and deployment of hardware. This includes normal electrical, mechanical, and chemical hazards covered by the Integrated Safety Management System which uses a systematic approach for identification and mitigation of hazards. The Integrated Safety Management System applies to hardware development, fabrication, testing, transportation of equipment, installation, operational test, operational use, and on-going maintenance of equipment in operational facilities.

Installation and operation of the equipment in a specific facility may also include a Health and Safety Plan unique to the facility or site with additional hazard identification and mitigation reviews to ensure protection of the equipment, the worker, the facility where the equipment is installed, and the environment including the public.

ES&H reviews of the program planning documents and the detailed technology development detailed plans will be requested of the INTEC Nuclear Operations ES&H personnel for early identification of potential ES&H impacts on SNF management or operations so hazards identification and mitigation activities can be included in planning documents and budgets.

### Safety & Health Work Performance:

The Safety Resources necessary to accomplish the work in this PBS are those related to reviews of planning and budget documents and technology development activities. Reviews will include multiple disciplines including subject matter experts, operations personnel, QA, and ES&H personnel including fire protection, industrial safety and hygiene, radiological, environmental, safeguards, and nuclear safety analysts.

Costs will normally be budgeted by the project responsible for implementation of the capability. For example, resources for S&H reviews of the Utilities Interface Project will be included within the budget of the Utilities Interface Project.

### PBS Comments:

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## Project Description Narratives

The shipment of SNF to the INEEL, especially foreign research reactor fuel, has extremely high visibility with stakeholders. Although the technical approach for moving this fuel is sound, political and perceived transportation risks could significantly impact these shipments, even though the FRR EIS and ROD address the transportation issues.

### Baseline Validation Narrative:

## General PBS Information

**Project Validated?** **Date Validated:**  
**Has Headquarters reviewed and approved project?** No  
**Date Project was Added:** 12/1/1997  
**Baseline Submission Date:**  
**FEDPLAN Project?** Yes

<b>Drivers:</b>	<b>CERCLA</b>	<b>RCRA</b>	<b>DNFSB</b>	<b>AEA</b>	<b>UMTRCA</b>	<b>State</b>	<b>DOE Orders</b>	<b>Other</b>
	N	N	Y	Y	N	Y	Y	Y

## Project Identification Information

**DOE Project Manager:** Robert C. Stump  
**DOE Project Manager Phone Number:** 208-526-1448  
**DOE Project Manager Fax Number:** 208-526-7245  
**DOE Project Manager e-mail address:** stumprc@id.doe.gov  
**Is this a High Visibility Project (Y/N):** Y

## Planning Section

### Baseline Costs (in thousands of dollars)

	<b>1997-2006 Total</b>	<b>2007-2070 Total</b>	<b>1997-2070 Total</b>	<b>1997</b>	<b>Actual 1997</b>	<b>1998</b>	<b>Actual 1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
PBS Baseline (current)	256,564	577,823	834,387	18,369	9,169	13,614	11,128	19,921	7,689	11,459	10,487	11,865	28,319	66,972	67,869

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## Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
year dollars)																
PBS Baseline (constant 1999 dollars)	233,457	418,251	651,708	18,369	9,169	13,614	11,128	19,921	7,487	10,928	9,796	10,855	25,375	58,775	58,337	
PBS EM Baseline (current year dollars)	256,564	577,823	834,387	18,369	9,169	13,614	11,128	19,921	7,689	11,459	10,487	11,865	28,319	66,972	67,869	
PBS EM Baseline (constant 1999 dollars)	233,457	418,251	651,708	18,369	9,169	13,614	11,128	19,921	7,487	10,928	9,796	10,855	25,375	58,775	58,337	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	64,128	65,471	66,237	68,064	113,528	56,901	59,290	61,118	23,086	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	53,988	53,985	53,493	53,838	84,408	38,130	35,810	33,272	11,327	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	64,128	65,471	66,237	68,064	113,528	56,901	59,290	61,118	23,086	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	53,988	53,985	53,493	53,838	84,408	38,130	35,810	33,272	11,327	0	0	0	0	0	0	0

## Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

## Project Reconciliation

### Project Completion Date Changes:

Previously Projected End Date of Project: 12/1/2034

Current Projected End Date of Project: 9/30/2035

### Explanation of Project Completion Date Difference (if applicable):

Per the State Settlement Agreement, the final shipment of SNF from the State of Idaho must be completed by 01/01/2035. The remaining nine months will be used to closeout the program, send records to archives and closure of funding and budgetary documents. This was not accounted for in last submittal.

## Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	338,298	Actual 1997 Cost:	9,169	Actual 1998 Cost:	11,128
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	318,001	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			8,586
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	326,587				

## Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):	183,000	Foreign and domestic research reactor receipts, INEEL support, and privatization project support.
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	469,139	FERMI blanket treatment included for sodium-bonded SNF, NRC requirements, repository criteria
Cost Growth Associated with Scope Previously Reported (+):	7,000	Unit priced payments to Privatized contractor estimated to be greater
Cost Reductions Due to Science & Technology Efficiencies (-):		
<b>Subtotal:</b>	<b>619,726</b>	
Additional Amount to Reconcile (+):	-1	
<b>Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):</b>	<b>619,725</b>	

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## Project Reconciliation

### Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Begin SNF loading operations in the SNF Dry Storage Project (Priv	ID-SNF-102-4		7/1/2003	7/1/2003			Y				
Commence Negotiations for SNF Transfers out of Wet Storage	ID-SNF-102-6		12/31/1999	12/31/1999			Y				
Complete Dry Fuel Storage Operations in the SNF Dry Storage Project (Privatized)	ID-SNF-102-5		9/30/2007								
Finish Receipt of Foreign Research Reactor Fuel	ID-SNF-102-3		5/1/2009								
Issue a ROD for Employment of MPCs or comparable systems	ID-SNF-102-8		4/30/1999	4/30/1999			Y				
SNF Program Mission Complete	ID-SNF-102-2		9/30/2035								
Issue ROD on Multi-purpose Canister			4/30/1999	4/30/1999			Y		Y		
Complete prototype system for NDA of spent nuclear fuel.			9/30/2000						Y	Y	
Project Start			10/1/1996								

### Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Begin SNF loading operations in the SNF Dry Storage Project (Priv	ID-SNF-102-4	Y					2	2	1		Spent Fuel loading into dry storage shall commence by July 1, 2003.
Commence Negotiations for SNF Transfers out of Wet Storage	ID-SNF-102-6	Y					1	1	1		By December 31, 1999, DOE shall commence negotiating a schedule with the State of Idaho for the transfer of all spent fuel at INEEL out of wet storage facilities.
Complete Dry Fuel Storage	ID-SNF-102-5						2	2	1		This workscope is part of the

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## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Operations in the SNF Dry Storage Project (Privatized)											Privatized Dry Storage Project for receipt, packaging, and storage of SNF.
Finish Receipt of Foreign Research Reactor Fuel	ID-SNF-102-3									Y	This milestone was moved to PBS #ID-SNF-103(IDIN0177) along with the workscope beginning in 1998.
Issue a ROD for Employment of MPCs or comparable systems	ID-SNF-102-8						3	1	3		DOE shall complete a Record of Decision on the NEPA analysis for employment of Multi-Purpose Canisters (MPCs) or comparable systems to prepare spent fuel located at INEEL for shipment and ultimate disposal of such fuel outside of Idaho.
SNF Program Mission Complete	ID-SNF-102-2				Y	Y	5	5	3		Upon completion of the removal of all DOE-owned SNF from the State of Idaho by 01/01/2035 per the Idaho Settlement Agreement, the INEEL SNF Program will be closed out, records sent to archives, and funding sources closed.
Issue ROD on Multi-purpose Canister							3	1	3	Y	Issue a ROD, on NEPA analysis of multi-purpose canister or comparable system to prepare for shipment and ultimate disposal of spent fuel outside Idaho.  Cancelled because this is a duplicate of milestone ID: 2422
Complete prototype system for NDA of spent nuclear fuel.							3	3	1		This milestone is based upon the successful demonstration of the multi-detector analysis system.
Project Start				Y							PBS Baseline Start

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## Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
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Tech.

Deployed	Ntd	7.00	0.00	7.00					1.00	2.00		4.00		
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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
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Tech.

Deployed	Ntd												
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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
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Tech.

Deployed	Ntd									7.00
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## Technology Needs

Site Need Code: ID-1.1.02

Site Need Name: Detect and Mitigate Microbially Induced Corrosion in Spent Nuclear Fuel Dry Storage Containers.

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Spent Fuel

0

Related CCP Milestones

Related Waste Streams

Agree?

Change?

00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF

Y

N

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## Technology Needs

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
00734: AAD - Wet Aluminum Based SNF	Y	N
00746: AAJ - Navy SNF	Y	N
00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
00730: AAQ - Dry Commercial SNF	Y	N
00738: AAE - Dry Aluminum Based SNF	Y	N
00732: AAC-1 - Colorado FSV SNF	Y	N

**Site Need Code:** ID-1.1.05

**Site Need Name:** Detect Interactions between Spent Nuclear Fuel and Storage Containers

**Focus Area Work Package ID:**

**Focus Area Work Package:**

**Focus Area:**

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):**

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Spent Fuel

0

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00746: AAJ - Navy SNF	Y	N
00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
00738: AAE - Dry Aluminum Based SNF	Y	N
00734: AAD - Wet Aluminum Based SNF	Y	N

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## Technology Needs

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00732: AAC-1 - Colorado FSV SNF	Y	N
	00730: AAQ - Dry Commercial SNF	Y	N
	00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.07

Site Need Name: Detect Moisture Remaining Within a Dry Fuel Storage System

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

<u>Technologies</u>	<u>Cost Savings (in thousands of dollars)</u>	<u>Range of Estimate</u>
Spent Fuel	0	

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.09

Site Need Name: Non-Destructive Radiological Assay Methods for SNF

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

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## Technology Needs

### Technologies

Spent Fuel

### Cost Savings (in thousands of dollars)

0

### Range of Estimate

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00746: AAJ - Navy SNF	Y	N
00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
00738: AAE - Dry Aluminum Based SNF	Y	N
00734: AAD - Wet Aluminum Based SNF	Y	N
00732: AAC-1 - Colorado FSV SNF	Y	N
00730: AAQ - Dry Commercial SNF	Y	N
00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.10

Site Need Name: Non-Destructive Determination of Fissile Material Content in SNF

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

### Technologies

Spent Fuel

### Cost Savings (in thousands of dollars)

0

### Range of Estimate

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00746: AAJ - Navy SNF	Y	N
00744: AAI - ANL-W Metallic Sodium Bonded	Y	N

Dataset Name: **FY 1999 Planning Data**

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# Project Baseline Summary Report

Data Source: **EM CDB**

Report Number: **GEN-01b**

Operations/Field Office: **Idaho**

Print Date: **3/10/2000**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory**

HQ ID: **0569**

Project **ID-SNF-102 / Integrated SNF Program**

## Technology Needs

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00738: AAE - Dry Aluminum Based SNF	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00732: AAC-1 - Colorado FSV SNF	Y	N
	00730: AAQ - Dry Commercial SNF	Y	N
	00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.08

Site Need Name: Standardized Primary Containment of Degraded SNF

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

### Technologies

Spent Fuel

Cost Savings (in thousands of dollars)

Range of Estimate

0

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00738: AAE - Dry Aluminum Based SNF	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00732: AAC-1 - Colorado FSV SNF	Y	N

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# Project Baseline Summary Report

Data Source: **EM CDB**

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Site Summary Level: **Idaho National Engineering and Environmental Laboratory**

HQ ID: **0569**

Project **ID-SNF-102 / Integrated SNF Program**

## Technology Needs

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00730: AAQ - Dry Commercial SNF	Y	N
00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.11

Site Need Name: Dry Physically Entrained Water in SNF

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Spent Fuel	0
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### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
00734: AAD - Wet Aluminum Based SNF	Y	N
00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.12

Site Need Name: Determine SNF End-of-Life Values and Burn-Up based on Gamma Analysis

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Dataset Name: **FY 1999 Planning Data**

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# Project Baseline Summary Report

Data Source: **EM CDB**

Report Number: **GEN-01b**

Operations/Field Office: **Idaho**

Print Date: **3/10/2000**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory**

HQ ID: **0569**

Project **ID-SNF-102 / Integrated SNF Program**

## Technology Needs

Spent Fuel 0

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00738: AAE - Dry Aluminum Based SNF	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00732: AAC-1 - Colorado FSV SNF	Y	N
	00730: AAQ - Dry Commercial SNF	Y	N
	00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.13

Site Need Name: Stabilize Uranium Metal and Uranium Alloy Fuel Meat Matrix

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

<u>Technologies</u>	<u>Cost Savings (in thousands of dollars)</u>	<u>Range of Estimate</u>
Spent Fuel	0	

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N

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 Project **ID-SNF-102 / Integrated SNF Program**

Report Number: **GEN-01b**  
 Print Date: **3/10/2000**  
 HQ ID: **0569**

## Technology Needs

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00738: AAE - Dry Aluminum Based SNF	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00732: AAC-1 - Colorado FSV SNF	Y	N
	00730: AAQ - Dry Commercial SNF	Y	N
	00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.14

Site Need Name: Computer Codes for Optimal Loading of Storage or Transportation Canisters

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

<u>Technologies</u>	<u>Cost Savings (in thousands of dollars)</u>	<u>Range of Estimate</u>
Spent Fuel	0	

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00744: AAI - ANL-W Metallic Sodium Bonded	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00738: AAE - Dry Aluminum Based SNF	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00732: AAC-1 - Colorado FSV SNF	Y	N
	00730: AAQ - Dry Commercial SNF	Y	N

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 Site Summary Level: **Idaho National Engineering and Environmental Laboratory**  
 Project **ID-SNF-102 / Integrated SNF Program**

Report Number: **GEN-01b**  
 Print Date: **3/10/2000**  
 HQ ID: **0569**

## Technology Needs

### Related CCP Milestones

Site Need Code: ID-1.1.15

Site Need Name: Dry Physically Entrained Water in Rubblized SNF

Focus Area Work Package ID:

Focus Area:

Benefits (Cost, Risk Reduction, Both):

### Technologies

Spent Fuel

### Related Waste Streams

00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF

00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF

00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF

### Agree?

### Change?

Y

N

Y

N

Y

N

Focus Area Work Package:

Agree with Technology Link: Y

### Cost Savings (in thousands of dollars)

### Range of Estimate

0

### Related CCP Milestones

Site Need Code: ID-1.1.16

Site Need Name: Dry Carbide/Graphite SNF

Focus Area Work Package ID:

Focus Area:

Benefits (Cost, Risk Reduction, Both):

### Technologies

Spent Fuel

### Related Waste Streams

00740: AAH - INTEC 603 Metallic Sodium Bonded

00734: AAD - Wet Aluminum Based SNF

00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF

00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF

### Agree?

### Change?

Y

N

Y

N

Y

N

Y

N

Focus Area Work Package:

Agree with Technology Link: Y

### Cost Savings (in thousands of dollars)

### Range of Estimate

0

Dataset Name: **FY 1999 Planning Data**

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# Project Baseline Summary Report

Data Source: **EM CDB**

Report Number: **GEN-01b**

Operations/Field Office: **Idaho**

Print Date: **3/10/2000**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory**

HQ ID: **0569**

Project **ID-SNF-102 / Integrated SNF Program**

## Technology Needs

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

Site Need Code: ID-1.1.18

Site Need Name: Treatment of Sodium & Reactive Metal SNF Prior to Electrometallurgical Processing

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

<u>Technologies</u>	<u>Cost Savings (in thousands of dollars)</u>	<u>Range of Estimate</u>
Spent Fuel	0	

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00744: AAI - ANL-W Metallic Sodium Bonded	Y	N

Site Need Code: ID-1.2.03

Site Need Name: NDE Technology to Detect Fuel and Storage Canister Deterioration in Underwater Basins

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

<u>Technologies</u>	<u>Cost Savings (in thousands of dollars)</u>	<u>Range of Estimate</u>
Spent Fuel	0	

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
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# Project Baseline Summary Report

Data Source: **EM CDB**  
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 Project **ID-SNF-102 / Integrated SNF Program**

Report Number: **GEN-01b**  
 Print Date: **3/10/2000**  
 HQ ID: **0569**

## Technology Needs

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

**Site Need Code:** ID-1.2.04

**Site Need Name:** NDE Technology to Detect Water in SS or Al Clad Canisters in Underwater Basins

**Focus Area Work Package ID:**

**Focus Area Work Package:**

**Focus Area:**

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):**

<u>Technologies</u>	<u>Cost Savings (in thousands of dollars)</u>	<u>Range of Estimate</u>
Spent Fuel	0	

<u>Related CCP Milestones</u>	<u>Related Waste Streams</u>	<u>Agree?</u>	<u>Change?</u>
	00746: AAJ - Navy SNF	Y	N
	00740: AAH - INTEC 603 Metallic Sodium Bonded	Y	N
	00734: AAD - Wet Aluminum Based SNF	Y	N
	00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF	Y	N
	00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF	Y	N

**Site Need Code:** ID-1.2.06

**Site Need Name:** Technology to Measure Integrity of Dry SNF Storage Canisters

**Focus Area Work Package ID:**

**Focus Area Work Package:**

**Focus Area:**

**Agree with Technology Link:** Y

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

# Project Baseline Summary Report

Data Source: EM CDB

Report Number: GEN-01b

Operations/Field Office: Idaho

Print Date: 3/10/2000

Site Summary Level: Idaho National Engineering and Environmental Laboratory

HQ ID: 0569

Project ID-SNF-102 / Integrated SNF Program

## Technology Needs

Benefits (Cost, Risk Reduction, Both):

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Spent Fuel

0

Related CCP Milestones

Related Waste Streams

Agree?

Change?

00744: AAI - ANL-W Metallic Sodium Bonded

Y

N

00738: AAE - Dry Aluminum Based SNF

Y

N

00730: AAQ - Dry Commercial SNF

Y

N

00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF

Y

N

Site Need Code: ID-S.1.06

Site Need Name: Detect and Mitigate Microbiologically Induced Corrosion in Spent Nuclear Fuel Dry Storage Containers

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Related CCP Milestones

Related Waste Streams

Agree?

Change?

00746: AAJ - Navy SNF

Y

N

00744: AAI - ANL-W Metallic Sodium Bonded

Y

N

00724: AAC - Dry Graphite,Stainless, Zirc, & Misc SNF

Y

N

00730: AAQ - Dry Commercial SNF

Y

N

00738: AAE - Dry Aluminum Based SNF

Y

N

00722: AAL - Dried/Packaged Stainless/Zirc/Misc SNF

Y

N

00736: AAM - Dried/Packaged Al Based SNF

Y

N

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Data Source: **EM CDB**  
 Operations/Field Office: **Idaho**  
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 Project **ID-SNF-102 / Integrated SNF Program**

Report Number: **GEN-01b**  
 Print Date: **3/10/2000**  
 HQ ID: **0569**

## Technology Needs

### Related CCP Milestones

**Site Need Code:** ID-1.1.20  
**Site Need Name:** Insoluble Neutron Poison  
**Focus Area Work Package ID:**  
**Focus Area:**  
**Benefits (Cost, Risk Reduction, Both):** Cost

### Related Waste Streams

00732: AAC-1 - Colorado FSV SNF

### Agree?

Y

### Change?

N

### **Focus Area Work Package:**

**Agree with Technology Link:** Y

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

**Site Need Code:** ID-1.1.19  
**Site Need Name:** Means to Immobilize/Encapsulate SNF Debris and Particulate  
**Focus Area Work Package ID:** Pu-02-Stabilization  
**Focus Area:** PLUTOFA  
**Benefits (Cost, Risk Reduction, Both):** Cost

### **Focus Area Work Package:**

Miscellaneous Pu Residue Stabilization and Disposition

**Agree with Technology Link:** N

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

**Site Need Code:** ID-1.1.21  
**Site Need Name:** Process for Removal of Organic-Bearing Material from Fuel Debris  
**Focus Area Work Package ID:**  
**Focus Area:**

### **Focus Area Work Package:**

**Agree with Technology Link:** Y

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

# Project Baseline Summary Report

Data Source: EM CDB

Report Number: GEN-01b

Operations/Field Office: Idaho

Print Date: 3/10/2000

Site Summary Level: Idaho National Engineering and Environmental Laboratory

HQ ID: 0569

Project ID-SNF-102 / Integrated SNF Program

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## Technology Needs

Benefits (Cost, Risk Reduction, Both): Cost

### Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: ID-1.1.22

Site Need Name: Intelligent Welding and Real Time NDE Technology for Quality Verification of SNF Canister Closure Seal Welds (RIM)

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

### Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: ID-1.2.07

Site Need Name: Technology to Verify Actual Critical Temperature for Ductile-Brittle Transition of A36 Carbon Steel

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

### Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: ID-1.2.08

Site Need Name: Improved Rise-Time Peak Discrimination Software for CdZnTe Gamma Ray Spectrum Detectors

Focus Area Work Package ID:

Focus Area Work Package:

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# Project Baseline Summary Report

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 Operations/Field Office: **Idaho**  
 Site Summary Level: **Idaho National Engineering and Environmental Laboratory**  
 Project **ID-SNF-102 / Integrated SNF Program**

Report Number: **GEN-01b**  
 Print Date: **3/10/2000**  
 HQ ID: **0569**

## Technology Needs

Focus Area: Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies Cost Savings (in thousands of dollars) Range of Estimate

## Technology Deployments

Deployment Year
-----------------

<u>Deployment Status</u>	<u>Planned</u>	<u>Forecast</u>	<u>Actual Date</u>
<b>Technology Name:</b> Drying Carbon/Graphite SNF			
Potential Deployment	2000		
<b>Technology Name:</b> Drying Crushed/Rubblized SNF			
Deployment Commitment	2000		
<b>Technology Name:</b> Measure Remaining Moisture in Dried SNF			
Potential Deployment	2002		
<b>Technology Name:</b> Multi-Detector Analysis System using Gamma-Neutron			
Potential Deployment	2002		
<b>Technology Name:</b> Reactive Metal SNF Pretreatment			
Potential Deployment	2002		
<b>Technology Name:</b> U-Mo Fuel Stabilization			
Potential Deployment	2002		
<b>Technology Name:</b> Heated Vacuum Drying System			

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

# Project Baseline Summary Report

Data Source: EM CDB

Operations/Field Office: Idaho

Site Summary Level: Idaho National Engineering and Environmental Laboratory

Project ID-SNF-102 / Integrated SNF Program

Report Number: GEN-01b

Print Date: 3/10/2000

HQ ID: 0569

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## Technology Deployments

<u>Deployment Status</u>	<u>Deployment Year</u>		
	<u>Planned</u>	<u>Forecast</u>	<u>Actual Date</u>
<b>Technology Name:</b> Heated Vacuum Drying System			
Deployment Commitment	1999		3/15/1999