

**EM Idaho Cleanup Project**  
**Baseline Summary**  
**February 2009**

**BACKGROUND**

The U. S. Department of Energy (DOE) - Idaho Operations Office (DOE-ID) Idaho Cleanup Project (ICP) manages and disposes radioactive and hazardous wastes and spent nuclear fuel (SNF) that originated from Cold War activities at the Idaho National Laboratory (INL) Site.

Since its establishment in 1949, the INL has been involved in the design and testing of fifty-two nuclear reactors and the reprocessing of SNF to recover fissile materials. These activities have resulted in an inventory of high-level, transuranic, mixed low-level, low-level, and hazardous waste which has required management and disposition. The INL Site is also responsible for storing and dispositioning approximately two hundred and fifty metric tons of SNF from multiple sources, including the U.S. Navy, foreign and domestic research reactors, commercial reactors, and DOE-owned fuel.

The INL Site is on the United States Environmental Protection Agency (EPA) National Priorities List (NPL - Superfund). Environmental remediation activities are underway or have been completed at ten Waste Area Groups (WAGs) encompassing about one hundred operable units, including the Naval Reactors Facility (NRF) and the Materials and Fuels Complex (MFC), formerly known as Argonne National Laboratory-West.

**SCOPE DESCRIPTION**

Major ICP activities include SNF disposition; calcine disposition; remaining decontamination and decommissioning such as building CPP-601/640 disposition; and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation at the Radioactive Waste Management Complex (RWMC), the Idaho Nuclear Technology and Engineering Center (INTEC), and other areas not within defined facility areas. Cleanup work also includes remediation of Tank Farm contaminated soils and of the Subsurface Disposal Area, disposition of sodium-bearing waste, continuation of post-remediation maintenance activities such as groundwater monitoring beyond FY 2012, and preparing key areas of the Site for long term stewardship (LTS) following completion of cleanup activities.

Currently one of the major activities is the disposition of 65,000 m<sup>3</sup> of transuranic (TRU) waste, including the shipment of 15,500 m<sup>3</sup> of TRU waste to the Waste Isolation Pilot Plant (WIPP). DOE-ID is developing a strategy for the disposition of the remaining waste in support of the original Idaho Settlement Agreement milestone target completion date of Dec. 31, 2015.

## PROJECT MANAGEMENT

Based on the direction from U.S. DOE Environmental Management (EM), the Idaho Operations Office developed the near-term baseline for each of its Projects. These Project Baselines have undergone an independent review to verify the reasonableness of the scope, cost, and schedule for each project. An approved Near-Term Baseline reflects the identified scope that can reasonably be accomplished for the identified cost in the identified time period if Near-Term Baselines are funded as profiled and contingency funds are provided as required during project execution. It also establishes the Baseline as an acceptable point from which to track and control future change.

A review and approval process identifies the likely changes in the EM complex, site priorities and funding plans. These changes could affect both near-term (within the next five years) and life-cycle cost, schedule and scope. Such future changes may be required to comply with applicable environmental legal obligations while maintaining essential functions necessary to protect human health, the environment and national security; reflect funding different from the Baseline assumptions; incorporate technological advances; realize specific programmatic risks; or implement programmatic business cases. Because the cleanup extends beyond the near-term, out-year planning estimates (ranges) have also been developed and independently reviewed.

## LIST OF PROJECTS

The Idaho National Laboratory Site EM program consists of five projects as shown below: The Near-Term Baseline (NTB) for these projects is from FY 2006 – FY 2012 and the Out Year Planning Estimate Range (OPER) is from FY 2013 through FY 2035.

<b>Project</b>	<b>Near Term Baseline (NTB) Approved</b>	<b>Out Year Planning Estimate Range (OPER) Validated</b>
ID-INEEL-0011 - Nuclear Materials (NM) Stabilization and Disposition	Sept. 25, 2007	(Contracted material dispositioned)
ID-INEEL-0012 - Spent Nuclear Fuel Stabilization & Disposition (Defense/Non Defense)	Sept. 25, 2007	February 2008
ID-INEEL-0013 – Solid Waste Stabilization & Disposition	Sept. 25, 2007	February 2008
ID-INEEL-0014 - Radioactive Liquid Tank Waste Stabilization & Disposition	Sept. 25, 2007	February 2008
Sodium Bearing Waste (Idaho Waste Treatment Unit - IW TU) LICP	CD 2/3B - Dec. 21, 2006 (updated January 9, 2009)	
ID-INEEL-0030 - Soil and Water Remediation	Sept. 25, 2007	February 2008
ID-INEEL-0040 - Nuclear Facility D&D	Sept. 25, 2007	February 2008

## **PROJECT SCOPE**

PBS-ID-0012 - Spent Nuclear Fuel Stabilization & Disposition (D/N) The purpose of this Project is to stabilize and disposition spent nuclear fuel. The INL Site currently stores approximately 262 metric tons heavy metal (legacy and non-legacy) SNF. This Project consolidates legacy SNF at INTEC. The Project receives domestic and foreign research reactor fuel, maintains U. S. Nuclear Regulatory Commission (NRC)-licensed facilities, transfers SNF from wet to dry storage, and will design and construct a facility to characterize, package, store, and load fuel for transport to a repository.

PBS-ID-0013 - Solid Waste Stabilization & Disposition This Project dispositions stored transuranic waste (TRU), low-level waste (LLW), Resource Conservation and Recovery Act (RCRA) hazardous waste, and mixed low-level waste backlog; closes on-site, low-level waste disposal facilities at the Radioactive Waste Management Complex (RWMC); and consolidates the waste management facilities to reduce operating costs. The stored TRU is comprised of both contact-handled and remote-handled waste. The contact handled TRU will be processed at the Advanced Mixed Waste Treatment Project (AMWTP) and shipped to WIPP for disposal. Remote-handled TRU will be characterized at other INL Site facilities and shipped to WIPP for disposal.

PBS-ID-0014 - Radioactive Liquid Tank Waste Stabilization & Disposition This Project addresses one of the highest INL Site environmental risks by removing the liquid wastes stored over the Snake River Aquifer. This Project treats and disposes the sodium-bearing tank waste, closes the INTEC Tank Farm tanks, completes the final Tank Farm remediation, and dispositions the calcined high-level waste. The sodium-bearing waste (SBW) tank waste retrieved from the tanks will be treated and then disposed outside the State of Idaho. Specific activities yet to be accomplished on this Project include the treatment and disposal of approximately one million gallons of liquid SBW stored in three underground tanks. One major focus of this Project will be to design, construct, and operate a facility to retrieve and treat the SBW liquids and associated tanks solids for eventual disposal at a national waste repository. Another significant component of this PBS is high level waste calcine disposition.

PBS-ID-0030 - Soil and Water Remediation This Project remediates contaminated soil and groundwater and provides closure of legacy RCRA issues at the INL Site to eliminate risk to the Snake River Plain Aquifer. As cleanup actions are completed for a Waste Areas Group (WAG), institutional controls and stewardship management will be implemented. The end state for this Project will be the completion of specific CERCLA cleanup activities and the Voluntary Consent Order (VOC) RCRA activities identified in the EM Performance Management Plan.

PBS-ID-0040 - Nuclear Facility D&D This Project focuses on the deactivation and disposition of EM-owned, high-risk, radiologically-contaminated INL Site nuclear buildings and facilities and includes deactivation of four SNF storage pools, disposition of four excess nuclear test reactors, and disposition of a nuclear fuel reprocessing building. The total volume of material to be dispositioned, including non-nuclear facilities and buildings, is over 3.1 million square feet.

## ICP PROJECT COST (\$M)

PBS/\$M	11	12D/N	12X	13	14	SBW	30	40	50	100	Total w/o SBW	Total w/SBW
Prior Year Costs (1997-2005)	8.0	363.4	60.1	1,397.7	990.7	37.5	749.2	83.8	103.2	47.3	3,803.4	3,840.9
<b>Total Near Term Baseline FY06-12 (50% Conf. Lev.)</b>	11.2	212.5	-	1,281.4	380.9	533.4	804.6	790.4	-	27.0	3,508.0	4,041.4
Unfunded Contingency	24.2	159.7	-	352.0	369.0	-	88.8	6.0	-	-	999.7	999.7
Performance Baseline (80% Conf. Lev.)	35.4	372.2	-	1,633.4	749.9	533.4	893.4	796.4	-	27.0	4,507.7	5,041.1
<b>OPER (2013-2037)(50% Conf. Lev.)</b>	-	4,354.9	-	537.8	6,679.8	-	4,446.5	1,783.1	-	137.9	17,940.0	17,940.0
<b>OPER (2013-2037)(80% Conf. Lev.)</b>	-	5,312.5	-	891.8	9,451.0	-	6,111.0	1,967.7	-	137.9	23,871.9	23,871.9
<b>Total Life Cycle Costs (Prior Year, NTB, and OPER (80% Conf. Lev.)</b>	43.4	6,048.1	60.1	3,922.9	11,191.6	570.9	7,753.6	2,847.9	103.2	212.2	32,183.0	32,753.9

# ICP SUMMARY NEAR TERM BASELINE SCHEDULE

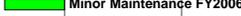
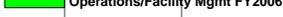
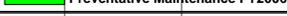
Activity ID	Activity Description	Start	Finish											
				FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13			
<b>11 NM Stabilization and Disposition</b>														
INNMI015	All Excess NM Dispositioned (C.2.6, C.5.4)		30SEP08*					◆ All Excess NM Dispositioned (C.2.6, C.5.4)						
<b>12B SNF Stabilization and Disposition</b>														
INNMI027	S042 Cmpt Trans EM SNF to Dry Storage		30SEP09						◆ S042 Cmpt Trans EM SNF to Dry Storage					
<b>13 Solid Waste Stabilization and Disposition</b>														
RW1MILE499	Cmplt WIPP Cert Audit of Char/Tran/Dispos RH TRU		01MAR07					◆ Cmplt WIPP Cert Audit of Char/Tran/Dispos RH TRU						
RW4MILE495	Complete Disposition of LLW @ Offsite		27SEP12									◆ Complete Disposition of LLW @ Offsite		
RW4MILE496	Complete Disposition of MLLW		27SEP12									◆ Complete Disposition of MLLW		
<b>14B Rad Liquid Tank Waste Stabilization &amp; Disp -2012</b>														
INT2054039	CD-2 Approval		31MAY12*											◆ CD-2 Approva
INTCAP01	West Side of Tank Farm Ready for D&D and Cap		11NOV08						◆ West Side of Tank Farm Ready for D&D and Cap					
<b>30B Soil and Water Remediation - 2012</b>														
INEVBDY210	055 Closure Activities Complete		03DEC08						◆ 055 Closure Activities Complete					
INEVBQ02	055 DEQ COMPLETE REVIEW OF CERT RPT R		02MAY09						◆ 055 DEQ COMPLETE REVIEW OF CERT RPT REV					
INEVBDY180	055 Drain, Flush Rmv Berl Saddles, Sampling		03NOV08						◆ 055 Drain, Flush Rmv Berl Saddles, Samplin					
INEVBDY18B	055 Lab Analysis, Validation DQA for Samples		03NOV08						◆ 055 Lab Analysis, Validation DQA for Samples					
INEVBDY90	055 Remove Waste Piping		05AUG08						◆ 055 Remove Waste Piping					
INEVB01	055 CORRECT DEFICIENCIES IN PRE-FINAL IN	01DEC10	06JAN11						055 CORRECT DEFICIENCIES IN PRE-FINAL INSP					
INEVBN01	055 DEQ REVIEW CERT RPT - REV. 0	02FEB09	03MAR09						055 DEQ REVIEW CERT RPT - REV. 0					
INEVBQ01	055 DEQ REVIEW OF CERT RPT - REV. 1	03APR09	02MAY09						055 DEQ REVIEW OF CERT RPT - REV. 1					
INEVBU03	055 DOE APPROVE REV 0 CERT RPT		31JAN09						◆ 055 DOE APPROVE REV 0 CERT RF					
INEVBL01	055 FINAL INSPECTION WITH DOE-ID	27OCT10	30NOV10						055 FINAL INSPECTION WITH DOE-ID					
INEVBI01	055 PERFORM PRE-FINAL INSPECT W/AGENC	27OCT10	30NOV10						055 PERFORM PRE-FINAL INSPECT W/AGENCI					
INEVBY01	055 PREP & RELEASE PROJ DATA FILES/PHOT	10JAN11	03FEB11						055 PREP & RELEASE PROJ DATA FILES/PHOT					
INEVBK01	055 PREPARE CERTIFICATION REPORT - REV.	04DEC08	17JAN09						055 PREPARE CERTIFICATION REPORT - REV					
INEVBO01	055 RESOLVE COMM/SUBMIT REV 1 CERT RPT	04MAR09	02APR09						055 RESOLVE COMM/SUBMIT REV 1 CERT RPT TO DI					
INEMILE665	055 SUBMIT REV 0 CERT RPT TO DEQ		01FEB09						◆ 055 SUBMIT REV 0 CERT RPT TO DE					
INEVBU01	055 SUBMIT REV 0 CERT RPT TO DEQ		01FEB09						◆ 055 SUBMIT REV 0 CERT RPT TO DE					
INEVBU02	055 SUBMIT REV 0 CERT RPT TO DOE		17JAN09						◆ 055 SUBMIT REV 0 CERT RPT TO DO					
INEVBM01	055 TURN BACK TO LANDLORD	07FEB11	07FEB11						055 TURN BACK TO LANDLOR					
INEMILE360	Cmpt Remaining VCO Actions in CPP-604 Area (3		29JUL09						◆ Cmpt Remaining VCO Actions in CPP-604 Area (					
ERTTV545	MS- Disposal of V-Tank Treat Sys & Sec. Waste		16JAN07*						◆ MS- Disposal of V-Tank Treat Sys & Sec. Was					
<b>39LI Line Item Funding For SBW Activities</b>														
INWMILE125	Prepare/Submit CD-3 for Approval		30MAR07						◆ Prepare/Submit CD-3 for Approval					
INWMILE011	Start Full Construction IWTU (C.2.4.3)		31MAY07						◆ Start Full Construction IWTU (C.2.4.3)					
INWMILE009	Start IWTU Module Fabrication		13JUL06						◆ Start IWTU Module Fabricatio					
<b>40B Nuclear Facility D&amp;D</b>														
DDTB060	Begin BCP 06-060		27MAR06*						◆ Begin BCP 06-060					
DDRMILE57	COMPLETE ETR AREA D&D		19APR10										◆ COMPLETE ETR AREA D&	

Start Date	26SEP04		Early Bar	9T03	Idaho Cleanup Project
Finish Date	31DEC35		Progress Bar		
Data Date	26SEP06		Critical Activity		
Run Date	18FEB09 15:4				

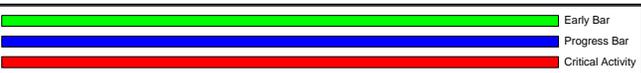
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## ICP SUMMARY NEAR TERM BASELINE SCHEDULE

Activity ID	Activity Description	Start	Finish									
				FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	
DDTMILE023	Complete TAN Excess Facilities D&D		01MAR11							◆ Complete TAN Excess Facilities D&D		
DDT11300	Corrective Maintenance FY2006	27MAR06	28SEP06	 Corrective Maintenance FY2006								
DDT14590	FY06 - TAN-607 Equipment Maintenance & Fueling	27MAR06	28SEP06	 FY06 - TAN-607 Equipment Maintenance & Fueling								
DDT11310	Minor Maintenance FY2006	27MAR06	28SEP06	 Minor Maintenance FY2006								
DDT11100	Operations/Facility Mgmt FY2006	27MAR06	28SEP06	 Operations/Facility Mgmt FY2006								
DDT11200	Preventative Maintenance FY2006	27MAR06	28SEP06	 Preventative Maintenance FY2006								

Start Date 26SEP04  
 Finish Date 31DEC35  
 Data Date 26SEP05  
 Run Date 18FEB09 15:44



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