CR-0813

DEPARTMENT OF ENERGY
ENVIRONMENTAL MANAGEMENT
COST INFRASTRUCTURE DEVELOPMENT PROGRAM
COST ANALYSIS REQUIREMENTS

31 MARCH 1996

WILLIAM R. CUSTER, JR.
CHRISTOPHER D. MESSICK

PREPARED FOR
DEPARTMENT OF ENERGY
ENVIRONMENTAL MANAGEMENT
EM-15
CONTRACT NUMBER MDA903-92-D-0051
DELIVERY ORDER 0009

TECOLOTE RESEARCH, INC.
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INTRODUCTION

This report was prepared to support development of the Department of Energy Environmental Management cost infrastructure -- a new capability to independently estimate and analyze costs. Currently, the cost data are reported according to a structure that blends level of effort tasks with product and process oriented tasks. Also, the budgetary inputs are developed from prior year funding authorizations and from contractor-developed parametric estimates that have been adjusted to planned funding levels or appropriations. Consequently, it is difficult for headquarters and field-level activities to use actual cost data and technical requirements to independently assess the costs generated and identify trends, potential cost savings from process improvements, and cost reduction strategies.

The purpose of this study is to determine the priorities for cost analysis, the requirements for methodology development, and identification of key fundamentals such as cost and technical data sources, cost drivers, and the architecture of the proposed cost infrastructure. The study conclusions show that key cost analysis priorities have been determined, the data is available at the level required for cost analysis, that a comprehensive model architecture is feasible, and that the analysis can yield significantly improved estimates over the current, contractor-developed methodology.

SCOPE OF RESEARCH

Our research on this task had several objectives. The requirements of the task were to:

- 1) Identify major EM programs using Activity Data Sheet (ADS) database information, and then categorize and prioritize the ADSs according to cost;
- 2) Identify current cost data, cost reporting systems, and (technical) cost drivers for the future development of cost estimating methodologies; and
- 3) Identify representative sites for future studies

The ADS database information encompasses all Environmental Management (EM) programs which expend resources, and is organized by ADS number, title, facility or operations office, and category. The purpose of this objective is to establish priorities for cost analysis methodology development, and to ensure all types of expenditures are considered.

The next objective is to determine sources of cost and technical data which can be used to develop proposed methodologies and a data collection plan. Since the cost and technical data are both diverse and extensive, part of our work involved organizing the data into a manageable structure for preliminary analysis and to test our hypotheses regarding potential methodologies. Therefore, we have created a cost and technical database structure populated primarily with cost data from the PTS/ADS database, and technical data from the Mixed Waste Inventory Report, the Integrated Data Base report, the Site

Treatment Plans (STPs) and the 1995 Draft Waste Management Programmatic Environmental Impact Statement (PEIS).

We have also developed a proposed cost analysis work breakdown structure to organize cost estimates according to major environmental management program areas and compliance requirements. Since legal compliance requirements often drive the technical requirements for environmental activities, we have summarized key laws impacting radioactive and hazardous waste. These legal requirements are also identified as drivers in the PTS /ADS database, simplifying future data collection and application of methodologies which account for these drivers. The final objective is to evaluate the DOE sites for future data collection, placing priority on the significance of costs and the range of potential cost drivers available.

Together, these objectives lay the groundwork for future data collection and development of CERs. In the next phase of the cost analysis, we will use our survey of the technical and cost data which is available to refine our template for data collection, and expedite the process of isolating important cost reports and sources of cost and technical data. We will then verify our approach by conducting a data collection visit to one or two of the sites selected by the third task. Analysis and normalization of the data is the principal objective of the next task phase, which we plan to facilitate using our proven ACETT tools. The Tecolote-developed Automated Cost Estimating Integrated Tools (ACETT) program provides all the capabilities needed to manage the DOE EM database of cost and technical data collected in the next phase, including automated documentation of CER development.

ENVIRONMENTAL MANAGEMENT COST ANALYSIS REQUIREMENTS

3.1 ACTIVITY DATA SHEET (ADS) DATA PARETO ANALYSIS

Initially, we performed an analysis of Activity Data Sheet (ADS) data available in summary reports to determine the priorities for cost analysis. The details of the analysis are presented in Appendix B of this report. The source of the data was the Five Year Plan summaries of actual costs in Appendix G of that report. Pareto Analysis was an effective tool for analyzing the ADS data, and yielded several key conclusions. The data contained cost and site information for 863 individual ADSs; our analysis showed that the top 160 (18.5% of the ADSs) were responsible for 80% of the costs, following the 20:80 Pareto Law closely. Of the top 160, 10 were responsible for 20% of the costs; these are shown in the chart below:

Figure 3.1, Activity Data Sheet Pareto Analysis

The analysis shows the highest value items are mostly Savannah River, and Hanford Waste Management; Albuquerque Uranium Mill Tailings Environmental Restoration; and Headquarters support for Environmental Restoration and Technology Development. The Table 3.1 below provides details on the top 52 ADSs which comprise 50% of the expenditures.

ADS No.	Field Off	Title	Installation	Category	FY92+93	% Dollars	% Cumul
ALWP - 3234	AL	Base Waste Management - Storage	Waste Isolation Pilot Plant	WM	325,963	3.26%	3%
SR - 22-AA	SR	Vitrification	Savannah River Site	WM	303,992	3.04%	6%
ID - 4001-WV	ID	West Valley Demondirection Project	West Valley	WM	238,000	2.38%	9%
RL - 1240-1	RL	Vitrification	Hanford	WM	225,015	2.25%	11%
RL - 1100-0	RL	Tank Farms Operations and Maintenance	Hanford	WM	193,901	1.94%	13%
ALUM - 1332	AL	UMTRA Surface Grand Junction Remediation	Uranium Mill Tailings (Remedial Act)	ER	152,393	1.53%	14%
RL - 4170-0	RL	PPF	Hanford	WM	149,158	1.49%	16%
HQ - 100-AA	HQ	Technical Support to Environmental Restoration Pr	Headquarters	ER	139,933	1.40%	17%
HQ - 0-RD	HQ	RDDT&E Innovation Investment Area	Headquarters	TD	133,660	1.34%	19%
RL - 4200-0	RL	FFTF Plant	Hanford	WM	124,000	1.24%	20%
HQ - 0-GS-00	HQ	Groundwater and Soil Cleanup	Headquarters	TD	120,430	1.21%	21%
HQ - 0-WR	HQ	Waste Retrieval and Processing Investment Areas	Headquarters	TD	116,400	1.17%	22%
SR - 32-AA	SR	H-Tank Farm	Savannah River Site	WM	114,139	1.14%	23%
RF - 3821	RF	Facility Operations and Maintenance	Rocky Flats Plant	WM	108,175	1.08%	24%
ALLA - 4172	AL	Facility Operations and Maintenance	Los Alamos National Laboratory	WM	97,852	0.98%	25%
RL - 4130-0	RL	PUREX/UO4 Operations	Hanford	WM	96,037	0.96%	26%
RL - 3400-0	RL	Program Management Support Remedial actions	Hanford	ER	93,144	0.93%	27%
ID - 1005-WN	ID	HLW Tank Farm Replacement - Phase I	Idaho Chemical Processing Plant	WM	88,669	0.89%	28%
SR - 34-AA	SR	ITP/ESP	Savannah River Site	WM	87,539	0.88%	29%
RL - 2310-1	RL	Hanford Environmental Compliance	Hanford	WM	84,839	0.85%	30%
ID - 1001-WN	ID	Waste Operations	Idaho Chemical Processing Plant	WM	83,517	0.84%	31%
RF - 3812	RF	Program Control	Rocky Flats Plant	WM	78,980	0.79%	32%
HQ - 0-PS-00	HQ	Program Managment and Support Activities	Headquarters	TD	75,717	0.76%	32%
RL - 1260-0	RL	Facility Operations	Hanford	WM	75,276	0.75%	33%
RL - 3031-1	RL	Program Direction	Richland Field Office	WM	74,466	0.75%	34%
OR - 4701-01	OR	K-25 Facility Decontamination and Decommissionin	Oak Ridge Gaseous Diffusion Plant	ER	74,415	0.75%	35%
SR - 26-L1	SR	DWPF Line Item 81-T-105	Savannah River Site	WM	72,600	0.73%	35%
FS - 68-D1	FS	Base Services	Fernald Site Office	ER	72,312	0.72%	36%
HQ - 0-IS-00	HQ	Supporting Technologies and Infrastructure Progra	Headquarters	TD	71,965	0.72%	37%
RL - 1110-0	RL	Waste tank Safety Programs	Hanford	WM	71,725	0.72%	37%
RL - 1230-0	RL	Grout Disposal Program	Hanford	WM	69,554	0.70%	38%
ID - 4309-EG	ID	Waste Characterization and Storage Facility	Idaho National Engineering Lab	WM	69,300	0.69%	39%
RF - 1258	RF	OU 4 - Solar Ponds	Rocky Flats Plant	ER	68,059	0.68%	40%
SR - 33-AA	SR	F-Tank Farm	Savannah River Site	WM	67,535	0.68%	40%
HQ - 0-ED-00	HQ	Technical Integration and Education	Headquarters	TD	64,800	0.65%	41%
RL - 4110-0	RL	K-Basin Operations Program	Hanford	WM	63,610	0.64%	42%
ID - 4301-EG	ID	Facility Operations and Maintenance	Idaho National Engineering Lab	WM	62,262	0.62%	42%
HQ - 3036-01	HQ	Support for the Hanford Program Office	Headquarters	WM	61,443	0.62%	43%
OR - 2201	OR	Facility Operations & Maintenance	Y-12	WM	59,975	0.60%	43%
FS - 48-B2	FS	Operable Unit 3	Fernald Site Office	ER	59,803	0.60%	44%
OR - 3306	OR	ORNL WAG 6 Environmental Restoration	Oak Ridge National Laboratory	ER	56,301	0.56%	45%
RL - 7200-0	RL	General Admin Support/Buildings	Hanford	WM	55,604	0.56%	45%
OR - 4204	OR	TSCA Incinerator	Oak Ridge Gaseous Diffusion Plant	WM	54,407	0.54%	46%
HQ - 199-FO	HQ	Field Office Program Direction	Headquarters	ER	54,356	0.54%	46%
RF - 1264	RF	Onsite/Offsite Water Management	Rocky Flats Plant	ER	53,924	0.54%	47%
HQ - 3030-01	HQ	Support for the Office of Waste management	Headquarters	WM	53,117	0.53%	47%
RL - 7100-0	RL	Laboratory Operations and Upgrades	Hanford	WM	52,598	0.53%	48%
FS - 37-A3	FS	Litigation Settlement	Fernald Site Office	ER	52,052	0.52%	48%
ID - 40-EG	ID	WAG 7 Radioactive Waste Management Complex/	Idaho National Engineering Lab	ER	51,759	0.52%	49%
OR - 4201	OR	Facility Operation & Maintenance	Oak Ridge Gaseous Diffusion Plant	WM	51,580	0.52%	49%
FS - 16-C3	FS	Waste Management	Fernald Site Office	ER	51,067	0.51%	50%
SR - 42-AA	SR	Solid Waste Storage and Disposal	Savannah River Site	WM	50,251	0.50%	50%

Table 3.1, Top 50% Activity Data Sheets

The analysis also showed which sites and category types require the lion's share of the EM budget. The next chart shows the top installations and categories for EM.

Figure 3.2, Installation and Category Types

The ADS Pareto Analysis indicates several conclusions for cost analysis:

- Waste Management and Environmental Restoration are obviously the most important ADS categories. Within these categories, high value ADS activities such as vitrification and tank farm management should be examined first.

Our analysis below of the MWIR data compared current inventories to projections. Additional data from the Pareto analysis is presented in Section 3.3, Site Review and Analysis.

3.2 COST AND TECHNICAL DATA SURVEY & ANALYSIS

Tecolote conducted a survey of the cost and technical data available in headquarters documents and electronic databases to support cost analysis requirements, focusing on the Waste Management (WM), and Environmental Restoration (ER) since our Pareto analysis showed WM costs to represent approximately 50% of the environmental management total costs, and ER costs are the next highest priority. This section discusses the data we collected from various sources to gain a comprehensive perspective of the data available, and the sources for cost and technical data. We also describe our preliminary analyses conducted to test hypotheses and potential technical cost drivers for the different categories of environmental management.

3.2.1 DATA SOURCES

Tecolote gathered data available at DOE headquarters and in electronic databases to analyze the cost and technical information used in projections and budget planning. This data points towards lower-level data which we plan to collect at the sites for comprehensive cost analysis. In Section 7, we discuss a proposed template for site-specific data collection that will be validated in the next phase of our analysis.

The Progress Tracking System / Activity Data Sheet electronic database (PTS/ADS): Contains all ADS data reported by field activities to headquarters, including performance measurement data such as ACWP, BCWS, and BCWP, budgetary and funding information, cross-references to old ADS numbers, WBS numbers, and B&R numbers, and narrative descriptions of the ADS status and issues, including points of contact.

Database Access Procedures.

The PTS/ADS System. This system is on the EM LAN, and permits queries to obtain planning and cost data for each ADS, or those associated with specific sites. A password is required, and the User's Manual is also helpful. To use this system to collect ADS cost data:

- Set Preferences under the File Menu to "PTS", and Cycle Year to "EXE: 1995", and "FYP: 1996". To collect data on actuals in specific prior years, set the Cycle Year accordingly.
- Run ADS/PTS queries for the specific Site or ADS in question.
- Open window "ADS/TTP Results Set", select an ADS of interest.
- Choose Reports from Top Menu, then "PTS 1995", then "ADS/TTP", then "Full Report", then select the single ADS as the Report Criteria.
- Cost Data is below funding data in the ADS Full Report

Using MS Access to design Queries and return results in MS Excel. Since our goal was to make broad queries of specific fields; we attempted to use MS Access on the EM LAN to attach the PTS database tables, and thereby design our own queries. This process was used via remote computer to create data samples for methodology testing; however, the EM LAN remote connection proved unreliable. After the initially successful attempts to query the systems, the LAN behaved unpredictably. In some cases, the LAN could not start the MS Access application. In others, the LAN would allow the user to start Access and attach tables, but then the queries would fail due to a lost connection. It is recommended that users perform this process on site at EM headquarters. The process for the MS Access queries is as follows:

- On the EM LAN, in MS Access, open a new database and then select Attach Tables from the File menu.
- In the dialog box, choose <SQL Database>, then select PTS from the list of databases.
- Enter the CIS Password, and then attach the following tables: ads ttp header, ann fund detail, funding profile, monthly cost, project info.
- Select New Query, and then join the tables using key fields: "tracking number", "cycle year" and "OBR code".

- Enter Query criteria:
 - Required:
 - Budget Cycle = 1 (for PTS data)
 - Cycle Year = YYYY (e.g., 1995)
 - Desired Data Fields
 - Optional:
 - High Value, High Priority ADSs:
 - Proj_Cum_ACWP, Greater Than 100000 (\$100M),
 - BAC Greater Than 100 (\$100M)
 - EM-30 or EM-40 ADSs: WBS_No Like "01.03*", "01.04"
 - High Value Funding:
 - Curr Yr New Oblig Auth, Greater Than 30000 (\$30M) for EM-30;
 - Curr Yr New Oblig Auth, Greater Than 10000 (\$10M) for EM-40
- Run Make Table Query, and save resulting table. This table may then be used for crosstab queries to examine the cost or funding profile in a spreadsheet format.

Mixed Waste Inventory Report (MWIR 1995): An electronic system showing detailed waste stream level quantities, some technical data including waste stream characteristics, current inventories, and five year projections. An ADS field exists in the system, but was only populated for about a dozen ADSs, and the ADS data entry did not correspond well with the designations of the PTS/ADS system.

Database Access Procedures.

The MWIR System. This system is on the EM LAN, and permits queries of sites and waste streams. The User's Manual is necessary to navigate the system. To use this system to collect waste stream technical data:

- Choose the Waste Stream Box, select the site in question from the drop-down menu, and then choose the View Survey Box. The query returns all waste stream data. From this point, the user may specify criteria to bring up the waste streams of interest.

Using MS Access to design Queries and return results in MS Excel. Since our goal was to make broad queries of specific fields; we obtained the database

(available by FTP or by diskette), and then used MS Access on the local computer to view the database tables, and thereby design our own queries.

- Select New Query, and then join the desired tables using key field: "Survey_Id"
- Run Make Table Query, and save resulting table. This table may then be used for crosstab queries to examine the cost or funding profile in a spreadsheet format.

The Integrated Database Report – 1994: Summary of the databases for inventories, projections, and characteristics of domestic spent nuclear fuel and radioactive waste.

The 1995 Baseline Environmental Management Report (BEMR): Contains a 75 year plan, including WM, ER, and program management costs by site, and five year cost averages.

The 1996 BEMR Data Call: Identifies technical cost drivers and level of cost detail collected in support of the upcoming BEMR; a potential data source for the next phase.

Site Treatment Plans (STP): STPs are prepared by each site, and provide detailed waste stream level quantities, detailed technical data, current inventories, and 5 year projections. STPs deal only with mixed waste; therefore, other sources are required for low level waste.

Preliminary Environmental Impact Statement (PEIS): Contains DOE level WM and ER cost totals and waste volumes (inventory and twenty year projections) by site. This document shows a wide functional breakout of costs (transportation costs, life cycle costs, processing costs) which are listed by regionalized and centralized alternatives.

3.2.2 PRELIMINARY VOLUMETRIC AND COST DATA ANALYSIS

Our goal was to summarize the waste streams associated with the ADSs in the MWIR database, and then analyze the relationship of cost for the ADSs to the volume of waste, broken down by waste type. Our initial query of the MWIR system showed that over 700 waste stream records specified the associated ADS. However, there are four years of inventory and five years of projected volumes; therefore, this reduced the number of separate waste streams to approximately 80. Of these, several streams were associated with the same ADS. The bottom line was that only 13 ADSs were tracked in the MWIR system, out of nearly 900 ADSs in Environmental Management. The following page shows this data, along with the actual costs for each year for the ADS. The data is clearly incomplete. The inventory values are constant for each year, indicating that no generation was recorded for 1992 through 1994; since most ADSs indicate some projected generation volumes, it is more likely that the generation values were simply not entered as inventory increments. Further analysis of the treatment status for these sites shows that most were generating some waste streams during the years in question. Also, there is no way of determining whether the ADSs in question should have more waste streams in the system associated to them. Analysis of the projected values would not be reliable, and no supportable conclusions could be drawn.

The MWIR database does provide breakouts of waste streams by treatment, storage and disposal status, and we performed queries required to organize the data by site and by waste type. This data is presented following Table 3.2

Site	ADS_Number <>	Inventory						Projections											
		1992		1993		1994		1995		1996		1997		1998		1999		2000	
		m3	\$K	m3	\$K	m3	\$K	m3	\$K	m3	\$K	m3	\$K	m3	\$K	m3	\$K	m3	\$K
Battelle Columbus Laboratories	OHBC-6201-DD	1.7556		1.7556		1.7556		3.817	22304	6.03	16187	40.33	16189	40.35	17065	15.1	17889		15802
Energy Technology Engineering Center SSFL	1488-20/21	14.1		14.1		14.1						0.42		0.42		0.42			
Energy Technology Engineering Center SSFL	1488-21	0.1		0.1		0.1				0.63		0.21							
Fernald Environmental Management Project	OHFN-16-C3	123.1		123.1		123.1		29.48		29.5		29.48		29.48		29.5			
Grand Junction Projects Office	ALGJ-1009	0.143		0.143		0.143		0.015	1018	0.02	1650	0.015	1578	0.015	1634	0.02	1637		1743
Idaho National Engineering Laboratory	ID-51-EG				371		607	0	29	0	54	0	495	0	588	0.05	570		570
Idaho National Engineering Laboratory	ID-52-EG				409		686	0	485	0.55	1265	0	2263	0	1205	0			
Idaho National Engineering Laboratory	ID-54-EG				23		46	0	27	0	32	0	34	0	581	0	1673	8.6	3760
Idaho National Engineering Laboratory	ID-60-EG				32		226	0	210	0	82	0	34	0	548	0	723	17	3727
Idaho National Engineering Laboratory	ID-63-EG		678		519		281	0	85	5.9	1001	0		0		0			
Idaho National Engineering Laboratory	ID-65-EG		248		205		10	0	10	0	10	0	46	0	9	9.7	689		0
Nevada Test Site	NV-212-AA		16763		22589		30659		14427	163	22424	163	20048	163	16562	163	17200		17200
Nevada Test Site	NV-214-AA		1898		4316		6105	1	4566	2000	6503		5575		5220		5220		5220
RMI Titanium Company Extrusion Plant	7200-PM	23.52		23.52		23.52		0		5.42		2.3		0		0			
Rocky Flats Environmental Technology Site	RF-1001	406.05		406.05		406.05		2.46		5.38		372		2.46		3.67			
Rocky Flats Environmental Technology Site	RF-1271	1318.7		1318.7	2065	1318.7	8933	414.95	6778	389	10351	33.96	10537	33.96	10758	35.2	10985		11379
Savannah River Site	SR-515-AA				12781		31252	1.4	8087	0.2	21027	0.2	17305	0.2	13721	0.2	13710		

Table 3.2, Volumetric and Cost Data Analysis for ADS information in the 1995 MWIR

Table 3.2a
IDB + MWIR Sites & Waste Types

Site Name	Waste Type	<>	1992	1993	1994	1995	1996	1997	1998	1999	Total thru 1999
Ames Laboratory - Iowa State Univ.	MLLW		165.743			26.10	23.80	39.30	22.10	19.10	296.14
Argonne National Laboratory - East	MLLW		167.93		0.40	42.89	105.03	182.63	218.03	299.73	1,016.66
Argonne National Laboratory - East	MTRU						0.37	0.37	0.37	0.37	1.48
Argonne National Laboratory - East	TRU		23.8			0.00	42.00	3.30	3.30	3.30	75.70
Argonne National Laboratory - West	MLLW	0.42				3.20	3.09	3.03	4.28	3.03	16.61
Argonne National Laboratory - West	MTRU					0.19	0.20	0.20	0.19	0.19	0.98
Argonne National Laboratory - West	TRU					0.42	0.42	0.42	0.42	0.42	2.10
Battelle Columbus Laboratories	MLLW		29.6286			13.52	26.03	40.03	27.55	32.90	169.66
Bettis Atomic Power Laboratory	MLLW		684.538			432.88	528.67	746.77	568.67	595.67	3,557.20
Brookhaven National Laboratory	MLLW		26.6431			0.52	0.52	0.52	0.52	0.52	29.25
Charleston Naval Shipyard	MLLW		1.97			6.10	0.00	0.00	0.00	0.00	8.07
Clemson Technical Center, Anderson, SC	MLLW		2.2			0.60	0.60	0.60	0.60	0.60	5.20
Energy Technology Engineering Center - SSFL	MLLW		14.2				0.63	0.63	0.42	0.42	16.30
Fermi National Accelerator Laboratory	MLLW		279.872			60.10	93.60	177.00	114.70	129.80	855.07
Fernald Environmental Management Project	MLLW		349.535			40.11	40.11	40.11	40.11	40.11	550.09
General Atomics	MLLW		10.96			7.08	7.08	7.08	3.49	3.49	39.18
Grand Junction Projects Office	MLLW	0.001	0.143			0.02	0.02	0.02	0.02	0.02	0.22
Idaho National Engineering Laboratory	HLW					538.00	680.00	964.00	604.00	866.00	3,652.00
Idaho National Engineering Laboratory	MLLW					139.40	136.11	166.82	195.06	161.12	798.50
Idaho National Engineering Laboratory	MTRU						2.72	16.50	5.42	10.84	35.48
Idaho National Engineering Laboratory	LLW		800	900	1,900	1,798	1,798	1,798	1,798	1,798	12,587.92
Inhalation Toxicology Research Institute	TRU		5.4				0.21	0.21	0.21	0.21	6.23
K-25 Site	MLLW		2333.41			269.02	338.61	479.36	479.36	479.36	4,379.11
Knolls Atomic Power Laboratory - Kesselring	MLLW		2.27			3.28	3.28	3.28	3.28	3.28	18.65
Knolls Atomic Power Laboratory - Schenectady	MLLW		8.569			4.82	4.70	4.60	4.59	4.49	31.75
Knolls Atomic Power Laboratory - Schenectady	MTRU		1120			18.20	18.20	18.20	18.20	18.20	1,211.00
Knolls Atomic Power Laboratory - Schenectady	TRU		0.24			0.16	0.16	0.16	0.16	0.16	1.04
Knolls Atomic Power Laboratory - Windsor	MLLW		0.298			3.34	3.34	3.34	3.34	3.34	17.00
Lawrence Berkeley Laboratory	MLLW		353.617			120.81	172.61	282.71	187.01	194.51	1,311.27
Lawrence Berkeley Laboratory	TRU		0.63			0.21				0.21	1.05
Lawrence Livermore National Laboratory	MLLW		457.19			353.01	353.01	353.01	353.01	353.01	2,222.24
Lawrence Livermore National Laboratory	MTRU		8.352			2.73	1.78	1.78	1.78	1.78	18.21
Lawrence Livermore National Laboratory	TRU		193.795			34.77	23.27	23.27	23.27	23.27	321.65
Los Alamos National Laboratory	MLLW		608.6			21.08	21.08	21.08	21.08	21.08	714.02
Los Alamos National Laboratory	MTRU		20576.3			405.00	409.00	409.00	409.00	409.00	22,617.26
Los Alamos National Laboratory	TRU		9875.04			439.00	439.00	439.00	439.00	439.00	12,070.04
Los Alamos National Laboratory	LLW		2300	2700	1,900	3,445	3,445	3,445	3,445	3,445	24,126.85
Mare Island Naval Shipyard	MLLW		26.77			39.43					66.20
Mound Plant	MLLW		6.0576		0.00	0.00	0.00	3.65	0.81	0.00	10.52
Nevada Test Site	MLLW		30.8			0.00	15.00	15.00	15.00	15.00	90.80
Nevada Test Site	LLW		20100	18600	22,900	30,759	30,759	30,759	30,759	30,759	215,393.29
New Brunswick Laboratory	MTRU	167.77	1120			18.20	18.20	18.20	18.20	18.20	1,211.00
New Brunswick Laboratory	TRU	892									0.00
Norfolk Naval Shipyard	MLLW		5.07			11.00	11.00	11.00	11.00	11.00	60.07
Oak Ridge Associated Universities	MTRU	0.765									0.00

Table 3.2a
IDB + MWIR Sites & Waste Types

Site Name	Waste Type	<>	1992	1993	1994	1995	1996	1997	1998	1999	Total thru 1999
Oak Ridge National Laboratory	MLLW		2283.64			263.68	212.68	267.68	225.68	225.68	3,479.02
Oak Ridge National Laboratory	MTRU	1903.6	3001			36.80	36.80	36.80	36.80	36.80	3,185.00
Oak Ridge National Laboratory	TRU	1046.2									0.00
Oak Ridge National Laboratory	LLW		1100	800	400	1,148	1,148	1,148	1,148	1,148	8,042.28
Paducah Gaseous Diffusion Plant	MLLW		83.45								83.45
Paducah Gaseous Diffusion Plant	MTRU	167	1120			18.20	18.20	18.20	18.20	18.20	1,211.00
Pantex Plant	MLLW		122.66			97.20	164.49	265.25	151.51	70.28	871.39
Pearl Harbor Naval Shipyard	MLLW		7,1981			10.36	5.69	5.69	5.69	5.69	40.33
Portsmouth Gaseous Diffusion Plant	MLLW		6594.88			428.67	416.37	406.06	399.76	399.76	8,645.49
Portsmouth Naval Shipyard	MLLW		0.42			0.03	0.03	0.03	0.03	0.03	0.55
Puget Sound Naval Shipyard	MLLW		195.647			179.48	225.70	312.00	251.50	272.30	1,436.64
Richland Site	HLW		206339			11,957.00	11,144.00	10,402.00	11,156.00	9,997.00	260,995.00
Richland Site	MLLW		1459.98			671.30	922.70	1,291.70	1,008.40	1,289.70	6,643.78
Richland Site	MTRU		225.863			13.82	27.69	45.87	43.15	31.24	387.63
Richland Site	TRU		756.423			0.00	150.49	287.23	399.46	350.35	1,943.96
RMI Titanium Company Extrusion Plant	MLLW		23.52			0.00	5.42	1.61	0.00	0.00	30.55
Rocky Flats Environmental Technology Site	MLLW	2.52	2507.5			575.64	512.95	1,320.24	74.58	79.25	5,070.15
Rocky Flats Environmental Technology Site	MTRU		596.034			64.85	53.21	22.92	22.92	23.01	782.94
Sandia National Laboratory - Albuquerque	MLLW		41,3401			35.00	35.00	35.00	0.00	0.00	146.34
Sandia National Laboratory - Albuquerque	TRU		0.95			1.00					1.95
Sandia National Laboratory - Livermore	MLLW		3.30107			0.20	0.20	0.20	0.20	0.20	4.30
Savannah River Site	HLW		127040			2,597.00	4,316.00	3,751.00	2,433.00	2,334.00	142,471.00
Savannah River Site	MLLW	17.2	1352.8		0.00	389.70	785.38	653.98	626.33	626.43	4,434.62
Savannah River Site	MTRU		67			49.00	48.00	48.00	48.00	48.00	308.00
Savannah River Site	TRU		199			463.00	481.00	607.00	531.00	531.00	2,812.00
Savannah River Site	LLW		13,000	15,300	11,400	4,600	58,000	58,000	58,000	58,000	276,300.00
Shippingport Atomic Power Station	MLLW		165.743			26.10	23.80	39.30	22.10	19.10	296.14
Specify: Chem-Nuclear Laboratory Services Inc.	MLLW		0.4			1.26	1.26	1.26	1.26	1.26	6.70
Specify: Clemson Technology Center, Anderson, SC	MLLW		0.2			0.20	0.20	0.20	0.20	0.20	1.20
Specify: ITAS Laboratory, St. Louis, MO	MLLW		0.4			0.32	0.32	0.32	0.32	0.32	2.00
Specify: ITAS, St. Louis, MO	MLLW		0.2			0.04	0.04	0.04	0.04	0.04	0.40
Specify: TCT Laboratory, St. Louis, MO	MLLW		5			7.02	7.02	7.02	7.02	7.02	40.10
Specify: WTP Laboratory	MLLW		0.1			0.02	0.02	0.02	0.02	0.02	0.20
Stanford Linear Accelerator Center	MLLW		5.9								5.90
TRW Incorporated	MLLW		18.89			2.90	2.90	3.10	2.80	2.90	33.49
University of Missouri Research Reactor	MLLW		1			1.00	1.00	1.00	1.00	0.00	5.00
University of Missouri Research Reactor	MTRU		0.1			0.20	0.20	0.20	0.20	0.00	0.90
University of Utah	MLLW		63.656			22.40	50.20	102.20	65.80	78.20	382.46
West Valley Demonstration Project	MLLW		16.6146		1.95	7.85	6.66	6.66	6.66	6.66	53.04
West Valley Demonstration Project	MTRU	0.765									0.00
West Valley Demonstration Project	TRU		128.24			72.70	12.30	12.30	18.62	56.70	300.86
Y-12 Plant	MLLW		8284.2			498.95	498.95	498.95	498.95	498.95	10,778.93
Y-12 Plant	LLW			100		50	50	50	50	50	349.66

Table 3.2b
TSD Sort By S,T, Future

Site_Name	Waste Type	Currently Stored	Currently Treated	Future Plans	<>	1992	1995	1996	1997	1998	1999	2000
Savannah	MLLW	No		Treating or plan to treat on-site				231	231	231	231	
	MLLW	No	No	Treating or plan to treat on-site			285	285	285	285	285	
Argonne	MLLW	No	No	NA				2.16	2.16	2.16	2.16	1502
Bettis Atomic	TRU	No	No	No treatment required			0.312	26.81	17.41	17.41	17.1	
Knolls Atomic	MTRU	No	No	No treatment required			0.036	0.036	0.036	0.036	0.036	
Mare Island	MLLW	No	No	No treatment required			7.4					
Puget Sound	MLLW	No	No	No treatment required			7400	7400	7400	7400	7400	
Richland Site	MTRU	No	No	No treatment required			0	0	7.12	7.12	7.12	
Richland Site	TRU	No	No	No treatment required			0	44.02	205.2	163.8	408.1	
Rocky Flats	MTRU	No	No	No treatment required								
Savannah	MLLW	No	No	No treatment required			0	0	14	14	14	
Ames	MTRU	No	No	Treating or plan to treat off-site			0	0	0	0	0	
Battelle	TRU	No	No	Treating or plan to treat off-site			0	0	40	40	15.12	
Bettis Atomic	MLLW	No	No	Treating or plan to treat off-site			0.014	0.014	0.014	0.014	0.014	
Charleston	MLLW	No	No	Treating or plan to treat off-site			0.7	0	0	0	0	
Inhalation	MLLW	No	No	Treating or plan to treat off-site			0.44	0.88	0.22	0	0	
Knolls Atomic	MLLW	No	No	Treating or plan to treat off-site			2.64	2.64	2.64	2.64	2.64	
Knolls Atomic	MLLW	No	No	Treating or plan to treat off-site			3.81	3.81	3.81	3.81	3.81	
Knolls Atomic	MLLW	No	No	Treating or plan to treat off-site			2.884	2.884	2.884	2.884	2.884	
Lawrence	MLLW	No	No	Treating or plan to treat off-site								
Mare Island	MLLW	No	No	Treating or plan to treat off-site			1.06					
Norfolk Naval	MLLW	No	No	Treating or plan to treat off-site			2.36	2.36	2.36	2.36	2.36	
Portsmouth	MLLW	No	No	Treating or plan to treat off-site			0.12	0.12	0.12	0.12	0.12	
RMI Titanium	MLLW	No	No	Treating or plan to treat off-site			0	0	0.69	0	0	
Argonne	MLLW	No	No	Treating or plan to treat on-site				0.362	0.362	0.362	0.362	0.362
Argonne	MLLW	No	No	Treating or plan to treat on-site								0.02
Argonne	MTRU	No	No	Treating or plan to treat on-site			0.35	0.35	0.35	0.35	0.35	0.3
Argonne	TRU	No	No	Treating or plan to treat on-site			25	30	30	30	30	30
Bettis Atomic	MLLW	No	No	Treating or plan to treat on-site			3.502	0.382	0.382	0.382	0.382	
Idaho National	MLLW	No	No	Treating or plan to treat on-site			61.84	18.72	1.367	1.367	14.62	28.41
Inhalation	MLLW	No	No	Treating or plan to treat on-site			10	20	20	20	10	
Knolls Atomic	MLLW	No	No	Treating or plan to treat on-site			6.52	6.52	6.52	6.52	6.52	
Knolls Atomic	MLLW	No	No	Treating or plan to treat on-site			8.78	8.78	8.78	8.78	8.78	
Mare Island	MLLW	No	No	Treating or plan to treat on-site			11.51					
Nevada Test	MLLW	No	No	Treating or plan to treat on-site				163	163	163	163	
Pantex Plant	MLLW	No	No	Treating or plan to treat on-site			0.52	190.7	0.73	0.63	2.63	
Pearl Harbor	MLLW	No	No	Treating or plan to treat on-site			0.142	0.142	0.142	0.142	0.142	
Portsmouth	MLLW	No	No	Treating or plan to treat on-site			0.56	0.56	0.56	0.56	0.56	
Princeton	MLLW	No	No	Treating or plan to treat on-site						2	3	
Sandia	MLLW	No	No	Treating or plan to treat on-site			1.62	1.62	1.62			
Savannah	MLLW	No	No	Treating or plan to treat on-site			214.4	304.5	364.2	380.5	364.2	
Laboratory for	MLLW	No	No	Treatment options still being assessed								
Lawrence	MLLW	No	No	Treatment options still being assessed		0						

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TSD Sort By S,T, Future

Site_Name	Waste Type	Currently Stored	Currently Treated	Future_Plans	<>	1992	1995	1996	1997	1998	1999	2000
Lawrence	MTRU	No	No	Treatment options still being assessed								
Nevada Test	MLLW	No	No	Treatment options still being assessed			1	2000				
Savannah	MLLW	No	No	Treatment options still being assessed			902	655.5	681.5	708.5	735.5	
Ames	MLLW	No	Yes	Treating or plan to treat off-site			0.005	0.005	0.005	0.005	0.005	
Inhalation	MLLW	No	Yes	Treating or plan to treat off-site			1.4	1.4	1.4	1.4	1.4	
Nevada Test	MLLW	No	Yes	Treating or plan to treat off-site			0	0.002	0.002	0.002	0.002	
Ames	MLLW	No	Yes	Treating or plan to treat on-site			0.005	0.005	0.005	0.005	0.005	
Knolls Atomic	MLLW	No	Yes	Treating or plan to treat on-site			4.952	4.947	4.947	4.947	4.947	
Mare Island	MLLW	No	Yes	Treating or plan to treat on-site			0.21					
Norfolk Naval	MLLW	No	Yes	Treating or plan to treat on-site			1.55	1.55	1.55	1.55	1.55	
Pantex Plant	MLLW	No	Yes	Treating or plan to treat on-site			2.4	4.8	4.6	4.4	4.3	
Pearl Harbor	MLLW	No	Yes	Treating or plan to treat on-site			0.05	0.05	0.05	0.05	0.05	
Princeton	MLLW	No	Yes	Treating or plan to treat on-site			0.23	0.31	0.47	0.84	0.35	
Puget Sound	MLLW	No	Yes	Treating or plan to treat on-site			12.08	12.08	12.08	12.08	12.08	
Richland Site	HLW	No	Yes	Treating or plan to treat on-site			-13518	-34776	-44394	53967	62437	
Savannah	MLLW	No	Yes	Treating or plan to treat on-site			0.1	0.1	0.1	0.1		
Richland Site	MLLW	Yes	No			0.02	0	0	0	0	0	
Argonne	TRU	Yes	No	No treatment required		23.8	0	42	3.3	3.3	3.3	3.508
Fernald	MLLW	Yes	No	No treatment required		2.6	0.52	0.52	0.52	0.52	0.52	
Grand	MLLW	Yes	No	No treatment required	0.001							
Inhalation	TRU	Yes	No	No treatment required		5.4		0.208	0.208	0.208	0.208	
Knolls Atomic	TRU	Yes	No	No treatment required		0.24	0.16	0.16	0.16	0.16	0.16	
Lawrence	MTRU	Yes	No	No treatment required		8.352	2.732	1.782	1.782	1.782	1.782	
Lawrence	TRU	Yes	No	No treatment required		193.8	33.62	22.11	22.11	22.11	22.11	
Mare Island	MLLW	Yes	No	No treatment required		1.74	4.44					
New	TRU	Yes	No	No treatment required	446							
Oak Ridge	TRU	Yes	No	No treatment required	446							
Richland Site	MTRU	Yes	No	No treatment required		225.9	13.82	27.69	45.87	43.15	31.24	
Richland Site	TRU	Yes	No	No treatment required		756.4	0	150.5	287.2	399.5	350.4	
Rocky Flats	MTRU	Yes	No	No treatment required		6.09	1.03	0.28	0.28	0.28	0.28	
Sandia	TRU	Yes	No	No treatment required		0.95	1					
Savannah	MLLW	Yes	No	No treatment required		2.6	0.24	3.2	0	0	0	
West Valley	TRU	Yes	No	No treatment required		64.12	36.35	6.15	6.15	9.31	28.35	
Argonne	MTRU	Yes	No	Treating or plan to treat off-site				0.156	0.156	0.156	0.156	0.364
Battelle	MLLW	Yes	No	Treating or plan to treat off-site		1.756	3.817	6.029	0.33	0.354	0	
Bettis Atomic	MLLW	Yes	No	Treating or plan to treat off-site		9.34	3.19	0.2	0.2	0.2	0.2	
Brookhaven	MLLW	Yes	No	Treating or plan to treat off-site		9.523	0.392	0.392	0.392	0.392	0.392	
Charleston	MLLW	Yes	No	Treating or plan to treat off-site		1.97	6.1	0	0	0	0	
Energy	MLLW	Yes	No	Treating or plan to treat off-site		14.2		0.63	0.63	0.42	0.42	
Fernald	MLLW	Yes	No	Treating or plan to treat off-site		78	5.44	5.44	5.44	5.44	5.44	
General	MLLW	Yes	No	Treating or plan to treat off-site		2.5	3.486	3.486	3.486	3.486	3.486	

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Table 3.2b
TSD Sort By S,T, Future

Site_Name	Waste Type	Currently Stored	Currently Treated	Future_Plans	<>	1992	1995	1996	1997	1998	1999	2000
K-25 Site	MLLW	Yes	No	Treating or plan to treat off-site		656.8	124.6	124.6	124.6	124.6	124.6	
Knolls Atomic	MLLW	Yes	No	Treating or plan to treat off-site		1.82	0.706	0.706	0.706	0.706	0.706	
Knolls Atomic	MLLW	Yes	No	Treating or plan to treat off-site		0.987	1.996	1.896	1.896	1.896	1.896	
Lawrence	MLLW	Yes	No	Treating or plan to treat off-site		3.98	0.94	0.94	0.94	0.94	0.94	
Lawrence	MLLW	Yes	No	Treating or plan to treat off-site		82.39	16.71	16.71	16.71	16.71	16.71	
Los Alamos	MLLW	Yes	No	Treating or plan to treat off-site		68.95	0.842	0.842	0.842	0.842	0.842	
Mare Island	MLLW	Yes	No	Treating or plan to treat off-site		23.71	9.225					
Oak Ridge	MLLW	Yes	No	Treating or plan to treat off-site		93.75	7.81	7.81	7.81	7.81	7.81	
Paducah	MLLW	Yes	No	Treating or plan to treat off-site		0.01						
Pearl Harbor	MLLW	Yes	No	Treating or plan to treat off-site		1.442	7.14	2.47	2.47	2.47	2.47	
Portsmouth	MLLW	Yes	No	Treating or plan to treat off-site		288	14.73	2.43	1.92	1.92	1.92	
Portsmouth	MLLW	Yes	No	Treating or plan to treat off-site		0.42	0.026	0.026	0.026	0.026	0.026	
Puget Sound	MLLW	Yes	No	Treating or plan to treat off-site		29.51	7.27	7.29	7.29	7.29	7.29	
RMI Titanium	MLLW	Yes	No	Treating or plan to treat off-site		23.52	0	5.42	1.61	0	0	
Rocky Flats	MLLW	Yes	No	Treating or plan to treat off-site		49.32	13.52	13.52	13.52	13.52	13.52	
Sandia	MLLW	Yes	No	Treating or plan to treat off-site		0.2						
Sandia	MLLW	Yes	No	Treating or plan to treat off-site		0.201						
Savannah	MLLW	Yes	No	Treating or plan to treat off-site		82.6	6	6	6	6.1	6.2	
Specify: Chem	MLLW	Yes	No	Treating or plan to treat off-site		0.4	1.26	1.26	1.26	1.26	1.26	
Specify: TCT	MLLW	Yes	No	Treating or plan to treat off-site		2.8	3.4	3.4	3.4	3.4	3.4	
Stanford	MLLW	Yes	No	Treating or plan to treat off-site		5.9						
University of	MLLW	Yes	No	Treating or plan to treat off-site		1	1	1	1	1	0	
West Valley	MLLW	Yes	No	Treating or plan to treat off-site		7.441	0.582	0.53	0.53	0.53	0.53	
Y-12 Plant	MLLW	Yes	No	Treating or plan to treat off-site		6473	242	242	242	242	242	
Ames	MLLW	Yes	No	Treating or plan to treat on-site		165.7	26.1	23.8	39.3	22.1	19.1	
Argonne	MLLW	Yes	No	Treating or plan to treat on-site		162.6	42.3	98.92	176.5	211.9	293.6	19.02
Argonne	MTRU	Yes	No	Treating or plan to treat on-site				0.214	0.214	0.214	0.214	0.214
Argonne	MLLW	Yes	No	Treating or plan to treat on-site	0.42		3.197	3.086	3.026	4.276	3.026	
Argonne	MTRU	Yes	No	Treating or plan to treat on-site			0.191	0.201	0.201	0.191	0.191	0.02
Argonne	TRU	Yes	No	Treating or plan to treat on-site			0.42	0.42	0.42	0.42	0.42	0.42
Battelle	MLLW	Yes	No	Treating or plan to treat on-site		27.87	9.7	20	39.7	27.2	32.9	
Bettis Atomic	MLLW	Yes	No	Treating or plan to treat on-site		673.2	429	527.8	745.9	567.8	594.8	
Brookhaven	MLLW	Yes	No	Treating or plan to treat on-site		0.32	0.1	0.1	0.1	0.1	0.1	
Clemson	MLLW	Yes	No	Treating or plan to treat on-site		2.2	0.6	0.6	0.6	0.6	0.6	
Fermi National	MLLW	Yes	No	Treating or plan to treat on-site		279.9	60.1	93.6	177	114.7	129.8	
Fernald	MLLW	Yes	No	Treating or plan to treat on-site		34	14.06	14.06	14.06	14.06	14.06	
Grand	MLLW	Yes	No	Treating or plan to treat on-site		0.03	0.005	0.005	0.005	0.005	0.005	
Idaho National	HLW	Yes	No	Treating or plan to treat on-site			0	142	426	66	328	52.4
Idaho National	MLLW	Yes	No	Treating or plan to treat on-site			133.6	129.5	160.2	176.7	154.6	117.1
Idaho National	MTRU	Yes	No	Treating or plan to treat on-site				1.36	8.25	2.71	5.42	1.356
K-25 Site	MLLW	Yes	No	Treating or plan to treat on-site		211.9	21.49	21.49	21.49	21.49	21.49	
Knolls Atomic	MTRU	Yes	No	Treating or plan to treat on-site		560	9.1	9.1	9.1	9.1	9.1	
Lawrence	MLLW	Yes	No	Treating or plan to treat on-site		347.9	119.4	171.2	281.3	185.6	193.1	

Site_Name	Waste Type	Currently Stored	Currently Treated	Future_Plans	<>	1992	1995	1996	1997	1998	1999	2000
Lawrence	MLLW	Yes	No	Treating or plan to treat on-site		32.4	10.1	10.1	10.1	10.1	10.1	
Los Alamos	MLLW	Yes	No	Treating or plan to treat on-site		199.2	12.74	12.74	12.74	12.74	12.74	
Mound Plant	MLLW	Yes	No	Treating or plan to treat on-site		6.058	0	0	3.652	0.81	0	
New	MTRU	Yes	No	Treating or plan to treat on-site	167.8	560	9.1	9.1	9.1	9.1	9.1	
Oak Ridge	MTRU	Yes	No	Treating or plan to treat on-site	0.765							
Oak Ridge	MLLW	Yes	No	Treating or plan to treat on-site		187.5	24.19	24.19	24.19	24.19	24.19	
Oak Ridge	MTRU	Yes	No	Treating or plan to treat on-site	1257	1794	21.4	21.4	21.4	21.4	21.4	6
Paducah	MTRU	Yes	No	Treating or plan to treat on-site	167	560	9.1	9.1	9.1	9.1	9.1	
Pantex Plant	MLLW	Yes	No	Treating or plan to treat on-site		122.7	97.2	164.5	265.3	151.5	70.28	
Portsmouth	MLLW	Yes	No	Treating or plan to treat on-site		5570	78.79	78.79	72.99	70.99	70.99	
Puget Sound	MLLW	Yes	No	Treating or plan to treat on-site		105.8	37.3	83.5	169.8	109.3	130.1	
Richland Site	HLW	Yes	No	Treating or plan to treat on-site		2E+05	11957	11144	10402	11156	9997	
Richland Site	MLLW	Yes	No	Treating or plan to treat on-site		1459	671.3	921.7	1291	1007	1289	
Rocky Flats	MLLW	Yes	No	Treating or plan to treat on-site	2.52	2458	562.1	499.4	1307	61.06	65.73	
Rocky Flats	MTRU	Yes	No	Treating or plan to treat on-site		508.8	58.76	49.06	22.07	22.07	22.16	
Sandia	MLLW	Yes	No	Treating or plan to treat on-site		13.13	3	3	3	1E-05	1E-05	
Sandia	MLLW	Yes	No	Treating or plan to treat on-site		2.7	1E-05	1E-05	1E-05	1E-05	1E-05	
Savannah	MLLW	Yes	No	Treating or plan to treat on-site	17.2	1128	171.8	561.4	436.4	408.6	408.6	
Shippingport	MLLW	Yes	No	Treating or plan to treat on-site		165.7	26.1	23.8	39.3	22.1	19.1	
Specify:	MLLW	Yes	No	Treating or plan to treat on-site		0.2	0.2	0.2	0.2	0.2	0.2	
Specify: ITAS	MLLW	Yes	No	Treating or plan to treat on-site		0.4	0.32	0.32	0.32	0.32	0.32	
Specify: ITAS	MLLW	Yes	No	Treating or plan to treat on-site		0.2	0.04	0.04	0.04	0.04	0.04	
Specify: TCT	MLLW	Yes	No	Treating or plan to treat on-site		2.2	3.62	3.62	3.62	3.62	3.62	
Specify: WTP	MLLW	Yes	No	Treating or plan to treat on-site		0.1	0.02	0.02	0.02	0.02	0.02	
TRW	MLLW	Yes	No	Treating or plan to treat on-site		18.89	2.9	2.9	3.1	2.8	2.9	
University of	MLLW	Yes	No	Treating or plan to treat on-site		63.66	22.4	50.2	102.2	65.8	78.2	
West Valley	MLLW	Yes	No	Treating or plan to treat on-site		2.428	1.19	0.053	0.053	0.053	0.053	
West Valley	MTRU	Yes	No	Treating or plan to treat on-site	0.765							
Y-12 Plant	MLLW	Yes	No	Treating or plan to treat on-site		258.7	32.01	32.01	32.01	32.01	32.01	
Argonne	MLLW	Yes	No	Treatment options still being assessed				0.514	0.514	0.514	0.514	0.514
Brookhaven	MLLW	Yes	No	Treatment options still being assessed		16.8	0.03	0.03	0.03	0.03	0.03	
General	MLLW	Yes	No	Treatment options still being assessed		8.46	3.597	3.597	3.597			
K-25 Site	MLLW	Yes	No	Treatment options still being assessed		736.7	66.04	135.6	276.4	276.4	276.4	
Lawrence	MLLW	Yes	No	Treatment options still being assessed		0						
Lawrence	TRU	Yes	No	Treatment options still being assessed		0.63	0.21				0.21	
Lawrence	MLLW	Yes	No	Treatment options still being assessed		7.6	0.2	0.2	0.2	0.2	0.2	
Lawrence	TRU	Yes	No	Treatment options still being assessed			1.158	1.158	1.158	1.158	1.158	
Los Alamos	MLLW	Yes	No	Treatment options still being assessed		340.5	7.5	7.5	7.5	7.5	7.5	
Los Alamos	MTRU	Yes	No	Treatment options still being assessed		7690	145	149	149	149	149	
Los Alamos	TRU	Yes	No	Treatment options still being assessed		3285	147	147	147	147	147	
Nevada Test	MLLW	Yes	No	Treatment options still being assessed		30.8	0	15	15	15	15	
Oak Ridge	MLLW	Yes	No	Treatment options still being assessed		464.3	63.85	63.85	63.85	63.85	63.85	
Oak Ridge	TRU	Yes	No	Treatment options still being assessed	17.93							

Table 3.2b
TSD Sort By S,T, Future

Site Name	Waste Type	Currently Stored	Currently Treated	Future Plans	<>	1992	1995	1996	1997	1998	1999	2000
Portsmouth	MLLW	Yes	No	Treatment options still being assessed		67.39	0.554	0.554	0.554	0.554	0.554	
Richland Site	MLLW	Yes	No	Treatment options still being assessed		1	0	1	1	1	1	
Sandia	MLLW	Yes	No	Treatment options still being assessed		28	0.2	0.2	0.2			
Savannah	MLLW	Yes	No	Treatment options still being assessed		8	61.6	61.6	61.6	61.6	61.6	
Savannah	MTRU	Yes	No	Treatment options still being assessed		67	49	48	48	48	48	
Savannah	TRU	Yes	No	Treatment options still being assessed		199	463	481	607	531	531	
University of	MTRU	Yes	No	Treatment options still being assessed		0.1	0.2	0.2	0.2	0.2	0	
West Valley	MLLW	Yes	No	Treatment options still being assessed		6.746	6.074	6.074	6.074	6.074	6.074	
Y-12 Plant	MLLW	Yes	No	Treatment options still being assessed		642	73.31	73.31	73.31	73.31	73.31	
Grand	MLLW	Yes	Yes	Treating or plan to treat off-site		0.113	0.01	0.01	0.01	0.01	0.01	
Paducah	MLLW	Yes	Yes	Treating or plan to treat off-site		83.44						
Portsmouth	MLLW	Yes	Yes	Treating or plan to treat off-site		235.2	12.42	12.42	8.42	6.42	6.42	
Sandia	MLLW	Yes	Yes	Treating or plan to treat off-site		0.01	31.8	31.8	31.8			
Sandia	MLLW	Yes	Yes	Treating or plan to treat off-site		0.4	0.2	0.2	0.2	0.2	0.2	
Argonne	MLLW	Yes	Yes	Treating or plan to treat on-site		5.29	0.594	3.076	3.076	3.076	3.076	1.476
Bettis Atomic	MLLW	Yes	Yes	Treating or plan to treat on-site		1.963	0.691	0.671	0.671	0.671	0.671	
Fernald	MLLW	Yes	Yes	Treating or plan to treat on-site		234.9	20.09	20.09	20.09	20.09	20.09	
Idaho National	HLW	Yes	Yes	Treating or plan to treat on-site			538	538	538	538	538	283.4
Idaho National	MLLW	Yes	Yes	Treating or plan to treat on-site			0.12	0.96	0.96	0.96	0.84	0.84
K-25 Site	MLLW	Yes	Yes	Treating or plan to treat on-site		728.1	56.9	56.9	56.9	56.9	56.9	
Knolls Atomic	MLLW	Yes	Yes	Treating or plan to treat on-site		0.45	2.57	2.57	2.57	2.57	2.57	
Knolls Atomic	MLLW	Yes	Yes	Treating or plan to treat on-site		7.582	2.82	2.8	2.7	2.69	2.59	
Knolls Atomic	MLLW	Yes	Yes	Treating or plan to treat on-site		0.298	3.34	3.34	3.34	3.34	3.34	
Lawrence	MLLW	Yes	Yes	Treating or plan to treat on-site		1.74	0.47	0.47	0.47	0.47	0.47	
Lawrence	MLLW	Yes	Yes	Treating or plan to treat on-site		334.8	326	326	326	326	326	
Mare Island	MLLW	Yes	Yes	Treating or plan to treat on-site		1.32	25.76					
Norfolk Naval	MLLW	Yes	Yes	Treating or plan to treat on-site		5.07	11	11	11	11	11	
Oak Ridge	MLLW	Yes	Yes	Treating or plan to treat on-site		1538	167.8	116.8	171.8	129.8	129.8	
Pearl Harbor	MLLW	Yes	Yes	Treating or plan to treat on-site		5.756	3.222	3.222	3.222	3.222	3.222	
Portsmouth	MLLW	Yes	Yes	Treating or plan to treat on-site		434.7	322.2	322.2	322.2	319.9	319.9	
Puget Sound	MLLW	Yes	Yes	Treating or plan to treat on-site		60.29	134.9	134.9	134.9	134.9	134.9	
Rocky Flats	MTRU	Yes	Yes	Treating or plan to treat on-site		81.19	5.06	3.87	0.57	0.57	0.57	
Savannah	HLW	Yes	Yes	Treating or plan to treat on-site		1E+05	2597	4316	3751	2433	2334	
Savannah	MLLW	Yes	Yes	Treating or plan to treat on-site		130.8	150	150	150	150	150	
Y-12 Plant	MLLW	Yes	Yes	Treating or plan to treat on-site		703.4	116.3	116.3	116.3	116.3	116.3	
Los Alamos	TRU	Yes	Yes	Treatment options still being assessed		50.98	2	2	2	2	2	

3.2.3 WASTE MANAGEMENT TECHNICAL COST DRIVERS

Waste Management comprises treatment, storage and disposal of the various types of radioactive and hazardous wastes in the current inventory, as well as projected waste streams from ongoing programs and environmental restoration. The following are descriptions of technical cost drivers impacting waste management, and indicating the nature of the cost relationship.

Waste Type: The radioactive waste characteristic type is a driver because of the varying degrees of difficulty and health risk in handling, processing, storage, and disposal:

- High Level Waste (HLW) - Highly radioactive, mainly liquid wastes or sludges resulting from reprocessing spent nuclear fuel and irradiated targets. HLW is gamma ray emitting, dangerous, remote handled. Stored at INEL, Hanford, West Valley, Savannah River. Geological site disposal is planned for HLW.
- Transuranic Waste (TRUW) - Waste containing more than 100 nanocuries of alpha-emitting, transuranic isotopes, with half lives greater than 20 year, per gram of wastes. TRUW is produced during reactor fuel assembly, nuclear weapons preproduction, and spent nuclear fuel. Stored at 8 DoE sites (Hanford, INEL, Nevada Test Site, Oak Ridge, Savannah River Site, Rocky Flats, Los Alamos, Mound). WIPP disposal planned is planned for TRUW.
- Low Level Waste (LLW) - Includes all waste not classified as HLW, spent nuclear fuel, or TRUW. Generated at 30 sites, generated by nuclear research, industrial and medical activities. LLW is further catagorized as CH or RH and as alpha or non-alpha on the basis of radioactive emissions.
- Commercial Uranium Mill Tailings (UMT) - The residue of uranium mining which contain low concentrations of radioactive materials.

- Mixed Low Level Waste (MLLW) - Contains both hazardous and low level radioactive components. MLLW is further categorized as CH or RH and as alpha or non-alpha on the basis of radioactive emissions.
- Hazardous Waste (HW) - Nonradioactive, toxic, corrosive, reactive, flammable substances, heavy metals including mercury, diesel fuel, asbestos toxic cleaning agents solvents.
- Sanitary Waste - EPA approved landfills, or sewage disposal.

Physical Characteristics: Wastes can also be defined by their physical characteristics. The following categories indicate the various physical properties of most EM wastes.

- Aqueous liquids - Watery liquids with organic content of less than 1% (such as wastewater)
- Organic liquids - Liquids and slurries with organic content greater than 1% (such as solvents)
- Organic and inorganic sludge and particulates - Solid and semi-solid material other than debris (such as sludge from treatment plants, resins, and solids less than 2.5-inch diameter particle size).
- Soils - Contaminated soils (such as contaminated earth requiring remediation).
- Debris - Solid material exceeding 2.5-inch diameter particle size that is either (1) manufactured, (2) plant or animal matter, or (3) discarded natural or geological material (such as cobblestones).
- Other - Special waste stream (such as batteries, laboratory packs, reactive metals, and toxic metals, which include mercury, lead and beryllium).

Storage Status: Whether the waste requires one, two or more additional steps in its life cycle can be determined from the storage status. The following factors show the information we will use to develop a cost relationship:

- Characterization: Have the waste streams constituent parts been identified as hazardous, or radioactive?
- Packaging: Is waste currently stored in tanks, bins, or drums or is it loose in the environment?
- Treatment Status: Has the waste already been treated to reduce toxicity, instability, volume, or not. This parameter is of primary importance in Transuranic Waste, since further treatment is generally a high cost endeavor.

Waste Management Facility Type: The origin of the waste from the wide variety of DoE facilities is expected to have a significant effect on costs. In our next phase, we will reduce the facility impact to either a dummy variable or a scaled range; the following list illustrates the challenge in establishing the cost relationship:

- Production Reactors: Fourteen large production reactors at SRS and Hanford used to generate plutonium. Waste products include spent nuclear fuel, transuranics.
- Diffusion Cascade Buildings: Three gaseous diffusion plants used to enrich uranium by separating uranium 235 from "depleted" uranium 238. Waste products include spent nuclear fuel, high level waste, transuranic waste, enrichment "tails".
- Chemical Reprocessing Plants: Eight large reprocessing plants ("canyons") at Hanford, SRS, and INEL used to separate uranium and plutonium from other fission products.

- Plutonium Machine Shops: Plants where reprocessed plutonium is machined into warhead components (RFETS is an example). Waste products included large quantities of plutonium left after plant shutdown.
- Weapons Assembly Plant: (Pantex plant) One Plant devoted to assembly of nuclear and nonnuclear components into warheads. Waste products included limited plutonium left after plant shutdown.
- Research Reactors: Smaller reactors for research and development.
- Contaminated Facilities: Various facilities contaminated with waste are stratified by the radioactivity class of the contaminant (TRUW, HLW, LLMW, LLW, SNF, HW).
- Storage Tanks: Above and underground waste storage tanks. (TRUW, HLW, LLMW, LLW, SNF, HW).
- Stacks: Facilities used as exhaust stacks for boilers and similar structures.
- Pipelines: Pipelines used to transfer materials between facilities.
- Ponds/Retention Basins: Earthen structures to hold effluent liquids.

Waste Processing Phase: This parameter indicates the phase of the waste, from treatment and storage to disposal. Treatment processes of radioactive and mixed hazardous waste generally reduce the waste volume, toxicity, or structural instability. Storage status indicates the temporary internment of waste before or after treatment. Disposal processes provide permanent isolation of the waste from the environment. The following list describes the different treatment types used in processing waste.

- Soil Washing (Pretreatment): Soil contaminated with listed, or characteristic wastes is first sifted to remove over-size material. The large pieces are milled to manageable size and mixed with the finer materials. The soil is then mixed with water, which contains additives to adjust the pH and remove other constituents of concern. The washed soil requires no additional

stabilization or treatment, but still requires disposal in a RCRA landfill, or a HW/MW landfill, if it contains low level radionuclides. The was water must be further treated by an effluent treatment facility, before it is released.

- Filtration (Pretreatment): - Filtration is removal/separation of particles from a mixture of fluid and particles by a medium that permits the flow of the fluid, but retains the particles. Usually, the larger the particles, the easier they are to remove from the fluid.
- Acid Digestion:- An emerging technology for treatment of mixed wastes. In this developmental process, solids are processed in a nitric acid bath with a metal catalyst for oxidation of organics and dissolution of solids. The organic constituents are oxidized to carbon dioxide by the acid and metal contaminants are brought into the solution. The resultant spent acid solution, with dissolved hazardous metals, would be treated in a chemical precipitation process to remove metals and neutralize the solution prior to disposal through a permitted outfall.
- Acid Leaching: The acid leaching process is designed to solubilize heavy metal contamination. The prepared and sorted waste is placed in a series of tanks containing acid solution. The waste is agitated to ensure thorough mixing and saturation. After a specified contact period, the leachate and solids are separated. The solids are washed to remove soluble metals, followed by dewatering, required for final disposal. The leachate stream is sent to the wastewater treatment process where the dissolved metal is precipitated as an insoluble hydroxide. The detoxified material is repackaged in final containers.
- Amalgamation: Amalgamation is a process applicable to radioactive wastes containing mercury and particularly to wastes containing radioactive mercury isotopes. Mercury compounds are converted into a solid alloy with mercury and the amalgamating material, which is more easily managed and

less mobile than solutions containing radioactive mercury. Amalgamation provides a change in mobility from liquid.

- Biological Treatment: Biological treatment requires developing bacteria to metabolize particular hazardous chemicals contained in the waste. Specific bacteria would have to be developed for each predominant constituent in the waste. biological treatment is most often used in cases where concentrations of the hazardous organics are low. Biological treatment is not very effective for waste streams containing high concentrations of hazardous constituents, or concentrated organic liquids since either would be toxic to biological activity.
- Carbon Adsorption: Carbon Adsorption is a technology used to treat wastewaters containing dissolved organics at concentrations less than about 5 percent and some dissolved metal and other inorganic containments. The two most common carbon adsorption processes are the granular activated carbon (GAC), which is used in packed beds, and the powdered activated carbon (PAC), which is added loosely to wastewater.
- Chemical Oxidation: Chemical or electrolytic oxidation uses these oxidizing agents either alone or in combination to destroy organic constituents of concern: (1) hypochlorite (e.g., bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or ultraviolet light (UV) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing agents of equivalent efficiency. Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.
- Chemical Reduction: Chemical reduction is a process using these reducing agents either alone or in combination: (1) sulfur dioxide and (2) sodium, potassium, or alkali salts of sulfites, bisulfites, metabisulfates, and polyethylene glycols. Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.

- Chemical Oxidation: Chemical oxidation (or electrolytic oxidation) involves the addition of a chemical oxidizing agent to the waste streams. Agents may include: (1) hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g. Total Organic Carbon can often be used as an indicator parameter for the adsorption of many organic constituents that cannot be directly analyzed in wastewater residues). Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.
- Incineration: Incineration is a controlled process by which combustible solid, liquid, or gaseous wastes are changed into noncombustible gases and solid ash.
- Ion Exchange: Ion Exchange uses a resin to replace certain specific ions in a solution with other ions that are innocuous. Ion Exchange is used to separate a mixed waste into its radioactive and hazardous constituents if the radioactive components are ionic. It will also concentrate the radioactive ionic species into a small volume, leaving a nonradioactive aqueous phase. The principal mixed waste application of this process is to recover metallic radionuclide from wastewaters or acid leach liquids.
- Metals Recovery: Recovery of metals or inorganics employs one or more of these direct physical/removal technologies: (1) ion exchange; (2) resin or solid (i.e., zeolites) adsorption; (3) reverse osmosis; (4) chelation/solvent extraction; (5) freeze crystallization; (6) ultrafiltration and/or (7) simple precipitation (i.e., crystallization). Note: This does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when

used in conjunction with the above listed recovery technologies. Metallic compounds are separated from aqueous streams.

- Lead Decontamination Lead waste, which is unmixed with plastic, paper, or leather, is decontaminated by immersion in an acid bath. The acid dissolves the surface of the lead, which has been contaminated with radionuclides. The decontaminated lead can then be washed and reused. The acid solution is neutralized and the dissolved lead precipitated. The precipitate is removed and stabilized for disposal. The neutralized solution can be further treated for reuse or recycle.
- Neutralization: Neutralization uses these chemicals either alone or in combination; (1) acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals.
- Precipitation: Precipitation removes metals and other inorganics by forming insoluble compounds of oxides, hydrides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. These precipitants are typically used alone or in combination; (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium and/or potassium hydroxides; (3) soda ash (i.e., sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional chemicals for flocculating and coagulating precipitates enhance sludge dewatering may also be used.
- Process Wastewater Treatment All wastewater generated at the HW/MW Low Hazard Building would be treated and reused. There are nine steps in the wastewater treatment process: collection in equalization tank, lime/pH adjustment, flocculent addition, parallel plate clarifier, filter press, final pH adjustment, sand filtration, carbon absorption, and evaporation.

- Roasting / Retorting: Sprengle pumps and mercury diffusion pumps contaminated with tritium and mercury are contained in stainless steel boxes. Due to radiation or exposure concerns, some of the boxes are enclosed in a concrete culvert. Processing requires monitoring and opening the culvert and boxes then removing and cutting up the pumps in a glove box prior to roasting and retorting. Roasting and retorting mercury from radioactive contaminated process equipment has two major components:

Mercury Oven (Roaster) - The mercury oven is electrically heated to approximately 400-degree Celsius with a mechanical vacuum pump providing the required vacuum or negative pressure. The oven is sized to handle 8-liter Sprengle pumps and mercury diffusion pumps. The estimated chamber size is 36 x 36 x 36 inches resulting in a capacity of 27 ft³ or 0.76 m³.

Condenser/Decanter (Retort) - The condenser is connected to the offgas system from the oven to condense the mercury vapor and vaporized organic compounds. The mercury is drawn off the bottom of the condenser receiver and condensed. Liquid organics are decanted at the supernatant interface and go to the CIF. The mercury goes to amalgamation. The gas coming out of the condenser is exhausted through the offgas system.

- Steam Stripping: Steam stripping removes volatile organic compounds by heating the contaminated waste directly with high temperature steam. The contaminated waste is usually liquid, but could be a solid. Organics are concentrated in the stream, from which they can be recovered or incinerated.
- Steam Gasification: Steam gasification uses superheated steam to oxidize complex organic compounds to carbon monoxide, carbon dioxide, water, hydrogen, and methane. The destruction of organics is completed at high temperature using an electrically-heated reactor.
- Thermal Treatment: Thermal treatment involves process hazardous waste in a device that uses elevated temperatures as the primary means to change the

chemical, physical, or biological characteristics or composition of the hazardous waste. Examples of thermal treatment processes are incineration, pyrolysis, calcination, wet air oxidation, and microwave.

- Thermal Desorption: Used to volatilize organics from soils at lower temperatures than produced by incineration. The volatile organics would be volatilized and captured while the treated solids could be compacted or incinerated before disposal.
- Stabilization and Immobilization: Stabilization comprises treatment processes that immobilize hazardous constituents in a waste. For treatment of metals in low-level mixed wastes stabilization technologies will reduce the leachability of the hazardous metal constituents (regardless of whether the metals are radioactive) in nonwastewater matrices. Immobilization techniques are macroencapsulation, microencapsulation, or sealing to reduce surface exposure to potential leaching media or to reduce the leachability of the hazardous constituents

Macroencapsulation: Immobilization by application of surface coating materials such as polymeric organics (e.g., resins and plastics) or a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media.

Microencapsulation: Immobilization of debris with these materials such that the leachability of the hazardous contaminants is reduced; (1) Portland cement; or (2) Lime/pozzolans (e.g., fly ash and cement kiln dust. Additives (e.g., iron salts, silicates, and clay) enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents.

Vitrification: Immobilization of mixed materials such as contaminated soils, by literally turning the volume of material to glass using extremely high voltages applied from the boundaries of the waste volume.

3.2.4 ENVIRONMENTAL RESTORATION TECHNICAL COST DRIVERS

Environmental Restoration (ER) consists of Remediation and Restoration elements, Decontamination and Decommissioning tasks, Landlord functions, and Program Management. Its activities encompass initial site characterization, remediation design and execution, decommissioning of contaminated facilities, and long-term surveillance and monitoring functions. Unlike the waste management inventories, less than one fourth of environmental restoration sites have been fully characterized, leaving the extent and type of contamination largely unknown.

The following are descriptions of technical cost drivers for ER activities, which indicate the nature of the cost relationship.

Type of Contamination: The scope and technology used in site remediation and restoration depends on the type of contamination. The major types expected on DoE facilities are: volatile organic compounds (VOCs), heavy metals, polychlorinated aliphatic hydrocarbons (PAHs), and mixed waste.

Extent of Contamination: Varying degrees of contamination are associated primarily with the area and depth of penetration. Regarding area, contamination may be limited to a spill zone, or as extensive as a watershed on the surface or a groundwater plume in an aquifer. Regarding depth, contamination may be limited to the upper few feet of the vadose zone, or may have penetrated to an unconfined aquifer.

Physical Characteristics of the Terrain, Soil, or Aquifer Material: The terrain may be flat, developed land such as industrial areas or farmland or the terrain may be undeveloped rolling hills with extensive natural flora. Physical structures may require removal prior to remedial action. Soil materials may be high or low in organic material content, affecting the absorptive capacity for organic contaminants and mixed waste. Soil may also be classified according to clay, silt and sand content, affecting the transport of materials through the soil

matrix. Aquifer material may also be relatively low or high in absorptive (retardation) capacity, and the aquifer structure (confined, unconfined, or perched) may drive the remediation technology as well

Level of Public Access: The level of public access following the ER and D&D activities will drive cleanup requirements. Options range from the costly "Green feild" scenario of unlimited public access, to the "iron fence" scenario of total public restriction.

Waste Volume Produced: The sheer volume of waste exhumed in ER operations will drive treatment storage and disposal costs.

Waste Management Factors: In addition to the above, waste produced as a biproduct of environmental restoration will have to be treated, stored and disposed as described above in our dicussion of waste management.

3.2.5 BEMR AND PEIS DATA ANALYSIS

Part of our effort to study general data trends resulted in development of a preliminary database of cost and technical data to identify cost drivers and test their predictive ability at summary levels of costs. For this top-level analysis, we used BEMR site summaries showing five year cost averages from 1995 to 2015, matched with technical data from the Draft Waste Management PEIS (waste quantity inventories and twenty year projections by waste type and site). The groundrules and assumptions used to identify and analyze the data were as follows:

- BEMR provides zero disposal costs in the 1995 to 2015 time frame for HLW and TRUW.
- BEMR provides zero treatment costs in the 1995 to 2015 time frame for SNF
- High Level Waste costs do not include pre treatment storage and vitrification costs.

- Spent Nuclear Fuel quantity inventories are given in metrics tons (approximately one cubic meter).
- Hazardous wastes are given in metric tons per year (approximately one cubic meter) and are extrapolated to twenty years., by a twenty fold scale up.

We analyzed the PEIS to verify that the WM waste quantities were generated from the Mixed Waste Inventory Report, and the Integrated Database Report; and that the ER generated wastes are summed from 1995 Baseline Environmental Management Report. The resulting database allowed us to correlate waste quantities by type with the treatment, storage and handling and disposal costs for each waste type. Average cost per volume metrics were computed by dividing total processing costs into the total waste volumes. and these averages were used as starting points for least squares analysis.

Table 3.3, Processing Costs on a FY95\$ per Quantity Basis			
WASTE TYPE	Treatment	Storage & Handling	Disposal
TRUW	28,081.98	25,558.16	0
HLW	31,182.89	18,993.94	0
LLMW	22,575.27	9,917.23	8,471.64
LLW	2,129.39	605.96	2,368.74
SNF	0	2,244,468.28	378,994.62

* No TSD breakout exists for hazardous waste. SNL given in cost per metric tons, all other cost per quantity figures given in cost per cubic meters.

Trend Analysis of this data shows Storage & Handling and Disposal of SNF to be the highest cost per processing metrics followed by TRUW and HLW Treatment and Storage and Handling costs.

Cost per unit metrics were derived for both WM and ER costs and quantities. Results confirmed the expected notion, that high level and transuranic wastes cost more to handle than low level and hazardous wastes. The relationship between mixed and unmixed low level wastes is also as it should be, LLW coming in considerably cheaper.

3.3 SITE REVIEW AND ANALYSIS

3.3.1 COST PRIORITY

Using the ADS data sources described in Section 3.1 above, we examined each of the sites under the various field offices for priorities in cost and ADS category type. The following charts show the budget of each field office for FY92-93 and the breakout of costs by site and category. The conclusions are that:

- The Hanford, Albuquerque, and Savannah River installations have the highest value and broadest range of ADS activities; these should be targeted for initial data collection
- The Headquarters activities supporting technology development and environmental restoration are very high value activities which merit cost analysis.

Figure 3.3, Richland F.O. Priorities

Figure 3.6, Savannah River F.O. Priorities

Figure 3.4, Headquarters Priorities

Figure 3.7, Idaho F.O. Priorities

Figure 3.5, Albuquerque F.O. Priorities

Figure 3.8 Oak Ridge F.O. Priorities

Figure 3.9, Rocky Flats Priorities

Figure 3.11, Chicago F.O. Priorities

Figure 3.10, San Francisco F.O. Priorities

Figure 3.12 Nevada F.O. Priorities

ENVIRONMENTAL MANAGEMENT MODEL COST BREAKDOWN STRUCTURE

To organize the data collection effort and support analyses in the next phase, we have developed a Cost Breakdown Structure for the environmental management analysis model, which is process oriented and organized by environmental management program areas. The source for the CBS elements and their relationship to the environmental program is the 1995 BEMR and the 1995 Draft Waste Management PEIS.

The model CBS is structured to roll up the environmental management costs. CBS levels 2 and 3 include general and specific environmental management areas, respectively. For example, one level 2 (general) element encompasses the costs for Waste Management (CBS 1.2), and another covers the cost of Environmental Restoration (CBS 1.3). CBS levels 4 and 5 are designed for specific processes. Many of the cost studies and project case studies collected in this study are at the component-process level. The model CBS shown below in Table 4-1 is organized to show that these processes are components of the overall environmental management program.

Table 4-1
Cost Breakdown Structure of the Environmental Management Cost Model

1 Environmental Management	
1.1 Compliance Plans, Permits, Reports, & Assessments	1.4 Environmental Restoration
1.1.1 Air Emissions (Example Detail)	1.4.1 Remediation & Restoration
1.1.1.1 Plans, Reports, Permits	1.4.1.1 RI/FS & Potential Release Site Assessments
1.1.1.2 Audits & Assessments	1.4.1.2 Restoration Design
1.1.2 Low-Level Waste	1.4.1.3 Remediation Processes
1.1.3 Mixed Waste	1.4.1.3.1 Ground Water
1.1.4 Spent Nuclear Fuel	1.4.1.3.2 Surface Water
1.1.5 Hazardous Waste	1.4.1.3.3 In-Situ Soil
1.1.6 Solid Waste	1.4.2 Decontamination & Decommissioning
1.1.7 Water & Wastewater	1.4.3 Landlord
	1.4.4 Program Management
1.2 Waste Management	1.5 Nuclear Material and Facility Stabilization
1.2.1 Air Emissions	1.5.1 Stabilization
1.2.2 Low-Level Waste	1.5.2 Program Management
1.2.2.1 Treatment Processes	1.5.3 Surveillance and Maintenance
1.2.2.2 Storage Processes	1.5.4 Landlord
1.2.2.3 Disposal Processes	1.5.4.1 Water Supply & Distribution System
1.2.3 Mixed Waste	1.5.4.2 Domestic Wastewater & Stormwater Treatment
1.2.3.1 Transuranic Waste	1.5.4.3 Power Grid
1.2.3.1.1 Treatment Processes	
1.2.3.1.2 Storage Processes	1.6 National Program Management and Planning
1.2.3.1.3 Disposal Processes	1.6.1 Field
1.2.3.2 High-Level Waste	1.6.1.1 Program Management
1.2.3.2.1 Treatment Processes	1.6.1.2 Federal Personnel
1.2.3.2.2 Storage Processes	1.6.2 Headquarters
1.2.3.2.3 Disposal Processes	1.6.2.1 Program Management
1.2.3.3 Low-Level Mixed Waste	1.6.2.2 Federal Personnel
1.2.3.3.1 Treatment Processes	1.6.3 Transportation Management
1.2.3.3.2 Storage Processes	
1.2.3.3.3 Disposal Processes	1.7 Cost & Liability Risk
1.2.4 Spent Nuclear Fuel	1.7.1 Air Emissions
1.2.5 Hazardous Waste	1.7.2 Low-Level Waste
1.2.5.1 Treatment Processes	1.7.3 Mixed Waste
1.2.5.2 Storage Processes	1.7.4 Spent Nuclear Fuel
1.2.5.3 Disposal Processes	1.7.5 Hazardous Waste
1.2.6 Solid Waste	1.7.6 Solid Waste
1.2.7 Industrial Wastewater Treatment	1.7.7 Industrial Wastewater Treatment
	1.7.8 Remediation & Restoration
1.3 Technology Development	1.7.9 Decontamination & Decommissioning
1.3.1 Waste Management	1.7.10 Stabilization
1.3.2 Environmental Restoration	1.7.11 Surveillance and Maintenance
1.3.3 Nuclear Material & Facility Stabilization	
1.3.4 Research, Development, and Testing	1.7.12 Program Management

LAWS AND REGULATORY REQUIREMENTS

DoE must comply with numerous laws in undertaking its waste management and environmental restoration responsibilities. This section summarizes these laws which give shape to DOE's waste management strategies. These laws are also associated with the ADSs in the PTS/ADS database, and there are also regulatory references associated with waste streams in the MWIR database.

ATOMIC ENERGY ACT (AEA)

Codified in 42 USC 2011, in 1954, the Department is made responsible for implementing and enforcing all regulations governing the monitoring and control of radionuclides released by Departmental operations. The Department recognized that it is subject to Federal, State, and local environmental laws and regulations although it self-regulates radioactive materials and wastes. The Department has, however, supported efforts that would end its self-regulation.

FEDERAL FACILITY COMPLIANCE ACT (FFCACT)

Amends section 6001 of the Resource Conservation and Recovery Act to waive immunity of Federal facilities to provisions of the Resource Conservation and Recovery Act. The Act subjects Federal facilities to fines and penalties for violations of the Resource Conservation and Recovery Act and established schedules and requirements for attaining compliance with the land disposal restrictions contained in the Resource Conservation and Recovery Act.

The Act directs the Department of Energy to: 1) prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity, and available technologies; and 2) prepare a plan (Site Treatment Plan) for developing mixed waste treatment capacities and technologies for each site at which the Department generated or stores mixed waste. The Department plans to submit these site treatment plans to the appropriate State or the Environmental

Protection Agency by April 1995. The State or the Environmental Protection Agency are required under the Act to approve, approve with modification, or disapprove the plans within 6 months. Once the plans are approved, the State or the Environmental Protection Agency shall issue an order requiring the Department's compliance with the approved plans. If not in compliance with an approved plan, the Department's facilities could face fines and penalties from the States or the Environmental Protection Agency after October 1995.

CLEAN AIR ACT

Codified in 42 U.S.C. 7401-7642, as amended in 1990, implemented primarily via

- 40 CFR 50, Primary & Secondary National Ambient Air Quality Standards (NAAQS)
- 40 CFR 60, New Source Performance Standards (NSPS)
- 40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAPs)
- 40 CFR 80, Regulation of Fuel and Fuel Additives

Related regulations: E.O. 12088, Federal Compliance with Pollution Standards, OMB Circular A-106

Description: The CAA establishes the NAAQS, NSPS, and NESHAP standards. The NAAQS requires that state or local agencies (air quality control regions) regulate emissions from stationary or mobile sources as necessary to meet the ambient air concentration standards for six priority pollutants: total suspended particulates, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead. The NSPS regulates emissions from almost 50 types of facilities or industrial operations. The NESHAPs define emission limits for asbestos, beryllium, mercury, vinyl chloride, coke ovens, benzene, radionuclides, and arsenic. The law implements the Montreal Protocol on ODSs, which includes standards for ODS equipment servicing, and mandates ODS phase out.

CLEAN WATER ACT (FEDERAL WATER POLLUTION CONTROL ACT)

Codified in 33 U.S.C. 1251, as amended through 1987, implemented primarily via

- 40 CFR 110, Protection of Environment - Discharge of Oil
- 40 CFR 112, Oil Pollution Prevention - Non-Transportation Related Onshore and Offshore Facilities
- 40 CFR 122, National Pollutant Discharge Elimination System (NPDES)
- 40 CFR 403-471, Publicly Owned Treatment Works (POTWs) and point source effluent limits

Related regulations: E.O. 12088, Federal Compliance with Pollution Standards, OMB Circular A-106

Description: The CWA requires permits for discharges to navigable waters under NPDES, and considers industrial facilities as point sources. Discharges to POTWs must meet pre-treatment standards. Permits for stormwater discharges are also required. POL facilities must have a Spill Prevention Control and Countermeasure Plan.

SAFE DRINKING WATER ACT

Codified in 42 USC 300, as amended through 1986, implemented primarily via

- 40 CFR 141, National Primary Drinking Water Regulations
- 40 CFR 143, National Secondary Drinking Water Regulations
- 40 CFR 144, Underground Injection Control Program

Description: The SDWA requires primary (health-related) and secondary (aesthetic quality) standards for drinking water. The primary standards provide maximum contaminant levels (MCL) for inorganic chemicals, organic chemicals, turbidity, microbiological contaminants, and natural or man-made radionuclides. The secondary standards are optional, and provide MCLs for 13 contaminants. The act also

allows designation of sole source aquifers for community drinking water, and requires the Wellhead Protection Program.

RESOURCE CONSERVATION AND RECOVERY ACT OF 1976

Codified in 42 USC 6901, for hazardous waste, solid waste, and underground storage tanks, as amended through 1984, implemented primarily via

- 40 CFR 240 - 246, Solid Waste Management, and detailed requirements for municipal solid waste thermal treatment, land disposal, storage and collection, resource recovery, and separations of materials
- 40 CFR 260 - 271, Hazardous Waste Management System, and detailed requirements for hazardous waste identification, generation, transportation, treatment, storage, disposal, and permitting
- 40 CFR 280 - 281, Underground Storage Tanks

Description: The RCRA Subtitle C establishes the duties and responsibilities of generators, transporters, and operators of treatment and disposal works, 100 kg/month of hazardous waste, or 1 kg/month of acute hazardous waste. Includes hazardous waste characteristics and identification procedures, and listings of regulated wastes and processes. Groundwater protection is emphasized, and implemented through regulations on land disposal facilities, generation of small quantities, underground storage tanks. Subtitle D regulates municipal solid waste. Subtitle I pertains to underground storage tanks (UST).

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

These laws are codified in 42 USC 9601 and 42 USC 11001, respectively, as amended through 1986, implemented primarily via

- 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan
- 40 CFR 302, Hazardous Substances and Reportable Quantities
- 40 CFR 370, Hazardous Chemical Reporting and Community Right-To-Know Requirements
- 40 CFR 372, Toxic Chemical Release Reporting Requirements
- 52 CFR 13370, SARA Section 302 Extremely Hazardous Substances
- 52 CFR 21152, SARA Section 313 Toxic Chemicals

Related regulations: E.O. 12856, Federal Compliance with the Emergency Planning and Community Right-To-Know and Pollution Prevention Laws; E.O. 12088, Federal Compliance with Pollution Standards.

Description: The CERCLA/SARA legislation authorized the creation of the National Oil and Hazardous Substances Pollution Contingency Plan for response to oil and hazardous material spills and the National Priority List for cleanup of hazardous waste contamination sites. The EPCRA or SARA Title III provides for community notification and response coordination for toxic chemical releases, including toxic release inventory (TRI) reporting.

TOXIC SUBSTANCE CONTROL ACT OF 1976

Codified in 15 USC 260, as amended through 1986, implemented primarily via

- 40 CFR 760-761, PCB Regulations
- 40 CFR 763, Asbestos Regulations

Description: The TSCA regulates the introduction of new hazardous chemicals, requiring data on production, usage, and health effects, and prescribes testing of potentially hazardous chemicals. TSCA bans the manufacturing, processing, and distribution of products containing polychlorinated biphenyls (PCB), which are dielectric fluids once used in manufacturing of transformers and other electrical

systems. Systems still in use must be monitored frequently for leakage. PCB disposal is only by specially permitted operators. Asbestos abatement regulations were added in the 1986 amendment.

NATIONAL HISTORIC PRESERVATION ACT

Codified in 16 USC 470, as amended through 1980, implemented primarily via

- 36 CFR 60 - 78, National Historic Places, Landmarks, Standards for Historic Preservation
- 36 CFR 800, Protection of Historic Properties

Description: The NHPA requires federal agencies to identify, protect, restore, and maintain culturally significant properties, historic places, and landmarks.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Codified in 42 USC 4321 - 4347, implemented primarily via

- 40 CFR 1500 - 1508, Council on Environmental Quality Regulations on Implementing National Environmental Policy Act Procedures

Description: The NEPA requires federal agencies to evaluate the potential for environmental impacts in the course of planning and decision-making. The regulations provide requirements for Environmental Assessments (EA) and two possible outcomes, a Finding of No Significant Impact (FNSI) or a continuing investigation resulting in an Environmental Impact Statement (EIS). The specific kinds of actions requiring EA development are listed in the regulations, such as new weapon system development and acquisition in all phases, changes to land use, military construction, production of hazardous or toxic materials. EAs are to include a description of the proposed action, the alternatives considered (including "no action"), the affected environment, environmental consequences of the proposed action, and the

alternatives, a listing of the agencies and persons consulted, and the finding of whether environmental impacts were significant.

OTHER SIGNIFICANT LEGISLATION AND ORDERS

- Uranium Mill Tailings Redemption Control Act. Provides for Department of Energy authority to remediate uranium mill tailings sites for standard established by the Environmental Protection Agency as regulated by the Nuclear Regulatory Commission.
- Waste Isolation Pilot Plant Land Withdrawal Act. Provides authority for the Department of Energy to use national lands for testing of transuranic material. Also provides for regulatory oversight for this facility by the Occupational, Safety and Health Act.
- Pollution Prevention Act of 1990, codified in 42 USC 4601: establishes national policy that "pollution should be prevented or reduced at the source whenever feasible. Pollution that cannot be prevented should be recycled in an environmentally safe manner."
- Hazardous Materials Transportation Act, 49 CFR 100-199, Department of Transportation (DoT) Hazardous Materials Regulations
- Occupational Safety and Health Act of 1970, codified in 29 USC 651, regulations published in 29 CFR 1910, Occupational Safety and Health Standards
- Energy Reorganization Act. Provides reauthorization for the predecessor agency of the Department of Energy and Nuclear Regulatory Agency.
- Compliance Agreements: The Department of Energy enters into several kinds of legally enforceable compliance agreements with the Environmental Protection Agency and State regulators. These compliance agreements establish procedures and schedules for meeting regulatory requirements. Typical agreements include Federal Facilities Agreements required under the Comprehensive Environmental Response,

Compensation and Liability Act compliance agreements, settlement agreements and consent orders.

- Energy Policy Act of 1993 (EPACT) Established reauthority for the Department of a variety of energy and environmental activities to better assure for sustainable energy development.

PLANNED COST MODEL ARCHITECTURE

Our cost and technical data survey indicates the data at the facility level can support cost estimating methodologies for each of the CBS elements. These methodologies should be flexible to estimate the various levels of the environmental management areas, and integrated into a comprehensive cost estimating system to allow roll-up to the level where comparisons can be made to facility or headquarters reporting systems. The next phase of work should therefore include development of a database of cost and technical data which is managed by such a comprehensive system. Tecolote Research is developing the system architecture under separate contracts with the government; therefore, integrating DoE requirements into the system development project will be a parallel effort with considerable cost advantages to the DOE. The system, called ECHO for Environmental Costs of Hazardous Operations, can be adapted to the DOE Environmental Management cost analysis requirements with few significant specification and programming modifications: the bulk of the effort is then data collection and normalization as discussed below in Section 7.

6.1 COST MODEL STRUCTURE, USER INPUTS AND ANALYSIS LEVELS

The structural concept for the comprehensive cost model modules is shown below in Figure 6-1. The primary modules will be the cost estimating tools for regulatory compliance, unit processes, and risk. The supporting modules will be the databases and knowledge bases. Database modules would include lists of known hazardous and radioactive substances and mixture compatibility data, and known hazardous industrial processes, primarily from the federal and state lists of toxic or hazardous materials. The hazardous substances and processes databases would be interrelated to the knowledge bases as shown below.

Figure 6-1 ECHO Model Structure

INPUT REQUIREMENTS

The potential users will be from varied backgrounds in program management, cost analysis, and/or engineering. To accommodate this, there will be three levels of data inputs to allow modifications, and the user will be able to "burrow down" to the appropriate level for a particular study, without having to modify defaults across the model. This will facilitate trade studies which have a narrow scope. The initial model inputs will be those required to define the EM project:

The user interface and model infrastructure manages the session, creating and modifying a "user project" database to optimize performance of the system and also to pass data to the cost estimating module. The user's definition of the initial inputs fully populates the project database through the automated "default" analyses performed by the modules.

The user then passes to the cost estimating modules. The flow of the cost modeling is described in detail below. In summary, however, the ACE tool will include the CERs for the third to fifth level elements of the CBS. Cost risk elements are handled by the risk analysis tool, which employs the ACEIT RISK tool, described below in the

sections for cost estimating and risk estimating. The user project data is mapped to the ACEIT Automated Cost Data Base (ACDB) for utilization by ACE

6.2 MODULE INTEGRATION AND SPECIFICATION DEVELOPMENT

It would indeed be a monumental undertaking for a single system to have all the features and meet all the goals stated above. Fortunately, some excellent models and databases already exist that address many pieces of the overall problem. RACER, developed by Delta Research, will be utilized to perform estimates of remediation tasks. Additional tools developed by Sandia National Labs are also being evaluated for potential integration:

- ECOSYS. A Sandia National Labs life cycle information and expert system, designed to assess impacts of alternative products and processes, using weighting factors to calculate the environmental impact.
- IPDS/MPC. A Sandia National Labs tool for examining the regulatory requirements associated with hazardous materials and specifications requiring hazardous operations.

The interface specifications will require an architecture which ties the model to existing distributed or remote databases. This is due to database complexity and the need to have government agencies maintain these databases separately. For example, we plan to independently use chemical species and processes data that is continuously updated by the EPA or other technical database sources. The power of the model interfaces will use this database without duplicating any resources to maintain it.

GRAPHICAL USER INTERFACE.

The graphical user interface will be a sophisticated system hub that queries remote data such as the Mixed Inventory Waste Report via a modem and interfaces with other modules to generate the environmental cost estimate. As shown in Figure 6-2, the

model will make maximum use of existing models and databases through the use of network queries. These cost elements will then be passed to the ACEIT model.

Figure 6-2 User Interface Flowchart

To reduce the time needed to search and retrieve data from external databases, we will use staged data caches to keep summary information that satisfies the most frequent data requests. A significant advantage of staging is that you don't need to restructure the data in the original data source or make duplicate copies of it. Instead, high-performance data caches that contain preprocessed information most frequently needed are created. Keeping summary information in a cache therefore satisfies many of the data requests quickly.

COST ESTIMATING TOOL SPECIFICATIONS

Tecolote's Automated Cost Estimating Integrated Tools (ACEIT) was chosen as the central cost estimating tool to avoid the costs associated with developing a new cost model. Significant savings will be achieved because the model already exists, has been extensively tested and proven over seven years, is currently installed at over 150 DoD/contractor sites with over 1000 trained analysts.

Figure 6-3 represents the ACEIT model flow chart, which shows how ACEIT is structured into interactive modules, and where the ECHO model links to it. Each module passes data electronically to the heart of ACEIT, the ACE, where all of the cost

estimate steps are performed. The Integrated Tools modules are composed of (1) the RISK model, used to perform integrated risk analysis on any estimate; (2) the methodology knowledge base, a collection of reference libraries that contain over 900 CERs, cost models, and cost information source which are easily tailored to each user's needs; (3) the Automated Cost Data Base (ACDB), a FoxPro-based database; (4) the Cost Analysis Statistical (CO\$TAT) package which performs common cost estimating statistical analysis (e.g. create CERs); and (5) interfaces to cost estimating models that were developed independently of ACEIT, but are now connected (e.g. PRICE, SEER).

Figure 6-3 ACEIT Flow Chart

DATA COLLECTION AND ANALYSIS REQUIREMENTS

Our efforts to survey the cost and technical data have resulted in a template for data collection and analysis. This section presents a template for cost or technical data collection during a site visit or teleconference with a site representative. We plan to validate the template by collecting data from a representative site per Section 3.3, such as Hanford. First, we discuss the identification and specification of cost drivers such as those presented in Section 3.2. Second, examples of how the data would be collected from a site are presented under Data Collection. Then we discuss one of the most important parts of the overall procedure: the normalization and analysis process to unify the data collected from various sites in common units and factors. This step results in the database which will be accessed by the ECHO model presented in Section 6. Finally, we show how the information will be used to prepare cost estimating methodologies which will reside in the ACEIT module.

7.1 COST DRIVERS

Identifying cost drivers will be closely related to the process research and the model specifications. When choosing cost drivers such as those presented in Section 3.2.2 and 3.2.3, we will consider that the cost drivers should represent information that might be reasonably available both at the time that the CER is being developed and at the time the CER is used. We will use to the maximum extent possible cost driver data from databases and ongoing data collections such as the 1996 BEMR data call. For this reason, we anticipate that much of the data we need to collect will be available and contained in documents or databases. We will also interview knowledgeable engineers or analysts to better understand the data. We plan to break cost data down to capital equipment costs, process material costs, labor rates, overhead rates, direct and indirect costs, G&A, and fee. Breaking the cost components down to these levels and

developing relationships at these levels allows extreme flexibility and capability to estimate environmental cost. We will also collect data associated with the process environmental risk, which may include facility or geographic parameters.

7.2 PRELIMINARY DATA COLLECTION TEMPLATES

One key to a successful data collection is a standard template used consistently by the data collection team members. We have developed a sample template to indicate our preliminary approach to the data collection effort. The purpose of the preliminary template shown below is to associate programmatic and technical information with cost data from the PTS/ADS database. Cost Data is currently collected and reported using the ADS system, and budgets are formulated to support funding activities in this structure as well. Therefore, meaningful cost estimating relationships should summarize cost estimates to the ADS level.

The template will provide guidance in the data collection process to build the map between the technical work content of the ADSs and the associated cost data. The costs and financial projections from the ADS system will be mapped to the technical data to validate the methodology. The cost analyst will follow procedures to make inquiries of managers associated with ADSs. These personnel should recommend any appropriate follow-up contacts if needed. The following data is sought, and the analyst will be encouraged to request the respondent help identify reports or other existing documentation where the data may exist, to minimize the information needed from the field.

Waste Management Template: For each WM ADS:

- Programmatic Data:

ADS Number: _____

List Associated Facilities & Describe:

- New vs. Existing
- Facility Type:
 - Reactors, Chemical Plants, Assembly Plants, Ponds/Retention Basins, Offices, TSD Facility
- % of waste type
- Processing capacity (m³/yr)
- SCM Facility Code, if known

Approximate Manpower (FTE/yr):

- Direct vs. Indirect
- Federal vs. Contractor
- Technical vs. Support

Project Life Cycle Phase:

- Study/Assessment, Technology Development, Construction, Testing, Operations, D&D

- Technical Data

List Associated Waste Streams & Describe:

- Type (LLW, HLW, etc.)
- Characteristics:
 - Aqueous or Organic Liquid, Sludges, Soils, Debris
- ID
- Waste Operation Code:
 - Pretreatment Storage PS, Post-treatment Storage PT, Treatment TR, Disposal DI, Transfer TF
- If TR, Process Type:
 - Specific if known; or General: Thermal, Physico-Chemical, Biological
- Actual Annual Volumes (92 thru 95)
- Estimated Annual Volumes (96 - 00)

Environmental Restoration Template: For each ER ADS:

- Programmatic Data:

ADS Number: _____

List Associated Facilities & Describe:

- New vs. Existing
- Facility Type:
- % of waste type
- Processing capacity (m³/yr)
- SCM Facility Code, if known

Approximate Manpower (FTE/yr):

- Direct vs. Indirect
- Federal vs. Contractor
- Technical vs. Support

Phase of RI/FS (Initial assessment, site scoping completed, remedial design, etc)

- Technical Data

Number of Potential Release Sites, and area (in acres or sq ft)

Define intended level of public access: ranging from "Green field" scenario of unlimited public access, to the "iron fence" scenario of total public restriction

Define Geophysical and Hydrogeological Characteristics:

- Land Use: industrial, municipal developed, farm, undeveloped; ecological resource, historical/cultural resource; population density, distance to population center
- Terrain: mountains, hills, plains; forest, chaparral, grassy
- Surface Hydrology: lakes, ponds, rivers, streams, watershed drainage
- Soil Characteristics (vadose zone): proportions of silt, sand, clay, extent of layers, organic material content, moisture content.
- Precipitation data
- Aquifer Characteristics: distance to aquifer, aquifer use (public resource, farm or industrial resource, EPA sole-source) material (bedrock, unconsolidated alluvial, or consolidated glaciated materials, aquifer type (confined vs unconfined), depth to water, aquifer depth, hydraulic conductivity or storativity data, hydraulic gradient, retardation capacity.

List Associated Waste Streams & Describe:

- Type (LLW, HLW, etc.)
- Characteristics:
 - Aqueous or Organic Liquid, Sludges, Soils, Debris

- ID
- Waste Operation Code:
 - Pretreatment Storage PS, Post-treatment Storage PT, Treatment TR, Disposal DI, Transfer TF
- If TR, Process Type:
 - Specific if known; or General: Thermal, Physico-Chemical, Biological
- Actual Annual Volumes (92 thru 95)
- Estimated Annual Volumes (96 - 00)

7.3 DATA NORMALIZATION, AND ANALYSIS .

The normalization and analysis effort involves inputting data into the cost database, normalizing the data by mapping the costs to the environmental CBS and adjusting for inflation and business factors, and then performing the analysis. This normalization approach consists of a series of calculations that allows complete visibility into how the data was collected and adjusted. Normalizing the data is complex and will require special techniques to extract environmental cost data from overhead accounts and allocate the costs via weighting factors to the appropriate model CBS elements. The process includes developing ground rules and assumptions about the data; mapping the data into the model CBS; analyzing the recurring/nonrecurring split; allocating overhead, G&A, cost of money, profit, etc.; obtaining an understanding of cost account content; performing a mid-point analysis; performing inflation adjustments; ensuring proper allocation of accounts; adjusting for anomalies; and matching cost accounts with technical data.

PROPOSED TECHNICAL DATA STRUCTURE

Operations Office (Waste Volumes by Type)
of Site (Waste Volumes by Type)
of Facilities (Waste Volumes by Type, Facility Type, Facility Capacity)
of Waste Streams (Waste Volumes by Type)
- Treatment Category
- Waste Type (HLW, LLW-alpha, LLW-non alpha, MLLW-alpha, MLLW-non alpha, CH-TRU, RH-TRU, HAZ, SAN)
Process Actuals
-Process 1: Generated Waste
-Process 2: Stored Waste
-Process 3: Pre-Treatment Transportation
-Process 4: Retrieval/Characterization
-Process 5: Treatment Front-end Common Functions
-Process 6: Primary Treatment
-Process 7: Secondary Treatment and Stabilization
-Process 8: Transportation to Storage
-Process 9: Post Treatment Storage
-Process 10: Transportation to Disposal
-Process 11: Disposal

7.4 DEVELOP COST ESTIMATING METHODOLOGIES

The collected data is the basis for developing several types of CEMs, including factors, analogs, SERs, and CERs. An SER is a mathematical multiple regression of several data points that results in linear or logarithmic function used to statistically predict a technical parameter. The calculated technical parameters are then used as input to a CER or other type of CEM. A CER is a mathematical multiple regression of several data points that results in linear or logarithmic function used to statistically predict costs. Development of CERs is automated using CO\$TAT and ACEIT, which also facilitates CER tailoring to specific situations or budget excursions where there are new groundrules and assumptions.

CONCLUSIONS

The study conclusions show that key cost analysis priorities have been determined, the data is not available in reports and electronic databases at the level required for cost analysis, that a comprehensive model architecture is feasible, and that the analysis has potential to yield significantly improved estimates over the current, contractor-developed methodology.

ACRONYM AND ABBREVIATION LIST

AA	Atomic Adsorption [Standards]
ACIS	Automated Chemical Inventory System
ADGAS	Absorbing or Reacting Media
ADS	Activity Data Sheet
AEA	Atomic Energy Act
AEC	Atomic Energy Commission
AIP	Agreement-in-Principle
AL	DoE Albuquerque Field Office
ALARA	As Low As Reasonably Achievable
ALMWTP	AL Mixed Waste Treatment Plan
AMLGM	Amalgamation
ANOI	Advanced Notice of Intent
AOC	Area of Contamination
ARAR	Applicable or Relevant and Appropriate Requirement
AWWT	Advanced Wastewater Treatment System
BACT	Best Available control Technology
BAT	Best Available Technology
BCL	Battelle Columbus laboratories
BDAT	Best Demonstrated Available Technology
BIODG	Biodergradation
BLDG.	Building
BNL	Brookhaven National Laboratory
°C	Centigrade (degrees)
CA	Consent Agreement
CAA	Clean Air Act
CAI	Controlled-Air Incinerator
CAMU	Corrective Action Management Unit
CARBN	Carbon Adsorption
CBD	Commerce Business Daily
CCR	Code of Colorado Regulations
CCWE	Constituent Concentration in Waste Extract
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CESQG	conditionally exempt small quantity generator

CFR	Code of Federal Regulations
CH	DOE Chicago Field Office
CH	Contact-Handled
CHAR	Characterization
CHOXD	Chemical or Electrolytic Oxidation
CHRED	Chemical Reduction
Ci	Curie
CIF	Consolidated Incineration Facility
CMS	Corrective Measures Study
CQM	Cost Quality Management
CPID	Closure Plan Information and Data
CRU	CERCLA/RCRA Unit
CSTP	Conceptual Site Treatment Plan
CWA	Clean Water Act
CY	Calendar Year
D&D	Decontamination and Decommissioning
DCG	drum-coring glovebox
DEACT	Deactivation
DEC	DOE Environmental Checklist
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOE-AL	Department of Energy-Albuquerque Operations Office
DOE-FN	U.S. Department of Energy - Fernald
DOE-HQ	U.S. Department of Energy - Headquarters
DOE-LAAO	Department of Energy-Los Alamos Area Office
DOE-OR	U.S. Department of Energy - Oak Ridge
DOT	U.S. Department of Transportation
DP	DOE Defense Programs
DQO	Data Quality Objectives
DRE	Destruction and Removal Efficiency
DSSI	Diversified Scientific Services, Inc.
DSTP	Draft Site Treatment Plan
DVS	drum-venting system
EA	Environmental Assessment
EH&S	Environmental Health and Safety
EIS	Environmental Impact Statement
EM	Office of Environmental Restoration and Waste Management Advisory Committee
EM PEIS	Environmental Management Programmatic Environmental Impact Statement
EMAB	Environmental Management Advisory Board

EMAC	Environmental Restoration Management Contractor
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ERC	Environmental Restoration Management contractor
ES&H	Environmental Safety and Health
F	Fluorine
°F	Fahrenheit (degrees)
FCTF	Fernald Citizens Task Force
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FFCA	Federal Facility Compliance Agreement
FFCAct	Federal Facility Compliance Act
FN	DOE Fernald Field Office
FR	Federal Register
FRESH	Fernald Residents for Environmental Safety and Health
FS	Feasibility Study
FS/PP	Feasibility Study/Proposed Plan
FS/PP-EA	Feasibility Study-Proposed Plan - Environmental Assessment
FS/PP-EIS	Feasibility Study/Propose Plan - Environmental Impact Statement
FTIR	Fourier transform infrared spectroscopy
FUSRAP	Formerly Utilized Sties Remedial Action Program
FY	Fiscal Year
FYP	Five-Year Program
g	Gram
GJPO	Grand Junction Project Office
GJPORAP	Grand Junction Projects Office Remedial Action Project
HAZ	Hazardous
HE	high explosive
HEPA	high-efficiency particulate air
HF	Hydrofluoric Acid
HGS	head-space gas sampling
HLLW	high-level liquid waste
HLW	High Level Waste
HSWA	Hazardous and Solid Waste Amendments
HW/MW	Hazardous Waste/Mixed Waste
HWMU	Hazardous Waste Management Unit
HWTF	hazardous Waste Treatment Facility
HWTF/MWRSF	hazardous Waste Treatment Facility and Mixed Waste Receiving and Storage Facility
HQ	Headquarters

IAG	Interagency Agreement
ID	DOE Idaho Field Office
IDW	Investigation - Derived Waste
INCIN	Incineration
INEL	Idaho National Engineering Laboratory
IP	Implementation Plan
IROD	Interim Record of Decision
KCP	Kansas City Plant
kg	Kilogram
l	Liter
LAAO	DOE Los Alamos Area Office
LAER	Lowest Achievable Emission Rate
LANL	Los Alamos National Laboratory
LBS.	Pounds
LDR	Land Disposal Restrictions
LDT	lead decontamination trailer
LLEXT	Liquid-liquid Extraction
LLMW	Low Level Radioactive Mixed Waste
LLRW	Low Level Radioactive Waste
LLW	Low Level Waste
m ³	Cubic meter
mg	milligram(s)
mL	milliliter(s)
MACRO	Macroencapsulation
MAWS	Minimum Additive Waste Stabilization
MC&A	Materials Control and Accountability
MEF	Material Evaluation Form
MGF2	Magnesium Fluoride
MIDAS	Mobil Instrumentation System
MLLW	Mixed Low Level Waste
mm	Millimeter
MMES	Martin Marietta Energy Systems, Inc.
MREM	Millirem
MTRU	mixed transuranic
MTU	Mobil Treatment Unit
MW	Mixed Waste
MWIR	Mixed Waste Inventory Report
MWRSF	Mixed Waste Receiving and Storage Facility
MWTP	Mixed Waste Treatment Plan

nCi/g	Nano curies per gram
NDE	Nondestructive Examination
NEPA	National Environmental Policy Act
NESHAPS	National Emissions Standard for Hazardous Air Pollution Sources
NEUTR	Neutralization
NFA	Needs Further Action
NGA	National Governors' Association
NMED	New Mexico Environmental Department
NOD	Notice of Deficiency
NOIO	Notice of Intent
NPDES	national Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NTS	Nevada Test Site
NV	Nevada Test Site
OAC	Ohio Administrative Code
OAT	Option Analysis Team
OEPA	Ohio Environmental Protection Agency
OMB	Office of Management and Budget
OR	DOE Oak Ridge Field Office
ORNL	Oak Ridge national Laboratory
ORR	Operational Readiness Review
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
P30	Pollution Prevention Program Office
PAN	passive/active neutron interrogation system
PCB	Polychlorinated Biphenyl
PEIC	Public Environmental Information Center
PEIS	Programmatic Environmental Impact Statement
PGDP	Paducah Gaseous Diffusion Plant
ph	
PK	Process Knowledge
PMP	project management plan
PNAs	Polynuclear Aromatics
PO	Preferred Option
POC	Point of Contact
POHC	Principal Organic Hazardous Constituent
PORTS	Portsmouth Gaseous Diffusion Plant
PP	Proposed Plan
ppb	Parts per billion

PPE	Personal Protective Equipment
ppm	Parts per million
PPOA	Pollution Prevention Opportunity Assessments
PRECP	Chemical Precipitation
PSD	Prevention of Significant Deterioration
PSTP	Proposed Site Treatment Plan
PWOA	process waste opportunity assessment
QA	Quality Assurance
QC	Quality Control
QTY	Quantity
RA	Removal Action
R&D	research and development
RACM	Regulated Asbestos containing Materials
RAD	Radiation
RCGAS	Recovery or Reuse of compressed Gases
RCRA	Resource Conservation and Recovery Act
RD/Ra	Remedial Design/Remedial Action
RF	Rocky Flats Office
RFI	RCRA Facility Investigation
RFP	Rocky Flats Plant
RH	Remote Handled
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RL	DOE Richland Field Office
RLEAD	Thermal Recovery of Lead
RLWTP	Radioactive Liquid Waste Treatment Plant
RMERC	Retorting or Roasting of Mercury Contaminated Materials
RMETL	Recovery of Metals or Inorganics
RMI	Reactive metals Inc
ROD	Record of Decision
RORGS	Recovery of Organics
RSO	Remedial Support Operations
RTHRM	Thermal Recovery of metals or Inorganics
RTR	Real-time Radiography
S/TGS	segmented/tomographic gamma scanning
SA	Sampling and Analysis
SACD	Stipulated Amendment to the Consent Decree
SARA	Superfund Amendments and Reauthorization Act of 1986
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SDWA	Safe Drinking Water Act

SF	DOE San Francisco Field Office
SR	DOE Savannah River Field Office
SRS	Savannah River Site
S/ST	Stabilization/Solidification Techniques
SSAB	Site Specific Advisory Board
SSP	site-specific plan
STABL	Stabilization
STGWG	State and Tribal Government Working Group
STP	Site Treatment Plan
SWEIS	Site-Wide environmental Impact Statement
SWIFT	Sitewide Information, Forecasting, and tracing System
TA	Technical Area
TBP	Tributyl Phosphate
TC	Toxicity Characteristic
TCA	Trichloroethane
TCLP	Toxicity Characteristic Leaching Procedure
T&D	Treatment and Disposal
Th	Thorium
Th02	Thorium Oxide
TI&ED	Technology Integration and Education
TN	Tennessee
TOC	Total Organic Carbon
TOPO	Trioctylphosphinic oxide
TRAIN	Transportation Assessment and Integration
TRU	Transuranic
TSC	Treatment Standard Concentration
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
TSDF	Treatment, Storage, and Disposal Facility
TST	Treatment Selection Team
U	Uranium
UMTRA	Uranium Mill Tailings Remedial Action
UNH	Uranyl Nitrate Hexahydrate
URAN.	Uranium
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
UTS	Universal Treatment Standard
UV	Ultraviolet Light
VOCs	Volatile Organic Compounds

WAC	Waste Acceptance Criteria
WC	Waste Characterization
WETOX	Wet Air Oxidation
WIPP	Waste Isolation Pilot Plant
WM	waste management
WMC	Waste Minimization Committee
WMP	Waste Minimization Program
WM PEIS	Waste Management Programmatic Environmental Impact Statement
WM/PP	Waste Minimization/Pollution Prevention
WPM	Waste Programs Management Division
WPW	Waste Stream Profile Worksheet
WSSRAP	Weldon Spring Site Remedial Action Program
WWT	Wastewater Treatment
WWTS	Wastewater Treatment System
YR	Year

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APPENDIX A

APPENDIX A

GLOSSARY OF ENVIRONMENTAL MANAGEMENT TERMS

The terms defined below have been collected or derived from documentation for regulatory agencies, and DOE sites, as well as from environmental and other sources of regulations and documents, and some have been written by the MWIR team members. The words and phrases are listed alphabetically. Common abbreviations, if any, follow the term.

Accelerator produced radioactive material - Radioactive material that was produced in a charged particle accelerator.

Acid Digestion - An emerging technology for treatment of mixed wastes. In this developmental process, solids are processed in a nitric acid bath with a metal catalyst for oxidation of organics and dissolution of solids. The organic constituents are oxidized to carbon dioxide by the acid and metal contaminants are brought into the solution. The resultant spent acid solution, with dissolved hazardous metals, would be treated in a chemical precipitation process to remove metals and neutralize the solution prior to disposal through a permitted outfall.

Activity Data Sheets (ADSs) - An electronic database of central planning information at the Installation level, including cost estimates, priority levels, regulatory drivers, milestones, and a narrative description of activities. consolidated down to 850 in support of the FY 1994-1998 Five-Year Plan.

Amalgamate (AMLGM) - A process applicable to liquid radioactive wastes containing mercury and particularly to liquid wastes containing radioactive mercury isotopes. Liquid mercury compounds are converted into a solid alloy utilizing inorganic reagents such as zinc, copper, nickel, gold, and sulfur, which is more easily managed and less mobile than solution containing mercury. Amalgamation provides a significant reduction in air emissions of mercury and provides a change in mobility from liquid mercury to a paste-like solid, potentially reducing leachability.

Aqueous/Halogenated Organic Liquids - flowing, watery carbon compounds combined with either fluorine, chlorine, bromine, iodine, or astatine.

Aqueous Liquids (as a waste matrix) - Liquids/slurries with a total organic carbon (TOC) contents less than 1 percent. Slurries must be flowable (e.g. suspended/settled solids can be up to approximately 35-40 percent). Only liquids/slurries packaged/stored in bulk form (i.e., tank stored, drummed bulk free liquids) are

included in this category. Liquids packaged in lab pack-type configuration are categorized as lab packs.

Aqueous/Nonhalogenated Organic Liquids - flowing, watery substances that contain carbon compounds in the form of plant or animal matter.

Aqueous Slurries - watery mixtures of insoluble matter such as mud or lime.

Aquifer - A body of rock or sediment sufficiently permeable to conduct groundwater and to yield significant quantities of water to wells and springs.

Air Stripping - A treatment system that removes, or "strips" volatile organic compounds from contaminated groundwater or surface water by forcing an airstream through the water and causing the compounds to evaporate.

Asbestos Debris - debris contains asbestos, which is an inert fibrous mineral used as a noncombustible, nonconducting, or chemically resistant material.

Batteries - cells that furnish electric current.

Batteries (as a waste matrix) - This category includes lead acid, cadmium, and miscellaneous batteries.

Beryllium - a gray, light, strong, brittle metallic element often used as a hardening agent in alloys.

Best Available Technology (BAT) or Best Demonstrated Available Technology (BDAT) (1) The preferred technology for treating a particular process liquid waster, selected from among others after taking into account factors related to technology, economics, public policy, and other parameters. As used in DOE Order 5400.5, BAT is not a specific level of treatment, but the conclusion of a selection process that includes several treatment alternatives. (2) Treatment technologies that have been shown throughout actual use to yield the greatest environmental benefit among competing technologies that are practically available.

Biodegradation (BIODG) - The degradation of organics or non-metallic inorganics (i.e., inorganics that contain the elements of phosphorous, nitrogen, and sulfur) by microorganisms in units operated under either aerobic or anaerobic conditions such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals. Total Organic Carbon is often used as an indicator

parameter for the biodegradation of many organic constituents than cannot be directly analyzed in wastewater residues.

breeder reactor - A type of nuclear reactor that creates more fissionable fuel than it uses.

Buffer zone - An area designed to separate. Specifically, the portion of a disposal site that is controlled by the licensee and that lies under and between the disposal units and the boundary of the site.

Bulking - The process of putting materials into bulk packaging.

Bulk Packaging - Packaging other than in a vessel or a barge. Packaging a transport vehicle. Freight container, no mobile tank in which hazardous materials are loaded which has one of the following: a maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid; a maximum net mass greater than 400 kg (882 pounds) or a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid.

By-product material - (a) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (b) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content [Atomic Energy Act 11 (e)]. By-product material is exempt from regulation under the Resource Conservation and Recovery Act.

Calcination - The process of converting high-level waste to unconsolidated granule or powder (also called calcining).

Calcine - The materials produced by calcination.

Canning - The process of placing spent nuclear fuel in canisters to retard corrosion, contain radioactive releases, or control geometry.

Capacity (of a facility) - The annual process throughput, in m³/yr under normal operating conditions. "Normal operating conditions" are defined as the shift schedule under which the facility normally operates; i.e., one 8-hour shift/day, 5 days a week; two shifts/day, 5 day a week; 24 hours a day, 7 days a week.

Carbon Adsorption (CARBN) - A treatment technology used to treat wastewaters containing dissolved organics at concentration less than about five percent and to a lesser extent, dissolved metal and other inorganic contaminants. The two most common carbon adsorption process are the granular activated carbon (GAC), which is

used in packed beds, and the powered activated carbon (PAC), which is added in bulk to wastewater.

Cemented Solids (as a waste matrix) - Sledges or solids (e.g. particulate, etc.) that have even solidified/stabilized with cement or other solidifying agents but do not meet LDR treatment crushing/grinding) prior to subsequent LDR treatment.

Characterization - (1) The determination of waste contents and properties, whether by review of process knowledge, NDE/NDA, or sampling and analysis. (2) activity whereby a material is examined by its attributes to determine the regulatory status of the material, particularly with respect to items which no longer serve their intended purpose.

Chemical Fixations - Any waster treatment process that involves reaction between the waster and certain chemicals, and results in solids that encapsulate, immobilize, or otherwise tie up hazardous components in the waster to minimize the leaching of such components and to render the waster nonhazardous and more suitable for disposal.

Chemical Oxidation (CHOXD) - Chemical oxidation (or electrolytic oxidation) involves the addition of a chemical oxidizing agent to the waste streams. Agents may include: (1) hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g. Total Organic Carbon can often be used as an indicator parameter for the adsorption of many organic constituents that cannot be directly analyzed in wastewater residues). Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.

Chemical Precipitation (PRECP) - Chemical Precipitation of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, fluorides, phosphates. The following reagents or waste reagents are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium); (2) caustic (i.e., sodium and/or potassium hydroxides; (3) soda ash (i.e., sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculation, coagulation or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.

Chemical Reduction (CHRED) - Chemical reduction utilizing the following reducing reagents (or waste reagents) or combination of reagent: (1) sulfur dioxide; (2) sodium,

potassium, or alkali salts of sulfites, disulfite, metabisulfates, and polyethylene glycols (e.g. Total Organic halogens can often be used as an indicator parameter for the reduction of many halogenated organic constituents that cannot be directly analyzed in wastewater residues). Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.

Chronic exposure - The absorption of hazardous material (or intake of hazardous materials) over a long period of time (for example, over a lifetime).

Cladding - The outer jacket of fuel elements and targets usually made of aluminum, stainless steel, or zirconium-aluminum alloy, used to prevent fuel corrosion and retain fission products during reactor operation, or to prevent releases into the environment during storage.

Classified waste - items which may be inherently wastelike but cannot be discarded because of national security concerns.

Cleanup - (1) Actions undertaken during a removal or remedial response to physically remove or treat a hazardous substance that poses a threat or potential threat to human health and welfare, the environment, and/or real and personal property. Sites are considered cleaned up when removal or remedial programs have no further expectation or intention of returning to the site and threats have been mitigated or do not require further action. (2) Actions taken to deal with a release or threat of release of a hazardous substance that could affect humans and/or the environment. The term "cleanup" is sometimes used interchangeably with either remedial action, removal action, response action, or corrective action.

Closure - Operational Closure: Those actions that are taken upon completion of operations to prepare that disposal site or disposal unit for custodial care (e.g., addition of cover, grading, draining, erosion control).

Closure Final Site - Those actions that are taken as part of formal decommissioning or remedial action plan, to achieve long-term stability of the disposal site and to eliminate to the extent practical the need for active maintenance so that only surveillance, monitoring, and minor custodial care are required.

Cold nuclear fuel - Nuclear reactor fuel which has not been exposed to a neutron flux in a nuclear reactor.

Compliance Agreements - Legally binding agreements between regulators and regulated entities that set standards and schedules for compliance with environmental statutes.

Include Consent Order and Compliance Agreements, Federal Facilities Agreements, and Federal Facility Compliance Agreements.

Compressed Gases/Aerosols - substances similar to air in density that are reduced in size or volume using greater than atmospheric pressure.

Compressed Gases (as a waster matrix) - Pressurized aerosol cans and gas cylinders of any gas composition. Non-pressurized aerosol cans any gas cylinders would be classified as debris.

Concentration Based Standard - A restricted waster for which a concentration based standard has been developed for an extract of the waster or treatment residue, or the constituent concentration in the waste or treatment residue. These standard were based on best demonstrated available technology (BDAT) and the waste or waste extract or treatment residue must not exceed these concentrations if the waste is to be land disposed.

Confinement - General control of contaminants through engineering design, such as heating and ventilation systems that use high-efficiency particulate air (HEPA) filters to remove contaminants before discharge to the atmosphere. Such systems may break down or experience a loss of electric power that would "lose confinement" temporarily. This may require evacuation of the structure but would not lead to significant consequences to workers or a significant release.

Contact-Handled Waste (CH Waste) - Waste or waste containers whose external surface dose rate does not exceed 200 mrem per hour at surface of container.

Contaminated Soils - polluted soil extracted from the upper layer of the Earth's crust.

Contaminated Soils/Debris - polluted soil and debris extracted from the upper layer of the Earth's crust.

Core - The central portion of a nuclear reactor containing the fuel elements, moderator, neutron poisons, and support structures.

Corrosive Corrosively - (1) A solid waste exhibits corrosively if (a) a sample of the waster is either aqueous and has a pH less that or equal to 2 or greater that or equal to 12.5, or it is a liquid and corrodes steel at a rate greater that 6.35 mm (0.250 inch) per year at a test temperature of 55 (130 F). (2) A chemical agent that reacts with the surface of a material causing it to deteriorate or wear away. (3) Identifies waster that must be segregated because of its ability to extract and solubilize toxic contaminants

(especially heavy metals) from other waster; identifies waste that requires the use of corrosion-resistant containers for disposal.

Deactivation (DEACT) - The removal of the hazardous characteristics of a waste due to its ignitability, corrosively, and/or reactivity.

Debris- Solid material exceeding 60 millimeters (2.5 inch) particle size that is intended for disposal and that is: (1) a manufactured object, (2) a plant or animal matter, or (3) a natural geologic material (e.g. cobbles and boulders).

Decommissioning - (1) Actions taken to reduce the potential health and safety impacts of DOE contaminated facilities, including activities to stabilize, reduce, or remove radioactive materials or to demolish the facilities. (2) Preparations take for retirement of a nuclear facility from active service, accompanied by the execution of a program to reduce or stabilize radioactive contamination. (3) The process of removing a facility or area from operation and decontaminating and/or disposing of it or placing it in a condition of standby with appropriate controls and safeguards.

Decontamination - The removal of unwanted material (typically radioactive material) from facilities, soils, or equipment by washing, chemical action, mechanical, cleaning, or other techniques.

Delist - Use of the petition process to have a waste stream's toxic designation rescinded.

Delisting - According to 40 CFR 260.20 and .22, in order to be exempted from the Resource Conservation and Recovery Act hazardous waster "system," a listed hazardous waste, a mixture of a listed and solid waste, or a derived-from waste must be delisted. Characteristic hazardous wastes never need to be delisted, but can be treated to no longer exhibit the characteristic. A contained-in waster also does not have to be delisted: it only has to "no longer contain" the hazardous waste.

de minimis losses - include those from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials)

Department of Energy Waster - Radioactive waster generated by activities of the DOE (or its predecessors), waste for which DOE is responsible under law or contract, or other waster for which the DOE is responsible.

Derived-From Rule - This rule states that any solid waste derived from the treatment, storage, or disposal of a listed RCRA hazardous waster is itself a listed hazardous

waste (regardless of the concentration of hazardous constituents). For example, ash and acrubber water from the incineration of a listed waster are hazardous wastes on the basis of the derived-from rule. Solid wastes derived from a characteristic hazardous waste are hazardous wastes only if they exhibit a characteristic.

Designated Facility - A hazardous or mixed waste treatment, storage, or disposal facility that has received an EPA permit (or facility with interim status) in accordance with the requirements of Parts 270 and 124 of 40 CFR, a permit from a state authorized in accordance with Part 271 of 40 CFR, or that is regulated under S261-6 (c) (2) or Subpart F of Part 266 of 40 CFR, and that has been designated on the manifest by the generator pursuant to §262.20.

Disposal - The permanent isolation of waste with no intent of recovery.

Disposal Facility - (1) The land, structures, and equipment used for the disposal of waster. (2) A facility or part of a facility at which water is intentionally placed into or on the land or water, and at which water will remain after closure.

Effluent - (1) Airborne and liquid wastes discharged from a DOE site or facility usually following engineering waste treatment to meet all effluent control, including on-site retention and decay. This term does not include solid wastes, wastes for shipment of site, wastes that are contained (e.g., underground nuclear test debris) or stored (e.g., in tanks) or wastes that are to remain on-site through treatment or disposal. (2) Wastewater, treated or not, that follows from a treatment plant, sewer, or industrial outfall. May refer to wastes discharged into surface waters.

Elemental Lead (Activated and Non-Activated) (as a waste matrix) - Both surface contaminated and activated elemental lead. Activated lead includes lead for accelerators or other neutron sources that may result in irradiation. Surface contaminated lead materials include bricks, counterweights, shipping casks, and other shielding materials.

Elemental Lead - a malleable metal often used to shield against radioactivity.

Elemental Mercury - a heavy, silver-white, poisonous metallic element

Engineer barriers - Manmade components of a waste management system or facility designed to prevent or impede the release of radionuclides or other waste material into the biosphere. This includes the waste form, radioactive waster containers, and other materials placed over and around such containers, and physical features of the system or facility.

Enriched uranium - Uranium that has greater amounts of the fissionable isotope uranium-235 than occurs naturally. Naturally occurring uranium is 0.72 percent uranium-235.

Environmental Impact Statement (EIS) - (1) A document prepared in accordance with the requirements of S102 (2) (C) of NEPA. (2) A tool for decision making; it describes the positive and negative effects of the undertaking and lists alternative actions. The draft document (DEIS) is prepared by the EPA, or under EPA guidance, and attempts to identify and analyze the environmental impacts of a proposed actions and feasible alternatives, and is circulated for public comment prior to preparation of the final environmental impact statement.

Environmental Restoration (ER) - Measures taken to clean up and stabilize or restore a site to pre-violation conditions that has been contaminated with hazardous substances during past production or disposal activities.

Environmental Restoration Waster - Waste generated by environmental restoration program activities.

Existing Facility - (1) Any equipment, structure, system, process or activity that fulfills a specific purpose. Examples include accelerators, storage areas, fusion research devices, nuclear reactors, production or processing plants, coal conversion plants, magnetohydrodynamics experiments, windmills, radioactive waster disposal system and burial ground, testing laboratories, research laboratories transportation activities, and accommodations for analytical examinations of irradiated and unirradiated components. (2) Buildings and other structures; their functional systems and equipment, including site development features such as landscaping equipment, including site development features such as landscaping roads, walks and parking areas; outside lighting and communications systems; central utility plants; utilities supply and distribution systems; and other physical plant features. (3) (a) Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (b) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

Explosive - (1) Any chemical compound or mechanical mixture that, when subjected to heat, impact, friction, shock, or other suitable initiation stimulus, undergoes a rapid chemical change with the evolution of large volumes of highly heated gases that exert pressures in the surrounding medium. The term applies to material that either detonate or deflagrate. (2) (as a waster matrix) - This category includes waster

materials that may explode during normal or extreme handling. This category includes rags that have been soaked in nitric acid and subsequently stored in containers.

Explosives Propellants - substances that expand rapidly when placed in certain environments.

Extraction Treatment - Method used to remove a hazardous waste constituent from heterogeneous debris, which meets the BDAT for that category of debris.

Facilities - Buildings and other structures; their functional systems and equipment, including site development features such as landscaping, roads, walks and parking areas; outside lighting and communications systems; central utility plants; utilities supply and distribution systems; and other physical plant features.

Federal Facility Compliance Agreement (FFCA) - An agreement between the DOE and a host state with respect to how and/or when some waste-related activity will be conducted to achieve compliance with applicable regulations in a timely manner. A major driver or constraint on activities that a particular site must undertake for waste operations.

facility - (a) Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft; or (b) any site or area where a hazardous substance has been deposited, stored, disposed of, placed, or otherwise come to be located.

fissile material - Although sometimes used as a synonym for fissionable material, this term has acquired a more restricted meaning; namely, any material fissionable by thermal (slow) neutrons. The three primary fissile materials are uranium-233, uranium-235, and plutonium-239.

Fission - The splitting of a nucleus into at least two other nuclei and the release of a relatively large amount of energy. Two or three neutrons are usually released during this type of transformation.

Fission products - The nuclei (fission fragments) formed by the fission of heavy elements, plus the nuclides formed by the fission fragments' radioactive decay.

Fissionable material - Commonly used as a synonym for fissile material, the meaning of this term has been extended to include material that can be fissioned by fast neutrons, such as uranium-238.

Filtration - Removal/separation of particles from a mixture of fluid and particles by a medium that permits the flow of the fluid but retains that particles. Usually, the larger the particles, the easier they are to remove from the fluid.

Free Liquid - Liquid that is not absorbed into host material such that it could readily separate from the solid portion of a waste under ambient temperature and pressure, and spill or drain from its container.

Generation - Includes the wastes resulting from new production, rework operations, wasters generated from D&D operations, and wastes resulting from environmental restoration operations, including the recovery of pre-1970 wastes, should their recovery be determined to be necessary.

Generator - Refers to current or previously operated facilities of the DOE that have produced or are producing waster.

geologic repository - A system that is intended to be used for, or may be used for, the disposal of radioactive waste or spent nuclear fuel in excavated geologic media. A geologic repository includes (a) the geologic repository operations areas, and (b) the portion of the geologic setting that provides isolation. A near-surface disposal area is not a geologic repository.

Graphite fuel - Fuel that consists of small pellets of highly enriched uranium (HEU)-carbide fuel surrounded by protective layers of other carbide compounds. These pellets are dispersed in much larger graphite structures for handling and neutron moderation.

Greater-than-Class-C Waster (GTCC) - Low-level radioactive waste that is generated by the commercial sector and that exceeds U.S. Nuclear Regulatory Commission concentration limits for Class-C low-level waster as specified in 10 CFR 61. DOE is responsible for the disposal of greater-than-Class-C wastes from DOE nondefense programs.

Groundwater - Liquid water occurring beneath the earth's surface in the interstices between solid groundwater - Generally, all water contained in the ground. Water held below the water table available to freely enter wells.

Groundwater Contamination - The pollution of the underground sources of springs and wells. Contamination can result from indiscriminate land disposal of potentially hazardous waster materials that are then dissolved or suspended in free liquids, usually water, and leach downward through the unsaturated profile to the zone of saturation or from improperly constructed or operated wells. Movement of the toxic

materials in the saturated zone is horizontal, and the rate of flow is determined by the gradient of the aquifer and its permeability. Correction of the problem is seldom limited to one site.

Grouting - Grouting is the process of immobilizing or fixing solid forms of waste so they can be more safely stored or disposed.

Half-life - The time in which half the atoms of a particular radioactive substance disintegrate to another nuclear form. Measured half-lives vary from millionths of a second to billions of years. Also called physical half-life.

Halogenated Pure Organic Liquids - flowing, watery pure carbon compounds combined with either fluorine, chlorine, bromine, iodine, or astatine.

Hazardous Substance - (1) (a) Any substance designated pursuant to S311 (b) any element, compound, mixture, solution, or substance designated pursuant to S102 of CERCLA; (c) any hazardous waste having the characteristics identified under or listed pursuant to X3002 of the SWDA; (d) any toxic pollutant listed in X307 (a) of the FWPCA; (e) any hazardous air pollutant listed under S112 of the CAA; and (f) any imminently hazardous chemical substance or mixture with respect to which the Administrator of EPA has taken action pursuant to S7 of TSCA. (2) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or if otherwise emitted into the environments. (3) S101 (14) of CERCLA, as amended, defines "hazardous substance: chiefly by reference to other environmental statutes, such as the SWDA, FWPCA, CAA, and TSCA. The term excludes petroleum, crude oil or any fraction thereof, natural gas, natural gas liquids, or synthetic gas usable for fuel.

Hazardous Waste (HW) - (1) Those wastes that are designated hazardous by EPA (or state) Regulations. (2) Byproducts of production or operation that can pose a potential hazard to human health or the environment when improperly managed and the possess at least one of four characteristics (ignitability, corrosivity, reactivity, toxicity), or that appear on special EPA lists. (3) A solid waste or combination of solid waste, that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may (a) cause, or significantly, contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. (4) Those wastes listed by EPA or meeting characteristics specified by EPA in their criteria pursuant to the RCRA. Disposal treatment or storage of hazardous wastes can only

take place in a site or facility issued a permit by EPA or a state. Note: Source, special nuclear material, and byproduct material, as defined by the AEA of 1954 as amended, are specifically excluded from the term hazardous waste.

Heavy metals - Metallic elements with high atomic weights (for example, mercury, chromium, cadmium, arsenic, and lead) that can damage living things at low concentrations and tend to accumulate in the food chain.

Heterogeneous Debris - contains a mixture of organic and inorganic matter.

Heterogeneous Debris (as a waste matrix) - Wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises no more than 50 percent of the waste.

High-Level Radioactive Waste (HLW) - (1) The highly radioactive waste material that results from the reprocessing spent nuclear fuel, including liquid waste produced directly in contains a combination of TRU waste and fission products in concentrations requiring permanent isolation (2) (a) Irradiated reactor fuel, (b) liquid wastes resulting from the operation of reactor fuel (b) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and (c) solids into which such liquid wastes have been converted. (3) As defined by the NWPA, high-level waste is (a) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including the liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and (b) other highly radioactive material that the NRC, consistent with existing law, determines by rule to require permanent isolation. (4) Waste generated in the fuel of a nuclear reactor, or waste found at nuclear reactors or nuclear fuel reprocessing plants. These wastes are a serious threat to anyone who comes near them without shielding.

Hot cell/Hot cell facility - A heavily shielded enclosure for handling and processing (by remote means or automatically) or storing highly radioactive materials.

Immobilization - Treatment of waste through macroencapsulation, microencapsulation, or sealing to reduce surface exposure to potential leaching media or to reduce the leachability of the hazardous constituents.

Immobilized Materials - Material that are fixed in a matrix.

Ignitability - (40CFR261.21) A solid waste which exhibits any one of the following properties;

- 1) a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has a flash point less than 60 degrees Celsius (140 degrees Fahrenheit)
- 2) It is not a liquid and is capable under standard temperature and pressure, of causing fire throughout absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.
- 3) It is an ignitable compressed gas as defined in 49 CFR 173, and as determined by proper test methods.
- 4) It is an oxidizer as defined in 49 CFR 173.

Incineration- (1) The controlled process by which combustible solid, liquid, or gaseous wastes are burned and changed into noncombustible gases and solid ash. (2) A treatment technology using combustion to destroy organic constituents and reduce the volume of wastes.

Inorganic Chemicals - mineral matter obtained by a chemical process.

Inorganic Debris (as a waste matrix) - Wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90 percent inorganic debris. Example inorganic debris materials are: metal shapes (e.g. equipment, scrap), metal turnings glass (e.g. light tubes, leaded glass, etc.), ceramic materials, concrete, rocks.

Inorganic Nonmetal - contains neither carbon compounds nor metallic matter.

Inorganic Particulate - minute particles of mineral matter produced by drilling or boring, or obtained from settling operations.

Inorganic Sludges - precipitated solid mineral matter produced by water and waste treatment processes.

Lab Packs with Metals - laboratory - controlled concentrated masses that include metals.

Lab Packs with Metals and Lab Packs without metals (as waste matrices)

- Wastes with one or more small containers of free liquids or solids surrounded by solid materials (virgin or waste materials) within a larger container. These categories include scintillation fluids that are packaged with vials. The difference between wastes within these categories is

contaminants. Lab packed wastes contaminated with TC metals are categorized as "Lab packs with Metals", wastes not contaminated with TC metals are categorized as "Lab packs without Metals".

Land Disposal Restrictions (1DRs) - (1) Provisions of the HSWA requiring phased-in treatment of hazardous wastes before disposal. (2) A RCRA program that restricts land disposal of RCRA hazardous wastes and requires treatment to promulgated treatment standards. (See Thirds Rule)

Leachate - (1) Any liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste. (2) A contaminated liquid resulting when water percolates, or trickles, through waste materials and collects components of those wastes. Leaching may occur at landfills and may result in hazardous substances entering soil, surface water, or groundwater.

Legacy Waste - That backlog of stored waste remaining from the development and production of U.S. nuclear weapons, about which a permanent disposal determination remains to be made; i.e., waste that is currently in warehouse storage, retrievable storage on bermed pads, or disposed of in trenches, that has not been examined by EM-40, Environmental Restoration Group, and determined to be permanently disposed of. [Also called backlog waste.]

Liquid - Liquid Extraction (LLEXT) - Extraction (often referred to as solvent extraction) or organics from liquid wastes into an immiscible solvent for which the hazardous constituents have a greater solvent affinity. The extract is high in organics and must undergo either incineration, reuse as a fuel, or other recovery/reuse. A raffinate is also produced that is proportionately low in organics and must be treated as specified in the standard.

Liquid Metal Fast Breeder Reactor - A reactor that operates using a type of fission known as fast fission where the neutrons that are used to split the atoms are not slowed down or moderated, as is usually the case with normal fission. It creates more fissionable material than it consumes and uses liquid metal as a coolant. Liquid sodium is a common metal used to cool this type of reactor.

Listed Waste - Wastes listed as hazardous under RCRA that have not been subjected to the Toxic Characteristics Listing Process because the dangers they present are considered self-evident.

Loess - A homogenous deposit consisting predominantly of silt, with subordinate amounts of very fine sand and/or clay.

Logic Diagrams - A pictorial depiction of the thought process which defines the activities required to treat a particular waste stream and described the relationships between those activities.

Long-term storage - The storage of hazardous waste (a) onsite (a generator site) for a period of 90 days or greater, other than in a satellite accumulation area, or (b) offsite in a properly managed treatment, storage, or disposal facility for any period of time.

Low-Level Radioactive Waste (LLW) - (1) Waste that contains radioactivity and is not classified as high-level waste, TRU waste, or spent nuclear fuel, or the tailings or wastes produced by the extraction or concentration of Uranium or Thorium from any ore processed primarily for its source material content. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of TRU is less than 100 nCi/g. (2) Radioactive waste not classified as high-level waste, TRU waste, spent nuclear fuel, or byproduct material.

Macroencapsulation (MACRO) - Application of surface coating materials such as polymeric organic (e.g., resins and plastics) or a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to 40 CFR 260.10.

Metathesis -

Metal Debris - an accumulation of metallic fragments

Metals Recovery (RMETL) - Recovery of metals or inorganics utilizes one or more of the following direct physical/removal technologies: (1) ion exchange; (2) resin or solid (i.e., zeolites) adsorption; (3) reverse osmosis; (4) chelation/solvent extraction; (5) freeze crystallization; (6) ultrafiltration and/or (7) simple precipitation (i.e. crystallization). Note: This does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration, (including ultrafiltration) and centrifugation, when use in conjunction with the above listed recovery technologies.

Microencapsulation - Stabilization of the debris with the following reagents (or waste reagents) such that the leachability of the hazardous contaminants is reduced: (1) Portland cement; or (2) Lime/pozzolans (e.g. fly ash and cement kiln dust). Reagents (e.g. iron salts, silicates, and clay) may be added to enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents

Mixed Low Level Waste (MLLW) - Low level waste that also includes hazardous wastes as identified in 40 CFR 261, SubParts C and D.

Mixed TRU (MTRU) Waste - TRU waste that also includes hazardous materials as identified in 40 CFR 261, Subparts C and D.

Mixed Waste - (FFCAct) - Waste that contains both hazardous waste and source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 USC 2011 et seq).

Mixture Rule - Under the mixture rule, when any solid waste and a listed hazardous waste are mixed, the entire mixture is a listed hazardous waste. Mixtures of solid wastes and characteristic hazardous wastes are hazardous only if the mixture exhibits a characteristic. (40 CFR 261.3(a)(2))

Near-surface disposal - disposal in engineered facilities that may be built totally or partially above-grade provided that such facilities have protective earthen covers. A near-surface disposal facility is not considered a geologic repository.

Neutralization (NEUTR) - use of the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals.

near-surface disposal - Disposal in the uppermost portion of the earth, approximately 30 meters.

Nonhalogenated Organic Liquids - flowing, watery substances that contain carbon compounds in the form of plant or animal matter.

Nonreactor nuclear facility - Those activities or operations that involve radioactive and/or fissionable materials in such form and quantity that a nuclear hazard potentially exists to the employees or to the general public. These activities or operations include producing, processing, or storing radioactive liquid or solid waste, fissionable materials, or tritium; conducting separation operations; conducting inspections of irradiated materials, fuel fabrication, decontamination, or recovery operations; conducting fuel enrichment operations; or performing environmental remediation or waste management activities involving radioactive materials.

Onsite - (1) Within a single research or production site of the DOE weapons complex; e.g., LANL is a site, as is INEL, SNL, etc. (2) The contaminated area and all potential areas in very close proximity to the contamination that must be taken into account for effective implementation of the response action.

Onsite Facility - A hazardous waste treatment, storage, or disposal area that is located on the generating site.

Operable Unit (OU) - (1) A discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site; (2) A discrete portion of a site consisting of one to many release sites considered together for assessment and cleanup activities. The primary criteria for placement of release sites into an operable unit include geographic proximity, similarity of waste characteristics and site type, and the possibilities for economy of scale. (3) An overall response action that by itself eliminates or mitigates a release, a threat of a release, or an exposure pathway.

Organic Chemicals - carbon compounds obtained by a chemical process.

Organic Debris - contains carbon compounds in the form of plant or animal matter

Organic Debris (as a waste matrix) - Wastes with matrices meeting the definition of debris per the 8/18/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90 percent organic debris. Example organic debris materials are: rags (including "solvent rags") plastic/rubber, paper, wood, and glovebox gloves (including lead-lined), animal carcasses.

Organic Liquids (as a waste matrix) - Liquids and slurries with a total organic carbon (TOC) content greater than or equal to 1 percent. Slurries must be flowable (e.g., suspended/settled solids can be up to approximately 35-40 percent). Only liquids or slurries packaged or stored in bulk form (i.e., tank stored, drummed bulk free liquids) are included in this category. Liquids packaged in lab pack-type configuration are categorized as lab packs.

Organic Particulate - minute particles of plant or animal matter obtained by drilling, boring, or settling operations.

Organic Slugs - precipitated solids of plant and animal matter produced by waster and waste treatment processes

Organic Slugs/Particulates (as a waste matrix) - Solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris material provided the amount of debris is less than 50 percent (based on Land Disposal Restriction (LDR) debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated. Example waste materials in this category are: organic sludges, (e.g. sewage sludges) activated carbon, organic resins, and absorbed liquids (organic particulate absorbents).

Orphan wastes - Wastes in a classification that currently have no long-term disposal scheduled or anticipated. An example of an orphan waste is low-level mixed waste. Orphan waste is probably not radioactive enough to qualify for disposal at the Waste Isolation Pilot Plant and it cannot be disposed of onsite because it has hazardous components.

Overpack - A secondary container placed around a primary container to provide additional protection to or from the contents of a waste package or enclose a damaged primary container.

Package - (49 CFR 171.8) is a packaging plus its contents. For radioactive materials (49 CFR 173.403) a package is the packaging together with its radioactive contents as presented to transport

Person-rem - A unit of collective radiation dose applied to populations or groups of individuals.

pH - (1) Measurement of the hydrogen-ion activity of a system. The logarithm (the exponent indicating the power to which a given number must be raised to produce a given number) of the reciprocal of hydrogen ion concentration ($-\log_{10}[\text{H}^+]$, where $[\text{H}^+]$ is hydrogen-ion concentration in moles per liter). (2) A symbol for the degree of acidity or alkalinity.

Pollutant or Contaminant - Includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, that after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring; except that the term "pollutant or contaminant" shall not include petroleum including crude oil or any fraction thereof that is not otherwise specifically listed or

designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

Precipitation (PREC2) - Treatment of metals and other inorganics to form insoluble precipitates of oxides, hydrides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. The following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium and/or potassium hydroxides; (3) soda ash (i.e. sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculating, coagulating or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.

Preferred Option - Specific technology (s) and facility(s) used to treat mixed waste.

Pretreatment Processes - Processes (e.g., shredding, grinding, physical separation, etc.) that make the waste amenable to the treatment process that ultimately destroys, removes, or immobilizes the hazardous contaminants or characteristics.

Process Knowledge - Characterization of a waste based on the generator's familiarity of the process that caused the waste to be generated and the attributes known to be associated with such processing and raw materials. This knowledge can be based on design specification of the product, raw materials specification, surrogate analysis, mass balance determinations, or any other information assimilated without actual testing of the waste stream itself.

Project - A project is the mechanism to implement the Preferred Option. A project may contain one or more preferred Options. Al Fernald Environmental Management Project (FEMP) waste is assigned to a project.

Projectize - The operation of sorting, organizing, and assigning waste to a project by evaluating of the waste against the parameters of each possible project.

rad - The special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram.

Radiation - (1) Ionizing radiation that includes any or all of the following: gamma rays and x-rays, alpha and beta particles, highspeed electrons, neutrons, high-speed protons, and other atomic particles. This definition does not include nonionizing radiation's, such as sound, microwave, radiowave or visible, infrared, or ultraviolet light. (2) Refers to the process of emitting energy in the form of rays or particles that are thrown off by

disintegrating atoms. The rays or particles emitted may consist of alpha, beta, or gamma radiation.

Radioactive Mixed Waste - (See Mixed Waste)

Radioactive Waste - (1) Solid, liquid, or gaseous material that contains radionuclides regulated under the AEA of 1954, as amended, and of negligible economic value considering costs of recovery. (2) A solid, liquid, or gaseous material of negligible economic value that contains radionuclides in excess of threshold quantities. Does not include material contaminated by radionuclides from nuclear weapons testing.

Radioactivity - (1) The spontaneous nuclear decay of a material with a corresponding release of energy in the form of particles and/or electromagnetic radiation. (2) The property or characteristic of radioactive material to spontaneously "disintegrate" with the emission of energy in the form of radiation. The unit of radioactivity is the curie (or becquerel).

Radionuclide - (1) A species of atom having an unstable nucleus, that is subject to spontaneous decay. (2) Any nuclide that emits radiation. A nuclide is a species of atom characterized by the constitution of its nucleus and hence by the number of protons, the number of neutrons, and the energy content.

Radionuclide Separation - The process by which the radioactive portion of the waste is physically separated from the hazardous portion creating two separate waste streams, one purely radioactive and one purely hazardous.

RCRA Closure - The act of securing a Hazardous Waste Management Facility pursuant to the requirements of 40 CFR, Part 264.

Reactive Metals (as a waste matrix) - Bulk reactive metals and equipment contaminated with reactive metals. Bulk reactive metals include sodium alkali metal alloys, aluminum fines, uranium fins, zirconium fines, and other pyrophoric materials. Contaminated equipment includes piping, pumps and other materials with a residue or reactive metals that cannot be separated from the equipment medium.

Reactivity - (1) A characteristic of a waste that is explosive, reacts violently with water, or generates toxic gases when exposed to water or liquids that are moderately acidic or alkaline. (2) An EPA characterization a hazardous waste that identifies waste that under routine management, presents a hazard because of instability or extreme reactivity.

Recovery or Reuse of Compressed Gases (RCGAS) - Recovery or reuse of compressed gases includes techniques such as reprocessing or the gases for reuse or resale; filtering or adsorption of impurities; remixing for direct reuse or resale; and use of the gas as a fuel source.

Recovery of Organics (RORGs) - Recovery of organics utilizing one or more of the following technologies: (1) Distillation; (2) thin film evaporation; (3) steam stripping; (4) carbon adsorption; (5) critical fluid extraction; (6) liquid-liquid extraction; (7) recipitation/crystallization (including freeze crystallization); or (8) chemical phase separation techniques (i.e., addition of acids, bases, demulsifiers, or similar chemicals). This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation, used in conjunction with the above listed recovery technologies.

Remedial Action (R) - (1) Activities conducted at DOE facilities to reduce potential risks to people and/or harm to the environment from radioactive and/or hazardous substance contamination. (2) Those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. (3) The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection, clay cover, neutralization, cleanup of released hazardous substances or contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, onsite treatment or incineration, provision of alternative water supplies, and any monitoring reasonably required to ensure that such actions protect the public health and welfare and the environment. The term includes the costs of permanent relocation of residents and businesses and community facilities where the President determines that, alone or in combination with other measures, such relocation is more cost-effective than, and environmentally preferable to, the transportation, storage, treatment, destruction, or secured disposition offsite of such hazardous substances, or may otherwise be necessary to protect the public health or welfare. The term does not include offsite transport of hazardous substances or contaminated materials unless the President determines that such actions: are more cost-effective than other remedial actions; will create new capacity to manage in compliance with Subtitle C of the SWDA, hazardous substances in addition to those located at the affected facility; or are necessary to protect public health or welfare or the environment from a present or potential risk that may be created by further exposure to the continued presence of such substances or materials [as defined by §101(24) of CERCLA].

Remote-Handled Waste (RE Waste) - (1) Packaged waste with an external surface dose rate that exceeds 200 mrem per hour.

Remote Handling - The handling of wastes from a distance so as to protect human operators from unnecessary exposure.

Resources Conservation and Recovery Act (RCRA) Part A Permit - The first part of a resource Conservation and Recovery Act permit application that identifies treatment, storage, and disposal units within a to-be-permitted facility.

Resource Conservation and Recovery Act (RCRA) Permit, Part B - The detailed second part of a RCRA permit application that describes waste to be managed, and waste quantities, and facilities.

Sal Waste - waste that contains an abundance of salt.

Screening - A system designed to prevent particles or liquids in one area from mixing or reacting with another. **sanitary landfill** - A facility of the disposal of solid waste where there is no reasonable probability of adverse effects on health or the environment from disposal of the solid waste at the facility. This facility is not an open dump and is not for disposal of hazardous waste.

Scrubber - A device that uses a liquid spray to remove aerosol and gaseous pollutants from an airstream. The gases are removed either by absorption or chemical reaction. solid and liquid particulates are removed through contact with the spray.

Secondary Waste - a waste stream which is generated as a result of an activity or process performed on an existing waste stream.

Segregation - The process of separating (or keeping separate) individual waste types and/or forms in order to facilitate their cost-effective treatment and storage or disposal.

Site - (1) A geographic entity comprising land, buildings, and other facilities required to perform program objectives. Generally a site has, organizationally, all at the required facilities for management functions. That is, it is not a satellite of some other site. (2) For the purposes of the ERWM Five-Year Plan, sites are lands, installations, and/or facilities for which DOE has or shares responsibility for ERWM activities. (3) An area or a location at which hazardous substances have been stored, treated, disposed of, placed, or otherwise come to be located. This includes all contiguous land, structures, other appurtenances, and improvements on the land used for treatment, storage, or disposal of hazardous substances. A site may consist of several treatment, storage, or disposal facilities (e.g., impoundment's, containers, buildings, or equipment).

Sizing - The process of reducing the size of various types of solid wastes by compaction, melting, or mechanical reduction.

Soil (as a waste matrix) - Soils contaminated with hazardous constituents and radioactivity that are stored in waste containers. Includes soils contaminated with organics, inorganic, or both

Soil With 50 Percent Debris (as a waste matrix) - Soils contaminated with hazardous constituents and radioactivity that are stored in waste containers. Includes soils contaminated with organics, inorganics, or both. Wastes in this category may include debris, provided it is less than 50 percent of the waste.

Solid Waste - (RCRA) garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat 880), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 as amended (68 Stat.923).

Solidified Inorganic Process Residue - mineral matter firmly bound together as a result of time, pressure, or chemical retains.

Source Material - (AEA) (1) Uranium, Thorium, or any other material which is determined by the Commission pursuant to the provisions of section 61 [42 U.S.C. 2091] to be source material; or (2) ores containing one or more of the foregoing materials in such concentration as the commission may by regulation determine from time to time.

Special Nuclear Material - (AEA) (1) Plutonium, Uranium, enriched in isotope 233 or in the isotope 235, and any other material which the commission, pursuant to the provisions of section 52 [42 U.S.C. 2071], determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but excludes source-

Spent Nuclear Fuel - Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated. For the purposes of this EIS, spent nuclear fuel also includes uranium/neptunium target materials, blanket subassemblies, pieces of fuel, and debris.

Stabilization (STABL) - A broad class of treatment processes that physically immobilize hazardous constituents. For treatment of metals in low-level mixed wastes and for TRU wastes containing low-level radioactive components, stabilization technologies will reduce the leachability of the hazardous metal constituents (regardless of whether the metals are radioactive) in nonwastewater matrices.

Stabilization (of spent nuclear fuel) - Actions taken to further confine or reduce the hazards associated with spent nuclear fuel, as necessary for safe management and environmentally responsible storage for extended periods of time. Activities that may be necessary to stabilize spent nuclear fuel include canning, processing, and passivation.

Stabilized waste (stability) - Treatment or packaging of a waste stream that is intended to ensure that the waste does not structurally degrade and affect overall stability of the disposal site through slumping, collapse, or other types of failures that will lead to water infiltration into the waste. Stabilization is also a factor in limiting exposure to an inadvertent intruder since it provides a recognizable and nondispersible waste.

Stakeholder - Any person or organization with an interest in or affected by DOE activities. Stakeholders may include representatives from Federal agencies, State agencies, Congress, Native American Tribes, unions, educational groups, industry, environmental groups, other groups, and members of the general public.

Steam Stripping - A continuous process conducted in a unit that consists of a boiler, a stripping column, a condenser, and a collection tank. Steam stripping of organics from liquid wastes utilizes direct application of steam to the wastes operated such that liquid and vapor flow rates, as well as, temperature and pressure ranges have be on optimized, monitored and maintained. These operating parameters are dependent upon the design parameters of the unit such as, the number of separation stages and the internal column design. Thus, resulting in a-condensed extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery /reuse and an extracted wastewater that must undergo further treatment as specified in the standard.

Storage - (1) Temporary holding of waste pending treatment or disposal. Storage methods include containers, tanks, waste piles, and surface impoundment's. (2) The containment of hazardous waste, either on a temporary basis or for a period of years, in such a manner as not to constitute disposal of such hazardous waste. (3) Retrievable retention of waste pending disposal.

Storage Facility - Land area, structures and equipment used for the storage of waste.

Storage Unit - A discrete part of the storage facility in which waste is stored.

Supercompaction - A volume-reduction method relying on mechanical compaction.

Superfund Site - Any site that has been listed on the National Priority List (NPL) because it has been identified by the EPA having the potential to harm human health and the environment. Study and cleanup activities at these site are regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). "Superfund" sites at Federal facilities must be cleaned up by the operating agency (lead agency) under the oversight of the U.S. Environmental Protection Agency and other parties to a Federal Facility Agreement.

Surrogate Analysis - Laboratory testing performed on similar waste from similar processes which are have most of the same components. (testing on several variation of printed circuit boards should be adequate for all boards processed by the same general process)

Technology Based Standard - A restricted waste for which a technology based standard is specified may be land disposed after it is treated using that specified technology or an equivalent treatment method approved by the Administrator of EPA.

Thermal Desorption

Used to volitize organics from soils at lower temperatures than produced by incineration. The volatile organics would be volatilized and captured while the treated solids could be compacted or incinerated before disposal.

Thermal Treatment - The treatment of hazardous waste in a device that uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, pyrolysis, calcination, wet air oxidation, and microwave discharge.

Transuranic Waste (TRU) - This core definition appears in modified form in various relevant documents: Waste containing alphaemitting radionuclides with an atomic number greater than 92 and half-lives greater than 20 years, at concentrations greater than 100 nCi/g of waste. Modifications include the following: (1) For purposes of management, DOE Order 5820.2A (a) considers TRU waste, as defined above, "without regard to source or form" [The proposed revision to the Order ("DOE Order 5820.2A Major Issues for Revision," May 6, 1992) contemplates removing this clause.]; (b) allows heads of field elements to determine that wastes containing other alpha-emitting

radionuclides must be managed as TRU waste; and (c) adds "at time of assay", implying both that the classification of a waste as TRU is to be made based on an assay and that such classification can be superseded only by another assay. (2) For purposes of setting standards for management and disposal, 40 CFR 191.02(i) adds "except for: (a) high-level radioactive wastes; (b) wastes that the DOE has determined, with the concurrence of the Administrator [of EPA] do not need the degree of isolation required by this part; or (c) wastes that the Commission [NRC] has approved for disposal on a case-by-case basis in accordance with 10 CFR 61 [Licensing Requirements for Land Disposal of Radioactive Wastes]".

Treatability Group - Based on the radioactive characteristics, hazardous components, and physical/chemical matrices as discussed above, DOE has grouped its wastes to reflect salient treatment considerations for each waste stream. These "treatability groups" are used to relate waste streams and waste quantities to treatment facilities and technology development needs.

Treatment - (1) Any method, technique, or process designed to change the physical or chemical character of waste to render it less hazardous, safer to transport, store or dispose of, or reduced in volume. (2) Any activity that alters the chemical or physical nature of a hazardous waste to reduce its toxicity, volume, mobility, or render it amenable for transport, storage, or disposal.

Treatment Facility - The specific area of land, structures, and equipment dedicated to waste treatment and related activities.

Treatment, Storage, and Disposal (TSD) Facility - Any building, structure, or installation where a radioactive or hazardous substance has been treated, stored, or disposed.

Treatment System - The equipment and processes used for similar waste types at treatment facilities. A treatment system is the unit treatment operation or sequence of unit treatment operations carried out on all wastes that enter the system (e.g., a treatment system may consist of chemical reduction followed by precipitation, or an incinerator and a vitrification unit for the ash).

Unimportant Quantities - (10CFR40.13) Amounts of source materials exempted from licensing requirements as specified in 10 CFR 40.13.

Unknown Liquids - unidentified flowing liquids.

Unknown Solids - unidentified particles that are neither gaseous nor liquid.

Vitrification - (1) A waste treatments process in which calcined or another decomposed form of waste is mixed with glass and fused into a solid mass. The resultant mass is expected to remain a stable and insoluble form for long time periods, and thus will be a leading candidate for the most benign wasteform for disposal. (Nitrification with borosilicate glass is the BDAT for HLW and certain mixed waste streams.) (2) The conversion of high-level waste materials into a glassy or noncrystalline solid for subsequent disposal. (3) The process of immobilizing waste that produces a glass-like solid that permanently captures the radioactive materials.

Volatile Organic Compound (VOC) - (1) Any reactive organic compound as defined in 40 CFR 60.2 definitions. (2) An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature.

Waste Acceptance Criteria (WAC) - The criteria used to determine if waste and waste packages are acceptable for treatment, storage transportation and disposal purposes.

Waste Characterization - Activities to determine the extent and nature of the waste.-
Note: Waste characterization may be based on process knowledge, nonintrusive (NDE/NDA) examination, or intrusive examination such as sampling and analysis.

Waste Minimization - An action that economically avoids or reduces the generation of waste by source reduction, reducing the toxicity of hazardous waste, improving energy usage, or recycling. These actions will be consistent with the general goal of minimizing present and future threats to human health, safety, and the environment.

Waste Form - The physical form (matrix) of the waste such as sludges, combustibles, metals, etc.

Waste Isolation Pilot Plant (WIPP) - (1) The project authorized under §213 of the DOE National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164; 93 Stat. 1259. 1265) to demonstrate the safe disposal of radioactive.

Waste Suitable for Disposal - waste that requires no further treatment to meet requirements for disposal.

Wastewaters - waters that have been used and contain contaminants, such as those used in a manufacturing process.

Waste Management - The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated surveillance and maintenance activities.

Waste Minimization - (1) An action that effectively avoids or reduces the generation of waste by source reduction, improving energy usage, or by recycling. This action is consistent with the general goal of minimizing present and future threats to human health, safety, and the environment. (2) The reduction, to the extent feasible, of hazardous waste that is generated prior to treatment, storage, or disposal of the waste. Waste minimization includes any source reduction or recycling activity that results in either (a) reduction of total volume of hazardous waste, (b) reduction of toxicity of hazardous waste or (c) both.

Waste Segregation - The separation of waste materials before the package (or repackaging process to facilitate handling, storage, treatment, transportation, and/or disposal.

Waste Stream - A flow of waste materials with specific definable characteristics that remain the same throughout the life of the process generating the waste stream. A waste stream is produced by a single process or sub-process; however, that process or subprocess may be one that combines two or more input waste streams together to produce a single output waste stream.

Wet Storage - Storage of spent nuclear fuel in a pool of water, generally for the purposes of cooling and/or shielding.

APPENDIX B

APPENDIX B

ACTIVITY DATA SHEET ANALYSIS OF ADS DATABASE FOR FY92-93

ORGANIZED BY FIELD OFFICE, INSTALLATION, AND CATEGORY TYPE:

- **DESCENDING ORDER OF COSTS WITHIN CATEGORY TYPE**
- **% OF COSTS WITH RESPECT TO ALL ENVIRONMENTAL MANAGEMENT ADSs**
- **% OF CUMULATIVE COSTS WITH RESPECT TO THE FIELD OFFICE TOTALS**

ADS No.	Title	FY92-93	% Cost	% Cumul	Field Office	Installation	Category
ALAL - 17	ER Program Support	\$10,483	0.10%	0%	AL	Alb Operations	ER
ALAL - 18	ER Program Support	\$5,763	0.06%	0%	AL	Alb Operations	ER
ALAL - 1001	South Valley Superfund Site Rem (AL-SV-1)	\$2,934	0.03%	0%	AL	Alb Operations	ER
ALAL - 16	ER Agreement in Principle, State of TX, State of FL & State of MO.	\$1,127	0.01%	0%	AL	Alb Operations	ER
AL - 3031 - 1	Waste Management Program Direction	\$10,288	0.10%	0%	AL	Alb Operations	WM
ALAL - 14	Agreements-in-Principle, State of NM, State of FL & State of TX	\$7,872	0.08%	0%	AL	Alb Operations	WM
ALAL - 2	Program Control	\$3,366	0.03%	0%	AL	Alb Operations	WM
AL - 1001 - GJ	Monticello Remedial Action Project/State of Utah Grant	\$31,131	0.31%	1%	AL	Grand Junctions Project Office	ER
AL - 1003 - GJ	Monticello Vicinity Properties Project	\$7,692	0.08%	1%	AL	Grand Junctions Project Office	ER
AL - 1005 - GJ	Grand Junction Projects Office Remedial Action Project (GJPORAP)	\$6,201	0.06%	1%	AL	Grand Junctions Project Office	ER
AL - 1007 - GJ	Environmental Management Technical Center (EMTC)	\$1,379	0.01%	1%	AL	Grand Junctions Project Office	ER
AL - 1002 - GJ	Monticello Surface and Groundwater Remediation	\$967	0.01%	1%	AL	Grand Junctions Project Office	ER
AL - 381	GJPORAP Independent Verification	\$658	0.01%	1%	AL	Grand Junctions Project Office	ER
AL - 320	Monticello Surveys/IVC Support	\$289	0.00%	1%	AL	Grand Junctions Project Office	ER
AL - 1004 - GJ	Long Term Surveillance and Maintenance Program (LTSM)	\$0	0.00%	1%	AL	Grand Junctions Project Office	ER
AL - 1006 - GJ	Grand Junction Projects Office Landlord Support	\$0	0.00%	1%	AL	Grand Junctions Project Office	ER
ALIT - 13	GPP Corrective Activities	\$103	0.00%	1%	AL	Inhalation Toxicology Research INS	CA
ALIT - 1023	Environmental Assess. and Remed. Program Mgmt (ALIT - 1023)	\$2,533	0.03%	1%	AL	Inhalation Toxicology Research INS	ER
ALIT - 1019	Groundwater and Sanitary Lagoons Assess. and Remed. (ALIT - 1019)	\$1,331	0.01%	1%	AL	Inhalation Toxicology Research INS	ER
ALIT - 1013	Diesel Oil Assessment and Remediation (ALIT - 1013)	\$1,013	0.01%	1%	AL	Inhalation Toxicology Research INS	ER
ALIT - 1015	Hot Pond Assessment and Remediation (ALIT - 1015)	\$719	0.01%	1%	AL	Inhalation Toxicology Research INS	ER
ALIT - 3045	Facility Operations and Maintenance	\$937	0.01%	1%	AL	Inhalation Toxicology Research INS	WM
ALIT - 3265	GPP Waste Management	\$468	0.00%	1%	AL	Inhalation Toxicology Research INS	WM
ALAL - 51	Waste Minimization Planning (Non-Defense)	\$37	0.00%	1%	AL	Inhalation Toxicology Research INS	WM
ALKC - 1723	KCP Corrective Activities	\$6,931	0.07%	1%	AL	Kansas City Plant	CA
ALKC - 1024	Abandoned Indian Creek Outfall (AICO)	\$11,861	0.12%	1%	AL	Kansas City Plant	ER
ALKC - 1044	Groundwater Treatment & Monitoring	\$2,063	0.02%	1%	AL	Kansas City Plant	ER
ALKC - 1046	TCE Still Area Soils	\$1,823	0.02%	1%	AL	Kansas City Plant	ER
ALKC - 1022	Environmental Restoration Management	\$1,382	0.01%	1%	AL	Kansas City Plant	ER
ALKC - 1050	Northeast Area	\$1,087	0.01%	1%	AL	Kansas City Plant	ER
ALKC - 1032	Miscellaneous Contaminated Sites	\$1,004	0.01%	1%	AL	Kansas City Plant	ER

ADS No.	Title	FY92+93	% Cost	% Cumul	Field Office	Installation	Category
ALKC - 1036	NEPA Environmental Assessment	\$971	0.01%	1%	AL	Kansas City Plant	ER
ALKC - 1028	Department 26	\$739	0.01%	1%	AL	Kansas City Plant	ER
ALKC - 1040	Plating Building	\$583	0.01%	1%	AL	Kansas City Plant	ER
ALKC - 1030	Department 27 Interim Measures	\$358	0.00%	1%	AL	Kansas City Plant	ER
ALKC - 1038	Outfall 001 Raceway & Retention Pond	\$290	0.00%	1%	AL	Kansas City Plant	ER
ALKC - 1048	Department 71 & Truck Shop Sump	\$201	0.00%	1%	AL	Kansas City Plant	ER
ALKC - 1042	RCRA South Lagoon Closure Groundwater	\$160	0.00%	1%	AL	Kansas City Plant	ER
ALKC - 1029	Department 27 Inside	\$102	0.00%	1%	AL	Kansas City Plant	ER
ALKC - 1034	Miscellaneous PCB Sites	\$13	0.00%	1%	AL	Kansas City Plant	ER
ALKC - 3000	Facility Operations and Maintenance	\$13,877	0.14%	1%	AL	Kansas City Plant	WM
ALKC - 3238	Waste Minimization Planning	\$519	0.01%	1%	AL	Kansas City Plant	WM
ALKC - 3001	General Plant Projects Waste Management	\$241	0.00%	1%	AL	Kansas City Plant	WM
ALLA - 81	Corrective Activities	\$9,064	0.09%	2%	AL	Los Alamos National Lab	CA
ALLA - 42	ES&H Improvements (Haz. Waste Treatment	\$6,315	0.06%	2%	AL	Los Alamos National Lab	CA
ALLA - 74	Air Exhaust Mods	\$3,505	0.04%	2%	AL	Los Alamos National Lab	CA
ALLA - 82	GPP Corrective Activities	\$3,400	0.03%	2%	AL	Los Alamos National Lab	CA
ALLA - 51	Sanitary Wastewater Systems Consolidation	\$1,546	0.02%	2%	AL	Los Alamos National Lab	CA
ALLA - 2105	Programmatic Tech Support	\$25,442	0.25%	2%	AL	Los Alamos National Lab	ER
ALLA - 2107	Programmatic Management	\$19,320	0.19%	2%	AL	Los Alamos National Lab	ER
ALLA - 1106	TA-21	\$8,067	0.08%	2%	AL	Los Alamos National Lab	ER
ALLA - 1148	TA-51, 54	\$4,904	0.05%	2%	AL	Los Alamos National Lab	ER
ALLA - 1078	TA-1	\$4,008	0.04%	2%	AL	Los Alamos National Lab	ER
ALLA - 1129	TA-4, 5, 35, 42, 48, 52, 55, 63, 66	\$3,955	0.04%	2%	AL	Los Alamos National Lab	ER
ALLA - 1071	TA-0, 19, 26, 73, 74	\$3,558	0.04%	2%	AL	Los Alamos National Lab	ER
ALLA - 1082	TA-11, 13, 16, 24, 25, 28, 37	\$3,518	0.04%	2%	AL	Los Alamos National Lab	ER
ALLA - 1067	RCRA Mixed Waste Storage/Disposal Facility Decontamination and Decommissioning of TA-21,	\$3,133	0.03%	2%	AL	Los Alamos National Lab	ER
ALLA - 1055	DP West Site	\$3,036	0.03%	2%	AL	Los Alamos National Lab	ER
ALLA - 1122	TA-33	\$2,921	0.03%	2%	AL	Los Alamos National Lab	ER
ALLA - 1111	TA-6, 7, 22, 40, 58, 62	\$2,710	0.03%	3%	AL	Los Alamos National Lab	ER

ADS No.	Title	FY92+93	% Cost	% Cumul	Field Office	Installation	Category
ALLA - 1051	Program Management - Defense Program (DP) Projects	\$2,446	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1079	TA-10, 31, 32, 45	\$2,429	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1086	TA-15	\$2,343	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1114	TA-3, 59, 60, 61, 64	\$2,181	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1054	Pphase Separator Pit Decommissioning	\$1,833	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1147	TA-50	\$1,801	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1157	TA-8, 9, 23, 69	\$1,599	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1144	TA-49	\$1,598	0.02%	3%	AL	Los Alamos National Lab	ER
ALLA - 1140	TA-46 Assessment	\$1,469	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1098	TA-2, 41	\$1,436	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1132	TA-39	\$1,428	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1130	TA-36, 68, 71	\$1,403	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1093	TA-18, 27, 65	\$1,325	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1100	TA-20, 53, 72	\$1,076	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1049	Canyons	\$960	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1135	TA-40 Scrap Detonation Site Closure	\$811	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1062	Interim Remedial Measures	\$697	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1066	NEPA Documentation for Disposal Facility	\$596	0.01%	3%	AL	Los Alamos National Lab	ER
ALLA - 1085	TA-12, 14, 67	\$483	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 1051 -B	Program Management - Non-Defense Programs (Non-DP) Projects	\$410	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 2110	Environmental Restoration Analytical Chemistry Facility	\$300	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 1154	TA-57	\$219	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 1136	TA-43	\$100	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 1127	TA-34 Waste Oil Storage Pit, Etc.	\$21	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 1063	Interim Remedial Measures	\$0	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 2134	Decommissioning of TA-3, SM-35, Press Building	\$0	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 2135	Facility	\$0	0.00%	3%	AL	Los Alamos National Lab	ER

ADS No.	Title	FY92+93	% Cost	% Cumul	Field Office	Installation	Category
ALLA - 2136	Decommissioning of HE Contaminated Buildings at TA-16	\$0	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 2137	Technical Support for D&D	\$0	0.00%	3%	AL	Los Alamos National Lab	ER
ALLA - 2138	Surveillance & Maintenance of DP Facility	\$0	0.00%	3%	AL	Los Alamos National Lab	ER
AL - 6101	Alb LANL Facility Transition	\$4,500	0.05%	3%	AL	Los Alamos National Lab	FT
ALLA - 4172	Facility Operations and Maintenance	\$97,852	0.98%	4%	AL	Los Alamos National Lab	WM
ALLA - 4173	General Plant Projects Waste Management	\$11,053	0.11%	4%	AL	Los Alamos National Lab	WM
ALLA - 3256	Mixed Waste Receiving and Storage Facility	\$9,715	0.10%	4%	AL	Los Alamos National Lab	WM
ALLA - 4137	Waste Minimization Planning	\$5,040	0.05%	4%	AL	Los Alamos National Lab	WM
ALLA - 4174	New Facility Planning	\$3,048	0.03%	4%	AL	Los Alamos National Lab	WM
ALLA - 43 - A	High Explosive Wastewater Treatment	\$215	0.00%	4%	AL	Los Alamos National Lab	WM
ALMD - 58	MD-CA-0058 ES&H Phase II	\$41	0.00%	4%	AL	Mound Plant	CA
ALMD - 1170	Decommissioning of Special Metallurgical Bldg	\$15,960	0.16%	4%	AL	Mound Plant	ER
ALMD - 1209	OU9 Sitewide RI/FS	\$10,698	0.11%	4%	AL	Mound Plant	ER
ALMD - 1201	OU1 Area B Groundwater	\$9,311	0.09%	4%	AL	Mound Plant	ER
ALMD - 4028	Decommissioning of EW Soil	\$6,138	0.06%	5%	AL	Mound Plant	ER
ALMD - 1210	Program Management	\$4,477	0.04%	5%	AL	Mound Plant	ER
ALMD - 1203	OU3 Miscellaneous Sites	\$4,345	0.04%	5%	AL	Mound Plant	ER
ALMD - 1175	Decomm of UG Lines to Waste Disposal Bldg	\$3,530	0.04%	5%	AL	Mound Plant	ER
ALMD - 1174	Decomm of Semi-Works/Waste Disposal Bldgs	\$2,952	0.03%	5%	AL	Mound Plant	ER
ALMD - 1206	OU6 D&D Sites Haz Con	\$2,305	0.02%	5%	AL	Mound Plant	ER
ALMD - 1167	Decomm of Plutonium Proc. Bldg EW & EX Areas	\$2,161	0.02%	5%	AL	Mound Plant	ER
ALMD - 4024	D&D Program Management and NEPA Compliance	\$2,094	0.02%	5%	AL	Mound Plant	ER
ALMD - 1204	OU4 Miami-Erie Canal	\$1,964	0.02%	5%	AL	Mound Plant	ER
ALMD - 1172	Decommissioning of Semi-Works Cave Areas	\$1,431	0.01%	5%	AL	Mound Plant	ER
ALMD - 1176	Decommissioning of Waste Transfer System	\$1,149	0.01%	5%	AL	Mound Plant	ER
ALMD - 1205	OU5 Rad Contaminated Soils	\$759	0.01%	5%	AL	Mound Plant	ER
ALMD - 1202	OU2 Main Hill Seeps	\$311	0.00%	5%	AL	Mound Plant	ER
ALMD - 1194	Surveillance and Maintenance of D&D Areas	\$156	0.00%	5%	AL	Mound Plant	ER
ALMD - 1165	Decommissioning of Bldg 21	\$0	0.00%	5%	AL	Mound Plant	ER
AL - 6102 - MD	Alb Mound Facility Transition	\$1,000	0.01%	5%	AL	Mound Plant	FT
ALMD - 3100	Facility Operations and Maintenance	\$16,357	0.16%	5%	AL	Mound Plant	WM
ALMD - 4014	Waste Minimization	\$354	0.00%	5%	AL	Mound Plant	WM
ALMD - 3108 - A	New Facility Planning	\$353	0.00%	5%	AL	Mound Plant	WM
ALMD - 3113 - A	GPP Waste Management	\$0	0.00%	5%	AL	Mound Plant	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
ALPX -1216 - AR	Onsite Playas and Ditches Assess/Remediation	\$6,630	0.07%	5%	AL	Pantex Plant	ER
ALPX -1232 - AR	Burning Ground Asses/Remediation	\$6,113	0.06%	5%	AL	Pantex Plant	ER
ALPX -1229	ER Program Management	\$5,828	0.06%	5%	AL	Pantex Plant	ER
ALPX -1230 - AR	Zone 12 Groundwater Assess/Remediation	\$4,304	0.04%	5%	AL	Pantex Plant	ER
ALPX -1203 - AR	Fire Department Burn Pits Assess/Remediation	\$3,335	0.03%	5%	AL	Pantex Plant	ER
ALPX -1227 - AR	Leaking Underground Storage Tank Assess/Remed	\$3,329	0.03%	5%	AL	Pantex Plant	ER
ALPX -1219 - AR	Priority Recon. Assess/Remediation	\$2,913	0.03%	5%	AL	Pantex Plant	ER
ALPX -1223 - AR	Underground Storage Tanks Assess/Remediation	\$2,292	0.02%	5%	AL	Pantex Plant	ER
ALPX -1213 - AR	Hypalon Pond Assess/Remediation	\$1,146	0.01%	5%	AL	Pantex Plant	ER
ALPX -1207 - AR	Former Cooling Tower Assess/Remediation	\$833	0.01%	5%	AL	Pantex Plant	ER
ALPX -1220 - AR	Old Sewage Treatment Plant Assess/Remediation	\$727	0.01%	5%	AL	Pantex Plant	ER
ALPX -1222 - AR	Supplemental Sites Assess/Remediation	\$621	0.01%	5%	AL	Pantex Plant	ER
ALPX -1212 - AR	High Explosive/Rad. Sites Assess/Remediation	\$313	0.00%	5%	AL	Pantex Plant	ER
ALPX -1198 - AR	Chemical Releases Assess./Remediation	\$265	0.00%	5%	AL	Pantex Plant	ER
ALPX -1200 - AR	Construction Landfills Assess./Remediation	\$256	0.00%	5%	AL	Pantex Plant	ER
ALPX -1205 - AR	Firing Sites Assess/Remediation	\$189	0.00%	5%	AL	Pantex Plant	ER
ALPX -1235	Hydrogeologic Investigations	\$99	0.00%	5%	AL	Pantex Plant	ER
ALPX -1215	NEPA Documentation - Assess	\$41	0.00%	5%	AL	Pantex Plant	ER
ALPX -1236	Interim Corrective Measures	\$0	0.00%	5%	AL	Pantex Plant	ER
ALPX -3102	Facility Operations and Maintenance	\$26,798	0.27%	6%	AL	Pantex Plant	WM
ALPX -3103	Hazardous Waste Treatment and Processing	\$4,300	0.04%	6%	AL	Pantex Plant	WM
ALPX -3101	Waste Minimization Planning	\$1,935	0.02%	6%	AL	Pantex Plant	WM
ALPX -3104	General Plant Projects Waste Management	\$1,648	0.02%	6%	AL	Pantex Plant	WM
ALPX -3105	New Facility Planning	\$0	0.00%	6%	AL	Pantex Plant	WM
ALPP - 1005	Miscellaneous Sites	\$5,714	0.06%	6%	AL	Pinellas Plant	ER
ALPP - 1001	4.5 Acre Site	\$1,953	0.02%	6%	AL	Pinellas Plant	ER
ALPP - 1010	PRP Participation	\$917	0.01%	6%	AL	Pinellas Plant	ER
ALPP - 1013	Project Management	\$440	0.00%	6%	AL	Pinellas Plant	ER
ALPP - 1007	NEPA Documentation - Assess	\$206	0.00%	6%	AL	Pinellas Plant	ER
ALPP - 1003	Installation Groundwater	\$182	0.00%	6%	AL	Pinellas Plant	ER
ALPP - 1012	Sludge Holding Tank	\$14	0.00%	6%	AL	Pinellas Plant	ER
AL - 6103	Alb Pinellas Facility Transition	\$200	0.00%	6%	AL	Pinellas Plant	FT
ALPP - 3000	Facility Operations and Maintenance	\$4,270	0.04%	6%	AL	Pinellas Plant	WM
ALPP - 3001	Waste Minimization Planning	\$84	0.00%	6%	AL	Pinellas Plant	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
ALSA - 1155	Corrective Activities Operating/CAP EQ	\$3,528	0.04%	6%	AL	Sandia National Lab Alb	CA
ALSA - 1156	GPP Corrective Activities	\$2,020	0.02%	6%	AL	Sandia National Lab Alb	CA
ALSA - 1326	Project Management	\$7,023	0.07%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1289	Mixed Waste Landfill	\$5,707	0.06%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1330	Site-Wide Hydrogeologic Characterization	\$3,787	0.04%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1267	Chemical Waste Landfill	\$2,942	0.03%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1284	Multi-party Sites	\$2,899	0.03%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1295	Septic Tanks and Drainfields	\$2,395	0.02%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1270	Coyote Canyon Blast Area	\$2,106	0.02%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1307	Liquid Waste Disposal	\$1,969	0.02%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1303	Tech Area 2	\$1,292	0.01%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1306	Tech Area 3 and 5	\$1,094	0.01%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1300	Leaking Underground Storage Tanks	\$698	0.01%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1281	Kauai Test Facility	\$475	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1302	Tech Area 1	\$468	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1282	Lurance Canyon	\$464	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1285	NEPA Assessment	\$427	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1327	Remote Facilities	\$416	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1298	SW Coyote Test Field	\$350	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1308	Thunder Range	\$344	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1293	Schoolhouse Mesa Test Site	\$327	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1309	Tijeras Arroyo	\$327	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1266	Central Coyote Test Field	\$300	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1297	South Coyote Test Field	\$300	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1311	Tonopah Test Range Area 9	\$300	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1313	Tonopah Test Range, Test Area	\$257	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1312	Tonopah Test Range Area 3	\$239	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1272	Coyote Springs Area	\$213	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1288	Pendulum Area	\$198	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1273	Edgewood TEst Site	\$176	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1292	Sandia Engineering Reactor D&D	\$71	0.00%	6%	AL	Sandia National Lab Alb	ER
ALSA - 1133	Facility Operations and Maintenance	\$29,127	0.29%	7%	AL	Sandia National Lab Alb	WM
ALSA - 1137	GPP Waste Management	\$1,692	0.02%	7%	AL	Sandia National Lab Alb	WM
ALSA - 1114	Waste Minimization Planning	\$1,141	0.01%	7%	AL	Sandia National Lab Alb	WM
ALSA - 1136	New Facility Planning	\$961	0.01%	7%	AL	Sandia National Lab Alb	WM
ALSL - 103	Corrective Activities	\$755	0.01%	7%	AL	Sandia National Lab Liv	CA
ALSL - 1351	Fuel Oil Spill Assess/Remediation	\$3,888	0.04%	7%	AL	Sandia National Lab Liv	ER
ALSL - 1350	Remediation Program Management/Tech Support	\$3,830	0.04%	7%	AL	Sandia National Lab Liv	ER
ALSL - 1352	Navy Landfill Assess/Remediation	\$296	0.00%	7%	AL	Sandia National Lab Liv	ER
ALSL - 1353	Miscellaneous Sites Assess	\$83	0.00%	7%	AL	Sandia National Lab Liv	ER
ALSL - 3800	Facility Operations and Maintenance	\$3,145	0.03%	7%	AL	Sandia National Lab Liv	WM
ALSL - 7300	Waste Minimization Planning	\$407	0.00%	7%	AL	Sandia National Lab Liv	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
ALUM - 1332	UMTRA Surface Grand Junction Remediation	\$152,393	1.53%	8%	AL	Uranium Mill Tailings RA	ER
ALUM - 1354	UMTRA Surface Rifle Remediation	\$41,897	0.42%	9%	AL	Uranium Mill Tailings RA	ER
ALUM - 1362	UMTRA Surface Program Management Support	\$35,110	0.35%	9%	AL	Uranium Mill Tailings RA	ER
ALUM - 1337	UMTRA Surface Gunnison Remediation	\$17,097	0.17%	9%	AL	Uranium Mill Tailings RA	ER
ALUM - 1330	UMTRA Surface Falls City Remediation	\$15,586	0.16%	9%	AL	Uranium Mill Tailings RA	ER
ALUM - 1349	UMTRA Surface Monument Valley Remediation	\$15,482	0.16%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1346	UMTRA Surface Mexican Hat Remediation	\$12,026	0.12%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1322	UMTRA Surface Ambrosia Lake Remediation	\$9,996	0.10%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 2000	UMTRA Groundwater Remedial Action (All Sites)	\$6,600	0.07%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1363	UMTRA Surface Surveillance and Maintenance	\$1,948	0.02%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1325	UMTRA Surface Belfield/Bowman Remediation	\$1,840	0.02%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1361	UMTRA Surface Slick Rock Remediation	\$1,352	0.01%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1344	UMTRA Surface Maybell Remediation	\$982	0.01%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1351	UMTRA Surface Naturita Remediation	\$836	0.01%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1364	UMTRA Surface Completed Sites Remediation	\$117	0.00%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1341	UMTRA Surface Lowman Remediation	\$113	0.00%	10%	AL	Uranium Mill Tailings RA	ER
ALUM - 1365	UMTRA Surface State Share	(\$23,775)	-0.24%	10%	AL	Uranium Mill Tailings RA	ER
ALWP - 3234	Base Waste Management - Storage	\$325,963	3.26%	13%	AL	Waste Isolation Pilot	WM
CH - 5202 - EW	Ames Chemical Disposal Site	\$500	0.01%	0%	CH	Ames Lab, Iowa St Univ	ER
CH - 5202 - EX	Ames Chemical Disposal Site	\$500	0.01%	0%	CH	Ames Lab, Iowa St Univ	ER
CH - 5201	UST Contamination Assess/Remediation	\$83	0.00%	0%	CH	Ames Lab, Iowa St Univ	ER
CH - 5203	Program Management	\$0	0.00%	0%	CH	Ames Lab, Iowa St Univ	ER
CH - 5204	Inactive Waste Site Characterization Activities	\$0	0.00%	0%	CH	Ames Lab, Iowa St Univ	ER
CH - 5100	Waste Management Operations	\$369	0.00%	0%	CH	Ames Lab, Iowa St Univ	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
CH - 1306	Sanitary Waste Water Treatment Plant	\$4,032	0.04%	0%	CH	Argonne East	CA
CH - 1309	Lab Waste Water Treatment Plant Imp/Upgrade	\$3,185	0.03%	0%	CH	Argonne East	CA
CH - 1311	Canal Water Treatment Rehabilitation	\$1,202	0.01%	0%	CH	Argonne East	CA
CH - 1308	Lab and Sanitary Sewer Collection System Rehab	\$832	0.01%	0%	CH	Argonne East	CA
CH - 1307-00-00	800 Area Landfill Leachate Collection/Treatment	\$513	0.01%	0%	CH	Argonne East	CA
CH - 1312	Chloride Removal Plant	\$370	0.00%	0%	CH	Argonne East	CA
CH - 1313	Cooling Tower Blowdown Water Diversion	\$103	0.00%	0%	CH	Argonne East	CA
CH - 1412	D&D of Experimental Boiling Water Reactor	\$4,925	0.05%	0%	CH	Argonne East	ER
CH - 1413	D&D of the CP-5 Reactor	\$4,911	0.05%	0%	CH	Argonne East	ER
CH - 1414	D&D of the Hot Cells	\$4,265	0.04%	0%	CH	Argonne East	ER
CH - 1405	317/319 ENE Area	\$3,349	0.03%	0%	CH	Argonne East	ER
CH - 1423	ERWP NEPA Process Planning and	\$2,570	0.03%	0%	CH	Argonne East	ER
CH - 1422	FUSRAP NEPA Process Planning and Imp	\$1,380	0.01%	0%	CH	Argonne East	ER
CH - 1401	800 Area Landfill Remedial Activities	\$1,242	0.01%	0%	CH	Argonne East	ER
CH - 1420	Eastern D&D Tech Criteria and Guidance Assist	\$333	0.00%	0%	CH	Argonne East	ER
CH - 1409-B	Solid Waste Managment Units Assess	\$300	0.00%	0%	CH	Argonne East	ER
CH - 1403	570 Holding Pond	\$290	0.00%	0%	CH	Argonne East	ER
CH - 1421	FUSRAP Technical Criteria dn Guidance	\$275	0.00%	0%	CH	Argonne East	ER
CH - 1407	Outfall Area	\$270	0.00%	0%	CH	Argonne East	ER
CH - 1406	100 Area	\$225	0.00%	0%	CH	Argonne East	ER
CH - 1408-A	Sitewide Hydrogeological Baseline Study	\$200	0.00%	0%	CH	Argonne East	ER
CH - 1411	Lime Sludge Removal	\$150	0.00%	0%	CH	Argonne East	ER
CH - 1409-A	Inactive Waste Sites Management Plan	\$100	0.00%	0%	CH	Argonne East	ER
CH - 1400	Program Management	\$50	0.00%	0%	CH	Argonne East	ER
CH - 1404	Sawmill Creek Remedial Activities	\$26	0.00%	0%	CH	Argonne East	ER
CH - 1408-B	Sitewide Well and Borehole Closure	\$15	0.00%	0%	CH	Argonne East	ER
CH - 1402	East Area Sewage Treatment Plant	\$0	0.00%	0%	CH	Argonne East	ER
CH - 1415	D&D of the Juggernaut Reactor	\$0	0.00%	0%	CH	Argonne East	ER
CH - 1416	D&D of the Argonne Thermal Source Reactor	\$0	0.00%	0%	CH	Argonne East	ER
CH - 1417	D&D of the 60" Cyclotron	\$0	0.00%	0%	CH	Argonne East	ER
CH - 1418	D&D of the ZPR Reactor Facilities, Bldg 315	\$0	0.00%	0%	CH	Argonne East	ER

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
CH - 6201 - AE	Transition Program	\$0	0.00%	0%	CH	Argonne East	FT
CH - 1301-B	Continuity of Operations	\$21,115	0.21%	1%	CH	Argonne East	WM
CH - 1303-00-00	Rehabilitation of Waste Management Bldg	\$2,129	0.02%	1%	CH	Argonne East	WM
CH - 1301-A	WM Projects Non-Defense	\$1,949	0.02%	1%	CH	Argonne East	WM
CH - 1304-00-00	Haz, RA & Mixed Waste Storage Fac Upgrade	\$1,656	0.02%	1%	CH	Argonne East	WM
CH - 1300	Continuity of Operations	\$1,650	0.02%	1%	CH	Argonne East	WM
CH - 1305-00-00	UST Upgrade/Replacement	\$245	0.00%	1%	CH	Argonne East	WM
CH - 8104-EX	Work for Others/Non-Defense	\$150	0.00%	1%	CH	Argonne East	WM
CH - 1603	Corrective Activities	\$776	0.01%	1%	CH	Argonne West	CA
CH - 1700	Program Management	\$713	0.01%	1%	CH	Argonne West	ER
CH - 1702	WAG 9 Assessment	\$623	0.01%	1%	CH	Argonne West	ER
CH - 1701	PCB Spill Cleanup	\$480	0.00%	1%	CH	Argonne West	ER
CH - 1703	CLPA Decontamination & Decommissioning	\$56	0.00%	1%	CH	Argonne West	ER
CH - 1601	Facility Operations and Maintenance (Non-	\$4,167	0.04%	1%	CH	Argonne West	WM
CH - 1602	General Plant Project Waste Mgmt (Non-Defense)	\$436	0.00%	1%	CH	Argonne West	WM
CH - 1604	New Facilities Planning (Defense)	\$315	0.00%	1%	CH	Argonne West	WM
CH - 6202-EX	BCLDP Decontamination and Decommissioning	\$15,687	0.16%	1%	CH	Battelle Columbus Labs	ER
CH - 6203-EX	BCLDP Program Management Support	\$7,931	0.08%	1%	CH	Battelle Columbus Labs	ER
CH - 6204-EX	BCLDP Waste Transportation and Disposal	\$4,371	0.04%	1%	CH	Battelle Columbus Labs	ER
CH - 6202-EW	BCLDP Decontamination and Decommissioning	\$2,745	0.03%	1%	CH	Battelle Columbus Labs	ER
CH - 6205-EX	BCLDP Facility Maintenance	\$2,372	0.02%	1%	CH	Battelle Columbus Labs	ER
CH - 6203-EW	BCLDP Program Management Support	\$1,486	0.01%	1%	CH	Battelle Columbus Labs	ER
CH - 6204-EW	BCLDP Waste Transportation and Disposal	\$1,019	0.01%	1%	CH	Battelle Columbus Labs	ER
CH - 6205-EW	BCLDP Facility Maintenance	\$332	0.00%	1%	CH	Battelle Columbus Labs	ER
CH - 2303	Operable Unit I	\$4,003	0.04%	1%	CH	Brookhaven National Lab	ER
CH - 2300	Program Management	\$3,474	0.03%	1%	CH	Brookhaven National Lab	ER
CH - 2306	Operable Unit IV	\$1,269	0.01%	1%	CH	Brookhaven National Lab	ER
CH - 2302	Sitewide Activities	\$990	0.01%	1%	CH	Brookhaven National Lab	ER
CH - 2310	Removal Activities	\$312	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 2305	Operable Unit III	\$192	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 2307	Operable Unit V	\$192	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 2301	Brookhaven Graphite Research Reactor D&D	\$0	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 2304	Operable Unit II	\$0	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 2308	Operable Unit VI	\$0	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 2309	Operable Unit VII	\$0	0.00%	1%	CH	Brookhaven National Lab	ER
CH - 6202-BN	Brookhaven Facility Transition Activities	\$0	0.00%	1%	CH	Brookhaven National Lab	FT
CH - 2222	Hazardous/Radioactive Waste Disposal Operations	\$10,334	0.10%	1%	CH	Brookhaven National Lab	WM
CH - 2203	Waste Minimization Facility Upgrades	\$1,691	0.02%	1%	CH	Brookhaven National Lab	WM
CH - 2204	Floor Drain Reconnection	\$959	0.01%	1%	CH	Brookhaven National Lab	WM
CH - 2202	Waste Management Facility Phase II	\$700	0.01%	1%	CH	Brookhaven National Lab	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
CH - 8200-EW	Chicago Ops Program Mgmt Support - Defense	\$1,319	0.01%	1%	CH	CH	ER
CH - 8201	Agreements in Principle/IAG	\$770	0.01%	1%	CH	CH	ER
CH - 8205	Decommissioning of the SPRU Facility	\$500	0.01%	1%	CH	CH	ER
CH - 8200-EW-B	CH Operations Program Management Support	\$315	0.00%	1%	CH	CH	ER
CH - 8204	Site A - Surveillance and Maintenance	\$232	0.00%	1%	CH	CH	ER
CH - 8101-EW	Program Integration	\$1,620	0.02%	1%	CH	CH	WM
CHHQ - 3031-1	Program Direction	\$1,404	0.01%	1%	CH	CH	WM
CH - 8101-EX	Program Integration	\$550	0.01%	1%	CH	CH	WM
CH - 8102	Program Support for Agreements in Principle -	\$272	0.00%	1%	CH	CH	WM
CH - 8103-EW	Waste Minimization Planning	\$104	0.00%	1%	CH	CH	WM
CH - 8103-EX	Waste Minimization Planning	\$44	0.00%	1%	CH	CH	WM
CH - 4100-EX	Main Ring Service Bldgs PCB Contam Cleanup	\$618	0.01%	1%	CH	Fermilab	CA
CH - 4200	Chromate Contamination Cleanup	\$60	0.00%	1%	CH	Fermilab	ER
CH - 4100	Waste Management Activities	\$2,970	0.03%	1%	CH	Fermilab	WM
CH - 4101-01	Low-Level RA Waste Sorting/Repackaging Bldg	\$1,200	0.01%	1%	CH	Fermilab	WM
CH - 8202	Hallam Surveillance and Maintenance	\$74	0.00%	1%	CH	Hallam, Nebraska	ER
CH - 8203	Piqua Surveillance and Maintenance	\$38	0.00%	1%	CH	Piqua, Ohio	ER
CH - 3102-01	Underground Storage Tank Remediation	\$422	0.00%	1%	CH	Princeton Plasma Physics Lab	CA
CH - 3200	Program Management Support	\$0	0.00%	1%	CH	Princeton Plasma Physics Lab	ER
CH - 3201	Groundwater Characterization/Remediation	\$0	0.00%	1%	CH	Princeton Plasma Physics Lab	ER
CH - 3202	CERCLA Past Waste Site Investigation	\$0	0.00%	1%	CH	Princeton Plasma Physics Lab	ER
CH - 3100	Waste Operations	\$2,843	0.03%	1%	CH	Princeton Plasma Physics Lab	WM
CH - 3101-01	Upgrade to Existing Hazardous Materials Storage Facility	\$827	0.01%	1%	CH	Princeton Plasma Physics Lab	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
FS - 68-D1	Base Services	\$72,312	0.72%	1%	FS	Fernald Site Office	ER
FS - 48-B2	Operable Unit 3	\$59,803	0.60%	1%	FS	Fernald Site Office	ER
FS - 37-A3	Litigation Settlement	\$52,052	0.52%	2%	FS	Fernald Site Office	ER
FS - 16-C3	Waste Management	\$51,067	0.51%	2%	FS	Fernald Site Office	ER
FS - 8-B1	Project Management	\$50,181	0.50%	3%	FS	Fernald Site Office	ER
FS - 69-D1	Project Support	\$49,556	0.50%	3%	FS	Fernald Site Office	ER
FS - 50-B2	Operable Unit 5	\$40,889	0.41%	4%	FS	Fernald Site Office	ER
FS - 46-B2	Operable Unit 1	\$34,072	0.34%	4%	FS	Fernald Site Office	ER
FS - 64-D1	Long Term Monitoring	\$30,605	0.31%	4%	FS	Fernald Site Office	ER
FS - 60-D1	Ongoing Litigation	\$22,222	0.22%	5%	FS	Fernald Site Office	ER
FS - 10-B4	RMI Site	\$19,388	0.19%	5%	FS	Fernald Site Office	ER
FS - 47-B2	Operable Unit 2	\$15,689	0.16%	5%	FS	Fernald Site Office	ER
FS - 49-B2	Response Action - Operable Unit 4	\$14,887	0.15%	5%	FS	Fernald Site Office	ER
FS - 52-B2	Remedial Support Facilities	\$5,612	0.06%	5%	FS	Fernald Site Office	ER
FS - 30-B2	Regulatory Oversight	\$1,000	0.01%	5%	FS	Fernald Site Office	ER
HQ - 1-CA	Program Support	\$7,323	0.07%	0%	HQ	Headquarters	CA
HQ - 100-AA	Technical Support to Env Restoration Program	\$139,933	1.40%	1%	HQ	Headquarters	ER
HQ - 199-FO	Field Office Program Direction	\$54,356	0.54%	2%	HQ	Headquarters	ER
HQ - 199-18	Program Direction	\$25,377	0.25%	2%	HQ	Headquarters	ER
HQ - 2-00	Technical Support to Env Restoration Program	\$15,729	0.16%	2%	HQ	Headquarters	ER
HQ - 2406-19	Maxey Flats Disposal Site	\$2,750	0.03%	2%	HQ	Headquarters	ER
HQ - 100-NW	Northwestern Area Project Support	\$0	0.00%	2%	HQ	Headquarters	ER
HQ - 6001-HQ	Program Direction	\$0	0.00%	2%	HQ	Headquarters	FT
HQ - 6002-HQ	Support to Transition Activities	\$0	0.00%	2%	HQ	Headquarters	FT
HQ - 1009	ADP/AOSS	\$30,664	0.31%	3%	HQ	Headquarters	PD
HQ - 1012	Program Direction	\$17,522	0.18%	3%	HQ	Headquarters	PD
HQ - 2000	Deputy Assistant Sec for Oversight/Self-Assess	\$16,217	0.16%	3%	HQ	Headquarters	PD
HQ - 1010	EM-10 Contracting Activity	\$11,146	0.11%	3%	HQ	Headquarters	PD

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
HQ - 1005	STGWG and Stakeholders Support	\$0	0.00%	3%	HQ	Headquarters	PD
HQ - 0-RD	RDDT&E Innovation Investment Area	\$133,660	1.34%	5%	HQ	Headquarters	TD
HQ - 0-GS-00	Groundwater and Soil Cleanup	\$120,430	1.21%	6%	HQ	Headquarters	TD
HQ - 0-WR	Waste Retrieval and Processing Investment Areas	\$116,400	1.17%	7%	HQ	Headquarters	TD
HQ - 0-PS-00	Program Managment and Support Activities	\$75,717	0.76%	8%	HQ	Headquarters	TD
HQ - 0-IS-00	Supporting Tech and Infrastructure Programs	\$71,965	0.72%	8%	HQ	Headquarters	TD
HQ - 0-ED-00	Technical Integration and Education	\$64,800	0.65%	9%	HQ	Headquarters	TD
HQ - 0-EM-SL	Environmental and Molecular Science Lab	\$45,600	0.46%	10%	HQ	Headquarters	TD
HQ - 0-PD-00	Program Direction Activities	\$30,670	0.31%	10%	HQ	Headquarters	TD
HQ - 0-WM	Waste Minimization and Avoidance	\$9,600	0.10%	10%	HQ	Headquarters	TD
HQ - 0-TM	Transportation Management Program	\$38,670	0.39%	10%	HQ	Headquarters	TR
HQ - 3036-01	Support for the Hanford Program Office	\$61,443	0.62%	11%	HQ	Headquarters	WM
HQ - 3030-01	Support for the Office of Waste management	\$53,117	0.53%	11%	HQ	Headquarters	WM
HQ - 3031-01	Program Direction	\$30,513	0.31%	12%	HQ	Headquarters	WM
HQ - 3032-01	Support for the Office of Waste Operations	\$28,066	0.28%	12%	HQ	Headquarters	WM
HQ - 3035-01	Support to the Office of Technical Support -	\$27,100	0.27%	12%	HQ	Headquarters	WM
HQ - 3033-01	Support to the Office of Program Support	\$21,881	0.22%	13%	HQ	Headquarters	WM
HQ - 3034-01	Support to the Waste Managment Projects Office	\$18,747	0.19%	13%	HQ	Headquarters	WM
HQ - 3035-02	National Low-Level Waste Program - Non-Defense	\$9,025	0.09%	13%	HQ	Headquarters	WM
HQ - 3030-02	High Level Waste Disposal Fee	\$7,500	0.08%	13%	HQ	Headquarters	WM
HQ - 3032-02	Waste Analytical Lab	\$5,000	0.05%	13%	HQ	Headquarters	WM
HQ - 3030-03	Defense	\$3,729	0.04%	13%	HQ	Headquarters	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
ID - 1009-WN	Corrective Activities	\$7,000	0.07%	0%	ID	Idaho Chem Proc Plant	CA
ID - 1005-WN	HLW Tank Farm Replacement - Phase I	\$88,669	0.89%	1%	ID	Idaho Chem Proc Plant	WM
ID - 1001-WN	Waste Operations	\$83,517	0.84%	2%	ID	Idaho Chem Proc Plant	WM
ID - 1002-WN	Facility Operations and Maintenance	\$39,213	0.39%	2%	ID	Idaho Chem Proc Plant	WM
ID - 1008-WN	New ICPP Mission Activities	\$31,000	0.31%	2%	ID	Idaho Chem Proc Plant	WM
ID - 1006-WN	Nox Abatement	\$10,040	0.10%	3%	ID	Idaho Chem Proc Plant	WM
ID - 1003-WN	General Plant Projects	\$4,656	0.05%	3%	ID	Idaho Chem Proc Plant	WM
ID - 1004-WN	New Facilities Planning	\$3,715	0.04%	3%	ID	Idaho Chem Proc Plant	WM
ID - 6301-CP	Idaho ICPP Facilities Transition	\$300	0.00%	3%	ID	Idaho Chem Proc Plant	FT
ID - 3031-1	Program Direction	\$36,686	0.37%	3%	ID	Idaho Field Office	WM
ID - 3035-2B	National Low-Level Waste Program	\$5,500	0.06%	3%	ID	Idaho Field Office	WM
ID - 3035-2A	Greater-than-Class-C Program	\$1,000	0.01%	3%	ID	Idaho Field Office	WM
ID - 40-EG	WAG 7 RA Waste Mgmt Complex/Buried Waste Prgm	\$51,759	0.52%	4%	ID	Idaho Natl Eng Lab	ER
ID - 111-E1	Program Management Support	\$34,764	0.35%	4%	ID	Idaho Natl Eng Lab	ER
ID - 28-EG	WAG 1 Test Area North Assess/Cleanup	\$13,835	0.14%	4%	ID	Idaho Natl Eng Lab	ER
ID - 30-EG	WAG 2 Test Reactor Area Assess/Remediation	\$12,467	0.12%	4%	ID	Idaho Natl Eng Lab	ER
ID - 1204-WN	WAG 3 Env Restoration/Assess/Cleanup	\$8,536	0.09%	4%	ID	Idaho Natl Eng Lab	ER
ID - 41-EG	WAG 10 Misc. Units Assess/Cleanup	\$7,849	0.08%	4%	ID	Idaho Natl Eng Lab	ER
ID - 112-E1	FFA/CO Grant to Idaho	\$3,200	0.03%	4%	ID	Idaho Natl Eng Lab	ER
ID - 34-EG	WAG 4 Central Facilities Area Assess/Cleanup	\$2,967	0.03%	4%	ID	Idaho Natl Eng Lab	ER
ID - 102-EG	Inactive Underground Storage Tanks	\$2,400	0.02%	4%	ID	Idaho Natl Eng Lab	ER
ID - 38-EG	WAG 6 EBR-1/Borax Assess/Cleanup	\$1,867	0.02%	5%	ID	Idaho Natl Eng Lab	ER
ID - 36-EG	WAG 5 PBF & ARA Assess/Cleanup	\$1,817	0.02%	5%	ID	Idaho Natl Eng Lab	ER
ID - 63-EG	Borax - V D&D	\$1,740	0.02%	5%	ID	Idaho Natl Eng Lab	ER
ID - 48-EG	ARA II D&D	\$1,155	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 65-EG	Loft Ancillaries	\$1,069	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 49-EG	ARA III D&D	\$1,016	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 1306-WN	CPP-631/709/734, CRS D&D Programs	\$885	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 58-EG	CFA-669 Hot Laundry D&D	\$792	0.01%	5%	ID	Idaho Natl Eng Lab	ER

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
ID - 1309-WN	Waste Calcine Facility D & D	\$738	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 46-EG	ARFVS/NAK D&D Cleanup	\$715	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 103-E1	INEL ER Tiger Team	\$700	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 45-EG	S&M - D&D Surveillance and Maintenance	\$631	0.01%	5%	ID	Idaho Natl Eng Lab	ER
ID - 112-E2	SHOSHONE - BANNOCK	\$408	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 64-EG	SPERT IV Waste Holdup Tank and Piping	\$314	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 52-EG	ARA I D&D	\$214	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 1305-WN	SFE-20/PPP-740 D&D Activities	\$102	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 1311-WN	WINCO Post D&D S&M Program	\$86	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 1307-WN	PPP-640 D&D	\$61	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 50-EG	WRRTF Hot Waste Tank	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 51-EG	TAN -TSF D&D	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 53-EG	TAN 607 Decon shop D&D	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 54-EG	MTR D&D	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 60-EG	ETR D&D	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 67-EG	TTAF D&D	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 1304-WN	PPP-603 Decontamination and Demolition	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER
ID - 1308-WN	PPP-601 D&D	\$0	0.00%	5%	ID	Idaho Natl Eng Lab	ER

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
ID - 4309-EG	Waste Characterization and Storage Facility	\$69,300	0.69%	5%	ID	Idaho Natl Eng Lab	WM
ID - 4301-EG	Facility Operations and Maintenance	\$62,262	0.62%	6%	ID	Idaho Natl Eng Lab	WM
ID - 1321	INEL Landlord Infrastructure Support	\$42,059	0.42%	6%	ID	Idaho Natl Eng Lab	WM
ID - 4311-EG	Radioactive Waste Management Complex	\$38,097	0.38%	7%	ID	Idaho Natl Eng Lab	WM
ID - 4310-EG	Waste Reduction Operations Complex	\$22,016	0.22%	7%	ID	Idaho Natl Eng Lab	WM
ID - 1322	INEL Fire and Life Safety Improvement	\$11,000	0.11%	7%	ID	Idaho Natl Eng Lab	WM
ID - 1327	General Plant Projects Landlord	\$10,750	0.11%	7%	ID	Idaho Natl Eng Lab	WM
ID - 4302-EG	New Facility Planning	\$10,373	0.10%	7%	ID	Idaho Natl Eng Lab	WM
ID - 4308-EG	TSA Retrieval Enclosure Facility	\$7,442	0.07%	7%	ID	Idaho Natl Eng Lab	WM
ID - 4312-EG	Text Area North	\$7,350	0.07%	7%	ID	Idaho Natl Eng Lab	WM
ID - 4303-EG	General Plant Projects	\$7,247	0.07%	8%	ID	Idaho Natl Eng Lab	WM
ID - 1325	INEL Transportation Complex	\$6,755	0.07%	8%	ID	Idaho Natl Eng Lab	WM
ID - 4104-EG	Agreements in Principle	\$6,205	0.06%	8%	ID	Idaho Natl Eng Lab	WM
ID - 1324	INEL Sewer System Upgrade	\$5,800	0.06%	8%	ID	Idaho Natl Eng Lab	WM
ID - 4306-EG	Solid Waste Transfer Station	\$5,254	0.05%	8%	ID	Idaho Natl Eng Lab	WM
ID - 4103-EG	Waste Minimization/Pollution Prevention	\$5,003	0.05%	8%	ID	Idaho Natl Eng Lab	WM
ID - 4307-EG	Dry Cask Storage Project	\$3,459	0.03%	8%	ID	Idaho Natl Eng Lab	WM
ID - 1323	INEL Electrical Upgrade	\$1,080	0.01%	8%	ID	Idaho Natl Eng Lab	WM
ID - 3452	INEL New Facility Planning	\$1,035	0.01%	8%	ID	Idaho Natl Eng Lab	WM
ID - 4001-WV	West Valley Demondirection Project	\$238,000	2.38%	10%	ID	West Valley	WM
NV - 3031-0	Program Direction	\$1,817	0.02%	0%	NV	Nevada Field Office	WM
NV - 233-AA	MISSISSIPPI Remedial Actions	\$2,817	0.03%	0%	NV	Nevada Off-Site Loc	ER
NV - 231-AA	ALASKA Remedial Actions	\$0	0.00%	0%	NV	Nevada Off-Site Loc	ER
NV - 232-AA	COLORADO Remedial Actions	\$0	0.00%	0%	NV	Nevada Off-Site Loc	ER
NV - 234-AA	NEVADA Remedial Actions	\$0	0.00%	0%	NV	Nevada Off-Site Loc	ER
NV - 235-AA	NEW MEXICO Remedial Actions	\$0	0.00%	0%	NV	Nevada Off-Site Loc	ER
NV - 336-AA	Corrective Activities	\$1,660	0.02%	0%	NV	Nevada Test Site	CA
NV - 337-AA	GPP Corrective Activities	\$250	0.00%	0%	NV	Nevada Test Site	CA
NV - 212-AA	Groundwater Characterization Project	\$43,478	0.44%	1%	NV	Nevada Test Site	ER
NV - 201-AA	Program Management Support	\$6,957	0.07%	1%	NV	Nevada Test Site	ER
NV - 214-AA	RCRA Industrial Sites	\$6,109	0.06%	1%	NV	Nevada Test Site	ER
NV - 211-AA	Plutonium Soils	\$276	0.00%	1%	NV	Nevada Test Site	ER
NV - 221-AA	Decontamination and Decommissioning Facilities	\$189	0.00%	1%	NV	Nevada Test Site	ER
NV - 213-AA	Test Areas	\$0	0.00%	1%	NV	Nevada Test Site	ER
NV - 215-AA	CERCLA Industrial Sites	\$0	0.00%	1%	NV	Nevada Test Site	ER

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
NV - 333-AA	Facilities Operations and Maintenance	\$22,025	0.22%	1%	NV	Nevada Test Site	WM
NV - 335-AA	GPP Waste Management	\$5,565	0.06%	1%	NV	Nevada Test Site	WM
NV - 331-AA	Program Control	\$5,145	0.05%	1%	NV	Nevada Test Site	WM
NV - 332-AA	Waste Minimization Planning	\$1,300	0.01%	1%	NV	Nevada Test Site	WM
OR - 1301-AA	NEW YORK Sites - Assessment & Cleanup	\$34,929	0.35%	0%	OR	Form. Utilized Sites RA	ER
OR - 1304-AA	Other Sites - Assessment and Cleanup	\$20,052	0.20%	1%	OR	Form. Utilized Sites RA	ER
OR - 1302-AA	NEW JERSEY Sites - Assessment & Cleanup	\$15,014	0.15%	1%	OR	Form. Utilized Sites RA	ER
OR - 1303-AA	MISSOURI Sites - Assessment and Cleanup	\$14,963	0.15%	1%	OR	Form. Utilized Sites RA	ER
OR - 1310-AA	ORNL FUSRAP Support	\$1,805	0.02%	1%	OR	Form. Utilized Sites RA	ER
OR - 4103	General Plant Projects, CA	\$1,979	0.02%	1%	OR	Oak Ridge Gas Diff PI	CA
OR - 4102	Corrective Activities	\$390	0.00%	1%	OR	Oak Ridge Gas Diff PI	CA
OR - 4701-01	K-25 Facility D & D	\$74,415	0.75%	2%	OR	Oak Ridge Gas Diff PI	ER
OR - 4304	Pond Waste Management Projects	\$41,218	0.41%	2%	OR	Oak Ridge Gas Diff PI	ER
OR - 4301	Main Plant Area	\$14,162	0.14%	2%	OR	Oak Ridge Gas Diff PI	ER
OR - 8304	Technical Integration	\$12,065	0.12%	2%	OR	Oak Ridge Gas Diff PI	ER
OR - 4401	Landlord Capital Equipment	\$9,409	0.09%	2%	OR	Oak Ridge Gas Diff PI	ER
OR - 9302	Watts Bar Reservoir	\$8,875	0.09%	2%	OR	Oak Ridge Gas Diff PI	ER
OR - 4402	Landlord Capital Construction	\$8,381	0.08%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 8303	Contract Management Support	\$8,283	0.08%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 4303	External Plant Area	\$2,045	0.02%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 9303	Non-FFA Projects	\$1,934	0.02%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 4501	Program Management	\$1,870	0.02%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 4305	Groundwater Protection Program	\$1,399	0.01%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 4306	Surv and Maint of Inactive Waste Sites	\$850	0.01%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 4302	Process Plant Area Remedial Action	\$426	0.00%	3%	OR	Oak Ridge Gas Diff PI	ER
OR - 4204	TSCA Incinerator	\$54,407	0.54%	3%	OR	Oak Ridge Gas Diff PI	WM
OR - 4201	Facility Operation & Maintenance	\$51,580	0.52%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 8203	Reservation Support	\$14,127	0.14%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 4202	Site-Wide Activities	\$8,768	0.09%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 4101	Sewage Collection System Rehab	\$7,500	0.08%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 8205	Program Support	\$6,000	0.06%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 9203	OAK RIDGE Storage Facilities	\$4,000	0.04%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 4206	General Plant Projects, WM, Defense	\$3,268	0.03%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 4203	Disp of K-1515 Sanitary Water Treat Plant Waste	\$1,500	0.02%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 4207	New Facility Planning	\$1,257	0.01%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 4205	Filter Test Facility	\$625	0.01%	4%	OR	Oak Ridge Gas Diff PI	WM
OR - 8204	Waste Minimization Planning	\$477	0.00%	4%	OR	Oak Ridge Gas Diff PI	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
OR - 3102	Melton Valley LLLW-CAT System Upgrade	\$21,200	0.21%	4%	OR	Oak Ridge National Lab	CA
OR - 3103	Corrective Activities - Defense	\$4,383	0.04%	5%	OR	Oak Ridge National Lab	CA
OR - 3101	Bethel Valley LLLW-CAT System Upgrade	\$1,379	0.01%	5%	OR	Oak Ridge National Lab	CA
OR - 3104	Corrective Activities - Non-Defense	\$1,100	0.01%	5%	OR	Oak Ridge National Lab	CA
OR - 3306	ORNL WAG 6 Environmental Restoration	\$56,301	0.56%	5%	OR	Oak Ridge National Lab	ER
OR - 3314	Surveillance and Maintenance	\$14,997	0.15%	5%	OR	Oak Ridge National Lab	ER
OR - 3301	ORNL WAG 1 Environmental Restoration	\$12,366	0.12%	5%	OR	Oak Ridge National Lab	ER
OR - 3302	ORNL WAG 2 Environmental Restoration	\$11,747	0.12%	6%	OR	Oak Ridge National Lab	ER
OR - 3305	ORNL WAG 5 Environmental Restoration	\$10,896	0.11%	6%	OR	Oak Ridge National Lab	ER
OR - 3501	ORNL Program Management	\$10,237	0.10%	6%	OR	Oak Ridge National Lab	ER
OR - 3701	ORNL Facilities D & D	\$7,276	0.07%	6%	OR	Oak Ridge National Lab	ER
OR - 3313	ORNL Inactive Liquid Low-Level Waste Tanks Sys	\$6,623	0.07%	6%	OR	Oak Ridge National Lab	ER
OR - 3310	ORNL WAG 10 Environmental Restoration	\$6,515	0.07%	6%	OR	Oak Ridge National Lab	ER
OR - 3312	ORNL WAG 13 Environmental Restoration	\$960	0.01%	6%	OR	Oak Ridge National Lab	ER
OR - 3311	ORNL WAG 11 Environmental Restoration	\$755	0.01%	6%	OR	Oak Ridge National Lab	ER
OR - 9301	White Oak Creek Embayment	\$639	0.01%	6%	OR	Oak Ridge National Lab	ER
OR - 3307	ORNL WAG 7 Environmental Restoration	\$500	0.01%	6%	OR	Oak Ridge National Lab	ER
OR - 3308	ORNL WAG 8 Environmental Restoration	\$114	0.00%	6%	OR	Oak Ridge National Lab	ER
OR - 3303	ORNL WAG 3 Environmental Restoration	\$0	0.00%	6%	OR	Oak Ridge National Lab	ER
OR - 3304	ORNL WAG 4 Environmental Restoration	\$0	0.00%	6%	OR	Oak Ridge National Lab	ER
OR - 3309	ORNL WAG 9 Environmental Restoration	\$0	0.00%	6%	OR	Oak Ridge National Lab	ER
OR - 6500-OR	Oak Ridge Facility Transition	\$0	0.00%	6%	OR	Oak Ridge National Lab	FT
OR - 6501-CR	Center for Energy and Environmental Research	\$0	0.00%	6%	OR	Oak Ridge National Lab	FT
OR - 6502-OR	Oak Ridge National Lab	\$0	0.00%	6%	OR	Oak Ridge National Lab	FT
OR - 6504-IS	ORNL Isotopes Facilities Shutdown Program	\$0	0.00%	6%	OR	Oak Ridge National Lab	FT
OR - 3201	Facility Operations and Maintenance - Defense	\$30,509	0.31%	6%	OR	Oak Ridge National Lab	WM
OR - 3204	General Plant Projects - Defense	\$20,118	0.20%	6%	OR	Oak Ridge National Lab	WM
OR - 3251	Facility Operations & Maintenance - Non -Defense	\$19,521	0.20%	7%	OR	Oak Ridge National Lab	WM
OR - 3401	Landlord Operations	\$17,400	0.17%	7%	OR	Oak Ridge National Lab	WM
OR - 3253	General Plant Projects, WM, Non-Defense	\$13,726	0.14%	7%	OR	Oak Ridge National Lab	WM
OR - 3206	FFA LLLW Tank Compliance	\$13,300	0.13%	7%	OR	Oak Ridge National Lab	WM
OR - 3203	Site Wide Activities - Defense	\$10,628	0.11%	7%	OR	Oak Ridge National Lab	WM
OR - 3207	New Facility Planning - Defense	\$6,350	0.06%	7%	OR	Oak Ridge National Lab	WM
OR - 3252	Site Wide Activities - Non-Defense	\$5,150	0.05%	7%	OR	Oak Ridge National Lab	WM
OR - 3402	Sanitary Waste System Upgrade	\$2,200	0.02%	7%	OR	Oak Ridge National Lab	WM
OR - 3202	NFS Storage Project	\$1,100	0.01%	7%	OR	Oak Ridge National Lab	WM
OR - 3205	Process Waste Treatment Plant	\$200	0.00%	7%	OR	Oak Ridge National Lab	WM

ADS No.	Title	FY92-93	% Dollars	% Cumul	Field Office	Installation	Category
OR - 8390	ORAU Remedial Investigation and Remedial Action	\$1,898	0.02%	7%	OR	University	ER
OR - 1312-AA	Env Survey and Site Assess Program - FUSRAP	\$1,482	0.01%	7%	OR	OR Association	ER
OR - 8301	DOE Direct	\$33,238	0.33%	8%	OR	ORO - Direct	ER
OR - 8302	Agreements-In-Principle	\$12,285	0.12%	8%	OR	ORO - Direct	ER
OR - 8351	ER Waste Management	\$4,393	0.04%	8%	OR	ORO - Direct	ER
OR - 8202	Program Control	\$7,606	0.08%	8%	OR	ORO - Direct	WM
OR - 3031-1	Program Support	\$4,424	0.04%	8%	OR	ORO - Direct	WM
OR - 5302	Off-Site Groundwater Contamination	\$11,844	0.12%	8%	OR	Paducah Gas Diff PI	ER
OR - 5301	Support Facilities	\$4,283	0.04%	8%	OR	Paducah Gas Diff PI	ER
OR - 5501	Program Management	\$3,146	0.03%	8%	OR	Paducah Gas Diff PI	ER
OR - 5303	WAG 5&11	\$2,904	0.03%	8%	OR	Paducah Gas Diff PI	ER
OR - 5701	Facility Decontamination and Decommissioning	\$2,801	0.03%	8%	OR	Paducah Gas Diff PI	ER
OR - 5304	WAG 1&7	\$2,796	0.03%	8%	OR	Paducah Gas Diff PI	ER
OR - 5311	Groundwater Program	\$2,777	0.03%	8%	OR	Paducah Gas Diff PI	ER
OR - 5313	WAG 2,3&14	\$2,401	0.02%	8%	OR	Paducah Gas Diff PI	ER
OR - 5305	WAG 13	\$1,734	0.02%	8%	OR	Paducah Gas Diff PI	ER
OR - 5312	Underground Storage Tanks	\$900	0.01%	8%	OR	Paducah Gas Diff PI	ER
OR - 5306	WAG 8&9	\$326	0.00%	8%	OR	Paducah Gas Diff PI	ER
OR - 5307	WAG 12&15	\$162	0.00%	8%	OR	Paducah Gas Diff PI	ER
OR - 5308	WAG 10&16	\$162	0.00%	8%	OR	Paducah Gas Diff PI	ER
OR - 5309	WAG 17	\$100	0.00%	8%	OR	Paducah Gas Diff PI	ER
OR - 5310	WAG 18	\$50	0.00%	8%	OR	Paducah Gas Diff PI	ER
OR - 6305-AA	Closures	\$18,749	0.19%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6309-AA	RCRA Closures	\$11,350	0.11%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6308-AA	Other Consent Decree	\$4,955	0.05%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6701-AA	GCEP Termination, Surveillance and Maintenance	\$4,498	0.05%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6301-AA	Quadrant I RFI/CMS/CMI	\$3,934	0.04%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6302-AA	Quadrant II RFI/CMS/CMI	\$3,863	0.04%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6304-AA	Quadrant IV RFI/CMS/CMI	\$2,592	0.03%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6303-AA	Quadrant III RFI/CMS/CMI	\$2,332	0.02%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6501-AA	Program Management	\$2,004	0.02%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6306-AA	Ground Water Protection Program	\$1,029	0.01%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6802-AA	Surveillance and Monitoring	\$615	0.01%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6307-AA	Underground Stor Tanks/Aboveground Stor Tanks	\$0	0.00%	9%	OR	Portsmouth Gas Diff PI	ER
OR - 6702-AA	Surplus Facilities Demolition	\$0	0.00%	9%	OR	Portsmouth Gas Diff PI	ER

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
OR - 7301	Project Integration	\$30,150	0.30%	9%	OR	Weldon Spring Site RA	ER
OR - 7302	Quarry	\$18,518	0.19%	9%	OR	Weldon Spring Site RA	ER
OR - 7305	Chemical Plant	\$16,503	0.17%	10%	OR	Weldon Spring Site RA	ER
OR - 7308	Studies	\$12,200	0.12%	10%	OR	Weldon Spring Site RA	ER
OR - 7302	Support Facilities	\$11,930	0.12%	10%	OR	Weldon Spring Site RA	ER
OR - 7307	Disposal Facility	\$5,419	0.05%	10%	OR	Weldon Spring Site RA	ER
OR - 7304	Raffinate Pits	\$343	0.00%	10%	OR	Weldon Spring Site RA	ER
OR - 7312	Env Survey and Site Assess Program - WSSRAP	\$262	0.00%	10%	OR	Weldon Spring Site RA	ER
OR - 7306	Vicinity Properties	\$0	0.00%	10%	OR	Weldon Spring Site RA	ER
OR - 2101	Steam Plan Ash Disposal Facility Line Item Project	\$8,122	0.08%	10%	OR	Y-12	CA
OR - 2103	General Plan Projects, Corrective Activities	\$4,790	0.05%	10%	OR	Y-12	CA
OR - 2102	Corrective Activities	\$3,895	0.04%	10%	OR	Y-12	CA
OR - 2304	CAPCA Phase I	\$25,570	0.26%	10%	OR	Y-12	ER
OR - 2303	Upper East Fork Poplar Creek	\$15,653	0.16%	10%	OR	Y-12	ER
OR - 2701	Y-12 Plant Facilities D&D	\$11,466	0.11%	11%	OR	Y-12	ER
OR - 9304	East Fork Poplar Creek	\$10,439	0.10%	11%	OR	Y-12	ER
OR - 2501	Program Management	\$4,936	0.05%	11%	OR	Y-12	ER
OR - 2306	Surveillance and Maintenance	\$3,125	0.03%	11%	OR	Y-12	ER
OR - 2305	CAPCA Phase II	\$2,042	0.02%	11%	OR	Y-12	ER
OR - 2301	Chestnut Ridge	\$1,746	0.02%	11%	OR	Y-12	ER
OR - 2302	Bear Creek Valley	\$1,219	0.01%	11%	OR	Y-12	ER
OR - 6503-Y1	Oak Ridge Y-12 Facilities Transition	\$2,000	0.02%	11%	OR	Y-12	FT
OR - 2201	Facility Operations & Maintenance	\$59,975	0.60%	11%	OR	Y-12	WM
OR - 2202	Site-Wide Activities	\$22,769	0.23%	12%	OR	Y-12	WM
OR - 2206	General Plan Project WM-DP	\$16,577	0.17%	12%	OR	Y-12	WM
OR - 2203	Prod Waste Storage Facility	\$13,438	0.13%	12%	OR	Y-12	WM
OR - 2207	New Facilities	\$2,780	0.03%	12%	OR	Y-12	WM
OR - 2204	Industrial Waste Compaction Facility	\$2,500	0.03%	12%	OR	Y-12	WM
OR - 2205	Plant Drains Wastewater Treatment Upgrades	\$1,800	0.02%	12%	OR	Y-12	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
RL - 8430-0	Science & Technology Research - Non-Defense	\$3,095	0.03%	0%	RL	Battelle Memorial Ins	CA
RL - 8410-1	Op	\$11,125	0.11%	0%	RL	Battelle Memorial Ins	WM
RL - 8410-2	329 Building Compliance PNL	\$5,689	0.06%	0%	RL	Battelle Memorial Ins	WM
RL - 8410-3	Hazardous Waste Treatment Facility	\$3,730	0.04%	0%	RL	Battelle Memorial Ins	WM
RL - 7350-0	Corrective Activities - Env Surv & Monitoring	\$7,167	0.07%	0%	RL	Hanford	CA
RL - 1140-0	Corrective Activities - WT Safety and Operations	\$4,080	0.04%	0%	RL	Hanford	CA
RL - 2240-0	Corrective Activities - Solid Waste	\$1,940	0.02%	0%	RL	Hanford	CA
RL - 8420-0	CA - Science & Tech Research (Defense)	\$150	0.00%	0%	RL	Hanford	CA
RL - 3400-0	Program Management Support Remedial actions	\$93,144	0.93%	1%	RL	Hanford	ER
RL - 3010-0	RARA/UST	\$14,882	0.15%	1%	RL	Hanford	ER
RL - 3020-0	RCRA Closures	\$13,680	0.14%	2%	RL	Hanford	ER
RL - 8415-0	Science, Technology and Facility Management	\$7,310	0.07%	2%	RL	Hanford	ER
RL - 3410-0	Program Mgmt Support Decont and Decomm	\$3,800	0.04%	2%	RL	Hanford	ER
RL - 3500-0	Asbestos Abatement	\$2,700	0.03%	2%	RL	Hanford	ER
RL - 3700-0	Disposal Facility	\$0	0.00%	2%	RL	Hanford	ER
RL - 6601-RL	Richland Facilities Transition	\$2,000	0.02%	2%	RL	Hanford	FT
RL - 1240-1	Vitrification	\$225,015	2.25%	4%	RL	Hanford	WM
RL - 1100-0	Tank Farms Operations and Maintenance	\$193,901	1.94%	6%	RL	Hanford	WM
RL - 4170-0	PFP	\$149,158	1.49%	7%	RL	Hanford	WM
RL - 4200-0	FFTF Plant	\$124,000	1.24%	9%	RL	Hanford	WM
RL - 4130-0	PUREX/UO4 Operations	\$96,037	0.96%	10%	RL	Hanford	WM
RL - 2310-1	Hanford Environmental Compliance	\$84,839	0.85%	10%	RL	Hanford	WM
RL - 1260-0	Facility Operations	\$75,276	0.75%	11%	RL	Hanford	WM
RL - 1110-0	Waste tank Safety Programs	\$71,725	0.72%	12%	RL	Hanford	WM
RL - 1230-0	Grout Disposal Program	\$69,554	0.70%	13%	RL	Hanford	WM
RL - 4110-0	K-Basin Operations Program	\$63,610	0.64%	13%	RL	Hanford	WM
RL - 7200-0	General Admin Support/Buildings	\$55,604	0.56%	14%	RL	Hanford	WM
RL - 7100-0	Lab Operations and Upgrades	\$52,598	0.53%	14%	RL	Hanford	WM
RL - 2320-0	Waste and Decontamination Services	\$49,422	0.49%	15%	RL	Hanford	WM
RL - 1130-0	Waste Characterization	\$45,876	0.46%	15%	RL	Hanford	WM
RL - 7340-0	WHC Environmental Surveillance & Monitoring	\$43,428	0.43%	16%	RL	Hanford	WM
RL - 2220-1	Waste Receiving and Process Module	\$41,000	0.41%	16%	RL	Hanford	WM
RL - 4100-0	Program and Environmental Management	\$38,964	0.39%	17%	RL	Hanford	WM
RL - 2200-0	Solid Waste Storage and Disposal	\$33,484	0.34%	17%	RL	Hanford	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
RL - 8400-0	Hanford WM Science and Tech and Compl. Ops - Defense	\$31,552	0.32%	17%	RL	Hanford	WM
RL - 1280-0	Matte Function Waste Remediation Facility	\$30,241	0.30%	18%	RL	Hanford	WM
RL - 103-0	DOE-RL Field Support - WM	\$29,107	0.29%	18%	RL	Hanford	WM
RL - 2300-0	Liquid Effluents	\$27,490	0.28%	18%	RL	Hanford	WM
RL - 1120-0	Tank Farm Upgrades	\$27,147	0.27%	18%	RL	Hanford	WM
RL - 1220-0	Pre-treatment	\$23,810	0.24%	19%	RL	Hanford	WM
RL - 1200-0	Program Management and Administration	\$22,754	0.23%	19%	RL	Hanford	WM
RL - 1210-0	Waste Retrieval	\$19,181	0.19%	19%	RL	Hanford	WM
RL - 4120-0	N Reactor Program	\$18,390	0.18%	19%	RL	Hanford	WM
RL - 7205-3	90-L-035, Landlord Pgm Safety Compliance, PH I	\$13,843	0.14%	19%	RL	Hanford	WM
RL - 1120-2	Tank Farm Ventilation Upgrades	\$12,841	0.13%	19%	RL	Hanford	WM
RL - 7330-0	Environmental Support - Planning and TPA Mgmt	\$12,810	0.13%	20%	RL	Hanford	WM
RL - 1210-2	101-AZ Retrieval System Projects	\$11,970	0.12%	20%	RL	Hanford	WM
RL - 104-0	DOE-RL Public Support - LL	\$11,800	0.12%	20%	RL	Hanford	WM
RL - 7260-0	Site Support - Waste Operations	\$11,614	0.12%	20%	RL	Hanford	WM
RL - 7205-2	90-B-503, Decon Laundry Facility	\$11,341	0.11%	20%	RL	Hanford	WM
RL - 7340-1	Env Monitoring - RCRA GW Mon Well Installation	\$9,700	0.10%	20%	RL	Hanford	WM
RL - 1260-1	B Plant Canron Trane	\$9,125	0.09%	20%	RL	Hanford	WM
RL - 4150-0	300 Area Fuel Supply Program	\$8,963	0.09%	20%	RL	Hanford	WM
RL - 2230-1	WRAP Module 2A	\$7,900	0.08%	20%	RL	Hanford	WM
RL - 7250-0	Plans & Budgets - Integration Planning	\$7,749	0.08%	21%	RL	Hanford	WM
RL - 7210-2	92-L-019, Road, Ground, and Lighting Safety Improvements, 300/1100A	\$7,370	0.07%	21%	RL	Hanford	WM
RL - 1210-1	DST Storage Aging Waste Transfer Lines	\$6,523	0.07%	21%	RL	Hanford	WM
RL - 7335-0	TRI-PARTY Agreement State Funding	\$6,014	0.06%	21%	RL	Hanford	WM
RL - 4210-0	Program and Environmental Management	\$5,660	0.06%	21%	RL	Hanford	WM
RL - 7220-1	91-B-524, 300 Area Elec Dist Conv & Safety Improv., PH I	\$5,474	0.05%	21%	RL	Hanford	WM
RL - 1270-0	Multi-Purpose Storage Complex	\$5,344	0.05%	21%	RL	Hanford	WM
RL - 1120-4	Replacement of the Cross Site Transfer System	\$4,995	0.05%	21%	RL	Hanford	WM
RL - 1260-2	Safety Class Ventilation	\$4,701	0.05%	21%	RL	Hanford	WM
RL - 7210-1	92-L-044, Hanford Infrastructure, Underground Storage Tanks	\$4,076	0.04%	21%	RL	Hanford	WM
RL - 7360-0	Environmental Support - Invent. Management	\$3,712	0.04%	21%	RL	Hanford	WM
RL - 4100-1	DOE - Order Compliance	\$3,226	0.03%	21%	RL	Hanford	WM
RL - 7370-0	Environmental Support - Misc. Activities	\$2,938	0.03%	21%	RL	Hanford	WM
RL - 7220-2	92-L-047, 300 Area Elec Dist Conversion & Safety Improv., PH II	\$2,892	0.03%	21%	RL	Hanford	WM
RL - 2200-2	Project W - 113, CH-TRU Retrieval	\$2,851	0.03%	21%	RL	Hanford	WM
RL - 2200-1	Project W - 112, Enhanced RMW Storage	\$2,760	0.03%	21%	RL	Hanford	WM
RL - 7300-0	Environmental Support - YAKIMA INDIAN NATION	\$1,575	0.02%	21%	RL	Hanford	WM
RL - 7100-1	222-S Lab - HVAC/Elect. Upgrade	\$1,541	0.02%	21%	RL	Hanford	WM
RL - 7225-2	94-D-391, 325 Facility Compliance/Renovation	\$1,500	0.02%	21%	RL	Hanford	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
RL - 7200-1	93-4-003, 200 Area Unsecured Core Area FAB Shop	\$1,058	0.01%	21%	RL	Hanford	WM
RL - 7210-3	93-L-073, Landlord Program Safety Compliance, PH II	\$1,044	0.01%	21%	RL	Hanford	WM
RL - 7320-0	Environmental Support - UMATILLA INDIAN	\$880	0.01%	21%	RL	Hanford	WM
RL - 7100-2	Radioactive Waste Lines	\$615	0.01%	21%	RL	Hanford	WM
RL - 7210-5	95-L-102, Primary Highway Route - Norht of Wye Barricade	\$549	0.01%	21%	RL	Hanford	WM
RL - 7205-1	92-L-017, 200 East Steam System Rehab, PH II	\$538	0.01%	21%	RL	Hanford	WM
RL - 7310-0	Environmental Support - NEZ PERCE INDIAN NATION	\$480	0.00%	21%	RL	Hanford	WM
RL - 7205-4	94-L-070, 300 Area Process Sewer Piping System Upgrade	\$464	0.00%	21%	RL	Hanford	WM
RL - 1260-3	Waste Remediation Facility Improvements	\$330	0.00%	21%	RL	Hanford	WM
RL - 7210-4	95-L-011, Railroad Maintenance Facility	\$318	0.00%	21%	RL	Hanford	WM
RL - 1120-5	New DST Tank Farm	\$300	0.00%	21%	RL	Hanford	WM
RL - 7325-0	State of Oregon Hanford Oversight	\$200	0.00%	21%	RL	Hanford	WM
RL - 1120-1	Tank Farms Radiological Support Facility	\$100	0.00%	21%	RL	Hanford	WM
RL - 7200-4	95-L-XXX, Office/Training Facility	\$91	0.00%	21%	RL	Hanford	WM
RL - 1260-4	Office Facilities - 200 East	\$88	0.00%	21%	RL	Hanford	WM
RL - 8410-1	Building Utilities - PH I - Facility Compl.	\$32	0.00%	21%	RL	Hanford	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
RL - 3120-0	100 HR Char., Assess/Remedial Action	\$30,437	0.30%	22%	RL	Hanford - 100	ER
RL - 3600-0	N Reactor	\$20,557	0.21%	22%	RL	Hanford - 100	ER
RL - 3105-0	100 BC Char., Assess/Remedial Action	\$11,137	0.11%	22%	RL	Hanford - 100	ER
RL - 3125-0	100 NR Char., Assess/Remedial Action	\$10,693	0.11%	22%	RL	Hanford - 100	ER
RL - 3110-0	100 KR Char., Assess/Remedial Action	\$9,349	0.09%	22%	RL	Hanford - 100	ER
RL - 3100-0	100 DR Char., Assess/Remedial Action	\$8,702	0.09%	22%	RL	Hanford - 100	ER
RL - 3115-0	100 FR Char., Assess/Remedial Action	\$8,442	0.08%	22%	RL	Hanford - 100	ER
RL - 3510-0	100 Area D&D	\$5,252	0.05%	22%	RL	Hanford - 100	ER
RL - 3390-0	1100 EM Char., Assess/Remedial Action	\$5,570	0.06%	22%	RL	Hanford - 1100	ER
RL - 3200-0	200 BP Char., Assess/Remedial Action	\$23,694	0.24%	23%	RL	Hanford - 200	ER
RL - 3000-0	SST Closures	\$17,730	0.18%	23%	RL	Hanford - 200	ER
RL - 3520-0	200 Area D&D	\$14,438	0.14%	23%	RL	Hanford - 200	ER
RL - 3235-0	200 ZP Char., Assess/Remedial Action	\$6,501	0.07%	23%	RL	Hanford - 200	ER
RL 3230-0	200 UP Characterization and Assessment	\$333	0.00%	23%	RL	Hanford - 200	ER
RL - 3205-0	200 NO Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3210-0	200 PO Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3215-0	200 RO Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3220-0	200 SO Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3225-0	200 TP Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3240-0	200 IU Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3245-0	200 SS Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3250-0	200 EGW Char., Assess/Remedial Action	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3255-0	200 WGW Characterization and Assessment	\$0	0.00%	23%	RL	Hanford - 200	ER
RL - 3300-0	300 FF Char., Assess/Remedial Action	\$39,804	0.40%	23%	RL	Hanford - 300	ER
RL - 3530-0	300 Area	\$0	0.00%	23%	RL	Hanford - 300	ER
RL - 3031-1	Program Direction	\$74,466	0.75%	24%	RL	Richland Field Office	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
RF - 3824	Corrective Activities	\$9,251	0.09%	0%	RF	Rocky Flats Plant	CA
RF - 1258	OU 4 - Solar Ponds	\$68,059	0.68%	1%	RF	Rocky Flats Plant	ER
RF - 1264	Onsite/Offsite Water Management	\$53,924	0.54%	1%	RF	Rocky Flats Plant	ER
RF - 1012	Site-Wide Programs	\$21,161	0.21%	2%	RF	Rocky Flats Plant	ER
RF - 1002	OU 2 - 903 Pad, Mound, and East Trenches	\$16,683	0.17%	2%	RF	Rocky Flats Plant	ER
RF - 1001	OU 1 - 881 Hillside	\$13,399	0.13%	2%	RF	Rocky Flats Plant	ER
RF - 1233	Program Management Support - ER	\$13,341	0.13%	2%	RF	Rocky Flats Plant	ER
RF - 1014	OU 6 - Walnut Creek	\$12,659	0.13%	2%	RF	Rocky Flats Plant	ER
RF - 1005	OU 5 - Woman Creek	\$8,293	0.08%	2%	RF	Rocky Flats Plant	ER
RF - 1255	OU 7 - Present Landfill	\$7,977	0.08%	2%	RF	Rocky Flats Plant	ER
RF - 1011	OU 3 - Offsite Areas	\$5,415	0.05%	2%	RF	Rocky Flats Plant	ER
RF - 1251	OU 9 - Original Process Waste Lines	\$3,584	0.04%	2%	RF	Rocky Flats Plant	ER
RF - 1261	OU 11 - West Spray Field	\$2,203	0.02%	2%	RF	Rocky Flats Plant	ER
RF - 1271	Decontamination Facilities - ER	\$1,864	0.02%	2%	RF	Rocky Flats Plant	ER
RF - 1018	OU 15 Inside Building Closures	\$594	0.01%	2%	RF	Rocky Flats Plant	ER
RF - 1006	OU 8 - 700 Area	\$568	0.01%	2%	RF	Rocky Flats Plant	ER
RF - 1010	OU 14 - Radioactive Sites	\$438	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 1007	OU 12 - 400/300 Area	\$337	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 1008	OU 13 - 100 Area	\$246	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 1231	OU 10 - Other Outside Closures	\$192	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 1009	OU 16 - Low-Priority Sites	\$183	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 1263	Oxnard Facility	\$0	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 1272	Waste Handling/Treatment Facilities - ER	\$0	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 6003	Program Management - D&D	\$0	0.00%	2%	RF	Rocky Flats Plant	ER
RF - 6700-RF	Rocky Flats Facilities Transition	\$4,461	0.04%	2%	RF	Rocky Flats Plant	FT

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
RF - 3821	Facility Operations and Maintenance	\$108,175	1.08%	4%	RF	Rocky Flats Plant	WM
RF - 3812	Program Control	\$78,980	0.79%	4%	RF	Rocky Flats Plant	WM
RF - 3827	Sewage Treatment Plant	\$7,619	0.08%	4%	RF	Rocky Flats Plant	WM
RF - 3822	New Facilities Planning	\$4,631	0.05%	4%	RF	Rocky Flats Plant	WM
RF - 3829	Bldg 374, Liquid Waste Treatment Fac Upgrade	\$3,693	0.04%	4%	RF	Rocky Flats Plant	WM
RF - 3031-1	Program Direction	\$3,142	0.03%	5%	RF	Rocky Flats Plant	WM
RF - 3813	Waste Minimization, Program Administration	\$2,397	0.02%	5%	RF	Rocky Flats Plant	WM
RF - 3814	Agreement in Principle (Colorado)	\$2,340	0.02%	5%	RF	Rocky Flats Plant	WM
RF - 3828	New Sanitary Landfill	\$2,182	0.02%	5%	RF	Rocky Flats Plant	WM
RF - 3826	Capital Projects	\$927	0.01%	5%	RF	Rocky Flats Plant	WM
RF - 3815	Payment to Local Communities	\$800	0.01%	5%	RF	Rocky Flats Plant	WM
RF - 3823	General Plant Projects - WM	\$462	0.00%	5%	RF	Rocky Flats Plant	WM
SF - 6803-KM	San Francisco Facilities Transistion - KMS Fusion	\$0	0.00%	0%	SF	Canoga Park, CA	FT
SF - 1488-20	ETEC D&D	\$15,674	0.16%	0%	SF	ETEC Field Lab	ER
SF - 1488-10	Area IV - Remedial Action	\$1,453	0.01%	0%	SF	ETEC Field Lab	ER
SF - 1488-30	Program Management - Support/ETEC	\$1,370	0.01%	0%	SF	ETEC Field Lab	ER
SF - 6802-ET	San Francisco Facilities Transition - ETEC	\$0	0.00%	0%	SF	ETEC Field Lab	FT
SF - 3921	Facility Operations and Maintenance	\$1,352	0.01%	0%	SF	ETEC Field Lab	WM
SF - 4017	Tiger Team Response	\$200	0.00%	0%	SF	ETEC Field Lab	WM
SF - 1484-02	Hot Cell/Fuel Dev Lab D&D Project	\$4,216	0.04%	0%	SF	General Atomics	ER
SF - 2484 - 03	Hot Cell/FDL Program Management	\$543	0.01%	0%	SF	General Atomics	ER
	Hot Cell/Glove Box Decontamination and Waste						
SF - 1486-02	Disposal Project	\$4,540	0.05%	0%	SF	General Electric	ER
SF - 1486-03	GE Program Management	\$543	0.01%	0%	SF	General Electric	ER

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
SF - 2002	Air Toxic Facility Assessment	\$3,975	0.04%	0%	SF	Lawrence Berkeley Lab	CA
SF - 2007	Sanitary Sewer Monitoring System	\$105	0.00%	0%	SF	Lawrence Berkeley Lab	CA
SF - 2011	Replace, Monitor, or Remove UG Tanks - PH I	\$100	0.00%	0%	SF	Lawrence Berkeley Lab	CA
SF - 4007-AA	Corrective Actions at Permeated Facilities Soil and Groundwater - Environmental	\$25	0.00%	0%	SF	Lawrence Berkeley Lab	CA
SF - 1482-11	Assess/Remediation	\$2,603	0.03%	0%	SF	Lawrence Berkeley Lab	ER
SF - 1482-31	Program Management	\$1,600	0.02%	0%	SF	Lawrence Berkeley Lab	ER
SF - 1482-12	Closure Hazardous Waste Handling Facility	\$0	0.00%	0%	SF	Lawrence Berkeley Lab	ER
SF - 6801-BV	San Francisco Facilities Transition - BEVELAC	\$1,400	0.01%	0%	SF	Lawrence Berkeley Lab	FT
SF - 3931	Facility Operations & Maintenance	\$12,468	0.12%	1%	SF	Lawrence Berkeley Lab	WM
SF - 3934	Hazardous Waste Handling Facility	\$1,582	0.02%	1%	SF	Lawrence Berkeley Lab	WM
SF - 3933	LBL Waste Storage - GPP	\$500	0.01%	1%	SF	Lawrence Berkeley Lab	WM
SF - 3914	Waste Minimization Management	\$300	0.00%	1%	SF	Lawrence Berkeley Lab	WM
SF - 3946	Tank Upgrade Project	\$14,200	0.14%	1%	SF	Lawrence Liv Natl Lab	CA
SF - 3945	Sewer Pipe Rehabilitation	\$10,850	0.11%	1%	SF	Lawrence Liv Natl Lab	CA
SF - 1002	Compliance Stack Monitoring	\$4,965	0.05%	1%	SF	Lawrence Liv Natl Lab	CA
SF - 1000	Maintenance of Compliances thru Sewer Effluent Alarms	\$1,540	0.02%	1%	SF	Lawrence Liv Natl Lab	CA
SF - 1004	Permit/Relocate High Explosive Burn Facility	\$100	0.00%	1%	SF	Lawrence Liv Natl Lab	CA
SF - 1481-01	Main Site - RA	\$25,505	0.26%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-30	Program Management	\$10,142	0.10%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-03	Site 300 RI	\$6,258	0.06%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-04	Site 300 RCRA	\$3,057	0.03%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-05	OU#1/GSA	\$2,281	0.02%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-02	Main Site - RCRA	\$1,363	0.01%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-06	OU #2/Building 834	\$961	0.01%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-08	OU#4/HE Process Area	\$929	0.01%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-07	OU#3/Pit 6/Landfill Area	\$891	0.01%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-09	OU#5/Firing Area	\$737	0.01%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 1481-10	OU#6/Building 833, Pits 8 and 9 and Misc	\$702	0.01%	1%	SF	Lawrence Liv Natl Lab	ER
SF - 3941	Facility Operations & Maintenance	\$50,079	0.50%	2%	SF	Lawrence Liv Natl Lab	WM
SF - 3944	Decontamination and Waste Treatment Facility	\$5,755	0.06%	2%	SF	Lawrence Liv Natl Lab	WM
SF - 3943	Hazardous Waste Mgmt - General Plan Project	\$3,471	0.03%	2%	SF	Lawrence Liv Natl Lab	WM
SF - 3913	Waste Minimization - Planning	\$3,140	0.03%	2%	SF	Lawrence Liv Natl Lab	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
SF - 1487-02	Contractor Support - Environmental Restoration	\$1,779	0.02%	2%	SF	San Francisco Operations Office	ER
SF -3031-1	Program Direction	\$4,278	0.04%	2%	SF	San Francisco Operations Office	WM
SF - 3912-SF	Program Control - Contractor Support	\$3,523	0.04%	2%	SF	San Francisco Operations Office	WM
SF - 3915-SF	Agreement in Principal	\$3,500	0.04%	2%	SF	San Francisco Operations Office	WM
SF - 1483-30-PM	Program Management Environmental Restoration	\$363	0.00%	2%	SF	Stanford Linear Accelerator Center	ER
SF - 1483-10-SG	Soil and Groundwater Characterization and Remediation	\$311	0.00%	2%	SF	Stanford Linear Accelerator Center	ER
SF - 3951-WM	SLAC Waste Management Facilities Ops and Maint.	\$3,162	0.03%	2%	SF	Stanford Linear Accelerator Center	WM
SF - 3914-B	Waste Minimization Management	\$368	0.00%	2%	SF	Stanford Linear Accelerator Center	WM
SF - 1485-02-DD	D&D	\$5,725	0.06%	2%	SF	University of California at Davis	ER
SF - 1485-03-PM	Program Management	\$1,975	0.02%	2%	SF	University of California at Davis	ER
SF - 1485-01-SG	Soil and Groundwater - LEHR	\$1,828	0.02%	2%	SF	University of California at Davis	ER
SR - 12-AA	Program Control	\$29,633	0.30%	0%	SR	Savannah River field Office	WM
SR - 3031-1	DOE - Program Control	\$9,767	0.10%	0%	SR	Savannah River field Office	WM

ADS No.	Title	FY92+93	% Dollars	% Cumul	Field Office	Installation	Category
SR - 801-AA	ER Program Support	\$17,877	0.18%	1%	SR	Savannah River Site	ER
SR - 515-AA	200 Area Groundwater	\$15,166	0.15%	1%	SR	Savannah River Site	ER
SR - 516-AA	3/700 Area Groundwater	\$13,281	0.13%	1%	SR	Savannah River Site	ER
SR - 408-D	Waste Transfer	\$10,200	0.10%	1%	SR	Savannah River Site	ER
SR - 510-AA	Radioactive Burial Grounds	\$8,379	0.08%	1%	SR	Savannah River Site	ER
SR - 501-AA	SRL & TNX Basins	\$6,438	0.06%	1%	SR	Savannah River Site	ER
SR - 479-A	DOE-ER Program Management Support	\$5,190	0.05%	1%	SR	Savannah River Site	ER
SR - 508-AA	Burning Pits	\$3,578	0.04%	1%	SR	Savannah River Site	ER
SR - 504-AA	Oil and Chemical Basins	\$3,505	0.04%	1%	SR	Savannah River Site	ER
SR - 518-AA	600 Area Groundwater	\$3,432	0.03%	1%	SR	Savannah River Site	ER
SR - 478-A	State Reimbursement for Federal Facility	\$3,300	0.03%	1%	SR	Savannah River Site	ER
SR - 509-AA	Rubble Pits and Piles	\$3,057	0.03%	1%	SR	Savannah River Site	ER
SR - 512-AA	Storage Tanks	\$2,853	0.03%	1%	SR	Savannah River Site	ER
SR - 701-AA	Post Closure Management	\$2,609	0.03%	1%	SR	Savannah River Site	ER
SR - 610-AA	D&D Program Development	\$2,280	0.02%	1%	SR	Savannah River Site	ER
SR - 511-AA	Non-Radioactive Burial Grounds	\$2,040	0.02%	1%	SR	Savannah River Site	ER
SR - 606-AA	SED I & SED II D&D	\$1,873	0.02%	1%	SR	Savannah River Site	ER
SR - 503-AA	Acid/Caustic Basins	\$1,714	0.02%	1%	SR	Savannah River Site	ER
SR - 480-A	Agency for Toxic Substance and Disease Registry	\$1,700	0.02%	1%	SR	Savannah River Site	ER
SR - 506-AA	Separations Basins	\$1,319	0.01%	1%	SR	Savannah River Site	ER
SR - 507-AA	Basin Sewer Lines	\$1,318	0.01%	2%	SR	Savannah River Site	ER
SR - 513-AA	Minimal Action Units	\$1,265	0.01%	2%	SR	Savannah River Site	ER
SR - 517-AA	400 Area Groundwater	\$1,114	0.01%	2%	SR	Savannah River Site	ER
SR - 505-AA	Reactor Basins	\$909	0.01%	2%	SR	Savannah River Site	ER
SR - 502-AA	Coal Pile Runoff and Ash Basins	\$654	0.01%	2%	SR	Savannah River Site	ER
SR - 608-AA	HWCTR D&D	\$475	0.00%	2%	SR	Savannah River Site	ER
SR - 481-A	Agreement in Principle	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 514-AA	Reactor Areas Groundwater	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 601-AA	R Reactor D&D	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 602-AA	232-F Tritium D&D	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 603-AA	235-F Puff D&D	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 604-AA	284-F Power House D&D	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 605-AA	T16H HLW Tank D&D	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 607-AA	412-D Heavy Water Facility D&D	\$0	0.00%	2%	SR	Savannah River Site	ER
SR - 609-AA	Ford Building D&D	\$0	0.00%	2%	SR	Savannah River Site	ER

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