DOE/EM-CH-001

Chicago Operations Office

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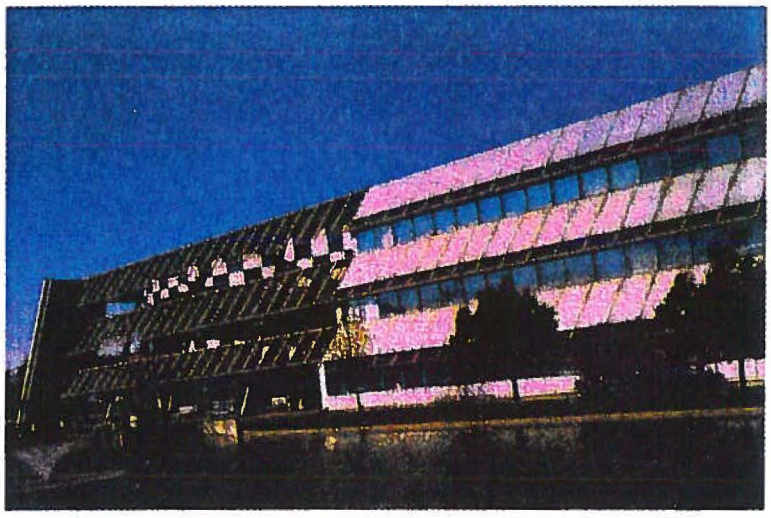
U. S. Department of Energy
Idaho Operations Office

TEN YEAR PLAN

Environmental Management Program



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INTRODUCTION

Chicago Operations Office's Environmental Management Vision

The vision of the Chicago Operations Office's (CH) Environmental Management (EM) Program is to complete cleanup at its sites within ten years. To achieve this vision, the CH EM Program will be guided by the following principles:

Protect worker health and safety
Eliminate the most urgent risks
Reduce the mortgage and support costs
Reduce the generation of waste
Create a collaborative relationship between DOE and its regulators and stakeholders
Focus technology development on cost and risk reduction
Integrate waste treatment and disposal across sites

CH EM Ten Year Plan Purpose

The Plan is designed as an executive document to be used to describe creative approaches to cleanup, to determine which waste streams, if any, will not be completed within the ten year period, and to decide how to treat them until all work is completed. This plan will guide Departmental strategic planning and CH decision-making during the next ten years.

The plan acts as a major information resource for DOE's Headquarters Program Offices and CH to assist with the decisions concerning work scope and schedule as related to critical strategic and funding issues. Information is included in this plan that will guide CH EM staff with decisions concerning Chicago's Environmental Management Program related to sites, release site planning, prioritization and other issues. The Plan provides users with information on site mission, the relationship of Environmental Management to the Office of Energy Research ("the landlord"), waste management activities, environmental restoration activities and their sequence, site strategies for assessment and remediation, future land use, and cost, schedule and scope data.

Relationship to Baseline Environmental Management Report (BEMR)

While BEMR data was considered during the formation of cost and volume data described in this plan, cost, volumes and schedule data has been adjusted to consider the assumptions described in a following section. The BEMR analyzes costs over a 70 year period. It includes ongoing costs for surveillance and maintenance, groundwater pump and treat projects, and certain costs for treatment and disposal of transuranic wastes that will be incurred after the ten year period. The BEMR also does not take into account potential efficiencies from consolidated treatment and disposal or cost savings resulting from accelerating cleanup schedules. Modeling of the CH information for the BEMR submission also contributes to substantial differences from the data reflected in this plan.

Relationship to Other Environmental Plans

The CH EM Ten Year Plan assumes a ten year time frame for completion of the CH EM program and a level of funding that differs by site from that reflected in the Environmental Restoration (ER) Management Action Plan. Current CH Environmental Restoration baselines are being modified, through formal change control, to reflect the accelerated schedule described in this plan. As such, the

Environmental Restoration costs reflected in this plan have not been validated, except where noted. The WM data enclosed is consistent with data in the draft WM Program Baseline and current year work plans (CYWPs). Other CH EM documents are being revised to support the CH EM Ten Year Plan. Accomplishment of accelerated cleanups within the next ten years requires significant re-engineering of work scope and schedule for the Brookhaven National Laboratory and Argonne National Laboratory-East Environmental Restoration Programs. Rebaselining both of the projects is currently underway in an effort to meet the goal of the CH EM Ten Year Plan by maximizing near term completion's and optimizing work sequencing.

Chicago Environmental Management Program

The mission of the Chicago Operations Office's Environmental Management Program is to protect the environment, human health, and worker safety through risk reduction, compliance with all federal, state and local statutes, focus on tangible results, building consensus with regulators and other stakeholders, and responsibly managing public funds. The Chicago Environmental Management Program's goal is to complete cleanup at most sites with a few sites requiring surveillance and maintenance. Waste management (WM) activities will be returned to the landlord, the Office of Energy Research, for most CH sites, over a phased period, completing the process by the beginning of FY2000. Planned future use for the majority of the Chicago environmental restoration sites remains the return of the sites to the Office of Energy Research. Some of the smaller sites are expected to be returned for unrestricted use as the owner (s) deems appropriate. A few CH sites are anticipated to be transferred to the Grand Junction Project Office for long term surveillance and maintenance activities.

Ten Year Plan Scope

Program End State

The end state of the CH EM program at the completion of the Ten Year Plan will be:

- All waste operations activities at CH sites have been transferred to the landlord program. This transfer will be completed by FY 2000.
- All EM-40 activities at CH M&O sites are complete within the definition of "complete cleanup" provided in the Ten Year Plan guidance. Residual pump and treat activities, as well as any necessary surveillance and maintenance activities, have been transferred to the landlord program, as part of its site-wide environmental compliance program.
- All long term CH surveillance and maintenance activities at non-M&O sites. (Site A, Piqua and Hallam) will be transferred to the Grand Junction Project Office by FY 1998.
- No new facilities have been accepted into the EM program.

Environmental Restoration Accelerated Schedule

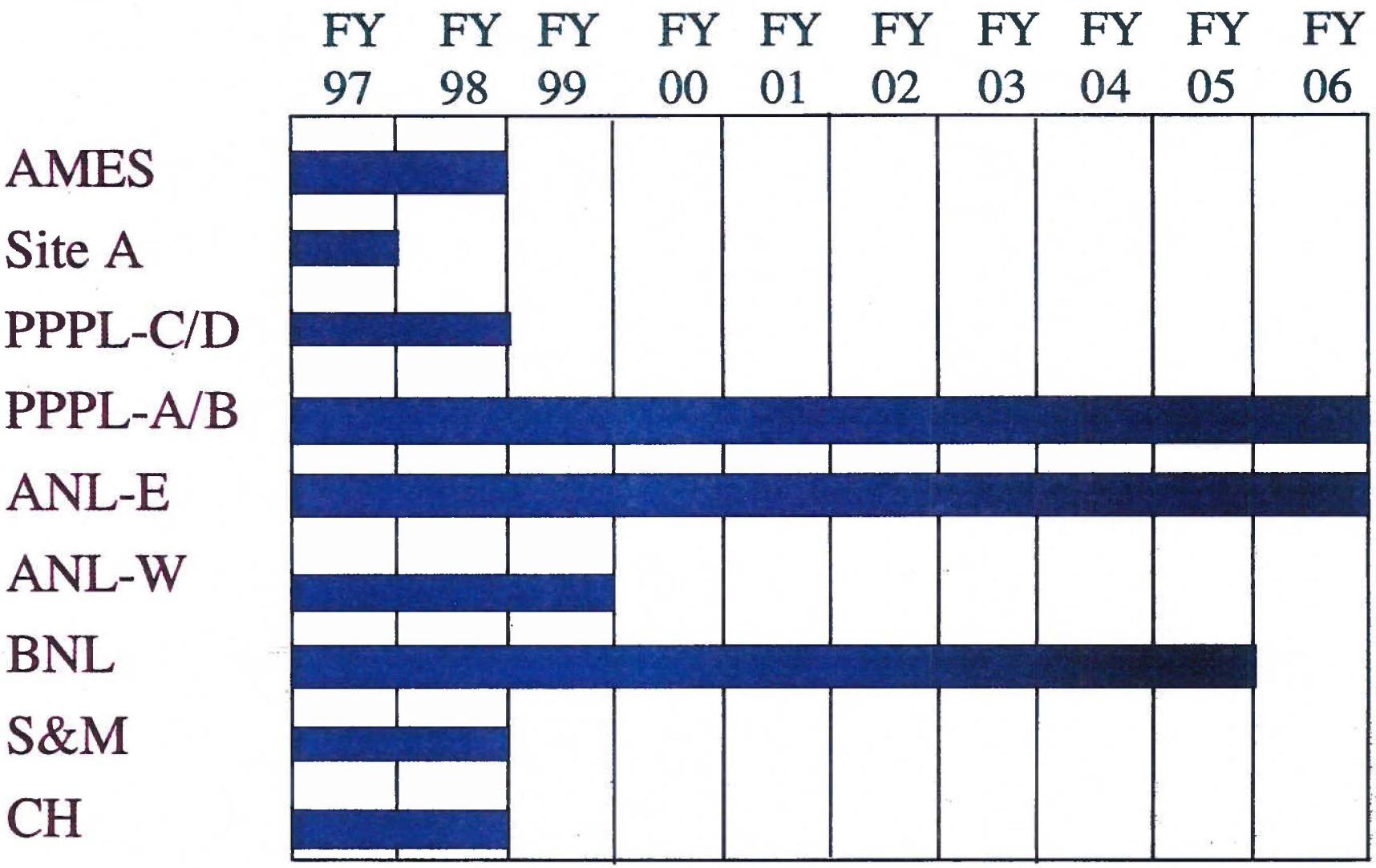
The Chicago EM Ten Year Plan focuses on environmental restoration interim and end states with proposed completion's within ten years while supporting the Waste Management initiative to return waste management activities to the Office of Energy Research. The Plan utilizes a small site strategy which demonstrates technology applications, accelerates schedule completions, maximizes near-term site completions, optimizes work sequencing and achieves cost savings while restoring seven sites for beneficial reuse within ten years. These sites include Site A, Ames Laboratory, Argonne National Laboratory (ANL) East and West, Brookhaven National Laboratory, Princeton Plasma Physics Laboratory (PPPL)-Site C/D and Princeton University-Site A/B. With a total cost to complete of $171.2 million, the plan identifies a cost savings of $62 million and completes work at two single purpose Laboratories, two privately owned sites, one WAG at the Idaho National Engineering Laboratory and two multi-purpose National Laboratories. A schedule of Environmental Restoration Site completions is attached.

This Plan benefits the Department in several ways.

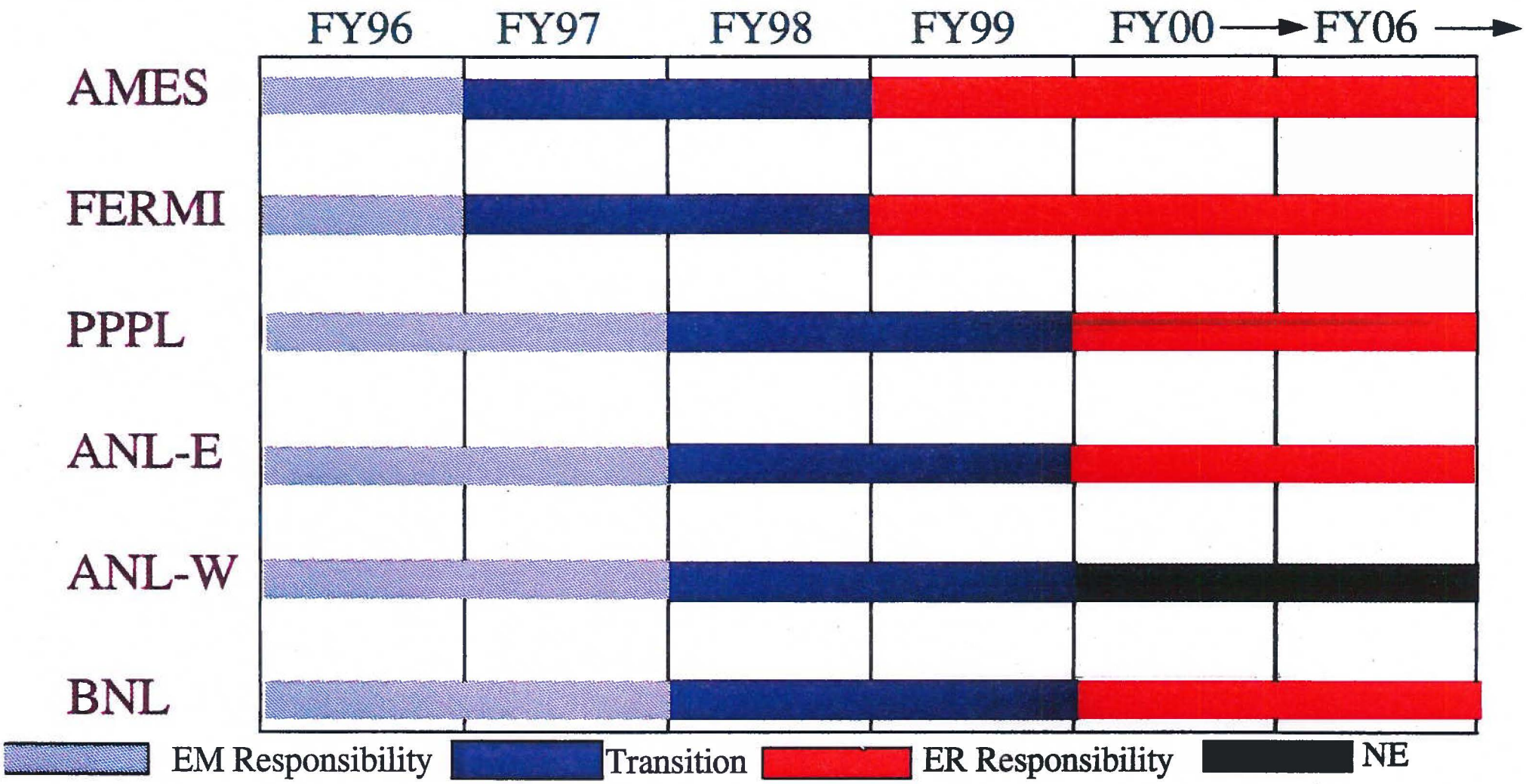
1 release sites for seven sites are environmentally restored.
2 Sites are more quickly available for use by the landlord-The Office of Energy Research.
3 Cost savings in excess of $60 million are achieved.
4 Federal FTEs are available for other work.
5 Sites are returned to private owners.

At the end of the ten year period, all sites will have been completed with the exception of some residual pump and treat activities at BNL. Surveillance and maintenance activities at Hallam, Piqua and Site A are transferred to the Grand Junction Project Office.

Environmental Restoration Site Schedule



Waste Operations Transition



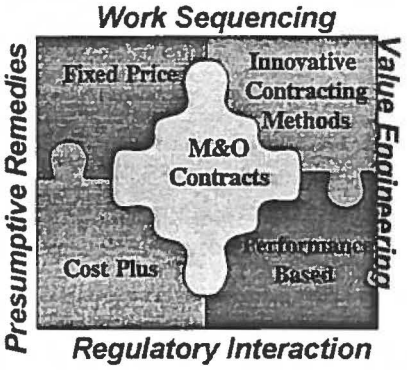
Chicago Environmental Restoration Strategy

The CH EM Ten Year Plan's feasibility is based on a clearly stated vision , stakeholder input and well defined end states which are consistent with future use planning at the Chicago sites. A broad range of contracting strategies to achieve success will be implemented. These include performance based management contracts, alliances with industrial partners and competitive fixed price contracting . The Chicago ER program has successfully utilized these and other innovative contracting mechanisms to achieve high levels of cost and schedule performance in the past.

The overall strategy revolves around completing our small sites early, collapsing the schedule for Brookhaven National Laboratory and deferring and optimizing restoration activities at Argonne National Laboratory-East. The Plan addresses higher risk activities first while making effective use of funding.

Contracting Strategies

- Performance Based M&O Contracts
- Competitive Fixed Price Subcontracts
- Interagency Agreement with COE
- Direct DOE Oversight of Field Contractors
- Alliances w/Industrial Partners for Technologies
- Novate Subcontracts to DOE/CH



Waste minimization goals have been implemented for all sites and compliance issues are being addressed. With well defined scope, these relatively small projects are great candidates for acceleration.

Each of the six sites involved in the proposal have or will have had baselines reviewed by December 1996 to insure the feasibility of the acceleration and have been analyzed to ensure that the projects meet small site criteria. Reengineering efforts are currently underway at BNL and ANL-E to achieve the ten year vision.

Past Accomplishments

The Chicago Environmental Restoration Program has a excellent track record of implementing a small site strategy at sites including Ames Laboratory, Site A, Battelle Columbus Laboratory and at Reactive Metals, Inc. This optimized plan is realistically feasible due to the fact that the considered sites have few technology or regulator issues. Chicago also makes use of federal cost estimators (Corps of Engineers) to augment Chicago expertise and achieve additional cost savings.

In FY 1995, the Chicago ER program met or exceeded all Environmental Management expectations in such areas as risk reduction, health and safety, technology development, stakeholder involvement, the use of alternative contracting strategies and financial responsibility. All FY 1996 performance measures have been met. Chicago was able to exceed its commitment regarding interim actions through improved project management; reduction in environmental restoration carryover; achievement of an uncosted balance of $530,000; and exceeding the EM cost savings commitment. The Chicago ER Program has also been able to establish a low direct to support cost ratio. This track record demonstrates that the Chicago ER program can effectively achieve its programmatic goals while managing large changes in the financial aspects of the program. Chicago has also effectively managed risk and regulatory issues through active communication with regulators.

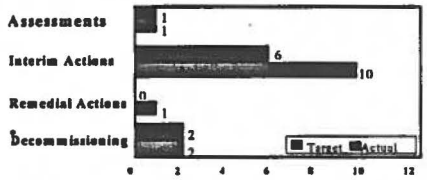
CH TRACK RECORD

FY95 Report Card

Met or Exceeded All Expectations

- Risk Reduction
- Health & Safety
- Fiscal Responsibility
- Tangible Results
- Technology Development
- Stakeholder Involvement
- Alternative Management Strategies

FY1995 PERFORMANCE MEASURES



Balance Sheet

Prior Year (FY94) Carryover	$13,415K
FY1995 Budget Authority	54,044K
Total Funds Available	67,459K
FY1995 Costs	66,929K
FY1995 Uncosted Obligations	530K
Carryover Reduction (94-95)	96%
% Carryover (end of 1995)	.008%

Summary of Proposed Activities

Site A

Major activities remaining at Site A include removal, transportation and disposal of contaminated soils from Suspect Areas 3&4 and providing overburden on the remainder of the site to ensure protection of human health. Then the site will be returned to the private landowner. This completes ten release sites.

Princeton Plasma Physics Laboratory

PPPL activities at Site C/D include the completion of two small soil removals and completion of a supplemental ground water investigation. PPPL has worked with its regulators to develop realistic expectations thereby lending itself to acceleration. For an investment of $1.5 million dollars, the current schedule will be reduced by 11 years, 7 release sites will be completed with a corresponding cost savings of $5.8 million as measured from the revised baseline.

Argonne National Laboratory-West

Acceleration of the schedule brings WAG9 activities into a five year window for completion. These activities include simple soil excavation and a decontamination and decommissioning project completing one WAG of Idaho National Engineering Laboratory's Federal Facilities Compliance commitments. The project's scope is well defined and regulator buy-in already

exists. The plan is to optimize characterization to support No Further Action determinations at the remaining release sites. Thirty-six (36) release sites will be completed, shortening the planned schedule by two years and reducing project costs by $2.6 million.

Princeton University-Site A/B

The accelerated schedule completes the release site and more importantly achieves the objective of negotiating the Department's percent of liability from past activities at the site.

Argonne National Laboratory-East

The ANL-E site also is prepared to successfully execute an optimized schedule. The schedule and plans are currently undergoing optimization with a projected completion of December 1996. Project scope is well defined with a strategy consistent with the EM-50 large scale demonstration. The site has proposed a five year completion schedule which is currently being independently estimated. The implementation of the CH Ten Year Plan actually deters work at this site during the FY1997 2000 time frame in order to complete efforts at Site A, PPPL, Ames, and ANL-W. Stakeholder relations are favorable with frequent meetings to keep regulators abreast of activities. One Hundred and five (105) release sites will be completed.

Brookhaven National Laboratory

The Brookhaven National Laboratory is currently developing a plan to accelerate the selection and implementation of remedial activities within seven years. The plan will integrate the development and approval process for all Records of Decisions within the next two years. The evaluation of alternatives and the selection process will be developed interactively with involvement of political and regulatory interests as well as stakeholders and public interest groups. The accelerated schedule will include the activities required to plan and implement the decontamination and decommissioning of the Brookhaven Graphite Research Reactor. The schedule will incorporate the use of innovative contracting mechanisms to obtain timely and cost-effective products and results.

Issues Affecting Environmental Restoration Projects

One major issue affecting the ability of the Chicago Operations Office Environmental Management Program's to adequately plan is the future for the Princeton Plasma Physics Laboratory and the Argonne National Laboratory-West sites. This involves the lack of clear future direction for these programs at the site. Reductions in operating programs at these sites may make them site-wide clean-up programs in the relative near future. Cost, schedule and scope data for PPPL and ANL-W are not included in this Ten Year Plan.

Another majot issue is that CH receives a de mininimis amount of funding for our programs and each time an "accross the board" cut is made for all operations offices, the impact is significant.

Several minor issues may impact the ability of the Chicago Environmental Restoration program to complete projects in a timely and cost effective manner. Including:

- Unresolved Environmental Restoration scope at a site;
- Limited disposal options for waste streams which impair reliability and raise project costs;
- Reduction in funds threatens the ability to maintain work in progress, constrains new activities, and may impact cooperative program funding for large scale technology demonstrations;
- Baseline deficient funding may increase the possibility of:

increasing risk,
increasing potential contamination migration;
increasing total cost;
raising stakeholder concerns;
lengthening overall completion schedule; and,
compromising overall schedule completions.

Relative Risk Assessment

The relative risks of the Chicago Environmental Restoration Program were ranked by Risk Data Sheet using a process developed by the FY 1998 ADS/RDS team and reviewed by a peer group of Environmental Management staff. Risk data were evaluated and ranked based on such factors as impact to the public, site personnel, the environment, compliance, mission, mortgage reduction and social and cultural factors. There were no major comments to the CH relative risk assessment made by the peer review process.

CH Waste Management Program and Return to Landlord Process

The major issue affecting the ability of the Chicago Operations Office Environmental Management Program to adequately plan for waste management activities at its laboratory sites is the lack of a formal endorsement by the Office of Energy Research concerning the transfer of these activities to the landlord by FY 2000.

Specific issues that require resolution include: 1) the remote-handled transuranic waste, the sodium contaminated waste and the spent nuclear fuel stored at ANL-W's Radioactive Scrap and Waste Facility; 2) the PCB contaminated sludge and soils at ANL-E; and 3) the legacy low-level waste (radioactive contaminated metals) at BNL. Opportunities exist for other sites to assist with resolution of these issues. The PCB waste currently stored at ANL-East could be shipped to Oak Ridge for treatment at the TSCA Incinerator. The remote-handled sodium contaminated waste at ANL-W could be treated through privatization efforts at INEL. All construction projects will be complete by FY1998.

The mission of the Chicago Operations Office's (CH) Environmental Management Program is to protect the environment, human health, and worker safety through risk reduction and compliance with federal, state and local statutes, and to produce tangible results with consensus from stakeholders while ensuring the responsible management of public funds. The CH Waste Management Program is designed to ensure the minimization, safe handling, and disposal of waste generated at its sites. The Waste Management Program provides a support function to generators of waste at each of the CH research laboratory sites. This function includes: collection, treatment, storage and disposal of waste, program implementation, program development for waste generation avoidance, and facility management of treatment and storage facilities. Currently, CH plans to deal with its legacy waste by shipping legacy waste to other sites until disposal options have been identified.

A Waste Management Alternatives Working Group was formed in 1995. The group was tasked by the Office of Waste Management to recommend alternatives to recalibrate the structure of the waste management program to reduce costs and increase efficiencies, reconfigure responsibilities to promote waste generator accountability, and implement controls to reduce waste quantities (both newly generated and legacy). Based on the results of this study a preliminary decision has been made to transfer all waste operations activities to the landlord programs at all CH sites. Agreement in principle has been reached between EM and Energy Research to pilot this transition. A proposed schedule for the transition is attached. Final agreement on the timing and the funding reallocations have not been made. The assumptions made for this Ten Year Plan are that the transfer will be completed at the beginning of FY 2000 and that funds allocated by EM for waste management activities will be transferred to the

appropriate landlord program at that time. There will be no CH EM-managed waste operations activities after FY 2000.

After final concurrence of EM-1, ER-1 and NE-1, it is anticipated that pilot projects for transfer will be initiated. CH has proposed that Fermi National Accelerator Laboratory and Ames Laboratory be pilots for the transfer. The pilots would be initiated in FY 1997 with transition to Energy Research management occurring that year. A final decision would be made and the appropriate budget and FTEs will be transferred for FNAL and Ames in the FY 1999 budget process. The remaining CH sites, ANL-E and W, BNL, and PPPL will be transferred in the FY 2000 budget process.

In the interim, CH EM is pursuing initiatives designed to reduce and contain costs, and to enhance the productivity of waste management activities. Examples of these initiatives include the establishment of waste minimization goals; privatization or out-sourcing of waste functions; activity-based costing analysis of waste operations; bench-marking; value engineering; performance-based contracting; preliminary "necessary and sufficient" type approaches to waste management drivers; risk-based release limits and so forth. Many of these activities will lead to a lowering of waste management costs. These efforts need to be a part of the overall recalibration plan for waste management and should be implemented regardless of which program is funding it. Additionally, much of the resources currently budgeted for waste management are ultimately directed toward "support" and indirect cost functions, rather than program-direct costs for actual storage, treatment, and disposal of wastes. Some resources represent site-specific support (such as training, preparing Environmental Impact Statements, etc.), but some funding is also necessary to interact with DOE Headquarters, Regulators, and the public on a myriad of different initiatives. Improving the efficiency with which the waste management mission is conducted includes optimization of these support and indirect functions. Therefore, initiatives to address both mission-specific and support functions are being formulated by CH.

Further descriptions of site activities are included in Appendix I.

National Program Needs

Technology Development

The primary needs of the EM Program relates to groundwater remediation. The largest and most highly visible CH EM program is remediation of contaminated groundwater at BNL. Better remediation technologies could reduce current cost and schedules. Opportunities exist for new technology deployment as well at ANL-E. Remediation technologies have not been selected for the 317/319 Area Remediation Project. Areas of need include in-situ soil treatment, on-site encapsulation of debris and groundwater remediation.

The Waste Management Program at CH consists primarily of collection, storage, some treatment, and disposal of hazardous, radioactive and mixed waste generated from research activities. The primary technology development needs of this program relate to waste minimization and pollution prevention.

Environmental Measurement Laboratory

The Environmental Measurement Laboratory (EML), located in New York, is a government owned-government operated analytical laboratory which provides technical support to the EM Program in the following areas:

- Site Characterization Initiative

  Quality Assurance

  Planning and Data Assessment

  Technical Assistance

Business Optimization

- Site Closure Initiative

  Site Compliance

  Designs/Conducts Final Surveys

  Development of Guidance

  Training/Demonstration of Advanced Technologies

- World-Wide Monitoring Program
- Non-Proliferation/Nuclear Treaty Initiative

  Scientific Leadership

  Automatic Radioactive Aerosol Monitors

  Quality Assurance Plan for IAEA

  Radiological Characterization of Former Soviet Union Nuclear Sites

- Near-Background Levels of Radiological/Non-Radiological Development and Validation

EML supports the integration of site characterization data through programs administered by EM-76, and other programs related to environmental restoration and waste management. EML provides scientific consultation at EM working group meetings, representation on international committees and membership on national and international standards committees. EML participates in the development of policy concerning decommissioning and release criteria of contaminated facilities in concert with the Nuclear Regulatory Commission or Defense Nuclear Facilities Safety Board guidelines. EML represents the Department of Energy in the support and implementation of U.S. policy on environmental measurements and quality assurance for the IAEA's Safeguards and Security Program and for nuclear treaty monitoring.

Cost/Schedule Data

Summary Budget Data

Quantity Data

Project/Level of Effort Data

Support Costs Data

DOE-EM/Chicago Ten Year Annual Cost Plan Summary

	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	outyears
Waste Operations											
Total Treatment	7,599	5,149	5,149	5,149	5,149	5,149	5,149	5,149	5,149	5,149	53,940
Total Storage	7,044	7,401	7,101	7,101	7,101	7,101	7,101	7,101	7,101	7,101	71,253
Total Disposal	4,404	3,795	3,672	3,672	3,672	3,672	3,672	3,672	3,672	3,672	37,575
EM-30 Support Costs	6,592	6,529	6,952	6,952	6,952	6,952	6,952	6,952	6,952	6,952	68,737
ANL-E Ops Fac. Upgrade	1,102										
TOTAL DOE-Chicago EM-30	26,741	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	169,389
Remedial Action											
Cleanup	26,419	29,575	29,123	31,790	31,736	33,467	30,066	12,947	15,020	35,788	0
Post-Project Completion S&M	0	0	670	670	535	410	713	1,826	2,116	1,685	14,743
Total	26,419	29,575	29,793	32,460	32,271	33,877	30,779	14,773	17,136	37,473	14,743
D&D											
Cleanup	7,539	7,898	7,643	4,976	5,165	3,559	6,657	22,633	20,300	0	0
Post-Project Completion S&M	0	0	37	37	37	37	37	37	37	0	0
Total	7,539	7,898	7,680	5,013	5,202	3,596	6,694	22,670	20,337	0	
TOTAL DOE-Chicago EM-40	33,958	37,473	37,473	37,473	37,473	37,473	37,473	37,443	37,473	37,473	14,743
Program Direction	9,600	11,200	11,200	11,200	11,200	11,200	11,200	11,200	11,200	11,200	
Direct HQ Support (EM-50,60,70)	22,116	15,470	15,470	15,470	15,470	15,470	15,470	15,500	15,470	15,470	
Total EM Funding	**92,415**	**87,017**	**87,017**	**87,017**	**87,017**	**87,017**	**87,017**	**87,017**	**87,017**	**87,017**	

DOE-Chicago EM-30 Annual Cost Plan

TRU Waste	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Totals
Total Treatment	0	0	0	0	0	0	0	0	0	0	0
Total Storage	844	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	11,743
Total Disposal	0	0	0	0	0	0	0	0	0	0	0
Total	844	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	11,743

Mixed Waste

Total Treatment	3,374	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	14,210
Total Storage	1,380	796	796	796	796	796	796	796	796	796	8,544
Total Disposal	149	152	154	154	154	154	154	154	154	154	1,533
Total	4,903	2,152	2,154	2,154	2,154	2,154	2,154	2,154	2,154	2,154	24,287

Low Level Waste

Total Treatment	2,702	2,564	2,564	2,564	2,564	2,564	2,564	2,564	2,564	2,564	25,778
Total Storage	2,941	3,467	3,467	3,467	3,467	3,467	3,467	3,467	3,467	3,467	34,144
Total Disposal	1,888	1,393	1,393	1,393	1,393	1,393	1,393	1,393	1,393	1,393	14,425
Total	7,531	7,424	7,424	7,424	7,424	7,424	7,424	7,424	7,424	7,424	74,347

Hazardous Waste

Total Treatment	888	805	805	805	805	805	805	805	805	805	8,133
Total Storage	1,778	1,826	1,526	1,526	1,526	1,526	1,526	1,526	1,526	1,526	15,812
Total Disposal	2,367	2,250	2,125	2,125	2,125	2,125	2,125	2,125	2,125	2,125	21,617
Total	5,033	4,881	4,456	4,456	4,456	4,456	4,456	4,456	4,456	4,456	45,562

TRU Mixed Waste

Total Treatment	635	576	576	576	576	576	576	576	576	576	5,819
Total Storage	101	101	101	101	101	101	101	101	101	101	1,010
Total Disposal	0	0	0	0	0	0	0	0	0	0	0
Total	736	677	677	677	677	677	677	677	677	677	6,829

EM-30 Waste Stream Annual Cost	19,047	16,345	15,922	15,922	15,922	15,922	15,922	15,922	15,922	15,922	162,768

Attachment II

DOE-Chicago EM-40 Annual Cost Plan

Remedial Action

Cleanup	26,419	29,575	29,123	31,790	31,736	33,467	30,066	12,947	15,020	35,788	0
Post-Project Completion S&M	0	0	670	670	535	410	713	1,826	2,116	1,685	14,743
Total	26,419	29,575	29,793	32,460	32,271	33,877	30,779	14,773	17,136	37,473	14,743

D&D

Cleanup	7,539	7,898	7,643	4,976	5,165	3,559	6,657	22,633	20,300	0	0
Post-Project Completion S&M	0	0	37	37	37	37	37	37	37	0	0
Total	7,539	7,898	7,680	5,013	5,202	3,596	6,694	22,670	20,337	0	

TOTAL DOE-Chicago EM-40	33,958	37,473	37,473	37,473	37,473	37,473	37,473	37,443	37,473	37,473	14,743

Attachment III

DOE-Chicago EM-30 Annual Volume Plan

in cubic meters

TRU Waste	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Totals
Total Treatment	0	0	0	0	0	0	0	0	0	0	0
Total Storage	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	355
Total Disposal	0	0	0	0	0	0	0	0	0	0	0

Mixed Waste											
Total Treatment	289	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	516.7
Total Storage	325	60	60	60	60	60	60	60	60	60	865
Total Disposal	6.02	6.02	6.02	6.02	6.02	6.02	6.02	6.02	6.02	6.02	60.2

Low Level Waste											
Total Treatment	1543.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	14054
Total Storage	1473.1	1392.1	1392.1	1392.1	1392.1	1392.1	1392.1	1392.1	1392.1	1392.1	14002
Total Disposal	1062.1	849.1	849.1	849.1	849.1	849.1	849.1	849.1	849.1	849.1	8704

Hazardous Waste											
Total Treatment	186.41	186.41	186.41	186.41	186.41	186.41	186.41	186.41	186.41	186.41	1864.1
Total Storage	505.61	505.31	505.31	505.31	505.31	505.31	505.31	505.31	505.31	505.31	5053.4
Total Disposal	529.91	529.31	529.31	529.31	529.31	529.31	529.31	529.31	529.31	529.31	5293.7

TRU Mixed Waste											
Total Treatment	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	19
Total Storage	3.7	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.8	24.1
Total Disposal	0	0	0	0	0	0	0	0	0	0	0

Attachment III

DOE-Chicago EM-40 Waste Volume Plan

in cubic meters

	1,997	1,998	1,999	2,000	2,001	2,002	2,003	2,004	2,005	2,006	Totals
Hazardous Waste	0	7,100	3,300	1,215	1,684	92,470	86,275	101,968	101,968	101,968	497,948
Low Level Waste	578	17,490	6,383	799	1,567	11,266	1,033	3,392	3,092	3,093	48,693
Mixed Waste	3,215	76	767	0	4	0	3	123,822	123,820	123,819	375,526

DOE-Chicago EM-40 Release Sites/Facilities Plan

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	totals
Remedial Action											
Assessment											0
Completed Facilities	32	42	2			9	12		3	18	118
Total	32	42	2	0	0	9	12	0	3	18	118
D&D											
Assessment											0
Final Completion		11	13	7	2	16	5	3	3		60
Total	0	11	13	7	2	16	5	3	3	0	60
TOTAL DOE-Chicago EM-40	32	53	15	7	2	25	17	3	6	18	178

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Ames Laboratory

Type of Project HazardousWaste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Ames Laboratory is located in the city of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Major Technical Parameters:This on-going effort provides for commercial disposal contracts. Historical averages of hazardous wastes generated include approximately 4500 kilograms of chemical wastes Ames Laboratory does not have a Part B permit and cannot treat or dispose of waste on-site. All wastes are collected in satellite accumulation areas, brought to a central staging area and packaged and shipped off-site to appropriate treatment and disposal facilities.

□

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5100	Operations	68	62	62	62	62	62	62	62	62	62	626	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Disposal	14.2	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	139.3	

Milestones

ADS Number	Description	Planned Date	Level
CH-5100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Ames Laboratory

Type of Project Hazardous Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Ames Laboratory is located in the city of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Major Technical Parameters:This Level of Effort provides for storage of Ames generated hazardous wastes. Historical averages of hazardous wastes generated include approximately 4500 kilograms of chemical wastes Ames Laboratory does not have a Part B permit and cannot treat or dispose of waste on-site. All wastes are collected in satellite accumulation areas, brought to a central staging area and packaged and shipped off-site to appropriate treatment and disposal facilities.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5100	Operations	53	60	60	60	60	60	60	60	60	60	593	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Storage	14.2	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	139.3	

Milestones

ADS Number	Description	Planned Date	Level
CH-5100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Ames Laboratory

Type of Project HazardousWaste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Ames Laboratory is located in the city of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Major Technical Parameters: This Level Of Effort provides for management of hazardous wastes prior to storage.
Historical averages of hazardous wastes generated include approximately 4500 kilograms of chemical wastes Ames Laboratory does not have a Part B permit and cannot treat or dispose of waste on-site. All wastes are collected in satellite accumulation areas, brought to a central staging area and packaged and shipped off-site to appropriate treatment and disposal facilities.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5100	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level
CH-5100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Ames Laboratory

Type of Project Low Level WasteDisposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Ames Laboratory is located in the city of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Major Technical Parameters:
A new generation of a very small quanitity of low level mixed waste is sent off-site to commercial treatment facilitities for treatment and disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5100	Operations	39	34	34	34	34	34	34	34	34	34	345	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal	4.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	23	

Milestones

ADS Number	Description	Planned Date	Level
CH-5100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Ames Laboratory

Type of Project Mixed Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Ames Laboratory is located in the town of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Major Technical Parameters:This on-going effort provides for storage of LLMW. This small quanitity of MLLW is only stored in the satelitte accumulation area until it is picked up and disposed.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5100	Operations											0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Storage											0	

Milestones

ADS Number	Description	Planned Date	Level
CH-5100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Ames Laboratory

Type of Project Mixed Low Level Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Ames Laboratory is located in the city of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Major Technical Parameters:A new generation of a very small quanitity of low level mixed waste is sent off-site to commercial treatment facilitities for treatment and disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5100	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project Hazardous Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:Hazardous wastes are sent to commercial facilities for recycling, treatment, and disposal.. ANL-E currently engages in limited on-site treatment of hazardous waste primarily consisting of preparing the waste for disposal by lab-packing or bulking. Minimal bulking, the physical mixing of compatible chemicals into a drum resulting in a homogeneous mixture, is completed due to space limitaions. ANL-E stores hazardous waste in accordance with the provisions of its pending RCRA Part B Permit in satellite accumulation areas, 90-day temporary storage areas, or permitted storage areas.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	463	400	400	400	400	400	400	400	400	400	4063	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Disposal	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	1383	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project Hazardous Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:Hazardous wastes are sent to commercial facilities for recycling, treatment, and disposal. ANL-E currently engages in limited on-site treatment of hazardous waste primarily consisting of preparing the waste for disposal by lab-packing or bulking. Minimal bulking, the physical mixing of compatible chemicals into a drum resulting in a homogeneous mixture, is completed due to space limitations. ANL-E stores hazardous waste in accordance with the provisions of its pending RCRA Part B Permit in satellite accumulation areas, 90-day temporary storage areas, or permitted storage areas.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	554	485	485	485	485	485	485	485	485	485	4919	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Storage	114	114	114	114	114	114	114	114	114	114	1140	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-East

Type of Project Hazardous Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing

Major Technical Parameters:This Level of effort supports treatment of Hazardous waste generated at ANL-E. Hazardous wastes are sent to commercial facilities for recycling, treatment, and disposal.. ANL-E currently engages in limited on-site treatment of hazardous waste primarily consisting of preparing the waste for disposal by lab-packing or bulking. Minimal bulking, the physical mixing of compatible chemicals into a drum resulting in a homogeneous mixture, is completed due to space limitaions. ANL-E stores hazardous waste in accordance with the provisions of its pending RCRA Part B Permit in satellite accumulation areas, 90-day temporary storage areas, or permitted storage areas.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	668	577	577	577	577	577	577	577	577	577	5861	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Treatment	114	114	114	114	114	114	114	114	114	114	1140	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project Low Level Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of effort provides for the disposal of LLW generated at ANL-E. Solid low level radioactive wastes are collected, sorted and compacted in preparation for shipment to US DOE's facility in Hanford, Washington for disposal. A small inventory of historical waste exists on-site. ANL-E has had an aggressive campaign to treat and dispose of cubic meters of legacy waste. FY 96 will nearly complete the campaign. Liquid low level waste is processed through an evaporator/concentrator system which solidifies the waste for disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	458	352	352	352	352	352	352	352	352	352	3626	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal	284	219	219	219	219	219	219	219	219	219	2255	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of effort provides for the storage of LLW generated at ANL-E. Solid low level radioactive wastes are collected, sorted and compacted in preparation for shipment to US DOE's facility in Hanford, Washington for disposal. A small inventory of historical waste exists on-site. ANL-E has had an aggressive campaign to treat and dispose of cubic meters of legacy waste. FY 96 will nearly complete the campaign. Liquid low level waste is processed through an evaporator/concentrator system which solidifies the waste for disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	600	538	538	538	538	538	538	538	538	538	5442	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Storage	450	369	369	369	369	369	369	369	369	369	3771	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project Low Level Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of effort provides for the treatment of LLW generated at ANL-E. Solid low level radioactive wastes are collected, sorted and compacted in preparation for shipment to US DOE's facility in Hanford, Washington for disposal. A small inventory of historical waste exists on-site. ANL-E has had an aggressive campaign to treat and dispose of 1,040 cubic meters of legacy waste. FY 96 will nearly complete the campaign. Liquid low level waste is processed through an evaporator/concentrator system which solidifies the waste for disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	1292	1133	1133	1133	1133	1133	1133	1133	1133	1133	11489	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Treatment	450	369	369	369	369	369	369	369	369	369	3771	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project Mixed Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters: This Level of effort provides for the treatment of mixed waste generated at ANL-E. ANL-E utilized the assistance of its researchers and developed small scale treatment capabilities for mixed waste. Treatment includes neutralization/precipitation for liquid inorganic mixed waste and alkali metal passivation both for reactive alkali metals. Macroencapsulation/stabilization, wet oxidation and surface decontamination are other treatments utilized.. Treatment of these small quantities of mixed waste is expected to continue as waste is generated by ongoing research activities. Large-scale treatment facilities are not planned at this time. No mixed low level waste is currently shipped to Hanford.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	1294	1129	1129	1129	1129	1129	1129	1129	1129	1129	11455	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed	Treatment	22	22	22	22	22	22	22	22	22	22	220	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project TRU Mixed Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of Effort provides for the disposal of Mixed TRU Waste . ANL-E currently stores a small inventory of transuranic wasteTransuranic waste was generated in the past from research activities at ANL-E. ANL-E also has waste management resposnibility for transuranic waste that is generated at the New Brunswick Laboratory Facility, located within the ANL-E property. ANL-E estimated the expected future quantities of tranuranic waste from the New Brunswick Laboratory to be releatively small. Small scale treatment for the mixed transuranic waste was developed in conjuction with the Site Treatment Plan required by the FFCA. Treatment includes a neutralization/precipitation process for liquid transuranic waste. Solid transuranic waste is placed into storage. The only dipsoal option for this waste stream is the Waste isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. ANL-E manages transuranic waste that originates from materials from ANL-W. It is transported in shielded Type-B shipping casks certified by DOT since it is remote-handled, surface radiation dose greater than 200 millirem/hour.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU Mixed	Disposal	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project TRU Mixed Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

x	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of Effort provides for the treatment of Mixed TRU Waste . Transuranic waste was generated in the past from research activities at ANL-E. ANL-E also has waste management resposnibility for transuranic waste that is generated at the New Brunswick Laboratory Facility, located within the ANL-E property. ANL-E estimated the expected future quantities of tranuranic waste from the New Brunswick Laboratory to be releatively small. Small scale treatment for the mixed transuranic waste was developed in conjuction with the Site Treatment Plan required by the FFCA. Treatment includes a neutralization/precipitation process for liquid transuranic waste. Solid transuranic waste is placed into storage. The only dipsoal option for this waste stream is the Waste isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. ANL-E manages transuranic waste that originates from materials from ANL-W. It is transported in shielded Type-B 'ipping casks certified by DOT since it is remote-handled, surface radiation dose greater than 200 millirem/hour.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	635	576	576	576	576	576	576	576	576	576	5819	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU Mixed	Treatment	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	19	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-East

Type of Project TRU Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of Effort provides for the disposal of Mixed TRU Waste and TRU waste . ANL-E currently stores a small inventory of transuranic wasteTransuranic waste was generated in the past from research activities at ANL-E. ANL-E also has waste management resposnibility for transuranic waste that is generated at the New Brunswick Laboratory Facility, located within the ANL-E property. ANL-E estimated the expected future quantities of tranuranic waste from the New Brunswick Laboratory to be releatively small. Small scale treatment for the mixed transuranic waste was developed in conjuction with the Site Treatment Plan required by the FFCA. Treatment includes a neutralization/precipitation process for liquid transuranic waste. Solid transuranic waste is placed into storage. The only dipsoal option for this waste stream is the Waste isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. ANL-E manages transuranic waste that originates from materials from ANL-W. It is transported in shielded Type-B shipping casks certified by DOT since it is remote-handled, surface radiation dose greater than 00 millirem/hour.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU	Disposal	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project TRU Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters:This Level of Effort provides for the storage of Mixed TRU Waste and TRU waste . ANL-E currently stores a small inventory of transuranic wasteTransuranic waste was generated in the past from research activities at ANL-E. ANL-E also has waste management resposnibility for transuranic waste that is generated at the New Brunswick Laboratory Facility, located within the ANL-E property. ANL-E estimated the expected future quantities of tranuranic waste from the New Brunswick Laboratory to be releatively small. Small scale treatment for the mixed transuranic waste was developed in conjuction with the Site Treatment Plan required by the FFCA. Treatment includes a neutralization/precipitation process for liquid transuranic waste. Solid transuranic waste is placed into storage. The only dipsoal option for this waste stream is the Waste isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. ANL-E manages transuranic waste that originates from materials from ANL-W. It is transported in shielded Type-B shipping casks certified by DOT since it is remote-handled, surface radiation dose greater than 200 millirem/hour.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	427	397	397	397	397	397	397	397	397	397	4000	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU	Storage	11	11	11	11	11	11	11	11	11	11	110	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East

Type of Project TRU Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters: This Level of Effort provides for the treatment of Mixed TRU Waste and TRU waste . Transuranic waste was generated in the past from research activities at ANL-E. ANL-E also has waste management responsibility for transuranic waste that is generated at the New Brunswick Laboratory Facility, located within the ANL-E property. ANL-E estimated the expected future quantities of transuranic waste from the New Brunswick Laboratory to be relatively small. Small scale treatment for the mixed transuranic waste was developed in conjunction with the Site Treatment Plan required by the FFCA. Treatment includes a neutralization/precipitation process for liquid transuranic waste. Solid transuranic waste is placed into storage. The only disposal option for this waste stream is the Waste isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. ANL-E manages transuranic waste that originates from materials from ANL-W. It is transported in shielded Type-B shipping casks certified by DOT since it is remote-handled, surface radiation dose greater than 200 millirem/hour.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1301-B	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level
CH-1301-B	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory

Type of Project Waste Ops Facility Upgrade (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations under the management of the University of Chicago. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences, including materials science and computing.

Major Technical Parameters: Supports the Waste Operations Facility (Bldg. 306) rehabilitation and regulatory upgrade. The rehab will significantly decrease the risks associated with rad/mixed/TRU waste handling and treatment. It will provide adequate and safe staging area for rad waste prior to shipment and provide a safe area to sort TRU waste in a glovebox. Greater control of access to the mixed waste treatment area will decrease the likelihood of transport of contamination outside of the waste processing area. In addition, it provides for the upgrade of the fire alarm and sprinkler system as required by regulation.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1303	Construction	1102	0	0	0	0	0	0	0	0	0	1102	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
multi	Treat/dispose	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level
CH-1303	Construction Complete	30-Sep-97	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Hazardous Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of effort supports hazardous waste storage generated at ANL-W. Hazardous waste management operations include the identification of potential environmental concerns and problems, investigations, and review of routine hazardous waste disposal operations. Hazardous waste is kept in satellite accumulation areas, 90-day temporary storage areas, or permitted storage areas. Routinely generated hazardous waste is collected from the generator and usually stored in a 90-day temporary storage area at ANL-W or at INEL. It is subsequently disposed of at an off-site permitted disposal facilities. There is no treatment of hazardous waste at ANL-W.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	48	48	48	48	48	48	48	48	48	48	480	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Storage	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	44.1	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Hazardous Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of effort supports hazardous waste treatment of waste generated at ANL-W. Hazardous waste management operations include the identification of potential environmental concerns and problems, investigations, and review of routine hazardous waste disposal operations. Hazardous waste is kept in satellite accumulation areas, 90-day temporary storage areas, or permitted storage areas. Routinely generated hazardous waste is collected from the generator and usually stored in a 90-day temporary storage area at ANL-W or at INEL. It is subsequently disposed of at an off-site permitted disposal facilities. There is no treatment of hazardous waste at ANL-W.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	78	78	78	78	78	78	78	78	78	78	780	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Treatment	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	44.1	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Low Level Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports disposal of LLW generated by ANL-W. Low level waste management operations is composed of the collection, treatment and storage of low level waste at ANL-W. Waste is shipped either to the Radioactive Waste Management Complex or the Waste Experimental Reduction Facility, both at INEL with minimal cost to EM-30 at ANL-W. Low level radioactive liquid waste is processed through the Radioactive Liquid Waste Treatment Facility that has operated successfully at ANL-W since 1983. It has resulted in volume reduction of solid waste and elimination of radioactive liquid waste discharge. All radioactive waste water from facilities at the ANL-W site is sent to the Radioactive Liquid Waste Treatment Facility for evaporation. The resulting shielded hot air drum evaporators are then disposed of as low-level waste at the Radioactive Waste Management Complex. Low level waste and recoverable nuclear materials are presently stored in the Radioactive Scrap and Waste Facility. This low level waste has been stored since 1964. The plan is to relocate all material to new liners, that have cathodic protection installed, to provide protection from release of radioactive material to the environment due to the age of the original liners. Approximately 74 liners will be relocated in each fiscal year to maintain compliance with the RSWWF RCRA Permit. This provides the needed liners that (1) allow future mixed waste to be placed in the RSWF in compliance with the RCRA Permit, (2) the continuation of the relocation ‘forts for low level non-mixed waste and recoverable nuclear materials awaiting reprocessing to be stored without a high risk of a potential release to the vironment due to the age and corrosion of the old liners that now exist.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal	282	282	282	282	282	282	282	282	282	282	2820	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports disposal of LLW generated by ANL-W. Low level waste management operations is composed of the collection, treatment and storage of low level waste at ANL-W. Waste is shipped either to the Radioactive Waste Management Complex or the Waste Experimental Reduction Facility, both at INEL with minimal cost to EM-30 at ANL-W. Low level radioactive liquid waste is processed through the Radioactive Liquid Waste Treatment Facility that has operated successfully at ANL-W since 1983. It has resulted in volume reduction of solid waste and elimination of radioactive liquid waste discharge. All radioactive waste water from facilities at the ANL-W site is sent to the Radioactive Liquid Waste Treatment Facility for evaporation. The resulting shielded hot air drum evaporators are then disposed of as low-level waste at the Radioactive Waste Management Complex. Low level waste and recoverable nuclear materials are presently stored in the Radioactive Scrap and Waste Facility. This low level waste has been stored since 1964. The plan is to relocate all material to new liners, that have cathodic protection installed, to provide protection from release of radioactive material to the environment due to the age of the original liners. Approximately 74 liners will be relocated in each fiscal year to maintain compliance with the RSWWF RCRA Permit. This ovides the needed liners that (1) allow future mixed waste to be placed in the RSWF in compliance with the RCRA Permit, (2) the continuation of the relocation efforts for low level non-mixed waste and recoverable nuclear materials awaiting reprocessing to be stored without a high risk of a potential release to the environment due to the age and corrosion of the old liners that now exist.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	1363	1921	1921	1921	1921	1921	1921	1921	1921	1921	18652	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Storage	394	394	394	394	394	394	394	394	394	394	3940	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Low Level Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports disposal of LLW generated by ANL-W. Low level waste management operations is composed of the collection, treatment and storage of low level waste at ANL-W. Waste is shipped either to the Radioactive Waste Management Complex or the Waste Experimental Reduction Facility, both at INEL with minimal cost to EM-30 at ANL-W. Low level radioactive liquid waste is processed through the Radioactive Liquid Waste Treatment Facility that has operated successfully at ANL-W since 1983. It has resulted in volume reduction of solid waste and elimination of radioactive liquid waste discharge. All radioactive waste water from facilities at the ANL-W site is sent to the Radioactive Liquid Waste Treatment Facility for evaporation. The resulting shielded hot air drum evaporators are then disposed of as low-level waste at the Radioactive Waste Management Complex. Low level waste and recoverable nuclear materials are presently stored in the Radioactive Scrap and Waste Facility. This low level waste has been stored since 1964. The plan is to relocate all material to new liners, that have cathodic protection installed, to provide protection from release of radioactive material to the environment due to the age of the original liners. Approximately 74 liners will be relocated in each fiscal year to maintain compliance with the RSWWF RCRA Permit. This provides the needed liners that (1) allow future mixed waste to be placed in the RSWF in compliance with the RCRA Permit, (2) the continuation of the relocation efforts for low level non-mixed waste and recoverable nuclear materials awaiting reprocessing to be stored without a high risk of a potential release to the environment due to the age and corrosion of the old liners that now exist.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Treatment	394	394	394	394	394	394	394	394	394	394	3940	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Mixed Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters: This Level of Effort supports mixed waste disposal at ANL-W. Mixed low level waste is kept within radiological controlled areas and is also controlled within RCRA regulated areas, i.e., satellite accumulation areas, 90 day temporary storage areas or permitted storage areas within those radiological controlled areas at ANL-W and the INEL storage facility. As required under the FFCA, the treatment and storage of mixed waste is delineated in the Site Treatment Plan.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed	Disposal	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Mixed Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters: This Level of Effort supports mixed waste storage at ANL-W. Mixed low level waste is kept within radiological controlled areas and is also controlled within RCRA regulated areas, i.e., satellite accumulation areas, 90 day temporary storage areas or permitted storage areas within those radiological controlled areas at ANL-W and the INEL storage facility. As required under the FFCA, the treatment and storage of mixed waste is delineated in the Site Treatment Plan.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	602	93	93	93	93	93	93	93	93	93	1439	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed	Storage	285	20	20	20	20	20	20	20	20	20	465	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project Mixed Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters: This Level of Effort supports mixed waste treatment at ANL-W. Mixed low level waste is kept within radiological controlled areas and is also controlled within RCRA regulated areas, i.e., satellite accumulation areas, 90 day temporary storage areas or permitted storage areas within those radiological controlled areas at ANL-W and the INEL storage facility. As required under the FFCA, the treatment and storage of mixed waste is delineated in the Site Treatment Plan.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	2071	66	66	66	66	66	66	66	66	66	2665	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
MW	Treatment	265	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	276.7	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project TRU Mixed Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports disposal activities for TRU mixed waste generated at ANL-W. Routine shipments of TRU waste occur from ANL-W to the Radioactive Waste Management complex at INEL for storage and eventual disposal at WIPP. TRU waste, contaminated with elemental sodium is moved to the Radioactive Scrap and Waste Facility (RSWF). This facility has a storage capacity of 6800 cubic feet. ANL-W has obtained conditional approval from the WIPP Waste Acceptance Committee to ship transuranic waste to WIPP upon its opening.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
		0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project TRU Mixed Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports storage activities for TRU mixed waste generated at ANL-W. Routine shipments of TRU waste occur from ANL-W to the Radioactive Waste Management complex at INEL for storage and eventual disposal at WIPP. TRU waste, contaminated with elemental sodium is moved to the Radioactive Scrap and Waste Facility (RSWF). This facility has a storage capacity of 6800 cubic feet. ANL-W has obtained conditional approval from the WIPP Waste Acceptance Committee to ship transuranic waste to WIPP upon its opening.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	101	101	101	101	101	101	101	101	101	101	1010	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	18	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project TRU Mixed Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

x	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports treatment activities for TRU mixed waste generated at ANL-W. Routine shipments of TRU waste occur from ANL-W to the Radioactive Waste Management complex at INEL for storage and eventual disposal at WIPP. TRU waste, contaminated with elemental sodium is moved to the Radioactive Scrap and Waste Facility (RSWF). This facility has a storage capacity of 6800 cubic feet. ANL-W has obtained conditional approval from the WIPP Waste Acceptance Committee to ship transuranic waste to WIPP upon its opening.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
	operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU Mixed	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project TRU Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports disposal activities for TRU waste generated at ANL-W. Routine shipments of TRU waste occur from ANL-W to the Radioactive Waste Management complex at INEL for storage and eventual disposal at WIPP. TRU waste, contaminated with elemental sodium is moved to the Radioactive Scrap and Waste Facility (RSWF). This facility has a storage capacity of 6800 cubic feet. ANL-W has obtained conditional approval from the WIPP Waste Acceptance Committee to ship transuranic waste to WIPP upon its opening.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
		0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project TRU Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports storage activities for TRU waste generated at ANL-W. Routine shipments of TRU waste occur from ANL-W to the Radioactive Waste Management complex at INEL for storage and eventual disposal at WIPP. TRU waste, contaminated with elemental sodium is moved to the Radioactive Scrap and Waste Facility (RSWF). This facility has a storage capacity of 6800 cubic feet. ANL-W has obtained conditional approval from the WIPP Waste Acceptance Committee to ship transuranic waste to WIPP upon its opening.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	417	814	814	814	814	814	814	814	814	814	7743	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU	Storage	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	245	

Milestones

ADS Number	Description	Planned Date	Level
CH-1601	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory-West

Type of Project TRU Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Argonne National Laboratory-West is the most eastern of the INEL facilities. It is located 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago. Constructed for the purpose of researching and developing liquiid metal fast breeder reactor technology, the Laboratory became operational in phases beginning in 1959.

Major Technical Parameters:This Level of Effort supports treatment activities for TRU waste generated at ANL-W. Routine shipments of TRU waste occur from ANL-W to the Radioactive Waste Management complex at INEL for storage and eventual disposal at WIPP. TRU waste, contaminated with elemental sodium is moved to the Radioactive Scrap and Waste Facility (RSWF). This facility has a storage capacity of 6800 cubic feet. ANL-W has obtained conditional approval from the WIPP Waste Acceptance Committee to ship transuranic waste to WIPP upon its opening.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1601	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
TRU	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Hazardous Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:The Level of Effort provides for Hazardous waste off-site disposal costs. Hazardous waste is collected from 90-day accumulation areas throughout the lab. The waste is sorted and prepared for disposal. Waste includes various chemcials, contaminated soil and building structures contaminated with lead paint. The waste is lab-packed by a vendor, or placed in 55 gallon drums. Hazardous wastes are then sent to commercial facilities for recycling, treatment, and final disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	723	933	933	933.	933	933	933	933	933	933	9120	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Disposal	55	55	55	55	55	55	55	55	55	55	550	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Hazardous Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:This Level of Effort provides for storage of hazardous materials generated by BNL. Hazardous waste is collected from hundreds of satellite accumulation areas throughout the lab. The waste is sorted and prepared for disposal. Waste includes various chemcials, contaminated soil and building structures contaminated with lead paint. The waste is lab-packed or placed in 55 gallon drums. Hazardous wastes are then sent to commercial facilities for recycling, treatment, and final disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	55	55	55	55	55	55	55	55	55	55	550	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Storage	465	474	474	474	474	474	474	474	474	474	4731	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Hazardous Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters: The Level of Effort provides for activities related to the on-site treatment of hazardous wastes. Hazardous waste is shipped off-site for treatment. No RCRA treatment is performed on-site, also lab packing activities are performed in conjunction with the disposal services and are therefore included with disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Low Level Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:This Level of Effort provides for the disposal of low level waste generated at BNL. Low level radioactive waste includes both solid and liquid waste. Solid waste includes activated metals, fissionable materials, accelerator targets and other miscellaneous waste. It is collected and sorted, packaged and prepared for transport primarily to DOE's facility in Hanford, Washington for disposal. Additional funding in FY97 will wnable legacy waste to be disposed.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	768	372	372	372	372	372	372	372	372	372	4116	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal	373	227	227	227	227	227	227	227	227	227	2416	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:Low level radioactive waste includes both solid and liquid waste. Solid waste includes activated metals, fissionable materials, accelerator targets and other miscellaneous waste. It is collected and sorted, packaged and prepared for transport to DOE's facility in Hanford, Washington for disposal. Liquid waste is processed through an evaporator/concentrator. The evaporator distillate is solidified and then disposed as solid waste. There is also some legacy waste stored at the TSD that needs to be characterized and packaged prior to disposal.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	124	126	126	126	126	126	126	126	126	126	1258	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Storage	506	434	434	434	434	434	434	434	434	434	4412	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Low Level Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc.
Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:Low level radioactive waste includes both solid and liquid waste. Solid waste includes activated metals, fissionable materials, accelerator targets and other miscellaneous waste. This includes about 5000-7000 cubic feet of solid low level wastes and 30-50000 gallons of liquid LLW. It is collected and sorted, packaged and prepared for transport primarily to DOE's facility in Hanford, Washington for disposal. Liquid waste is processed through a leased mobile processing system.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	785	800	800	800	800	800	800	800	800	800	7985	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Treatment	506	434	434	434	434	434	434	434	434	434	4412	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Mixed Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:This level of effort provides for the off-site disposal of mixed waste generated by EM-40 activities. Relatively small quantities of mixed waste are generated by research activities at BNL. The majority of mixed waste that is generated is from restoration activities managed by EM-40. Waste management is responsible for disposing the waste, although this is funded by EM-40. Use of commercial storage/disposal facilities for mixed low level wastes such as Envirocare in Utah are under consideration. A Site Treatment Plan as required by FFCA was submitted to the state for their review and approval in March, 1995.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	77	77	77	77	77	77	77	77	77	77	770	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed	Disposal	4	4	4	4	4	4	4	4	4	4	40	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Mixed Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:This level of effort provides for activities associated with storage of BNL generated mixed waste. Relatively small quantities of mixed waste are generated by research activities at BNL. The majority of mixed waste that is generated is from restoration activities managed by EM-40. Waste management is responsible for disposing the waste, although this is funded by EM-40. Use of commercial storage/disposal facilities for mixed low level wastes such as Envirocare in Utah are under consideration. A Site Treatment Plan as required by FFCA was submitted to the state for their review and approval in March, 1995.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	6	6	6	6	6	6	6	6	6	6	60	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed	Storage	4	4	4	4	4	4	4	4	4	4	40	

Milestones

ADS Number	Description	Planned Date	Level
CH-2222	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory

Type of Project Mixed Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Brookhaven National Laboratory (BNL) is located in Upton, New York, on Long Island, about 75 miles from New York City. It is managed through the Department of Energy (DOE) Chicago Operations Office by Associated Universities, Inc. Facilities located at the BNL are used to carry out both basic and applied research in high energy and nuclear physics; basic energy sciences emphasizing fundamental research on biological, chemical, and physical phenomena underlying energy-related transfer, conversion, and storage systems; and in the life sciences, nuclear medicine, and medical applications of nuclear techniques

Major Technical Parameters:This level of Effort provides for support of off-site treatment of BNL generated mixed waste. Relatively small quantities of mixed waste are generated by research activities at BNL. The majority of mixed waste that is generated is from restoration activities managed by EM-40. Waste management is responsible for disposing the waste, although this is funded by EM-40. Use of commercial storage/disposal facilities for mixed low level wastes such as Envirocare in Utah are under consideration. A Site Treatment Plan as required by FFCA was submitted to the state for their review and approval in March, 1995.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2222	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Fermi National Accelerator Laboratory

Type of Project Hazardous WasteDisposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Fermi National Accelerator Laboratory (Fermilab) is located in Batavia, Illinois, about 30 miles west of the City of Chicago. The Fermi National Accelerator Laboratory began its mission as a single-program research and development facility for the Department of Energy (DOE) in 1972 when the first accelerator at the laboratory began operations. The Fermi National Accelerator Laboratory's mission is to conduct research in high-energy physics

Major Technical Parameters:This Level of Effort provides for disposal of waste off-site by commercial vendors. Fermilab generates hazardous wastes, as defined by RCRA regulations (40 CFR Part 261) incident to accelerator operation and maintenance. Fermilab has a RCRA permit to operate a hazardous waste storage facility. The permit was issued by the Illinois Environmental Protection Agency (IEPA) and the United States Environmental Protection Agency (EPA). This function will be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-4100	Operations	548	271	146	146	146	146	146	146	146	146	1987	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Disposal	250	250	250	250	250	250	250	250	250	250	2500	

Milestones

ADS Number	Description	Planned Date	Level
CH-4100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Fermi National Accelerator Laboratory

Type of Project Hazardous Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Fermi National Accelerator Laboratory (Fermilab) is located in Batavia, Illinois, about 30 miles west of the City of Chicago. The Fermi National Accelerator Laboratory began its mission as a single-program research and development facility for the Department of Energy (DOE) in 1972 when the first accelerator at the laboratory began operations. The Fermi National Accelerator Laboratory's mission is to conduct research in high-energy physics

Major Technical Parameters: This Level of Effort provides for activities associated with treatment of Hazardous wastes. Fermilab collects and disposes of approximately 250000 liters of regulated chemical wastes annually.Fermilab generates hazardous wastes, as defined by RCRA regulations (40 CFR Part 261) incident to accelerator operation and maintenance. Fermilab has a RCRA permit to operate a hazardous waste storage facility. The permit was issued by the Illinois Environmental Protection Agency (IEPA) and the United States Environmental Protection Agency (EPA). This function wil be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-4100	Operations	0	0	0	0	0	0	0	0	0	0	0	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Treatment	0	0	0	0	0	0	0	0	0	0	0	

Milestones

ADS Number	Description	Planned Date	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Fermi National Accelerator Laboratory

Type of Project Low Level Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Fermi National Accelerator Laboratory (Fermilab) is located in Batavia, Illinois, about 30 miles west of the City of Chicago. The Fermi National Accelerator Laboratory began its mission as a single-program research and development facility for the Department of Energy (DOE) in 1972 when the first accelerator at the laboratory began operations. The Fermi National Accelerator Laboratory's mission is to conduct research in high-energy physics

Major Technical Parameters:Fermilab generates low level radioactive and very small quantities of low level mixed wastes as a consequence of particle accelerator operation and related support activities. Low level radioactive waste is shipped to DOE's Hanford, Washington facility for disposal. Operations involve the routine handling of low-level radioactive wastes and the routine processing of radioactively contaminated NaCl. This Level of Effort provides for the activities associated with disposal of LLW generated at Fermilab. Approximately 25 cubic meters are disposed of in a typical year.This function will be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-4100	Operations	239	237	237	237	237	237	237	237	237	237	2372	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal	48	48	48	48	48	48	48	48	48	48	480	

Milestones

ADS Number	Description	Planned Date	Level
CH-4100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Fermi National Accelerator Laboratory

Type of Project Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Fermi National Accelerator Laboratory (Fermilab) is located in Batavia, Illinois, about 30 miles west of the City of Chicago. The Fermi National Accelerator Laboratory began its mission as a single-program research and development facility for the Department of Energy (DOE) in 1972 when the first accelerator at the laboratory began operations. The Fermi National Accelerator Laboratory's mission is to conduct research in high-energy physics

Major Technical Parameters:Fermilab generates low level radioactive and very small quantities of low level mixed wastes as a consequence of particle accelerator operation and related support activities. Low level radioactive waste is shipped to DOE's Hanford, Washington facility for disposal. Operations involve the routine handling of low-level radioactive wastes and the routine processing of radioactively contaminated NaCl. The Level of Effort provides for activities associated with the storage of LLW.These activities will be transferred to the landlord, the Office of Energy Research in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-4100	Operations	59	64	64	64	64	64	64	64	64	64	635	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Storage	120	120	120	120	120	120	120	120	120	120	1200	

Milestones

ADS Number	Description	Planned Date	Level
CH-4100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Fermi National Accelerator Laboratory

Type of Project Low Level Waste Treatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:The Fermi National Accelerator Laboratory (Fermilab) is located in Batavia, Illinois, about 30 miles west of the City of Chicago. The Fermi National Accelerator Laboratory began its mission as a single-program research and development facility for the Department of Energy (DOE) in 1972 when the first accelerator at the laboratory began operations. The Fermi National Accelerator Laboratory's mission is to conduct research in high-energy physics

Major Technical Parameters This Level of Effort provides for the activities associated with treatment of LLW including processing prior to off-site shipment, sorting of solids, screening, surveying and inspection. Liquids are solidified. Volume/Void space reduction takes place via compaction, crushing and bulk cutting. Fermilab generates low level radioactive and very small quantities of low level mixed wastes as a consequence of particle accelerator operation and related support activities. Low level radioactive waste is shipped to DOE's Hanford, Washington facility for disposal. Operations involve the routine handling of low-level radioactive wastes and the routine processing of radioactively contaminated NaCl. This function will be transferred to the Landlord, the Office of Energy Research in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-4100	Operations	189	179	179	179	179	179	179	179	179	179	1800	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Treatment	120	120	120	120	120	120	120	120	120	120	1200	

Milestones

ADS Number	Description	Planned Date	Level
CH-4100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Hazardous Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters:This Level of effort provides for disposal of Hazardous wastes generated at PPPL. Transportation and disposal of RCRA and New Jersey hazardous wastes is subcontracted. PPPL generates approximately 150,000 lbs. of hazardous waste annually. No treatment of RCRA or New Jersey regulated waste is performed. This function will be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	504	523	523	523	523	523	523	523	523	523	5211	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Disposal	68	68	68	68	68	68	68	68	68	68	680	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Hazardous Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters:This Level of Effort provides for storage of Hazardous waste at PPPL. Transportation and disposal of RCRA and New Jersey hazardous wastes is subcontracted. PPPL generates approximately 150,000 lbs. of hazardous waste annually. This function will be returned to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	285	386	386	386	386	386	386	386	386	386	3759	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Storage	68	68	68	68	68	68	68	68	68	68	680	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Hazardous WasteTreatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters:This Level of Effort provides for the costs associated with treatment of waste generated at PPPL. Transportation and disposal of RCRA and New Jersey hazardous wastes is subcontracted. PPPL generates approximately 150,000 lbs. of hazardous waste annually. No treatment of RCRA or New Jersey regulated waste is performed on-site. This function will be returned to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	142	150	150	150	150	150	150	150	150	150	1492	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Hazardous	Treatment	68	68	68	68	68	68	68	68	68	68	680	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Low Level Waste Disposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters:This Level of Effort provides for support for disposal activities at PPPL. Low Level Radioactive Waste Low level waste is collected and prepared for disposal. Waste is compacted, solidified or dismantled. Waste is then stored in the Laboratory's Radioactive Waste Storage Area prior to shipment for off-site disposal. PPPL generates approximately 2500 cubic feet of low level radioactive waste annually. No liquid low level radioactive waste is processed at PPPL. PPPL is required to specially design and frabicate tritium waste containers for its waste to meet the disposal requirements of the DOE Hanford, Washington, disposal site. Annual fabrication consists of approximately 20 Type B and 6 Type A containers for this purpose. Tye A containers are designed to contain up to 1000 curies of absorbed tritiated water and the type B containers are designed to absorb up to 25,000 curies of tritiated water. This nction will be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	384	398	398	398	398	398	398	398	398	398	3966	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal	71	71	71	71	71	71	71	71	71	71	710	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters:This Level of Effort provides for storage activities for LLW at PPPL. Low Level Radioactive Waste Low level waste is collected and prepared for disposal. Waste is compacted, solidified or dismantled. Waste is then stored in the Laboratory's Radioactive Waste Storage Area prior to shipment for off-site disposal. PPPL generates approximately 2500 cubic feet of low level radioactive waste annually. No liquid low level radioactive waste is processed at PPPL. PPPL is required to specially design and frabicate tritium waste containers for its waste to meet the disposal requirements of the DOE Hanford, Washington, disposal site. Annual fabrication consists of approximately 20 Type B and 6 Type A containers for this purpose. Tye A containers are designed to contain up to 1000 curies of absorbed tritiated water and the type B containers are designed to absorb up to 25,000 curies of tritiated water. This function will be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	753	775	775	775	775	775	775	775	775	775	7728	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level Waste	Storage	71	71	71	71	71	71	71	71	71	71	710	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Low Level WasteTreatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters:Low Level Radioactive Waste is collected and prepared for disposal. Generated by research operations at PPPL, the majority of waste is generated by TFTR. The predominant radionuclide of concern is tritium. Approximately 2,500 cubic feet is generated. Waste is compacted, solidified or dismantled. Waste is then stored in the Laboratory's Radioactive Waste Storage Area prior to shipment for off-site disposal. No liquid low level radioactive waste is processed at PPPL. PPPL is required to specially design and frabicate tritium waste containers for its waste to meet the disposal requirements of the DOE Hanford, Washington, disposal site. Annual fabrication consists of approximately 20 Type B and 6 Type A containers for this purpose. Tye A containers are designed to contain up to 1000 curies of absorbed tritiated water and the type B containers are designed to absorb up to 25,000 curies of tritiated ater. This function will be transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	436	452	452	452	452	452	452	452	452	452	4504	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Treatment	71	71	71	71	71	71	71	71	71	71	710	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Mixed Low Level WasteDisposal (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters : This Level of Effort provides for the disposal of mixed waste generated at PPPL at off-site locations. .Approximately 100 cubic feet of mixed low level waste is generated annually. This function will be transfrred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	60	62	64	64	64	64	64	64	64	64	634	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal	2	2	2	2	2	2	2	2	2	2	20	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Mixed Low Level Waste Storage (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters : This Level of Effort provides for the collection and storage of mixed waste generated at.PPPL .Approximately-100 cubic feet of mixed low level waste is generated annually. This function will be transfrred to the landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	56	70	70	70	70	70	70	70	70	70	686	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Storage	2	2	2	2	2	2	2	2	2	2	20	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory

Type of Project Mixed Low Level WasteTreatment (select one from attachment II categories)

Managing or Funding Program (check one or more)

X	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations:Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres that has been leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source

Major Technical Parameters : This Level of Effort provides for the treatment of RCRA and New Jersey permitted waste off-site. Approximately 100 cubic feet of mixed low level waste is generated annually. This function is transferred to the Landlord in FY 2000.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-3100	Operations	9	9	9	9	9	9	9	9	9	9	90	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Treatment	2	2	2	2	2	2	2	2	2	2	20	

Milestones

ADS Number	Description	Planned Date	Level
CH-3100	The management of this function is transferred to the landlord	1-Oct-00	1

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Ames - Program Management

Type of Project Remedial Action - Cleanup (Level of Effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Ames laboratory is located in the city of Ames, Iowa.

Major Cost Driving Technical Parameters: The function of this project is to provide program level management tools, plans, documents and support necessary for successful execution of the environmental restoration project, without which the program cannot operate. Drivers are the Iowa Administrative Code Rule 567 Chapter 133, CERCLA, RCRA, OSHA, and other state and federal regulations and rules, DOE Orders, Laboratory plans, policies and procedures.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-5210	Operations	50	50	50	50	50	50	50	50	50	50	500	

NOTES:
1. Costs per FY 98 ADS submission assuming effort will be complete in FY 98.
2. costs as shown

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete

Milestones

ADS Number	Description	FY	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name CH Surveillance and Maintenance - Ames

Type of Project Remedial Action - Post-Project Completion Surveillance and Maintenance (level of effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Project is a chemical disposal site in Ames Iowa no longer used for disposal.

Major Cost Driving Technical Parameters: DOE is responsible for quarterly groundwater monitoring and reporting of results per agreements with the city of Ames.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-8210	Operations	231	238									469	

NOTE: Costs per FY 98 ADS submission assuming effort will be complete by FY 98.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities			1									1	

Milestones

ADS Number	Description	FY	Level
CH-8210	Submit 1st Qtr FY 97 Ames Water Quality Rpt to IA Regulators	1997	2
CH-8210	Submit 2nd Qtr FY 97 Ames Water Quality Rpt to IA Regulators	1997	2
CH-8210	Submit 3rd Qtr FY 97 Ames Water Quality Rpt to IA Regulators	1997	2
CH-8210	Submit 4th Qtr FY 97 Ames Water Quality Rpt to IA Regulators	1997	2
CH-8210	Submit 1st Qtr FY 98 Ames Water Quality Rpt to IA Regulators	1998	2
CH-8210	Submit 2nd Qtr FY 98 Ames Water Quality Rpt to IA Regulators	1998	2
CH-8210	Submit 3rd Qtr FY 98 Ames Water Quality Rpt to IA Regulators	1998	2
CH-8210	Submit 4th Qtr FY 98 Ames Water Quality Rpt to IA Regulators	1998	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, CP-5 Research Reactor D&D Project

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. The reactor facility is located on Argonne property in a shut down, defueled and drained mode pending funding for decommissioning. There are 10 release sites contained within the reactor facility that is a part of this project.

Major Cost Driving Technical Parameters: This category 3 nuclear facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring. A cooperative strategic alliance is being developed to use this work as a model for other D&D activities.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operations	3,000	1,757	2,625	705							8,087	

NOTE: Costs per FY 98 Risk Data Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal			767								767	
Low Level	Disposal			37								37	
	Facilities Final Completion				7							7	

NOTE: Volumes based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	CP5 D&D Complete	2000	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, 60" Cyclotron D&D

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. This project contains 6 release sites at building 211's 60" Cyclotron requiring decontamination.

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operations		1,913	528								2,441	

NOTE: Costs per FY 98 Risk Data Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal			165								165	
	Facilities Final Completion			6								6	

NOTE: Volume based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	60" Cyclotron D&D Complete	1999	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, FNG/ZPR/ATSR Research Facilities

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. The Fast Neutron Generator, Zero Power Reactor and the Argonne Thermal Source Reactor facilities are located in the Building 314/315/316 area on Argonne property in a shut down mode pending funding for decommissioning. The facilities contain 10 release sites as part of this project.

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities activities include health physics coverage of field activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operations				274	1,878	2,391	2,391	2,034			8,968	

NOTE: Costs per FY 98 Risk Data Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal					1		3	2			6	
Low Level	Disposal					200		500	300			1,000	
	Facilities Final Completion					2		5	3			10	

NOTE: Volumes based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	FNG D&D Complete	2001	1
CH-1441	ZPR D&D Complete	2003	1
CH-1441	ATSR D&D Complete	2004	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, Building 301 Hot Cells D&D Project

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. The Hot Cells facility is located on Argonne property in an essentially abandoned mode pending funding for decommissioning. There are 12 release sites associated with this project which is only in a surveillance and maintenance program pending further funding.

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities activities include health physics coverage of field activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operatons		695	1,268	896	1,553	550					4,962	

NOTE: Costs per FY 98 Risk Data Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal					200						200	
Hazardous	Disposal					65						65	
	Facilities Final Completion						12					12	

NOTE: Volumes based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	Bldg 301 Hot Cells D&D Complete	2002	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, Building 579 Waste Ion Exchange Facility D&D

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. This project contains 3 release sites at this liquid processing facility, with waste processisng equipment requiring D&D..

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities include health physics coverage of field activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operations		406									406	

NOTE: Costs per Fy 98 Risk Data Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal		8									8	
	Facilities Final Completion		3									3	

NOTE: Volume based on rebaselined scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	Bldg 579 Waste Ion Exchange Facility D&D Complete	1998	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, JANUS Research Reactor D&D Project

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. The reactor facility is located on Argonne property in a shut down, defueled and drained mode pending funding for decommissioning. The Janus facility contains a small defueled research reactor, support facilities and systems consisting of 8 release sites.

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities include health physics coverage of field activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operatons	2,581	943									3,524	

NOTE: Costs per Fy 98 Risk Data Sheets adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal		76									76	
Low Level	Disposal		93									93	
Hazardous	Disposal		6									6	
	Facilities Final Completion		8									8	

NOTE: Volumes based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	JANUS D&D Complete	1998	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, Juggernaut Research Reactor D&D Project

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. The reactor facility is located on Argonne property in a shut down, defueled and drained mode pending funding for decommissioning. The Juggernaut facility contains a small defueled research reactor, support facilities and systems, consisting of 4 release sites.

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities include health physics coverage of field activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operatons				1,830	918	57					2,805	

NOTE: Costs per FY 98 Risk Data Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal					3						3	
Low Level	Disposal					101						101	
	Facilities Final Completion						4					4	

NOTE: Volumes based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	Juggernaut D&D Complete	2002	1

Attachment IV
Supporting Data (Project Definition Worksheet)

oject Name Argonne National Laboratory - East, D&D Program Planning & Technical Support

Type of Project Decommissioning - Cleanup (Level of Effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago.

Major Cost Driving Technical Parameters: This project provides for the management and oversight functions necessary to administer the D&D ANL program, including Conduct of Operations, QA and programmatic functions required by DOE and other regulatory agencies.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operations	456	329	329	329	329	329	329	329			2,759	

NOTE: Costs per FY 98 Risk Dat Sheet adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete

Milestones

ADS Number	Description	FY	Level

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - East, Building 310 Retention Tanks D&D Project

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago. This project focusses on the D&D of the Building 310 Retention Tank Facility, containing 6 release sites which cover 10 abandoned tanks.

Major Cost Driving Technical Parameters: The facility will be remediated by removing all radioactive and hazardous materials and packaging them for disposal to a DOE disposal site, and decontaminating all areas to below unrestricted use criteria. The S&H activities include health physics coverage of field activities as well as general surveillance and maintenance of the facility and structures, including requisite environmental monitoring.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-1441	Operations		1,818	30								1,848	

NOTE: Costs per FY 98 Risk Data Sheets adjusted based on funding availability.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal		34									34	
	Facilities Final Completion			6								6	

NOTE: Volume based on rebaseline scope.

Milestones

ADS Number	Description	FY	Level
CH-1441	Bldg 310 Retention Tanks D&D Complete	1999	1

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Argonne National Laboratory - Program Management

Type of Project Remedial Action - Cleanup (Level of Effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: The Laboratory occupies 1,700 acres in Dupage County, 27 miles southwest of Chicago.

Major Cost Driving Technical Parameters: The function of this project is to provide program level management tools, plans, documents and support necessary for successful execution of the environmental restoration project, without which the program cannot operate.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Ch-1439	Operations	600	600	600	600	600	600	600	600	600	600	6,000	

NOTE: Costs per FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete

Milestones

ADS Number	Description	FY	Level

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU I Groundwater - Other

Type of Project Remedial Action - Cleanup (includes post-closure S&M)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. A contaminated groundwater plume has been identified entering OU-I west of the Former Landfill from OU-IV.

Major Cost Driving Technical Parameters: BY FY98 this contaminated plume is assumed to be characterized and recognized by EPA and NYSDEC to require remediation. Failure to address this would place BNL in a violation of state and federal regulations and of the Compliance Agreement. A pump and treat system will limit further contributions of off-site contaminated water so the likelihood of continued exposure is less. Existing off-site concentrations not treated will attinuate and be diluted over time to make the likelihood of exposure above the MCL less likely although exposures below the MCL will remain for some time.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Cost)	Operations	1,097	666	472	218	226	234	242	133	211	211	3,710	6,330
(Transfer to Others)	Operations								133	211	211	555	6,330
CH-2321	Operations	1,097	666	472	218	226	234	242	0	0	0	3,155	0

NOTES:
1. Costs based on FY 98 Risk Data Sheet.
2. Transferred costs for post-closure activites are through 2035 (level of effort).

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities								1				1	

Milestones

ADS Number	Description	FY	Level
CH-2321	Submit Work Plan to EPA/DEC Phase 3	10/30/96	1
CH-2321	Draft ROD to EPA/DEC	12/9/96	1
CH-2321	Draft FS/PRAP Report to EPA/DEC	12/11/96	1
CH-2321	Submit CLoseout Report to DOE, Phase II	12/20/96	2
CH-2321	Submit Final ROD to Record	3/13/97	1
CH-2321	Submit Closeout Report to Record, Phase II	3/27/97	2
CH-2321	Submit Rod to DOE	4/15/97	1
CH-2321	RD Work Plan to DOE	4/24/97	1
CH-2321	Submit RD Work Plan to EPA/DEC	4/24/97	1
CH-2321	Submit Prelim Design to EPA/DEC	9/23/97	1
CH-2321	Draft Closeout Report to EPA/DEC, Phase III	10/2/97	1
CH-2321	Submit Closeout Report to Record, Phase III	1/8/98	2
CH-2321	Submit Designs to BNL/DOE	4/16/98	1
CH-2321	Submit Final Designs	5/29/98	1
CH-2321	Submit RA Work Plan to DOE, EPA/DEC	7/27/98	1
CH-2321	Begin Remedial Action	9/29/98	1
CH-2321	Submit Closeout Report to EPA/DEC, Phase II	10/1/98	2
CH-2321	Submit Review Report to EPA/DEC	11/30/00	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU I Groundwater Removal Action

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. This includes contaminated groundwater plumes from the Former Landfill, "Current" landfill and the Hazardous Waste Management Facility.

Major Cost Driving Technical Parameters: Contaminants exceeding MCLs in the plume are PCE, TCE, TCA, carbon tetrachloride, chloroethane, vinyl chloride, tritium, and Sr-90. Groundwater monitoring and pump and treat system is being planned for FY97 or FY98 and will operate for an estimated 7 years. Homes in the residential area potentially impacted are provided public water, but no remedial action is taken to reduce contamination in the plume itself. Contamination levels are above state and Federal codes and regulations, and not completing this cleanup would place BNL in violation of the Compliance Agreement with DOE, EPA and New York State.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2321	Operations	669	639	679	728	756	783	1,069				5,323	

NOTE: Costs based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities								1				1	

Milestones

ADS Number	Description	FY	Level
CH-2321	Initiate OU I Groundwater Removal Action	10/15/96	2
CH-2321	Complete OU I Groundwater Removal Action	9/30/03	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Princeton Plasma Physics Laboratory Groundwater Remediation Project

Type of Project Remedial Action - Cleanup (includes assessment)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Project is located on Princeton University's James Forrestal Campus consisting of approximately 300 acres of property. This project covers all aspects of the environmental restoration program at PPPL. It includes the investigation and remediation of soil and ground water contamination at the C & D sites of PPPL's James Forrestal Campus.

Major Cost Driving Technical Parameters: Soil and groundwater at the site contain contaminants in excess of NJDEP cleanup criteria. The contaminants of concern are chromium, VOCs and Base-Neutral Organics (BNs). Upon completion of the removal actions in 1996, all soils contaminated above the NJDEP cleanup criteria will have been removed and disposed or treated. The remaining groundwater contamination is expected to be managed through a regional remedy that includes long-term ground water monitoring by PPPL. Non-compliance with NJDEP's soil and water quality standards could significantly impact PPPL's programmatic mission of demonstrating that fusion is an environmentally-attractive energy alternative that would be undermined by a poor hazardous waste compliance record.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Costs)	Operations	408	551	259	259	259						1,736	
(Transfer to Others)	Operations			259	259	259						777	
CH-3210	Operations	408	551	0	0	0	0	0	0	0	0	959	

NOTES:
1. Costs per Baseline Change Proposal (BCP) assuming effort will be complete in FY 98.
2. Costs transferred to others are for monitoring (level of effort).
3. Assumes new facilities will not be accepted.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
												0	

NOTE: Based on baseline volumes.

Milestones

ADS Number	Description	FY	Level
CH-3210	PPPL Completes Draft RI/RA Report	1997	1
CH-3210	PPPL Submits Revised RI/RA to PG	1997	1
CH-3210	PG Submits Draft RI/RA to NJDEP	1997	1
CH-3210	PG Submits Final RI/RA to NJDEP	1998	1
CH-3210	PG Submits No Further Action	1998	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU I Hazardous Waste Management Facility

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. This includes the Hazardous Waste Management Facility (HWMF) and the Building 650 (Reclamation and Laundry Facility) Sump. The HWMF is a fenced 12-acre controlled compound that has been the central receiving RCRA facility for processing limited treatment (neutralization) and storage for radioactive wastes and RCRA hazardous wastes generated throughout BNL since 1947. This is a New York State designated wetland and has been confirmed as a breeding ground for an endangered species.

Major Cost Driving Technical Parameters: Groundwater is contaminated above MCLs. This is in violation of state and Federal regulations. Soil is also contaminated above levels allowed by CERCLA. Failure to remediate would place BNL in violation of the Compliance Agreement among DOE, EPA, and New York State. The cleanup will be designed to satisfy the parties to the Compliance Agreement. Once accomplished, the facility should be considered in compliance, although groundwater and soil contamination may still t meet standards immediately, but will depend on natural attinuation and decay, under institutional controls.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2321	Operations						2,480	6,526				9,006	

NOTE: Costs based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities								1				1	

Milestones

ADS Number	Description	FY	Level

Note: Milestones not yet developed

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU I Landfills Removal Action

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. The Former landfill and "Current" Landfill are, or will have been, capped. A series of glass holes and animal holes are planned for stabilization or removal.

Major Cost Driving Technical Parameters: Removals are planned to begin in FY97 and continue into FY98. Excavation of the holes is subject to some concern because of the uncertainty of the content, including possibly explosive mixtures. Left unremediated, these landfills are likely to leach chemical or radiological contaminants into the groundwater which could intersect domestic wells within 10-100 years.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Ch-2321	Operations	10,446	776	416	494	298	216					12,646	

NOTE: Costs are based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal	3200										3,200	
Low Level	Disposal	260										260	
Release Site Completed Activities		2	4									6	

NOTE: Based on BEMR 96 volumes.

Milestones

ADS Number	Description	FY	Level
CH-2321	Submit Work/Safety Plans to DOE, Phase 3	12/31/96	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU I Radiologically Contaminated Soils

Type of Project Remedial Action - Cleanup (includes post-closure S&M)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. Top soil, apparently contaminated with fission products, was removed from the HWMF and used as landscaping material at numerous places throughout BNL. Another source of contaminated soil is the AGS storage yards where steel is stored for future use in experimental areas, usually as shielding. Radiologically contaminated soil identified in OU IV are also included here for final evaluation, and, if required, remediation.

Major Cost Driving Technical Parameters: These contaminated areas fall under the Compliance Agreement signed by DOE, EPA and NYS-DEC. If soil concentration of Cs-137 go unremediated, the Cs could leach into the groundwater leading to a more extensive problem. Failure to address these contaminated soils could (with a likelihood of more than 10%) lead to a level of public outrage that could threaten the laboratory mission.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Cost)	Operations		9,385	3,748		1,831	8,087	195	275	260	259	24,040	7,770
(Transfer to Others)	Operations							195	275	260	259	989	7,770
CH-2321	Operations	0	9,385	3,748	0	1,831	8,087	0	0	0	0	23,051	0

NOTES:
1. Costs based on FY 98 Risk Data Sheet.
2. Transferred costs for post-closure activities are through 2035 (level of effort)

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal		11,000	5,500			11,000					27,500	
Hazardous	Disposal		6,600	3,300			6,600					16,500	
Release Site Completed Activities		1	12				6					19	

NOTE: Volumes based on BEMR 96.

Milestones

ADS Number	Description	FY	Level
CH-2321	Submit Designs to BNL/DOE	4/16/98	1
CH-2321	Submit Final Designs	5/29/98	1
CH-2321	Submit RA Work Plan to DOE, EPA/DEC	7/27/98	1
CH-2321	Begin Remedial Action	9/29/98	1
CH-2321	Submit Closeout Report to EPA/DEC, Phase II	10/1/98	2

Attachment IV

Supporting Data (Project Definition Worksheet)

ject Name Brookhaven National Laboratory - OU I USTs (Building 830 and 811)

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. Building 811 is the Waste Concentration Facility (WCF), which is still in service. It currently consists of six 8,000 gallon underground storage tanks, two 25,000 gal above ground tanks, a 4,000 gallon receiving tank, evaporator/concentration unit, a leased MF/RO unit underground pipelines, and a small building that houses the evaporator. Building 830 is a research laboratory.

Major Cost Driving Technical Parameters: Cs-137 in soil around these tanks has been measured at above 500pCi/g. A second concern is possible (but undocumented) leakage from the underground pipelines, which are contaminated with Co-60, fission products, and transuranics. There is also soil contamination by chemicals just north of Building 811. Radiological contamination has been found associated with a leak in a valve pit in Building 830.

sts ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2321	Operatons		776									776	

NOTE: Costs based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities			5									5	

Milestones

ADS Number	Description	FY	Level

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU III Accelerated Groundwater Action

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. A plume of groundwater contaminated with volatile organic compounds (VOCs) has been identified in Operable Unit III through a series of monitoring wells and has moved off-site with concentrations above MCLs.

Major Cost Driving Technical Parameters: Contaminants include TCA and CCl4. The specific origin of this plume is unclear and it may result from several spills that occurred at different times in different locations. Because a large volume of groundwater on-site is contaminated at high levels, unremediated, this plume would be expected to continue to flow into a residential area south of BNL. Following cleanup and time to allow natural attinuation, groundwater contamination will be at a level that poses no risk to the public or the environment.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2321	Operations	232	1,452	2,950	1,792	1,735	1,688					9,849	

NOTE: Costs based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities							1					1	

Milestones

ADS Number	Description	FY	Level
CH-2321	Draft RI/RAto EPA/DEC	12/6/96	1
CH-2321	Submit FS/PRAP to DOE	3/13/97	1
CH-2321	Draft FS/PRAP to EPA/DEC	6/13/97	1
CH-2321	Submit ROD to DOE	11/20/97	2
CH-2321	Submit WP, Onsite & Bound to EPA/DEC	11/20/97	2
CH-2321	Submit RD WP to EPA/DEC, Offsite	11/20/97	2
CH-2321	Submit ISA to EPA/DEC	12/7/97	1
CH-2321	RA 30% Design, Onsite & Bound, Submit to DOE & Offsite	1/22/98	2
CH-2321	Draft ROD to EPA/DEC	2/19/98	1
CH-2321	Submit 30% Design to EPA/DEC, RA, Onsite & Bound, & Offsite	3/6/98	2
CH-2321	Issue Final ROD to Public	5/21/98	1
CH-2321	Submit RD Work Plan to DOE, EPA/DEC	7/6/98	1
CH-2321	Submit Final RD Work Plan	9/8/98	1
CH-2321	Submit ROD to DOE	11/20/98	1
CH-2321	Submit Prelim (30%) Design to DOE, EPA/DEC	12/4/98	1
CH-2321	Submit Final Designs to DOE	6/25/99	1
CH-2321	Submit Final Designs to EPA/DEC	8/9/99	1
CH-2321	Submit RA Work Plan to DOE, EPA/DEC	10/5/00	1
CH-2321	Begin Remedial Action	12/10/00	1
CH-2321	Complete Remedial Action	9/30/02	1

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU III Proper (Misc. Groundwater and Soil Contamination)

Type of Project Remedial Action - Cleanup (includes post-closure S&M)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. This includes several Areas of Concern within OU III involving chemically contaminated soil and chemical and/or radiologically contaminated groundwater. There is at least a 1% likelihood that at least one of the following will require cleanup: AOC 7/Paint Shop, AOC 14/Bubble Chamber spill area, AOC 18/AGS storage yards, AOC 19/TCE spill, AOC 21/leaking sewer pipes, AOC 22/Old Fire House area, AOC 24a/process supply wells #104 and #105, AOC 24B/Recharge Basin HP-Medical Research Reactor, AOC 24C/Recharge Basin HN-AGS, AOC 25/Building 479, AOC 27/Building 464, AOC 9/BNL Graphite Reactor groundwater contamination, AOC 20/Particle beam dump.

Major Cost Driving Technical Parameters: Some of these areas were subject to cleanup in the past, under less rigid standards than now. All are to be examined to assure there is no residual contamination that would require remediation. Any cleanup still necessary will not begin before FY98. If contamination is found, it could require as much as 5 years to remediate and failure to do so would constitute a major noncompliance with the Compliance Agreement, DOE Orders, etc.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Cost)	Operations	1,058	1,493	1,388	7,167	10,657	2,330	4,521	669	683	553	30,519	
(Transfer to Others)	Operations								669	683	553	1,905	
CH-2321	Operations	1,058	1,493	1,388	7,167	10,657	2,330	4,521	0	0	0	28,614	0

NOTES:
1. Costs based on FY 98 Risk Data Sheet.
2. Transferred costs for post-closure activities are through 2006 (level of effort)

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Low Level	Disposal				799	1,066	266	533				2,664	
Hazardous	Disposal				1,215	1,619	405	810				4,049	
Release Site Completed Activities			5					7				12	

NOTE: Volumes based on BEMR 96.

Milestones

ADS Number	Description	FY	Level
CH-2321	Draft RI/RAto EPA/DEC	12/6/96	1
CH-2321	Submit FS/PRAP to DOE	3/13/97	1
CH-2321	Draft FS/PRAP to EPA/DEC	6/13/97	1
CH-2321	Submit ROD to DOE	11/20/97	2
CH-2321	Submit WP, Onsite & Bound to EPA/DEC	11/20/97	2
CH-2321	Submit RD WP to EPA/DEC, Offsite	11/20/97	2
CH-2321	Submit ISA to EPA/DEC	12/7/97	1
CH-2321	RA 30% Design, Onsite & Bound, Submit to DOE & Offsite	1/22/98	2
CH-2321	Draft ROD to EPA/DEC	2/19/98	1
CH-2321	Submit 30% Design to EPA/DEC, RA, Onsite & Bound, & Offsite	3/6/98	2
CH-2321	Issue Final ROD to Public	5/21/98	1
CH-2321	Submit RD Work Plan to DOE, EPA/DEC	7/6/98	1
CH-2321	Submit Final RD Work Plan	9/8/98	1
CH-2321	Submit ROD to DOE	11/20/98	1
CH-2321	Submit Prelim (30%) Design to DOE, EPA/DEC	12/4/98	1
CH-2321	Submit Final Designs to DOE	6/25/99	1
CH-2321	Submit Final Designs to EPA/DEC	8/9/99	1
CH-2321	Begin Remedial Action	12/10/00	1
CH-2321	Complete Remedial Action	9/30/03	1

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU IV Remediation

Type of Project Remedial Action - Cleanup (includes post-closure S&M)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. This focuses on the Central Steam Facility that supplies heating and cooling to all major BNL buildings.

Major Cost Driving Technical Parameters: Several spill have resulted in soil and groundwater contamination. Soil and groundwater contamination with volatile and semi-volatile organic compounds (petroleum compounds and solvents) exceeds state cleanup goals. Potential future uses of groundwater were analyzed and found to be at risk below 1/10,000. The site, however, overlays a sole source aquifer. A ROD is being signed and is enforceable under law and under the Compliance Agreement. Failure to complete planned cleanup would result in certain major noncompliance with this agreement.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Costs)	Operations	1,012	1,037	609	627	536	490	242	233	233	164	5,183	328
(Transfer to Others)	Operations	Times New Roman					134	242	233	233	164	1,006	328
CH-2321	Operations	1,012	1,037	609	627	536	356	0	0	0	0	4,177	0

NOTES:
1. Costs based on FY 98 Risk Data Sheet.
2. Transferred costs for post-closure activities are through 2008 (level of effort).

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities							2					2	

Milestones

ADS Number	Description	FY	Level
CH-2321	Submit RD Final Designs to DOE	2/7/97	2
CH-2321	Submit RA Workplan to DOE, EPA/DEC	3/3/97	2
CH-2321	Submit RD Final Designs to EPA/DEC	#####	1
CH-2321	Begin Remedial Action	5/5/97	1

Attachment IV

Supporting Data (Project Definition Worksheet)

oject Name Brookhaven National Laboratory - OU V Sewage Treatment Plant, etc.

Type of Project Remedial Action - Cleanup (includes post-closure S&M)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. The Sewage Treatment Plant (AOC 4) and a leaky sewer pipe leading to the plant have resulted in contamination of soil and groundwater.

Major Cost Driving Technical Parameters: VOCs have been observed in monitoring wells at the site boundary and in 2 of the 70 domestic wells monitored off-site, but at levels well below MCLs. The remedial action alternative being considered are Pump and Treat and/or connection of residences in the area to public water. No-action would be a near-certain violation of the Compliance Agreement.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Cost)	Operations	887	1,496	6,348	5,621	998	1,035	1,068	240	453	453	18,599	
(Transfer to Others)	Operations								240	453	453	1,146	
CH-2321	Operations	887	1,496	6,348	5,621	998	1,035	1,068	0	0	0	17,453	0

NOTES:
1. Costs based on FY 98 Risk Data Sheets.
2. Transferred costs for post-closure activities are through 2006 (level of effort)

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities			3					2				5	

Milestones

ADS Number	Description	FY	Level
CH-2321	Draft FS/PRAP to EPA/DEC	1/28/97	1
CH-2321	Draft ROD to DOE	4/1/97	1
CH-2321	Draft ROD to EPA/DEC	10/6/97	1
CH-2321	Issue Final ROD to Public	10/3/97	1
CH-2321	Submit Designs to BNL/DOE	1/26/98	1
CH-2321	Submit RD Workplan to DOE, EPA/DEC	11/18/97	1
CH-2321	Submit Design to EPA/DEC	3/31/98	1
CH-2321	Submit Final Designs to EPA/DEC	3/10/99	1
CH-2321	Submit RA Workplan to DOE, EPA/DEC	5/5/99	1
CH-2321	Begin RA	7/9/99	1
CH-2321	Complete RA	9/30/03	1

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - OU VI (EDB Groundwater Plume)

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. Ethylene Dibromide (EDB) was detected in off-site wells at levels above the MCL of 0.05 ug/l and has migrated beyond the site boundary at concentrations exceeding the NYS MCL. The plume is moving towards a large, non-residential, wooded area, with the nearest existing home in it's path more than 1 mile south. The plume is identified as AOC 28, with the potential source of the plume being the Biology Fields.

Major Cost Driving Technical Parameters: Groundwater is contaminated above MCLs. This is in violation of state and Federal regulations. Not remediating this contamination could place the laboratory in violation of the compliance agreement among DOE, EPA and New York State. The remedial action plan must be approved by the parties to the Compliance Agreement, therefore when the plan is successfully implemented, the facility will be in compliance.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2321	Operations	910										910	

NOTE: Costs based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities		2										2	

Milestones

ADS Number	Description	FY	Level
CH-2321	Draft ROD to EPA/DEC	12/9/96	1

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - Core Program

Type of Project Remedial Action - Cleanup (Level of Effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. The Core Program of the BNL Office of Environmental Restoration is responsible for management control, training, quality control, community involvement, and oversight.

Major Cost Driving Technical Parameters: Without these functions, the Environmental Restoration program at BNL could not operate.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2320	Operations	2,523	2,580	2,644	2,711	2,776	2,859	2,937				19,030	

NOTE: Costs based on FY 98 Risk Data Sheet.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete

Milestones

ADS Number	Description	FY	Level
CH-2321	Site Strategic Plan to BHO	All	2
CH-2321	Annual IAG Schedule update to EPA/DEC	All	1
CH-2321	Annual IAG Schedule update to DOE	All	1
CH-2321	CYWP to CH	All	2

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Brookhaven National Laboratory - Graphite Reactor D&D

Type of Project Decommissioning - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. The Laboratory is located close to the geographic center of Suffolk County approximately 100km east of New York City. This reactor stopped operation in 1968 and is currently used as a visitor's center, museum and office area for other projects.

Major Cost Driving Technical Parameters: D&D of the reactor is not scheduled under the Compliance Agreement. Failure to address the contamination in and around the reactor could be considered noncompliance with the Agreement. The time-scale on action taken by the regulatory agencies in the near future is less than 100%. Assuming monitoring and contamination continues, action or lack of action on this facility would not be expected to have any significant mission implications.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-2322	Operations	1,466		1,046	942	487	232	3,937	20,300	20,300		48,710	

Note: Baseline has not been developed

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal											0	
Low Level	Disposal											0	
Sanitary	Disposal											0	
Release Site Completed Activities										3		3	

Note: Volumes not yet determined

Milestones

ADS Number	Description	FY	Level

Note: Milestones not yet determined

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Princeton University Site A&B Characterization/Remediation

Type of Project Remedial Action - Cleanup (includes assessment)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Project is located on Princeton University's James Forrestal Campus consisting of approximately 300 acres of property of which 228 belong to Site A/B of the campus. As a result of past investigations, three specific areas within Site A/B were identified as potential sources for the ground water contamination: Princeton Penn Accelerator, Site B Plume (Machine Shop), and Landfill Plume.

Major Cost Driving Technical Parameters: A MOU between Princeton University and the State of New Jersey names DOE as a potentially responsible party (PRP). DOE may be held, in part, directly responsible for cleanup at Site A/B. Failure to fund this program would result in Princeton University incurring the cleanup costs. If Princeton University does not meet the requirements of the MOU, the MOU may translate into an Administration Consent Order which will be an enforcement document with the fine and penalties attached for non-compliance. Initiation of an Administration Consent Order will most likely drive up the total cost of the project.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-8208	Operations	705	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	5,000	13,705	

NOTE: Anticipated payments to Princeton University for a portion of overall costs.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities											1	1	

Milestones

ADS Number	Description	FY	Level

Attachment IV
Supporting Data (Project Definition Worksheet)

Project Name Site A Suspect Area 4 Cleanup

Type of Project Remedial Action - Cleanup

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Site A is a 36 acre site bounded within a widely used recreational area (Palos Forest Preserve) in Cook County Forest Preserve District, 20 miles southwest of Chicago, and is encompassed with a fence and closed to the public. Suspect Area 4 was a burial ground with contaminated soil.

Major Cost Driving Technical Parameters: Soil contaminated with numerous heavy metals and radionuclides need to be remediated. Return of the site to the landlord, Forest Preserve District of Cook County, Illinois, for public recreational use cannot take place prior to remediating surface soil.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
CH-8207	Operations	250										250	

NOTE: Costs based on US Army Corps of Engineers estimate.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Mixed Low Level	Disposal	15.16										15	
Release Site Completed Activities		1										1	

NOTE: Volume per US Army Corps of Engineers estimate.

Milestones

ADS Number	Description	FY	Level
CH-8207	Complete Site A Cleanup Actions	1997	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name CH Surveillance and Maintenance - Hallam

Type of Project Decomissioning - Post Project Completeion Surveillance and Maintenance

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Project is a shut down nuclear reactor in Hallam, Nebraska.

Major Cost Driving Technical Parameters: Ongoing shallow groundwater monitoring system and annual reports.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Costs)	Operations	23	24	24	24	24	24	24	24	24		215	
(Transfer to Others)	Operations			24	24	24	24	24	24	24		168	
CH-8210	Operations	23	24	0	0	0	0	0	0	0	0	47	

NOTES:
1. Costs per FY 98 ADS submission.
2. Assumes transfer of effort to Grand Junction.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities										1		1	

Milestones

ADS Number	Description	FY	Level
CH-8210	Submit Annual Report of Hallam S&M Activities (FY 97	1997	2
CH-8210	Submit Annual Report of Hallam S&M Activities (FY 98	1998	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name CH Surveillance and Maintenance - Piqua

Type of Project Decommissioning - Post-Project Completion Surveillance and Maintenance (level of effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Project is a shut down nuclear reactor in Piqua, Ohio.

Major Cost Driving Technical Parameters: Ongoing surveillance and maintenance in compliance with DOE Order 5820.2A and contract with the city of Piqua.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Costs)	Operations	13	13	13	13	13	13	13	13	13		117	
(Transfer to Others)	Operations			13	13	13	13	13	13	13		91	
CH-8210	Operations	13	13	0	0	0	0	0	0	0	0	26	

NOTES:
1. Costs per FY 98 ADS submission
2. Assumes transfer of effort to Grand Junction.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities										1		1	

Milestones

ADS Number	Description	FY	Level
CH-8210	Submit Annual Report of Piqua S&M Activities (FY 97)	1997	2
CH-8210	Submit Annual Report of Piqua S&M Activities (FY 98)	1998	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name Site A / Plot M Surveillance and Maintenance

Type of Project Remedial Action - Post-Project Completion Surveillance and Maintenance (level of effort)

Managing or Funding Program

	WM	X	ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: Site A is a 36 acre site bounded within a widely used recreational area (Palos Forest Preserve) in Cook County Forest Preserve District, 20 miles southwest of Chicago, and is encompassed with a fence and closed to the public.

Major Cost Driving Technical Parameters: Ongoing sample, collection and analysis of air, water, and stream bottom sediment, and development of annual reports.

Costs ($K)

ADS No.s	Description	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
(Total Costs)	Operations	223	231	231	231	231	231	231	231	231		2,071	
(Transfer to Others)	Operations			231	231	231	231	231	231	231		1,617	
CH-8210	Operations	223	231	0	0	0	0	0	0	0	0	454	

NOTES:
1. Costs per FY 98 ADS submission
2. Assumes transfer of effort to Grand Junction.

Outputs/Metrics (cubic meters)

Waste Type	Function	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
Release Site Completed Activities										1		1	

Milestones

ADS Number	Description	FY	Level
CH-8210	Submit Annual Report of Site A/Plot M S&M Activities (FY 97)	1997	2
CH-8210	Submit Annual Report of Site A/Plot M S&M Activities (FY 98)	1998	2

Attachment IV

Supporting Data (Project Definition Worksheet)

Project Name CH Program Direction

Type of Project Other (select one from attachment II categories)

Managing or Funding Program (check one or more)

	WM		ER		TD		NM		SO

Project Definition/Work Scope Description

Facilities/Locations: This Worksheet describes funding for federal employee staff located at the Environmental Measurements Laboratory located in New York city, the Chicago Operations Office located in Argonne, Il.and employees located at the Princeton Group, Princeton, New Jersey, the Brookhaven Group located on Long Island, NY, the Argonne Group located in Argonne Il. and Idaho Falls, Idaho, and the Fermi Group located in Batavia, Il.

Major Technical Parameters:
Management and oversight of environmental restoration, waste management and technology development activities at 10 locations including Ames Laboratory, Hallem, Piqua, Site A, Argonne National Laboratory, East and West, Brookhaven National Laboratory, Fermi National Accelerator Laboratory, Princeton Plasma Physics Laboratory, and EML.

These activities include planning, budget preparation, project management, program management, cost estimating, site characterization, site compliance, surveys, business optimization, project control, public accountability, risk assessment/management, stakeholder activities, quality assurance, benchmarking and process efficencies.

Costs do not cover the entire on-board FTEs at EML. These costs are anticipated to be covered by the EML WFO Program.

Costs ($K)

ADS No.s	Description **	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete
1000	other	9600	11200	11200	11200	11200	11200	11200	11200	11200	11200	110400	

** Description = Construction, Operations or Other

Outputs/Metrics (cubic meters)

Waste Type	Function (T/S/D)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Complete

Milestones

ADS Number	Description	FY	Level

EM-30 Support Costs		FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06
Ames	General Support										
	Site Mission Support	101	104	104	186	186	186	186	186	186	186
	Ames Total	101	104	104	186	186	186	186	186	186	186
ANL-East	General Support										
	Site Mission Support	1491	1431	1431	1431	1431	1431	1431	1431	1431	1431
	ANL-East Total	1491	1431	1431	1431	1431	1431	1431	1431	1431	1431
ANL-West	General Support										
	Site Mission Support	275	270	275	275	275	275	275	275	275	275
	ANL-West Total	275	270	275	275	275	275	275	275	275	275
BNL	General Support										
	Site Mission Support	3086	2849	2849	2849	2849	2849	2849	2849	2849	2849
	BNL Total	3086	2849	2849	2849	2849	2849	2849	2849	2849	2849
Fermi	General Support										
	Site Mission Support	843	1084	1084	1084	1084	1084	784	784	784	784
	Fermi Total	843	1084	1084	1084	1084	1084	784	784	784	784
PPPL	General Support										
	Site Mission Support	804	796	796	796	796	796	796	796	796	796
	PPPL Total	804	796	796	796	796	796	796	796	796	796
Chicago Total	General Support	0	0	0	0	0	0	0	0	0	0
	Site Mission Support	6600	6534	6539	6621	6621	6621	6321	6321	6321	6321
	Chicago Total	6600	6534	6539	6621	6621	6621	6321	6321	6321	6321

EM-40 Support Costs		FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06
.es	General Support										
	Site Mission Support	50	50								
	Ames Total	50	50	0	0	0	0	0	0	0	0
ANL-East	General Support										
	Site Mission Support	1056	1071	1852	2283	2219	2404	2442	2347	2278	4373
	ANL-East Total	1056	1071	1852	2283	2219	2404	2442	2347	2278	4373
ANL-West	General Support										
	Site Mission Support	229	220	247							
	ANL-West Total	229	220	247	0	0	0	0	0	0	0
BNL	General Support										
	Site Mission Support	2523	2580	2644	2711	2776	2859	2937	2937	2937	0
	BNL Total	2523	2580	2644	2711	2776	2859	2937	2937	2937	0
PPPL	General Support										
	Site Mission Support	140	140								
	PPPL Total	140	140	0	0	0	0	0	0	0	0
Site A	General Support										
	Site Mission Support	50									
	PPPL Total	50	0	0	0	0	0	0	0	0	0
Chicago Total	General Support	0	0	0	0	0	0	0	0	0	0
	Site Mission Support	4048	4061	4743	4994	4995	5263	5379	5284	5215	4373
	Chicago Total	4048	4061	4743	4994	4995	5263	5379	5284	5215	4373

Chicago Total	General Support	0	0	0	0	0	0	0	0	0	0
	Site Mission Support	10648	10595	11282	11615	11616	11884	11700	11605	11536	10694
	Chicago Total	10648	10595	11282	11615	11616	11884	11700	11605	11536	10694

Projects

Major Opportunities

Chicago Candidate Privatization Project #1

Project Name: **Privatization of Brookhaven National Laboratory Graphite Research Reactor D&D**

Program: EM-40

Project is not in the FY98 budget allocation approved for Chicago

Preparer: Steve Webster Phone:708-252-2822

BACKGROUND

The Brookhaven Graphite Research Reactor (BGRR) was a graphite moderated and reflected, thermal neutron, air-cooled research facility. The reactor has been shut down since 1969, and the surrounding areas within the facility are presently used for offices and laboratories. Part of the reactor is a museum open to the public.

The D&D of the reactor is not scheduled under the current Interagency Agreement with EPA and the State of New York.

OPTIONS

Options for the D&D of the BGRR are being identified at this time. One option is for the M&O to manage the D&D effort consistent with current DOE management practices. Another option is to privatize the effort.

DESCRIPTION OF PRIVATIZATION APPROACH

A privatization approach is in the preliminary stages of being developed. The approach would entail development of performance specifications for the D&D effort and solicitation of a contractor to perform the D&D effort under a fixed price contract.

ISSUES

Potential issues include:

- The level of characterization data available
- Liability
- Contractor solicitation (DOE prime contractor or a BNL subcontractor)

CURRENT NON-PRIVATIZED BASELINE

The non-privatized baseline has not been developed. Placeholder information is currently in the Ten Year Plan. The first step in determining if this effort is to be privatized is to definitize the baseline case.

BASIS FOR DETERMINING IF PRIVATIZATION WOULD BE COST EFFECTIVE

Upon completion of the non-privatization baseline private firms will be contacted and the potential cost savings will be determined. A potential resource for this information will be the CH sponsored strategic alliance funded by EM-50 to integrate innovative technologies into the CP-5 Reactor D&D at Argonne National Laboratory. This alliance includes private industry, utility companies, universities and national laboratories.

CONFIDENCE IN DATA

Confidence in data is currently very low.

Chicago Summary of Other Major Opportunities

LEGACY WASTE

The CH EM program could benefit from the consolidation of waste at larger EM sites. Shipment of legacy waste left at CH sites after Waste Operations have been transferred to the landlord in FY 2000 would eliminate the EM-30 presence at CH sites after that date.

Legacy waste of concern include:

- PCB waste currently stored at ANL-E;
- Remote-handled sodium contaminated waste at ANL-W; and,
- Low Level Radioactive waste at BNL.

De MINIMUS LEVELS FOR MATERIAL DISPOSITION

The development of De Minimus levels for unrestricted release of recyclable materials would benefit CH sites as well all DOE sites. Of particular benefit would be the release of metals at BNL. These metals represent the majority of the legacy LLW at BNL. Other CH sites, including ANL-E, FERMI, and PPPL also have metals either in storage or in components that are currently in use but will soon no longer be needed.

CONSOLIDATION OF CONTRACTS

The consolidation of contracts for waste services will be explored. Currently each CH site contracts separately for hazardous waste disposal. Some sites contract for full services while others contract for disposal only. The hazardous waste management area is currently being benchmarked. Based on the results of that process CH will reevaluate the hazardous waste practices at CH sites. One potential outcome is the consolidation of contracts for hazardous waste management to gain volume discounts.

BENCHMARKING

CH is implementing benchmarking of laboratory processes among CH sites and against best in class industry practices to find efficiencies and cost savings. The first area that processes are being benchmarked in is hazardous waste management. If successful, the benchmarking process will be implemented in other areas.

Assumptions used for Development of Ten Year Plan

General

- Existing and planned compliance agreements have optimum regulatory flexibility for change.
- No new EM facilities have been added .
- The plan is based on the FY 1997 budget request currently submitted to Congress, the FY 1998 planning budget from the IRB, and for FY 1999 to FY 2006 the budget has been flatlined without escalation.
- Management and financial responsibility of newly generated waste outside the EM Program will be assumed by the generator beginning in FY 1997 and phased in for all CH sites by FY 2000. Funding and volume data are still included in this document.
- Current unit cost charged for managing EM-40 waste will remain constant (landlord transfer of EM-30 activities will not affect cost).
- The EM-40 program described in the plan is based on the IRB FY 1998 Accelerated Case (BNL accelerated before ANL-E).
- The EM-40 S&M activities at Piqua, Hallam and Site A are transferred in FY 1998 to the Grand Junction Project Office.
- Ames S&M activities will be transferred to the landlord.
- All CH TRU waste will go to WIPP.
- Low Level Waste

  Where the data did not identify a predisposal quantity, the treatment and storage quantities were increased by 25% over the disposal amount. This was done to account for the volume reduction that frequently occurs between the collection and disposal phases.

  All disposed waste was assumed to be treated and stored, prior to disposal.

  If the LLW was not identified as either a solid or liquid, all the LLW and cost data was placed in the total column.

  For ANL-W, the cost for the liners were added to the LLW storage cost.

- Low Level Mixed Waste

  Data from the FFCA Site Treatment plan were used to supplement the ADS data to identify future mixed waste generation.

- Hazardous Waste

  In most cases, the waste was not separated into categories, RCRA, TSCA and Misc.. As a result, the hazardous waste was included in the total column category.

  All waste disposed was assumed to be treated and stored.

Definitions Used During Development of Ten Year Plan

- **Project**

  A project is defined as a set of related activities or functions that support a discrete end state or end product related to mission completion.

- **Support Costs**

  General Support

  These include executive direction, human resources, chief financial officer, procurement, legal, administrative support, lab-directed R&D, information services and information/outreach activities.

  Mission Support

  These include environmental, safety and health, facilities management, maintenance, utilities, safeguards and security, logistics support, quality assurance, technical support and matrix management.

- **Completion**

  Assessment

  An assessment is considered complete when the characterization document is complete and a final response or no action decision is recommended.

  Pump and Treat Projects

  These projects are considered complete when the treatment facility is operating.

- **Release Site**

  A release site is defined as a unique location at which a hazardous, radioactive or mixed waste release has occurred or is suspected to have occurred. It is usually associated with an area where wastes or substances contaminated with wastes have been disposed of, treated, stored, and/or used. Under CERCLA, release sites include both source areas and areas of migration where hazardous substances have come to be located. A release site typically includes the actual geographic area covered by a source and the extent of associated contamination as delineated during the PA/SI and RL. It may include areas in close proximity to the contamination that are necessary for implementing a response action.

- **Facilities**

  A facility is generally defined as a uniquely identifiable building or structure. Sometimes a facility is a room or part of a building or structure. Sometimes it is a group of buildings or structures. Only facilities that have been accepted into the Environmental Restoration program are listed.

- **Storage**

  Storage includes the collection and containment of waste for the purpose of awaiting treatment and disposal. The following costs are included:

  On site collection of waste from generators;

  Transportation to storage facilities including truck operations, on site manifesting, as required, and unloading;

  Characterization associated with storage including assay, certification, X ray, weight, dose rate, visual container inspection, surface contamination survey, RCRA compliance sampling and analysis and other physical/chemical/visual inspection verification, sorting for storage and segregation of containers;

Operation/S&M for storage facilities including inspections, corrective actions repackaging, spill cleanup, waste containers, record keeping; and,

Capital Equipment Cost;

- **Treatment**

  Treatment is any activity that alters the chemical or physical nature of waste to reduce its toxicity, volume, mobility or render it amenable for transport, storage, or disposal. It includes any additional characterization, preparation required for on site treatment; the actual on site treatment; lab packing; and the sorting and segregation characterization required for transport to off site treatment/disposal activities. The following cost are included :

  Packaging and transportation to treatment facilities. This does not include on site collection of waste from generators;

  Characterization of waste before treatment or pretreatment including RCRA compliance sampling and analysis, assay, surface contamination survey, visual inspection, weight and dose;

  Direct cost of operating on site treatment system, such as compaction and evaporation facilities and any on site mixed waste activities;

  Operation/S&M including safety support system, upgrades, corrective activities, outfall monitoring and sample and analysis, inspections including fire, safety, life support systems, record keeping, health physics and industrial hygiene;

  Lab packing and sorting activities;

  Capital Equipment for treatment facilities;

  Research and development, applied engineering and technology demonstrations; and,

  Commercial treatment and privatization initiatives including fees/costs.

- **Disposal**

  Disposal is the final packaging, transporting and final disposal at an off site facility. Disposal begins with any additional packaging required for disposal, certification that the material meets the disposal facilities waste acceptance criteria. Costs include the following:

  Collection and transportation cost from the generator to the disposal facility;

  Additional characterization when required such as monitoring or assays for radioactivity, RCRA compliance sampling and analysis, visual container inspections, weight, dose rate, truck survey and vehicle release survey;

  Operation/S&M of disposal facilities including leachate monitoring, assays packaging or repackaging materials;

  Capital equipment; and,

  Fees and costs for off site T/D activities.

APPENDIX I

Site Activities and Facility Descriptions

Argonne National Laboratory-West

Introduction

Argonne National Laboratory-West (ANL-W) is the most eastern of the INEL facilities. It is located approximately 35 miles west of Idaho Falls, Idaho. ANL-W is operated by the University of Chicago under the guidance of the U.S. Department of Energy Chicago Operations Office, and supported by a local area office for interfacing with DOE-ID. ANL-W has administrative control over an area of approximately 890 acres in the southeastern corner of the INEL, while the facilities themselves cover less than 60 areas.

INEL is one of DOE's largest National Laboratories. Originally the competitively-selected site of U.S. Navy gunnery range, INEL later became the first place in the United States where nuclear reactors were built to test the idea of nuclear power as a commercial energy source. The 890-square-mile plain of high desert where INEL is located contains the largest concentration of nuclear reactors (52) in the world. Most of the reactors have been phased out after fulfilling their research mission, but several are still operating.

The INEL site consists of ten major facilities areas, each typically less than a few square miles in size and separated by miles of desert, where the engineering research and development projects are conducted. ANL-W administers an area that is slightly over one square mile and consists of 40 primary buildings and approximately 45 support buildings. Current land use is in support of the above facilities which support the primary mission of the laboratory. Further land use continues to be projected as industrial. No leased agricultural areas, disposal facilities, or production areas reside on the ANL-W administered property.

ANL-W has been at the Idaho site since the Site's inception as the National Reactor Testing Station (NRTS), where it originally built and operated the Experimental Breeder Reactor (EBR-1) facility. Construction began at the present ANL-W site in the mid-1950's, with the plant becoming operational in stages from 1959 through the mid-1960's. The ANL-W facility was constructed for the purpose of researching and developing liquid metal fast breeder reactor technology. In general, these activities consist of irradiating reactor fuels and structural materials, and conducting high-temperature nuclear experiment, reactor physics experiments, diagnostic inspections, and laboratory analyses.

The current mission of Argonne National Laboratory-West (ANL-W) is research and development in support of the nation's spent nuclear fuel program. The ANL-W complex includes the Experimental Breeder Reactor II (EBR-II), Fuel Conditioning Facility, Hot Fuel Examination Facility, Analytical Laboratory, Radioactive Scrap and Waste Facility, Sodium Process Facility, Radioactive Liquid Waste Treatment Facility, Fuel Manufacturing Facility, Zero Power Physics Reactor, and the Transient Reactor Test Facility. ANL-W operates these facilities as well as a variety of chemical storage, waste storage and disposal facilities, and office and maintenance facilities. Research activities require the use of numerous chemical and radioactive materials, resulting in the generation of a variety of hazardous, radioactive and mixed wastes. Waste operations encompass all non-production facility operations which include facilities

The remaining two sites in OU-1, the one site in OU-2 and the five sites in OU 9-04 will be further evaluated during the Comprehensive RI/FS in FY 1996 and FY 1997. The RI/FS is expected to consist of the installation of one monitoring well to groundwater, at a depth of 650 feet; a continuous core to groundwater in the EBR-II leach pit; a sitewide ecological risk assessment; and, a sitewide Comprehensive Baseline Risk Assessment. Also, three Removal Actions have been identified at the three sites to remove contaminated soils. The Removal Actions may occur in FY 1997 due to funding limitations in FY 1996. FY 1998 activities include the signing of the Record of Decision and planning of any necessary Remedial Action activities for FY 1999. Closeout of activities is planned for FY 2000, with long term monitoring of wells to be performed as necessary.

ANL-W Waste Management Activities

Facilities at ANL-W regulated under the Resource Conservation and Recovery Act (RCRA) are currently permitted or are currently operating under an interim status RCRA permit. Currently, ANL-W is not required to have an established RCRA groundwater monitoring plan since it does not operate any land-based TSD facilities. If RCRA groundwater monitoring is deemed necessary at a later date, the required elements will be incorporated into this Plan as a future revision.

Routinely generated hazardous waste is collected from the generator and usually stored in a 90 day temporary storage area at ANL-W or at INEL. It is subsequently disposed of at an off-site permitted disposal facility.

Low level waste management operations are composed of the collection, treatment and storage of low level waste at ANL-W. Waste is shipped either to the Radioactive Waste Management Complex (RWMC) or to the Waste Experimental Reduction Facility, both at INEL with minimal costs to EM-30 at ANL-W. All low level radioactive liquid waste at ANL-W is processed through their Radioactive Liquid Waste Treatment Facility.

Mixed low level waste is kept within RCRA regulated areas at ANL-W and the INEL storage facility. The treatment and storage is delineated in the Site Treatment Plan as required under FFCA.

Some low level historical waste, mixed waste and recoverable nuclear materials are presently stored at the Radioactive Scrap and Waste Facility (RSWF) in accordance with the RSWF RCRA permit. The permit requires the continuous upgrade of the liners in which the waste is stored to prevent a potential release to the environment.

Routine shipments of TRU waste occur from ANL-W to the RWMC at INEL for storage and eventual disposal at WIPP. TRU waste contaminated with elemental sodium is moved to the RSWF.

Argonne National Laboratory-East

Introduction

Argonne National Laboratory (ANL) had its inception in the World War II research activity, code named " The Metallurgical Laboratory", at the University of Chicago. Under the leadership of Enrico Fermi, the Metallurgical Laboratory accomplished the initial development of nuclear reactor theory and, in December 1942, the first experimental demonstration of controlled nuclear chain reaction. The Metallurgical Laboratory also initiated and led the rapid development of the basic chemistry and nuclear physics of uranium, plutonium, and several new, man-made transuranic elements created in the first atomic pile.

After the end of World War II, in August 1945, a Federal decision was made to continue nuclear research, development, and production activities. The Argonne Division of the Metallurgical Laboratory became Argonne National Laboratory on July 1, 1946; in the same year, the Atomic Energy Act of 1946 established a civilian agency, the Atomic Energy Commission (AEC), to manage and control the atomic energy program. AEC assumed control of the program from the U.S. Army in January 1947.

The AEC broadly defined basic research as a major element of the ANL mission, a principle that carried over to other multiprogram national laboratories as they evolved or were created. Building on wartime strengths, the Laboratory rapidly developed strong basic research programs in nuclear and reactor physics, in fundamental nuclear and radioactive-element chemistry, and in the biology of radiation effects. Applied programs in support of reactor development included chemical engineering, metallurgy, reactor engineering, applied mathematics, and instrumentation. In 1948, the AEC assigned to ANL the principal responsibility for reactor development. While this assignment emphasized applied programs, related basic research also continued to grow in strength and scope.

The Metallurgical Laboratory at Chicago was originally housed in University and temporary buildings on or near the University of Chicago campus, except for reactor development activities, which were situated on leased land located southwest of the city, in the Cook County Forest Preserve. With the University and the Forest Preserve District pressing to regain use of their property, the AEC selected and acquired the ANL-East site in 1947. Temporary buildings were erected to house the rapidly expanding reactor development work as design and construction of permanent facilities and infrastructure proceeded. The first permanent buildings were completed in 1950, in the 200 Area, and virtually all ANL activities were accommodated on site by 1954.

Through the 1950s and early 1960s, specialized facilities were added in the 300 and 360 Areas of the site, as was Building 212 in the 200 Area of the site. This period of growth culminated in the Zero Gradient Synchrotron (ZGS) complex during the late 1960s and early 1970s.

The 1970s saw modest retrenchment in basic research, as Federal research and development budgets tightened. During this same period, engineering research and development extended into many fossil- and alternative-energy sources and systems as the limits on energy resources became a national concern. The expertise of ANL staff broadened into areas such as systems analysis, economics, and management science, to accommodate the growing federal need for wide-ranging analysis of technological developments. Environmental analysis and research also expanded as national concern for preservation of the natural environment became an important constraint on the development and deployment of energy technologies.

During the late 1970s and early 1980s, facilities at the laboratory actually contracted, despite the construction of several new permanent facilities in the 200 Area, including the Administration Building (201), Visitors Reception Center, and Electronics and Graphic Arts Facility, and Safeguards and Security

in the 300 Area. This space reduction was achieved by the demolition of 65 substandard buildings and removal of 119 temporary trailers.

The late 1980s and early 1990s brought a renewed emphasis on construction. Dedication of a large portion of the 400 Area for the Advanced Photon Source (APS) and increased priority for environmental and safety functions have increased the need for appropriate facilities. Demolition and renewal of remaining substandard structures and their replacement by more efficient structures is also continuing; as does the need for maintenance and upgrades of existing permanent improvements to the site.

Argonne currently conducts work for nineteen DOE secretarial offices, several DOE contractors, another 20 Federal agencies, and more than 32 private, state, and international organizations. The major scientific program areas at the Laboratory are nuclear energy research and development, primarily focused in the Integral Fast Reactor program and, under DOE Energy Research funding, research centered around biological and environmental research, high energy and nuclear physics, and basic energy sciences (including materials science and computing). Increasing emphasis is being placed on world-class basic research user facilities, such as the Intense Pulsed Neutron Source (IPNS) and the Advanced Photon Source (APS).

Argonne National Laboratory (Illinois site) occupies the central 688 hectares (1,700 acres) of a 1,514-hectare (3,740-acre) tract in DuPage County. The site is 43 km (27 mi) southwest of downtown Chicago and 39 km (24 mi) west of Lake Michigan. It is north of the Des Plaines River Valley, south of Interstate Highway 55 (I-55) and west of Illinois Highway 83. The 826-hectare (2,040-acre) Waterfall Glen Forest Preserve surrounding the site is mostly former ANL property that was deeded to the DuPage County Forest Preserve District in 1973 for use as a public recreational area, nature preserve, and demonstration forest.

Regulatory Drivers

The Resource Conservation and Recovery Act (RCRA) and its implementing regulations are intended to insure that hazardous waste are disposed of in an environmentally safe manner and that facilities that treat, store, or dispose of hazardous waste do so in a way that protects human health and the environment. The Hazardous and Solid Waste Amendments of 1984 (HSWA) created a set of restrictions on land disposal of hazardous waste. In addition, HSWA also requires that releases of hazardous waste or hazardous constituents from any solid waste management unit located on the site of a RCRA-permitted facility be cleaned up, regardless of when the waste was placed in the unit or if the unit was originally intended as a waste disposal unit. As discussed below, these RCRA corrective action provisions will have a far-reaching impact on ANL. The RCRA program includes regulations governing management of underground storage tanks containing hazardous materials or petroleum products. The IEPA has been authorized to administer most aspects of the RCRA program in Illinois, except for toxicity characteristic waste and organic solvent emissions.

The current part A (interim status) permit lists two HWMU units which were formally closed during 1994. These units are the water reaction tank, used in the past for treatment of alkali metals and other water reactive materials, and the shock-sensitive treatment area, used for treatment of highly unstable or explosive materials. Both units are located in the 317 Area. ANL was granted interim status under RCRA after submitting a notification of Waste Handling Activities and a Part A application in 1980. In 1990, a new Part B permit application (one had previously been sent to the EPA but not acted upon) was prepared for submittal to the IEPA, which had been granted authority to administer most of the RCRA program. The application was submitted to the IEPA and EPA on December 21, 1990. Revisions to the permit application were submitted on June 17, 1991, and September 24, 1991, in response to IEPA and EPA comments.

The RCRA Part B Permit application was revised and updated in 1993. Revision I was submitted to the IEPA during November 1993, which includes information on four new portable hazardous waste storage units and a mixed waste storage tank. ANL responded to EPA notice of deficiency comments regarding the alkali metal passivation booths in Buildings 308 and 206 and incorporated the response into the revised application. Revision II of the Part B application was prepared to include a new hazardous waste storage facility, a new mixed waste storage facility, and a transuranic mixed waste storage facility. Revision II was submitted in 1995. IEPA will conduct a technical review of the Part B application and may issue ANL a RCRA draft permit by the end of 1996.

A RCRA Facility Assessment (RFA) was completed by the IEPA during summer 1991. The RFA report from IEPA was received during late 1993 and identified 740 units [735 solid waste management units (SWMUs) and five Areas of Concern (AOC)]. The report identified 432 units (427 SWMUs and five AOCs) for further work. ANL prepared a report entitled "Proposed Revisions to the RCRA Facility Assessment Report for Argonne National Laboratory-East." This report included recommendations to reduce the number of units that IEPA identified in the RFA Report for further work from 432 units to 71 units (69 SWMUs and two AOCs). When the Part B permit is issued, it will most likely contain requirements to characterize and assess the SWMUs. ANL is working proactively to characterize and investigate these SWMUs with emphasis in the 800 and 317 Areas. ANL continues to abide by its Part A permit and the interim status standards found in 40 CFR 265 and 35 IAC Part 725.

The HSWA amendments to RCRA require that any Part B permit issued must include provisions for corrective actions for all releases of hazardous materials from any solid waste management unit (SWMU) at the site, regardless of when the waste was place in the unit. When issued, the Part B permit will contain a compliance schedule which will govern the characterization and any required remediation of such units. The Part B permit application submitted to the IEPA identified and provided information on 56 SWMUs, both active and inactive. The recently issued RFA report from the IEPA identified more than 700 SWMUs (see Section 2.3.2.). The great majority of these sites are believed to contain little or no residual contamination; however, a number may be required to undergo some type of corrective action. The process of conducting detailed characterization studies to determine if hazardous materials have been released from a number of these units was begun in 1989. More extensive characterization is currently underway at a number of the SWMUs in accordance with the IEPA-approved corrective action work plans for the 800 Area and 317/319 Areas. Interim removal action for two SWMUs were also being implemented.

The Draft Site Treatment Plan (DSTP) was submitted to the DOE for review in August 1994. The DSTP outlined the mixed waste on-site and identified several potential treatment options for each waste stream. The Proposed Site Treatment Plan (PSTP) was submitted to the DOE which in turn submitted it to the state in March 1995. The PSTP identifies six on-site treatment systems and one off-site treatment system that ANL proposes to use for its existing inventory of mixed waste. Once the PSTP is approved by the state, treatment schedules for the various mixed waste streams in the ANL inventory will be developed and the hazardous constituent treated in compliance with RCRA regulations.

ANL-E Waste Management Activities

Waste Management (WM) activities include the collection, treatment, storage and disposal of waste generated by research activities. Waste operations includes all programmatic and administrative management, technical support and day to day operations. Treatment includes all labor and materials necessary to pick up waste from the point of generation, transport it to WM facilities, and prepare it for ultimate disposal. Storage includes inspecting waste storage areas and removing historical waste from storage and preparing it for disposal. Disposal includes final loading of wastes for shipment, transportation to the disposal site, and associated disposal fees.

A new mixed waste storage facility and a transuranic waste storage facility are under construction and will be completed by the end of FY 1996. The new facilities provide necessary space. ANL-E is near the completion of an upgrade project at Building 306, its primary waste management facility. Almost all waste is collected and processed through Building 306. The building was originally constructed in 1950 with an addition added in 1962. The building is being upgraded to make more efficient use of space and to bring the building into conformance with building code regulatory requirements such as fire suppression. Construction will provide an adequate and safe staging area for radioactive waste prior to shipment and provide a safe sort for transuranic waste in a glovebox. Greater control of access to the mixed waste treatment area will decrease the likelihood of transport of contamination outside of the waste processing area.

Brookhaven National Laboratory

Introduction

Brookhaven National Laboratory's missions support the Department of Energy's scientific and technical role in implementing the National Energy Strategy. This strategy "...calls for continued and significant investments in fundamental science and engineering research and in the associated advanced training of scientists and engineers. These investments are seen as preconditions for reaping the practical benefits of energy sciences and technology in the future." The National Energy Strategy further emphasized that "Forefront research facilities are vital to U.S. leadership in both science and industrial research. However, they can be expensive and may require frequent upgrades to address new problems and challenges. They also must be staffed with scientists, engineers, and technicians who have solid training and who are informed about research progressing worldwide."

Brookhaven National Laboratory has three primary missions. The first is to conceive, design, build, and operate large, complex research facilities for the benefit of the entire scientific community in a safe and environmentally sound manner. These facilities, such as particle accelerators and colliders, nuclear reactors and synchrotron storage rings, are used for fundamental scientific studies and for both basic and applied research in energy-related physical, life, and environmental sciences.

The second mission is to carry out research in basic science programs which potentially have long-term payoffs. Many of these programs employ the unique facilities mentioned above; others take advantage of the special expertise and ancillary support services and facilities at the laboratory. The ease of engaging in collaborative efforts with outside users, from universities, industries, and other government laboratories, greatly enhances the effectiveness of the programs and encourages a wide-based use of the special facilities at Brookhaven.

The third mission is to contribute to the technology base of the nation. The Laboratory is engaged in developing new technologies and facilities, and transferring this new knowledge to the commercial sector. Brookhaven is involved in the education of scientists and engineers through a wide variety of cooperative research programs. The Laboratory has other extensive educational programs covering a broad spectrum of people, reaching from elementary school through university students and faculty.

As a national resource, Brookhaven makes available, when feasible and consistent with its mission, its unique facilities and expertise to state and federal agencies and to the private sector.

When Brookhaven National Laboratory opened it was one of three national laboratories, places where federally funded facilities could be built that were beyond the resources of individual universities. In the late 1940s, this meant nuclear reactors and particle accelerators, although, at that time, forefront accelerators still could be built at universities.

Brookhaven's first generation of these two types of machines were completed in the early 1950s. The Brookhaven Graphite Research Reactor (BGRR) went into operation in 1950, and the Cosmotron, a proton synchrotron that was the first particle accelerator to surpass 1 billion electron volts (GeV) was dedicated in 1952. Completion of each machine had a significant impact upon the Lab, because supporting facilities and experimental equipment had to be built, along with special arrangements for power, security, waste disposal, and so forth. A hot lab, to handle nuclear engineering and chemistry, was built in 1951, and a medical research reactor, completed in 1958, was part of a new medical research facility. Two major, low-power accelerators also served Brookhaven low-energy nuclear physics and irradiation programs: a 3.5 million electron volts (MeV) Van de Graaff accelerator, and a 60-inch cyclotron. Both originally were built by industry but had to undergo major renovations by Brookhaven scientists before they became suitable for research work.

As a result of these research activities, radioactive substances and a number of substances defined as hazardous under federal and state regulations have been and are being acquired, used, stored, and disposed of at Brookhaven National Laboratory.

On December 21, 1989, Brookhaven National Laboratory was included as a Superfund Site on the National Priorities List (NPL). The United States Environmental Protection Agency (USEPA) Region II and the New York State Department of Environmental Conservation (NYSDEC) have determined that BNL constitutes a facility as defined by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (Section 121, 42 U.S.C. 9601-9675) and an inactive hazardous waste disposal site as defined by New York State Environmental Conservation Law (ECL). BNL is also subject to Section 3004(u) of the Resource Conservation and Recovery Act (RCRA), which requires that a permit issued after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 (HSWA) provide for corrective action for all releases of hazardous waste or constituents from any solid waste management unit (SWMU) at a treatment, storage, or disposal facility seeking a permit, regardless of the time the waste was placed in such a unit. In addition, RCRA Section 3004 (v) requires that corrective action must be taken beyond the facility boundary where necessary to protect human health or welfare or the environment unless the owner or operator is unable to obtain the necessary permission to take the corrective action despite best efforts to do so.

The four designated national user facilities--the Alternating Gradient Synchrotron (AGS), National Synchrotron Light Source (NSLS), Scanning Transmission Electron Microscope (STEM), and the High Flux Beam Reactor (HFBR) serve the scientific user community from both the United States and abroad and are currently the centerpieces of the industrial/commercial land use area. The Relativistic Heavy Ion Collider (RHIC), now under construction, will be an additional unique national user facility within this land use category. Approximately 3 hectares of Laboratory site is leased to the U.S. Department of Commerce for the NEXRAD weather radar facilities. These facilities are part of a National Weather Forecast Network operated by the National Oceanic and Atmospheric administration (NOAA). Other facilities housing nine scientific departments, four scientific support divisions, and thirteen support divisions are also within this industrial/commercial area. With the exception of the Sewage Treatment Plant and the Hazardous Waste Management Facility (to be relocated), the industrial/commercial facilities form the developed central area of the site.

Regulatory Drivers

BNL was added to New York State's list of Inactive Hazardous Waste sites in 1980 and to the federal National Priorities List in 1989. A tri-party Federal Facilities Compliance Agreement, also known as the Interagency Agreement (IAG), was subsequently negotiated between DOE, EPA Region II and the NYSDEC. The BNL IAG integrates the requirements of the CERCLA, the corrective action requirements of the Resource Conservation and Recovery Act (RCRA), DOE cleanup authorities under Atomic Energy Act (AEA) and any corresponding New York State regulations. The IAG became effective in 1992.

The IAG provides the overall framework for conducting the BNL environmental restoration program and uses CERCLA and NCP processes. The IAG defines authorities between the three parties and includes procedures for dispute resolution, assessment of stipulated penalties by EPA, document reviews, reporting and notification, schedule extensions, compliance with Applicable and Relevant and Appropriate Requirements (ARARs) and reimbursement of New York State oversight costs.

CERCLA requires that remedies be protective of public health and the environmental and meet ARARs which are promulgated federal and state standards. It must be noted that the BNL IAG, CERCLA and the NCP require the use of State standards when more strict than federal. Another category is a To Be Considered (TBC) which include unpromulgated guidance and standards such as NYSDEC Technical

Administrative Guidance Memorandum (TAGM) series developed for State's Inactive Hazardous Waste Site Remediation Program and DOE Orders.

There are two companion permits to the BNL IAG: a Hazardous and Solid Wastes Amendment Act (HSWA) permit from EPA for RCRA Corrective Actions (since NYSDEC program was not authorized at the time) and a NYSDEC Hazardous Waste (6NYCRR 373) permit for mission related hazardous waste operations at BNL. Both of these permits defer RCRA corrective actions to the IAG.

Environmental restoration activities are not required to actually obtain permits under CERCLA, the NCP and the BNL IAG for onsite activities, however the substantive requirements of any permits must be met. Permit equivalency applications are submitted to the appropriate IAG party and any needed monitoring activities and operational requirements are subsequently issued.

Environmental Restoration Activities

There are currently twenty-eight "Areas of Concern" (AOCs) at the BNL site to be addressed through an IAG. The AOCs consist of active facilities, such as the Sewage Treatment Plant (STP), the Hazardous Waste Management Facility (HWMF), and potable wells; and inactive facilities, such as two former landfills, cesspools, and radioactive waste storage tanks. The AOCs are grouped and prioritized into Operable Units (OU's) and Removal Actions (RAs). Based on the current program baseline, project cleanup activities are expected to extend to the year 2013. However, this schedule could be affected by changes in the funding profile and the scope of specific remediation actions selected as a result of the ongoing Remedial Investigation/Feasibility Study (RI/FS) process.

Waste Management Activities

Brookhaven National Laboratory currently manages hazardous waste, low-level radioactive waste, and low-level mixed waste that is generated by on-going research and development activities. BNL does not generate any transuranic waste. BNL has an approved Part B permit for hazardous waste. Limited treatment of waste such as volume reduction and stabilization prior to shipment to off-site facilities for treatment and disposal is expected to continue. Large-scale treatment trains and on-site waste disposal facilities are not planned at this time. Treatment of waste is limited to size and volume reduction, consolidation, and packaging for shipment to off-site treatment and disposal facilities. Brookhaven National Laboratory stores waste in accordance with the provisions of its RCRA Part B Permit, large-quantity generator status. Hazardous waste is sent to commercial facilities for disposal; low-level waste is shipped to DOE's Hanford, Washington facility for disposal. Mixed waste is sent off-site to commercial treatment/disposal facilities.

Waste minimization and pollution prevention includes operations such as recycling, recovery, and materials substitution to reduce the burden on off-site treatment, storage, and disposal facilities. Working groups are established within each BNL department and division to evaluate each waste generating process and recommend strategies for reducing waste.

AMES Laboratory

Introduction

The Ames Chemical Disposal Site (CDS) is located north of Ontario Street off Scholl Road on property owned by Iowa State University (ISU) near Ames, Iowa. The CDS is east of the Applied Sciences Complex, the former site of the Ames Laboratory Research Reactor. It consists of approximately 80,000 square feet in the east half of the southeast quarter of Section 32, Township 84 North, Range 24 West. The perimeter of the site has been fenced with chain link since 1958.

The Site is located outside the city limits of the City of Ames. The core of the City's population is located primarily south and southeast of the Site. Census data (1990) indicates 47,100 people are within the city limits of Ames. The city limits of Ames are located within a three mile radius of the Site. The City of Ames has ten schools, one university and one hospital.

The site is on University owned property and it is the University's intent to leave the site in its existing state. However, it is conceivable that the University may wish to build a warehouse on the processing pad that remains from the interim removal action. DOE plans for the site are long term monitoring with natural attenuation (subject to completion of feasibility study, proposed plan and negotiations with regulators).

The Site is located at the top of a hill. The area where the burial pits were located generally slopes to the southeast. Surface water features closest to the Site are Squaw Creek, located approximately one-third mile east of the site, and Onion Creek Gulch, located approximately one-quarter mile west of the site. Ravines are located to the south, east and north of the site. The ravine directly to the east of the Site contains water only intermittently. The ravine to the north appears to be dry throughout the year. Drainage from the area of the burial pits is directed towards Squaw Creek via the east ravine.

The CDS was active from 1958 through 1966. Chemical and radiological waste was buried in nine (9) unlined pits varying in size, the largest being forty (40) feet by twenty (20) feet, and all approximately seven to eight (7-8) feet deep. Known pits were located in the southeast corner of the site. Historical waste burial documents state the wastes were contained in steel pails, drums, glass containers and plywood boxes. These documents state the constituents of the wastes to contain both radiological and hazardous elements. Based on analytical results of the excavated wastes, no hazardous constituents, as defined by RCRA, were found. During the source removal all wastes were shipped as "low level radioactive".

In 1980 and in 1987, two separate assessments for surficial radioactive contamination were conducted by Ames Laboratory at the CDS. A total of five (5) volumes of contaminated soil were identified, removed, and properly disposed. In 1980, soil was removed from the "uranium burn area". In 1987, more soil was removed from the burn area and from three (3) newly identified areas.

In September 1989, Ames Laboratory installed two (2) monitoring wells and one (1) reference well next to the burials to define potential soil and groundwater contamination. Sample analyses indicated no radiological threat to the public or the environment, however, only limited analyses for potential hazardous waste contamination at the site were performed.

Regulatory Drivers

In 1990, the State of Iowa Department of Natural Resources was prepared to add the CDS to the State's Registry of Abandoned and Uncontrolled Waste Sites in accordance with Section 455B.426b of the Code of Iowa. The proposed classification was level "B - Significant threat to the public health or the environment - action required". The classification was contested, and on June 27, 1991, it was

downgraded to "C - Not a significant threat to the public health or the environment - action may be deferred". However in the interim, a remedial strategy had been developed and a work plan written to characterize the site for the presence of potentially hazardous waste. The original (Phase I) RI was performed in FY 1993. An EE/CA, draft FS and draft RAP (groundwater RD) were produced in FY 1994. By an inter-agency agreement between the Corps of Engineers and DOE-Chicago, a source removal interim action was initiated in the fall of 1994 and completed in the spring of 1995. The draft FS, based on investigative activities to that point, has been shelved by the regulators pending more site investigation, know as the Phase II RI. Downgradient vegetation was sampled in the summer of 1995 as part of the Phase II RI. In addition, groundwater hydrology and groundwater monitoring is being assessed.

No disposal or waste management activities are know to have occurred on the Site since 1966. An Interim Removal Action (IRA) at the Site to remove the waste material from the burial pits was conducted by the US Army Corp. of Engineers under contract to the US Department of Energy (US DOE). The excavation of the materials was completed in the fall of 1994. All materials were disposed at off-site facilities. The results of the IRA were presented in a site closure report (1995) which presented the nature of the wastes removed and residual contamination.

Project Objectives

This project involves the validation and reporting of four rounds of water sampling, the Phase II Remedial Investigation Report (RI), and the Focused Feasibility Study and Proposed Plan (FFS/PP). The FFS/PP has been accelerated. Remediation strategy at the site is following EPA CERCLA guidance, the Iowa Administrative Code, DOE's policy on graded approach, applicable DOE Orders and OSHA Regulations to meet all applicable regulatory requirements. Components of the Phase II RI include:

Groundwater and Surface Water Sample Analysis Validation in accordance with US EPA's National Functional Guidelines, or equivalent.

Quarterly Water Quality Reports which will include analytical summary tables, data quality summary reports, a description of field observations, and a potentiometric map of the water table aquifer.

The Phase II RI Report which will present contaminant fate and transport and a human health risk assessment. If appropriate, groundwater will be modeled to demonstrate the potential for receptors to be impacted by the site using the model methodology established in the Phase I RI.

Focused Feasibility Study/Proposed Plan. The Focused Feasibility Study will revise the Draft Feasibility Study of March, 1994. Based on existing site knowledge, it is assumed that long-term groundwater monitoring or no further action will be the recommended remedial option in the Proposed Plan.

Regulatory liaison, project meetings, and community relations.

Waste Management Activities

The Ames Laboratory is located near the City of Ames, Iowa on property owned by Iowa State University (ISU) and occupies twelve buildings. The Laboratory also leases space in three ISU buildings. Ames Laboratory conducts basic and intermediate-range applied research in physical, mathematical and engineering sciences that support energy technologies. Laboratory activities involve less than ten percent of the total chemical use and one percent of the radioisotope use on the ISU campus.

Pollution prevention and waste minimization programs and plans are being updated. Included in this plan is waste paper recycling, recycling salvage metal, and recycling used oil. Nearly all chemical and radiological "legacy" wastes have been properly disposed.

This activity supports the base waste management program and those activities that support the operation of a research facility in the area of waste management. This includes recycling, waste minimization, and disposal of waste resulting from research laboratory operations. Collection, transportation, and disposal costs are an integral part of the waste management activity. Waste typically includes contaminated duct work, drain lines, research-level quantities of potential hazardous chemicals and laboratory equipment. In addition, continuous operation requires administrative activities such as preparation and maintenance of waste generator forms and required annual waste operations reports. Program management for this activity consist of program planning and direct management of projects. Primary landlord responsibilities belong to the DOE Office of Energy Research.

Princeton Plasma Physics Laboratory

Introduction

Princeton Plasma Physics Laboratory (PPPL) is located on C and D sites of Princeton University's James Forrestal Campus, encompassing an area of approximately 72 acres leased to the Department of Energy (DOE) for 40 years. The primary mission of PPPL is magnetic confinement plasma physics fusion energy research. The goal of the magnetic Fusion Energy Research program is to develop and demonstrate the practical application of fusion power as an alternative energy source. PPPL has been engaged in fusion energy research since 1951 and at its present location since approximately 1959, with construction of new facilities occurring up to 1980. Presently, PPPL has two large tokamak devices, namely, the Princeton Beta Experiment-Modification (PBX-M) and Tokamak Fusion Test Reactor (TFTR). Upon conclusion of environmental restoration activities at PPPL, the property would continue to be leased by DOE for continuing fusion energy research activities.

Regulatory Drivers

Memorandum of Understanding (MOU) between Princeton University and the New Jersey Department of Environmental Protection (NJDEP), dated February 1993. Princeton University, as the landowner and leasor of Site C/D, entered into a Memorandum of Understanding with the State of New Jersey Department of Environmental Protection (NJDEP), dated February, 1993 for the environmental restoration of Site A/B and Site C/D (PPPL) of the James Forrestal Campus. The MOU granted to Princeton University in lieu of an Administrative Consent Order thus allowing more flexibility in the schedule of reports and consideration of remedial strategies. Site C/D in not a CERCLA site under the oversight of the Federal EPA.

Environmental Restoration Activities

Several focused environmental investigations were conducted at PPPL in the late 1980's and early 1990's. They included a site-wide soil vapor survey, conducted in compliance with the facility's NJPDES Discharge to Ground Water permit. This survey detected chlorinated volatile organic compounds (VOCs) and polyaromatic hydrocarbons (PAHs) in several areas of the site. The VOCs are common components in degreasing and cleaning solvents and PAHs are components of gasoline and other fuels. Based on the findings of the soil vapor survey, a ground water investigation was conducted in late 1990. This investigation included the installation and sampling of 18 monitoring wells.

In FY 1995, PPPL conducted soil and ground water sampling as specified in the Remedial Investigation Work Plan (RIWP) under the MOU with NJDEP. Soil sampling in five of the seven Areas of Potential Environmental Concern (APEC) did not detect contaminants above NJDEP Soil Cleanup Criteria. Thus, these areas have been identified for "no further action" requests. Base-neutral organic compounds (Bns) were detected in sediments from the C-Site drainage swale and chromium was detected in the vicinity of the C-site Cooling Tower at concentrations exceeding NJDEP cleanup criteria. In addition, soil and ground water sampling did not clearly identify a source for VOCs detected in on-site monitoring wells (principally in the CAS-RESA area). These sampling results indicate the need for installation and sampling of several new monitoring wells to meet the requirements for NJDEP regulations and guidance documents.

Two of the seven Areas of Potential Environmental Concern (APECs) have contaminants at concentrations above NJDEP cleanup criteria in the soil as noted above. Low levels of VOCs have been detected in the ground water at a few areas on both C and D sites. The highest levels have been identified in wells located along the southern boundary of the site, adjacent to wetlands and the CAS/RESA buildings. Shallow and intermediate ground water at the site flows to several deep building

dewatering sumps. These sumps act as a ground water capture system and discharge to an on-site detention basin which flows to nearby surface water bodies.

Phase I soil sampling results indicate that only two of the seven APECs identified in the Remedial Investigation Work Plan (RIWP) have soil contamination exceeding the NJDEP cleanup criteria. Approximately 200 cubic yards of soil in the vicinity of the C-Site Cooling Tower contain chromium above the NJDEP cleanup criteria. Approximately 50 cubic yards of soil in the C-Site Drainage Swale contain base-neutral Organics (BNs) above the NJDEP cleanup criteria. The quantity of contaminated ground water has not been fully delineated at this time. Soil remediation will be achieved by expedited removal action in the two APECs (Cooling Tower and Drainage Swale). Contaminated soil in these areas will be excavated for off-site treatment or disposal.

At this time, ground water contamination is not clearly attributable to PPPL, and contaminated ground water is captured by the building dewatering pumps. Based on meetings with the New Jersey Department of Environmental Protection, if ground water contamination is not clearly attributable to PPPL, DOE would not be required to implement active ground water remediation. Instead, the existing building dewatering sumps would be used to control the migration of contaminants and a "natural remediation" process would be allowed to reduce contaminant concentrations over time. Ground water monitoring would be required to monitor and evaluate the natural remediation processes. Under this scenario, an Aquifer Classification Exception Area (CEA) would be designated in those areas where contaminant concentrations exceed the Ground Water Quality Standards. The CEA would provide regulatory relief from those standards for specific contaminants for a specific period of time. Regular ground water monitoring is assumed for a minimum of five years after the completion of the removal actions described above.

Waste Management Activities

Wastes generated by PPPL include oils, solvents, PCBs, heavy metals and low-level radioactive wastes. PPPL does not treat or dispose of waste on-site. Hazardous wastes are sent to commercial facilities; radioactive wastes are shipped to DOE's Hanford, Washington facility. Waste are handled in accordance with RCRA regulations as they are generated by on-going research and development activities.

PPPL has constructed a new Radioactive Waste Handling Facility to store prepackaged radioactive waste. The Facility is approximately 5800 square feet and has an expected useful life of 30 years. The facility has a ten ton crane and a 15" concrete floor. The sixty-seven foot wide by eighty-six foot long facility serves as the focal point for the preparation of radioactive waste materials for shipment to disposal sites.

Waste management activities have not included any EM-40 restoration derived wastes, since none have been generated other than small quantities generated during sampling events. No legacy wastes exist at PPPL Site C/D. Restoration-derived wastes from the removal of underground storage tanks and associated TPH contaminated soils were excavated and shipped off-site to a recycling facility for reuse in asphalt road paving.

Anticipated impacts to the PPPL waste volumes and costs are directly related to programmatic decisions affecting the shutdown of TFTR. Large quantities of wastes would be generated if the project was closed. This Plan assumes that these activities would be managed by the landlord, the Office of Energy Research.

Fermi National Accelerator Laboratory

Introduction

The Fermi National Accelerator Laboratory (Fermilab) is located in Batavia, Illinois, about 30 miles west of the City of Chicago. The Fermi National Accelerator Laboratory began its mission as a single-program research and development facility for the Department of Energy (DOE) in 1972 when the first accelerator at the laboratory began operations. The Fermi National Accelerator Laboratory's mission is to conduct research in high-energy physics. This involves acceleration and collision of subatomic particles and an examination of the products of these interactions. Protons are accelerated via a series of five machines of increasing size and capability. After acceleration, protons may be extracted and sent to one of the three fixed target areas, or they may be kept in the accelerator and used in collisions with antiprotons traveling in the opposite direction. The information gained from these studies contributes to understanding the basic nature of matter and forces.

Waste Management Activities

Fermilab has no plans for treatment or disposal facilities on-site. Waste operations will continue as long as the laboratory generates waste. All waste is sent off-site for appropriate treatment, as required. Fermilab generates hazardous wastes, as defined by RCRA regulations (40 CFR Part 261) incident to accelerator operation and maintenance. Fermilab has a RCRA permit to operate a hazardous waste storage facility. The permit was issued by the Illinois Environmental Protection Agency (IEPA) and the United States Environmental Protection Agency (EPA). Fermilab collects, handles and stores all RCRA hazardous wastes in accordance with permit provisions. Hazardous wastes typically consist of 15% RCRA, 30% TSCA and 55% Illinois Special (nonhazardous) by volume. This includes corrosives, cleaners, solvents, asbestos, PCBs, lubricating oils, coolants, adhesives, spill cleanup debris and miscellaneous chemical products. The typical total volume of hazardous waste disposed of is less than 50,000 gal. per year. Fermilab utilizes brokers and commercial facilities for the final disposition of hazardous waste.

Laboratory operations also generate "special wastes" as defined by the Illinois solid waste regulations, radioactive mixed wastes, and low-level radioactive waste (LLW) in small amounts. The Laboratory regularly packages and ships regulated wastes to authorized treatment/disposal facilities and has no backlog of "legacy" wastes.

The Laboratory is engaged in a long-term project to clean up soils contaminated with polychlorinated biphenyl compounds (PCBs). The soils are near electrical transformers located along the main accelerator ring. The cleanup can occur only during accelerator shutdown periods. This activity is expected to be completed in 2004, pending Main Ring operation schedules.

Fermilab is conducting a RCRA Facility Investigation (RFI) as a condition of the RCRA permit for a hazardous waste storage facility at Site 55. The purpose is to investigate and remediate, where necessary, confirmed hazardous constituent releases to the environment. IEPA originally identified 17 Solid Waste Management Units (SWMUs) in the RCRA permit that required investigation. Fermilab subsequently notified the IEPA of four new SWMUs and a change in status of one of the original SWMUs.

Fermilab completed an RFI Phase I investigation (presence or absence of hazardous constituents) of the original 17 SWMU's in July 1994. Based on the Phase I sampling results, the IEPA determined that no further action was needed at 10 SWMU's, two SWMUs would need a Phase II investigation to define rate and extent of contamination, one SWMU needed to be resampled based on newly-defined concerns, more information was required for one SWMU and the IEPA would provide closure for the remaining SWMU.

Fermi submitted a draft workplan for the Phase II Investigation at two SWMUs to IEPA for review on September 8, 1995, and will submit a plan for Phase I sampling at the four newly-identified SWMUs to IEPA in November 1995.

Fermilab generates low level radioactive and very small quantities of low level mixed wastes as a consequence of particle accelerator operation and related support activities. Low level radioactive waste is shipped to DOE's Hanford, Washington facility for disposal. Operations involve the routine handling of low-level radioactive wastes and the routine processing of radioactivity contaminated NaCl. Although NaCl is not a RCRA hazardous waste, it is a State of Washington "dangerous waste". Therefore, radioactivity contaminated NaCl is considered a mixed waste at Hanford. This waste results from the regeneration of ion exchange resin at the Central Utilities Building. Processing involves examination of solids which have been initially identified as "radioactive" waste to determine whether or not they are, in fact, radioactive. Items are removed from containers, physically isolated, and checked for radioactivity. For about 20% of the waste, no activity is found and the items are sent to a municipal landfill or to a commercial reclaimer. About 50% is repackaged for off-site shipment to Hanford. The remaining 30% is "potted" into cement shield blocks. Potting involves partially loading steel forms with low-level radioactive material than filling the open space with concrete. Oil is solidified by a subcontractor using a special cement to assure adequate mixing. Solidification takes place in a 70 year old barn at Site 67.

PIQUA NUCLEAR POWER FACILITY

The Piqua Nuclear Power Facility is located in southwestern Ohio, north of Dayton, on the east bank of the Great Miami River in the southeastern portion of the town of Piqua, Ohio. The Piqua Nuclear Power Facility is currently undergoing surveillance and maintenance activities under the purview of the CH EM program.

The Piqua Nuclear Power Facility contained a 45.5 megawatt (thermal) organically cooled and moderated reactor which had been built and operated as a demonstration project by the US Atomic Energy Commission between 1963 and 1966. The facility was dismantled and decommissioned between 1967 and 1969; the reactor fuel, coolant, and most of the radioactive materials were removed from the site. The reactor vessel and the spaces between the vessel and cavity liner were filled with dry quartz sand.

There is currently no contamination in evidence outside the containment structure. The inventory of primary radionuclides remaining in the storage structure includes iron-55, cobalt-60, carbon-14, and beryllium-10.

The Environmental Management at the site is currently scheduled to end in fiscal year 2018, with no further activities planned after that time. At that time, the current plan is that the site will be transferred to the town of Piqua, Ohio.

Although the potential for transport of radioactive materials stored in the reactor complex to the environment is insignificant, under the terms of the lease agreement (contract No. DE-AC02-76EV01798) between the US Government and the Village of Piqua, the US Department of Energy is responsible for the nuclear safety of the land and structures. The Chicago Operations Office will be responsible for implementing remedial measures should activity be detected outside the facility. At the same time, the results of the surveillance activities conducted to date verify that there has been no detectable release to the environment from the decommissioned facility.

There are no current or planned activities related to assessment, remedial actions, stabilization, decommissioning, and treatment/storage/disposal. This facility will be transferred in FY 1998 to the Grand Junction Project Office for surveillance and maintenance.

HALLAM NUCLEAR POWER FACILITY

The Hallam Nuclear Power Facility is located on a small portion of the 640-acre site of the present Sheldon Power Station, owned by the Nebraska Public Power District. It is located in Lancaster County in southeastern Nebraska, approximately 19 miles south of Lincoln. The entombed reactor is located slightly southeast of the center of the site. The Hallam Nuclear Power Facility has no current mission. Activities at the site are limited to semi-annual surveillance and maintenance.

The Hallam Nuclear Power Facility was a 240 megawatt (thermal) sodium-cooled graphite-moderated nuclear reactor which was built and operated by the US Atomic Energy Commission between 1962 and 1964. In 1967, the Nebraska Public Power District was authorized to decommission and dismantle the facility. This activity ended in 1969, and the facility was retired by the US Atomic Energy Commission in 1971.

There is currently no contamination in evidence at the site. Potential contaminants include nickel-63, cobalt-60, iron-55, manganese-54, samarium-151, cesium-137, strontium-90, and tritium. All these materials were located within the entombment structure in area 1 (reactor vessel and vessel containment structures), area 2 (fuel and storage pit #3 thimbles), or area 3 (moderator element storage cells).

There are no current or planned Nuclear Material and Facility Stabilization projects at the Hallam Nuclear Power Facility. All waste management activities are conducted within the scope of environmental restoration. The Environmental Management at the site is currently scheduled to end in fiscal year 2005, with no further activities planned after that time. At that time, the current plan is that the site will be transitioned to the Nebraska Public Power District. Future use of the facility is assumed to remain restricted.

Presently, there are no discussions being conducted or scheduled with local stakeholders. Officials from the Nebraska Department of Health are included in the planning and implementation of the semi-annual groundwater sampling activities. Results of the sampling work are provided to state officials.

Although the potential for transport of radioactive materials stored in the isolation structure to the environment is insignificant, the DOE Chicago Operations Office has agreed with the Nebraska Department of Health to conduct environmental radiological surveillance semi-annually to verify that no radioactivity is being released to the environments. The basis for radiological surveillance was previously established while a contract termination agreement was in effect that involved the Nebraska Public Power District and the US Atomic Energy Commission. In addition, The Chicago Operations Office and the Nebraska Department of Health agreed to install a shallow groundwater monitoring system as part of the environmental surveillance program.

There are no current or planned activities related to assessment, remedial actions, stabilization, decommissioning, and treatment/storage/disposal. This facility will be transferred to the Grand Junction Project Office in FY 1998 for surveillance and maintenance.

SITE A/PLOT M

Site A/Plot M is located within the Palos Forest Preserve in Cook County, Illinois. The site is owned by the Forest Preserve District of Cook County. Site A/Plot M is currently undergoing monitoring data from groundwater, soil and air sampling conducted throughout the year to affirm that no significant changes are occurring. Surveillance and maintenance activities have been on-going at Plot M since 1973 and expanded to include 17 new wells at Site A.

It is expected that Site A will be returned to the Forest Preserve District of Cook County when agreement is reached that the area can be returned to unrestricted use for hiking, picnicking and other recreational activities. The Environmental Management Program is committed to long term surveillance and monitoring of groundwater and surface streams, soil and air for a variety of hazardous compounds and radioisotopes. This activity will continue and be re-evaluated in 2005.

Site A/Plot M is the former site of early activities by the Manhattan Engineer District between 1942 and 1956. Site A contained two experimental nuclear reactors and associated research laboratories. Plot M was used for the burial of radioactive waste from experimental research at Site A. Initial work involved research and the development of radioisotopes and fission products for uses in defense and non-defense activities.

Environmental media of concern include air, groundwater and soils. Contaminants include low levels of various radioisotopes such as uranium and tritium and hazardous constituents such as VOCs, SVOCs, and heavy metals.

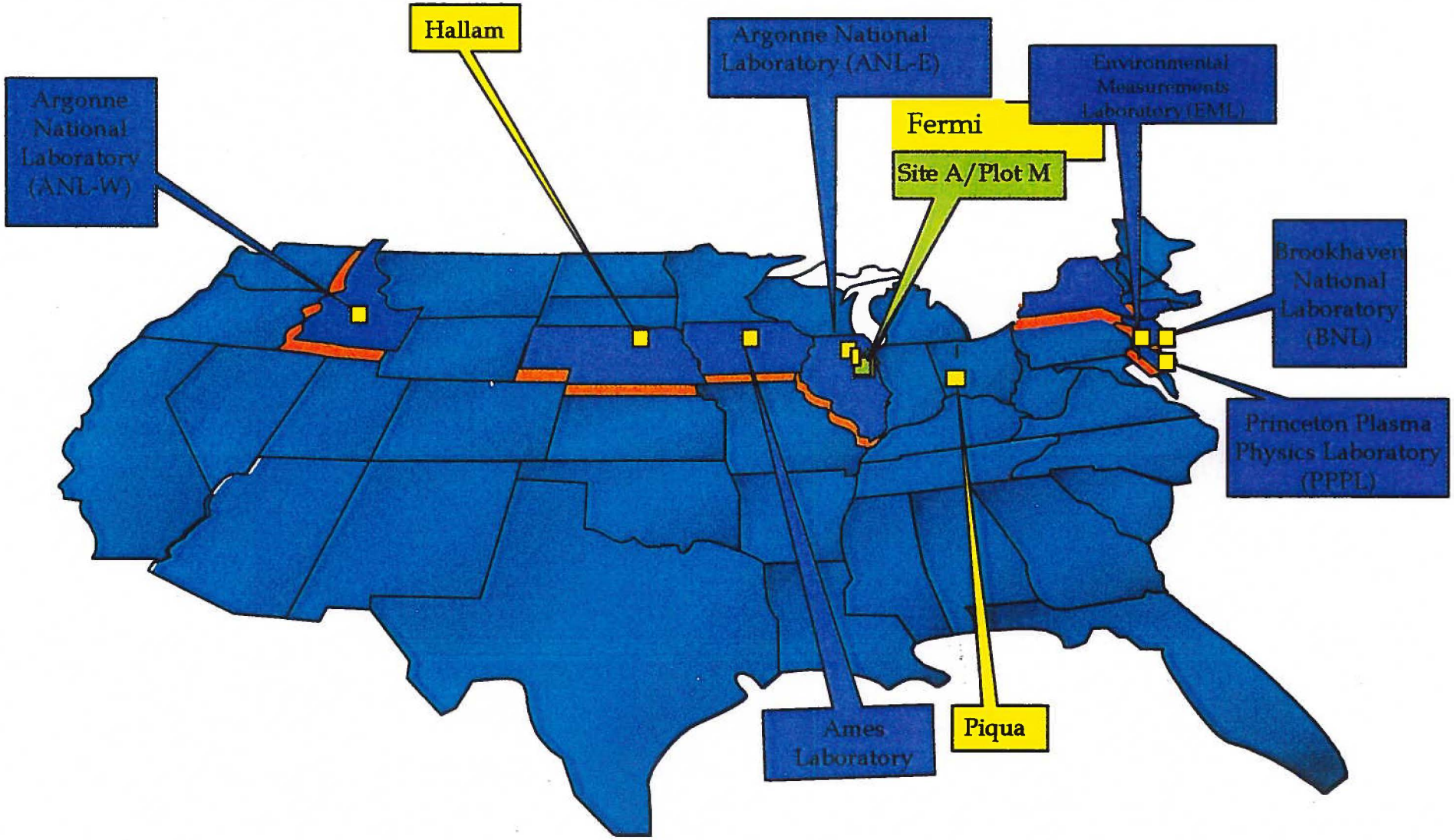
Various investigations, radiological surveys and studies of Site A have been performed. Completed in 1995, a comprehensive site characterization provided the nature and extent of radiological and chemical contamination of the soils, surface water, sediment and groundwater. This investigation noted several areas of surficial contamination, primarily in the form of heavy metals in shallow soils. Infiltration of contaminants originating from the surface soil poses little or no threat to the deep water aquifer. Groundwater has only been slightly affected by tritium in the perched water zones near the bioshield burial area. Surface water transport of contaminated sediments has the highest potential for moving contaminated soil off-site, but concentrations of contaminants in this soil are minimal.

This facility will be transferred to the Grand Junction Project Office in FY 1998 for surveillance and maintenance.

APPENDIX II

MAPS

CH Site Map


Hallam
Argonne National Laboratory (ANL-E)
Environmental Measurements Laboratory (EML)
Fermi
Site A/Plot M
Argonne National Laboratory (ANL-W)
Brookhaven National Laboratory (BNL)
Princeton Plasma Physics Laboratory (PPPL)
Ames Laboratory
Piqua

Appendix III

Release Site Data

	Current	Projected
1997	32	32
1998	43	53
1999	23	15
2000	10	7
2001	15	2
2002	5	25
2003	2	17
2004	8	3
2005	4	6
2006	1	18
2007	2	
2008		
2009		
2010	10	
2011		
2012		
2013	4	
2014	15	
UNSCHEDULED	4	
TOTAL	178	178

Appendix IV

Waste Management Volumes and Cost

Current Projected

Appendix V

References

- Draft CH Waste Management Program Baseline Draft May, 1996
- PTS Data
- Monthly Reports
- ANL-E Current FY 1996 Year Work Plan
- ANL-W Current FY 1996 Year Work Plan
- BNL Current FY 1996 Year Work Plan
- Fermilab Current FY 1996 Year Work Plan
- PPPL Current FY 1996 Year Work Plan
- ANL-E&W Waste Management Baseline
- EM 30/40 Performance Measures Data
- BEMR Data
- CH Management Action Plan

Argonne National Laboratory-West

- Operable Unit 9-04 - Comprehensive RI/FS Draft Work Plan 12/21/95.
- Operable Unit 9-04 - Final Scope of Work for the WAG 9 Comprehensive RI/FS 11/9/95.
- Operable Unit 9-04 - Draft Final Scope of Work for the Wage 9 Comprehensive RI/FS 10/10/95.
- Operable Unit 9-04 - Draft Scope of Work for the WAG 9 Comprehensive RI/FS 8/3/95.
- OU 9-03 - Revised Track 2 Summary Report - 11/28/95
- OU 9-04 - Revised Preliminary Scoping Packages for: 5/16/95
- ANL-09 Interceptor Canal
- ANL-35 Industrial Waste Life Station Discharge Ditch
- OU 9-03 - Summary Report for: 5/2/95
- ANL-05 Open Burn Pits
- ANL-32 Industrial/Sanitary Lift Station
- ANL-34 Fuel Oil Spill
- OU 9-01 Revised Decision Documentation Packages :5/2/95
- ANL-04 Sewage Lagoons
- ANL-29 Industrial Lift Station
- OU 9-04 Revised Preliminary Scoping Packing for:5/2/95
- ANL-01 Industrial Waste Pond and three ditches
- ANL-01A Main Cooling Tower Blowdown Ditch
- OU 9-01, 9-03, 9-04 Revised WAG 9 Sampling and Analysis Plan 11/16/94
- Quality Assurance Project Plan; Health and Safety Plan.
- OU's 9-01, 9-03, 9-04 - Draft Wage Sampling and Analysis Plan 8/16/94
- Quality Assurance Project Plan; Health and Safety Plan.
- OU 9-01 - Decision Documentation Packages for:9/22/94
- ANL-04 Sewage Lagoons
- ANL-63 Septic Tank
- ANL-62 Sodium Boiler Building Hot Well
- OU 9-01 - Decision Documentation Packages for: 8/16/94
- ANL-28 EBR-II Sump
- ANL-30 Sanitary Lift Station
- ANL-60 Know a Butte Debris Pike
- OU 9-01 - Decision Documentation Packages for: 6/8/94
- ANL-29 Industrial Waste Lift Station
- ANL-36 Treat Photo Processing Discharge Ditch
- OU 9-01 - Decision Documentation Package for: 7/27/94
- ANL-61 EBR-II Transfer Yard

- OU 9-01 - Decision Documentation Package for: 4/12/94
- ANL-19 Inhoff Tank and Sludge Pit
- OU 9-02 - Track 2 Summary Report for EBR-II Leach Pit 4/11/94

Argonne National Laboratory-East

• Phase I Hydrogeological Assessment Report Final ANL	4/1/95
• Photographs of Soil Samples., Book 1	11/1/92
• Photographs of Soil Samples, Book 2	11/1/92
• Proposed Revisions to the RCRA Facility Assessment Report for Argonne National Laboratory-East	8/1/94
• RCRA Facility Assessment Report IEPA Bureau of Land Permit Section	9/30/93
• RCRA Part B Permit Application Revision II to the ANL-E IL3 8960 D08946	5/1/95
• RCRA Part B permit Interim Revisions to the Argonne National Laboratory-East Application IL3890 008 946	11/1/93
• RCRA Strategy for Corrective Action at ANL-E	12/1/94
• Revised Final phase I Report ANL-E Sitewide Hydrogeological Characterization Project	4/11/95
• Work Plan for Site-Wide Hydrogeological Baseline Characterization Study Argonne National Laboratory Argonne, IL Geraghty & Miller Inc.	5/1/94
• Area Data Management Plan RCRA Facility Investigation Argonne National Laboratory Argonne IL	12/1/93
• Area Facility RCRA Facility Investigation Work Plan Volume I Draft April 1994	4/1/94
• Area Facility RCRA Facility Investigation Work Plan Volume II Draft April 1994	4/1/94
• Area Field Sampling Plan RCRA Facility Investigation Argonne National Laboratory Argonne, IL	12/1/93
• Area Health and Safety Plan RCRA Facility Investigation Argonne National Laboratory Argonne, IL	12/1/93
• Area Landfill Closure at ANL Construction Documentation Report Volume I Narrative Appendices A Through F	1/1/94
• Area Landfill Closure at Argonne National Laboratory Construction Documentation Report., Volume II; Appendices G-L	1/4/94
• Area Pre-Investigation Evaluation of Corrective Measures Technologies, RCRA Facility Investigation Argonne National Laboratory Argonne, IL	12/1/93
• Area Project Management Plan, RCRA Facility Investigation Argonne National Laboratory Argonne, IL	12/1/93
• Area Quality Assurance Project Plan, RCRA Facility Investigation Argonne National Laboratory, Argonne, IL	1/1/94
• Area RCRA Facility Investigation Work Plan ANL Volume II	7/1/94
• Area RCRA Facility Investigation Work Plan ANL Volume I	7/1/94
• Area Remedial Activities	10/26/94
• Area RMT Appendices for the Landfill Groundwater Assessment Report	3/1/93
• Area RMT Landfill Groundwater Assessment Report	3/1/93
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