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**BUDGET SCENARIOS**

03/22/95

DOE-0741-95  
DOE-FN        EPAS  
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LETTER



Department of Energy  
Fernald Environmental Management Project  
P. O. Box 538705  
Cincinnati, Ohio 45253-8705  
(513) 648-3155

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MAR 22 1995  
DOE-0741-95

Mr. James A. Saric, Remedial Project Director  
U.S. Environmental Protection Agency  
Region V - 5HRE-8J  
77 W. Jackson Boulevard  
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

#### BUDGET SCENARIOS

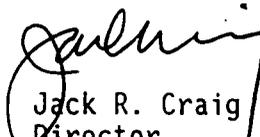
Enclosed is the information which you requested during our February 21, 1995, discussions pertaining to the impact of current budget targets on the Fernald Environmental Management Project (FEMP). Also presented are two scenarios for completing the project at the current target funding levels and a scenario which is relatively unconstrained from a funding standpoint. This last scenario is a rough approximation to integration of all the feasibility study schedules into a single site remediation schedule.

The cost and schedule studies presented herein are of sufficient accuracy for long-term strategic decision-making, but are not intended for budgeting or project tracking purposes. These exercises were carried out to determine estimates of the likely schedule outcome of various budget and sequencing assumptions.

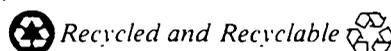
We will contact you in the near future to continue discussions pertaining to the effect of target budgets and priorities.

If you have any questions, please please feel free to contact Johnny Reising at (513) 648-3139 or myself at (513) 648-3107.

Sincerely,

  
Jack R. Craig  
Director

FN:Reising



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Enclosures: As Stated

cc w/enc:

K. H. Chaney, EM-423/QO  
D. R. Kozlowski, EM-423/QO  
G. Jablonowski, USEPA-V, 5HRE-8J  
J. Kwasniewski, OEPA-Columbus  
P. Harris, OEPA-Dayton  
M. Proffitt, OEPA-Dayton  
S. McClellan, PRC  
R. Cohan, GeoTrans  
F. Bell, ATSDR  
R. Owen, ODOH  
T. Hagen, FERMCO/65-2  
R. D. George, FERMCO/5202  
AR Coordinator, FERMCO

cc w/o enc:

J. Thiesing, FERMCO  
M. Yates, FERMCO/9

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6. **OU3 COMPLIANCE STRATEGY**
7. **WASTE MANAGEMENT/FFCA STRATEGY**
8. **SAFE SHUTDOWN**
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11. **D&D**

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**ITEM 1**

**Target Budget Case - OU2**

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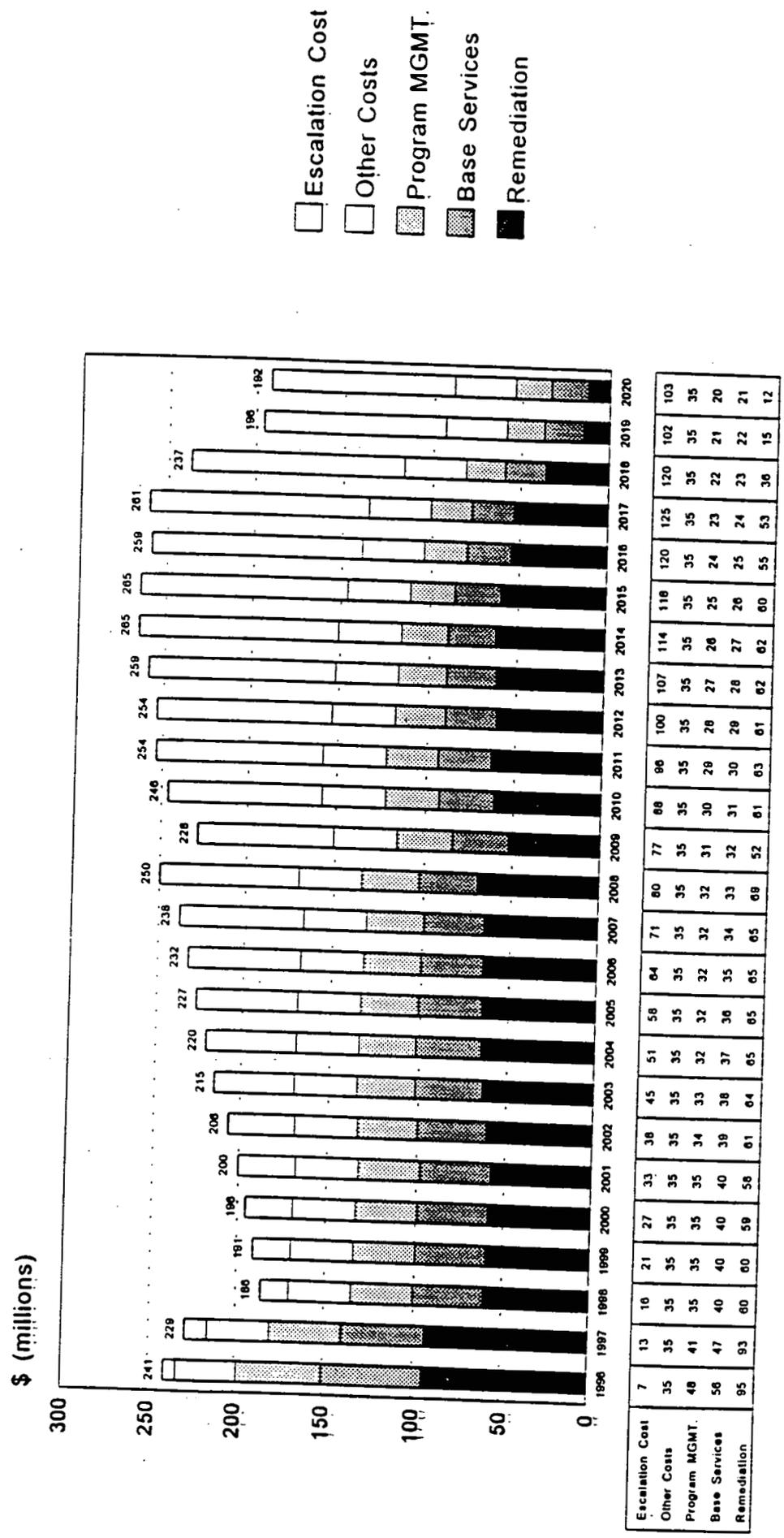
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# TARGET 1 BUDGET CASE SCENARIO

FY	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
OU1	Rail upgrades																								
	Drying facility construction phase 1																								
OU2	Additional upgrades																								
	Drying facility construction phase 2																								
	Pit 6 treatment/shipment																								
	Wet pits treatment/shipment																								
OU3	Dry pits treatment/shipment																								
	D&D of drying facility																								
	Design																								
	Remediation flyash piles, South Field																								
	Construction staging pad/haul roads																								
OU4	R1/FS																								
	Nuclear material disposition																								
	Safe Shutdown																								
	Construction vitrification plant																								
OU5	Vitrification process/offsite disposal																								
	D&D of vitrification facility																								
	Advanced Waste Water Treatment Facility operation and groundwater recovery well operation																								
Disposal Facility	Soil excavation																								
	Construction/placement of remaining waste/soil																								
Ongoing monitoring																									

# TARGET BUDGET CASE SCENARIO

## Cost Projection with Escalation



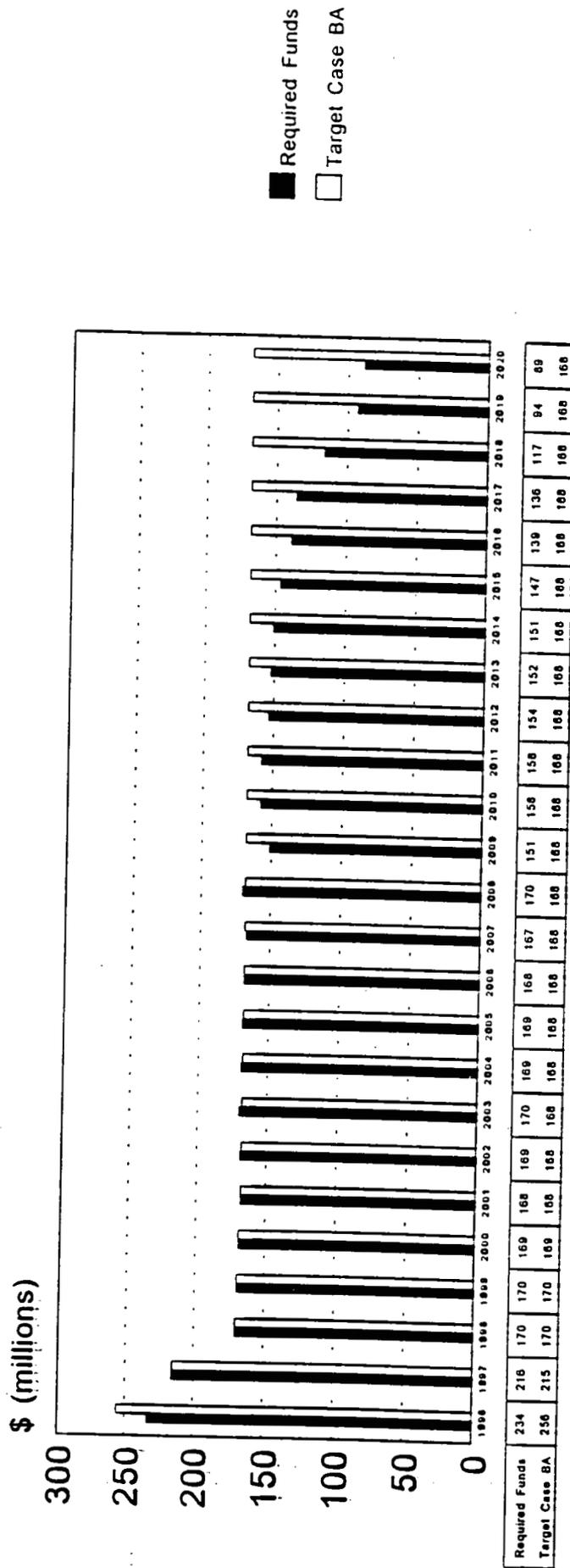
Fiscal Year

Other costs include DOE support and fees.  
 Escalation estimated at 3% per annum. 1995 is Base Year.  
 Operable Unit 2 precedes Operable Unit 1.

# TARGET CASE 1 - UNESCALATED

## FEMP Funding Required vs Target Case BA

### Operable Unit 2 Preceeds Operable Unit 1



Fiscal Year

Constant 1995 dollars  
Includes contractor fee and DOE costs.

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TARGET CASE I STUDY

\$ (Millions)

FERMCO Work Scope Estimate by Activity (Unescalated)

ADS	Title	Fiscal Year												
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
8-B1	Program Management	48.2	40.8	34.7	34.7	34.7	34.7	33.7	32.7	31.7	32.4	32.4	32.4	20.8
68-D1	Landlord	56.1	46.7	40.3	40.3	40.3	40.3	39.3	38.3	37.3	36.3	34.3	33.3	32.4
16-C3	T/S/D	18.0	15.0	7.0	4.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
49-B2	Operable Unit 4	16.3	33.1	19.7	16.6	19.1	20.6	20.6	20.6	0.0	0.0	0.0	0.0	0.0
47-B2	Operable Unit 2	12.0	19.1	9.8	15.2	14.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
46-B2	Operable Unit 1	15.2	5.5	5.4	5.4	12.3	23.2	27.1	30.1	52.0	52.0	52.0	52.0	35.8
48-B2	Operable Unit 3	19.4	9.8	7.6	7.6									20.5
50-B2	Operable Unit 5	13.6	10.8	10.7	10.7	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
Total FEMP Scope BA		198.8	180.8	135.2	134.5	133.8	132.8	133.7	134.7	134.0	133.7	132.7	131.7	135.0

Work Scope Estimate by Activity

ADS	Title	Fiscal Year												
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
8-B1	Program Management	31.4	30.4	29.4	28.4	27.4	26.4	25.4	24.4	23.4	22.4	21.4	20.4	20.4
68-D1	Landlord	32.3	31.3	30.3	29.3	28.3	27.3	26.3	25.3	24.3	23.3	22.3	21.3	21.3
16-C3	T/S/D	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0
49-B2	Operable Unit 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47-B2	Operable Unit 2	7.7	8.1	8.2	7.3	10.6	13.3	14.5	18.9	32.4	19.3	2.5	2.5	2.5
46-B2	Operable Unit 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48-B2	Operable Unit 3	31.4	39.1	39.6	35.5	33.0	30.9	25.7	14.5	2.1	2.1	0.0	0.0	0.0
50-B2	Operable Unit 5	12.1	13.1	15.0	17.5	17.4	17.7	19.2	20.6	18.3	14.4	12.3	9.8	9.8
Total FEMP Scope BA		115.9	123.0	123.0	118.5	117.2	116.1	111.6	104.2	101.0	81.5	58.5	54.0	54.0

Plan Total

8-B1	Program Management	768.3
68-D1	Landlord	839.7
16-C3	T/S/D	60.5
49-B2	Operable Unit 4	166.6
47-B2	Operable Unit 2	227.3
46-B2	Operable Unit 1	621.9
48-B2	Operable Unit 3	318.8
50-B2	Operable Unit 5	328.7
Grand Total FEMP BA		3075.9

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**ITEM 2**

**Target Case 2 - OU1**

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**Revision 03/13/95**

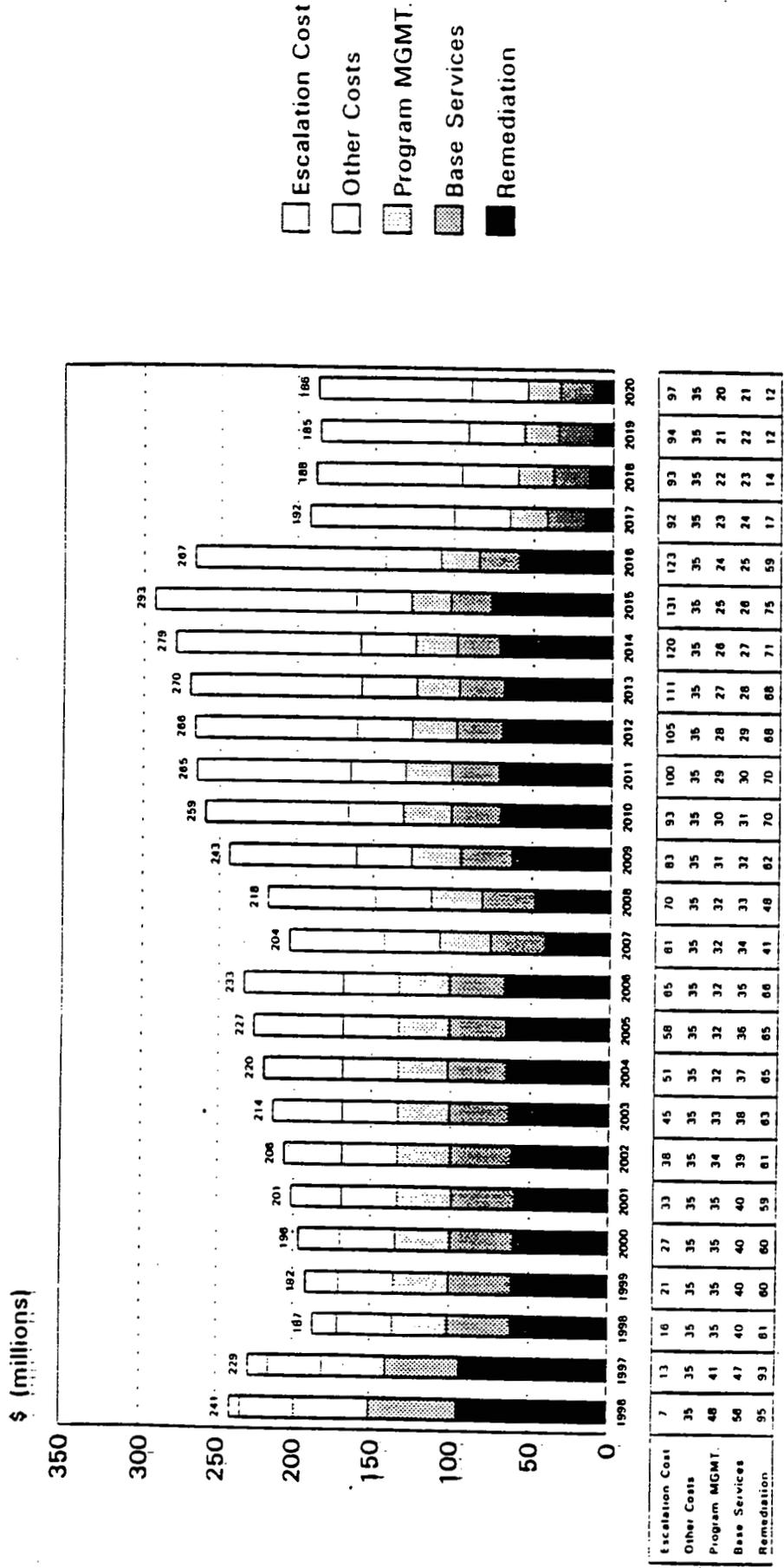
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# TARGET 2 BUDGET CASE SCENARIO

FY	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	
OU1	Rail upgrade																									
	Drying facility construction phase 1																									
	Drying facility construction phase 2																									
	Pit 6 treatment/shipment																									
OU2	Wet pits treatment/shipment																									
	Dry pits treatment/shipment																									
	D&D of drying facility																									
	Design																									
OU3	R/IFS																									
	Nuclear material disposition																									
	Remediation all waste units																									
	Construction staging pad/haul roads																									
OU4	Northern area D&D																									
	Middle area D&D																									
	Southern area D&D																									
	Construction vitrification plant																									
OU5	Vitrification process/offsite disposal																									
	D&D of vitrification facility																									
	Advanced Waste Water Treatment Facility operation and groundwater recovery well operation																									
	Soil excavation																									
Disposal Facility	Construction																									
	Ongoing monitoring																									

# 25 YEAR COMPLETION SCENARIO

## Cost Projection with Escalation



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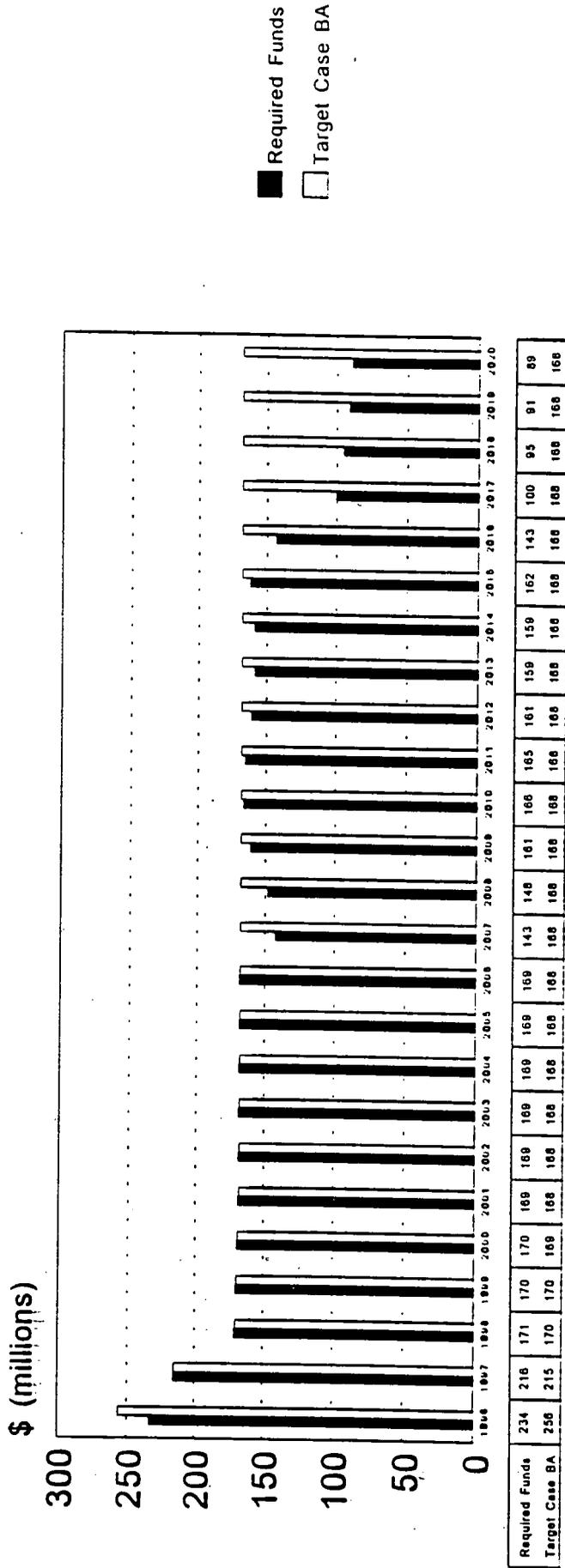
Fiscal Year

Other costs include DOE support and fees.  
 Escalation estimated at 3% per annum. 1995 is Base Year.  
 Operable Unit 1 precedes Operable Unit 2.

# TARGET CASE II - UNESCALATED

## FEMP Funding Required vs Target Case BA

### Operable Unit 1 Preceeds Operable Unit 2



Constant 1995 dollars  
Includes contractor fee and DOE costs.

TARGET CASE II STUDY

\$ (Millions)

FERMCO Work Scope Estimate by Activity (Unescalated)

ADS	Title	Fiscal Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
8-B1	Program Management	48.2	40.6	34.7	34.7	34.7	34.7	33.7	32.7	31.7	32.4	32.4	32.4
16-C3	Landlord	56.1	46.7	40.3	40.3	40.3	40.3	39.3	38.3	37.3	35.3	34.3	33.3
49-B2	T/S/D	18.0	15.0	7.0	4.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
47-B2	Operable Unit 4	16.3	33.1	19.7	16.6	19.1	20.6	20.6	20.6	0.0	0.0	0.0	0.0
46-B2	Operable Unit 2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
48-B2	Operable Unit 1	27.2	24.6	15.2	20.6	27.0	24.6	27.6	29.6	52.2	53.5	15.6	0.0
50-B2	Operable Unit 3	19.4	9.8	7.6	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5
	Operable Unit 5	13.6	10.8	10.7	10.7	10.7	10.6	10.6	10.6	10.6	10.6	12.1	13.1
	Total FEMP Scope BA	199.6	181.6	136.0	135.3	134.6	133.6	133.6	133.6	133.6	133.6	107.8	113.4

ADS	Title	Fiscal Year											
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
8-B1	Program Management	31.4	30.4	29.4	28.4	27.4	26.4	25.4	24.4	23.4	22.4	21.4	20.4
16-C3	Landlord	32.3	31.3	30.3	29.3	28.3	27.3	26.3	25.3	24.3	23.3	22.3	21.3
49-B2	T/S/D	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0
47-B2	Operable Unit 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46-B2	Operable Unit 2	15.2	12.7	13.0	15.2	15.5	18.6	30.3	28.6	2.5	2.5	2.5	2.5
48-B2	Operable Unit 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50-B2	Operable Unit 3	31.4	39.1	39.6	35.5	33.0	30.9	25.7	14.5	2.1	0.0	0.0	0.0
	Operable Unit 5	14.6	16.8	17.3	17.2	18.8	20.5	18.9	16.1	12.3	9.8	9.8	9.8
	Total FEMP Scope BA	125.9	131.3	130.1	126.1	123.5	124.2	127.1	109.4	65.1	56.0	54.0	54.0

ADS	Title	Plan Total
8-B1	Program Management	766.3
16-C3	Landlord	839.7
49-B2	T/S/D	60.5
47-B2	Operable Unit 4	168.6
46-B2	Operable Unit 2	193.4
48-B2	Operable Unit 1	624.1
50-B2	Operable Unit 3	318.6
	Operable Unit 5	327.2
	Grand Total FEMP BA	3042.7

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**ITEM 3**

**Ten Year Cleanup Scenario**

**EPA INQUIRES**

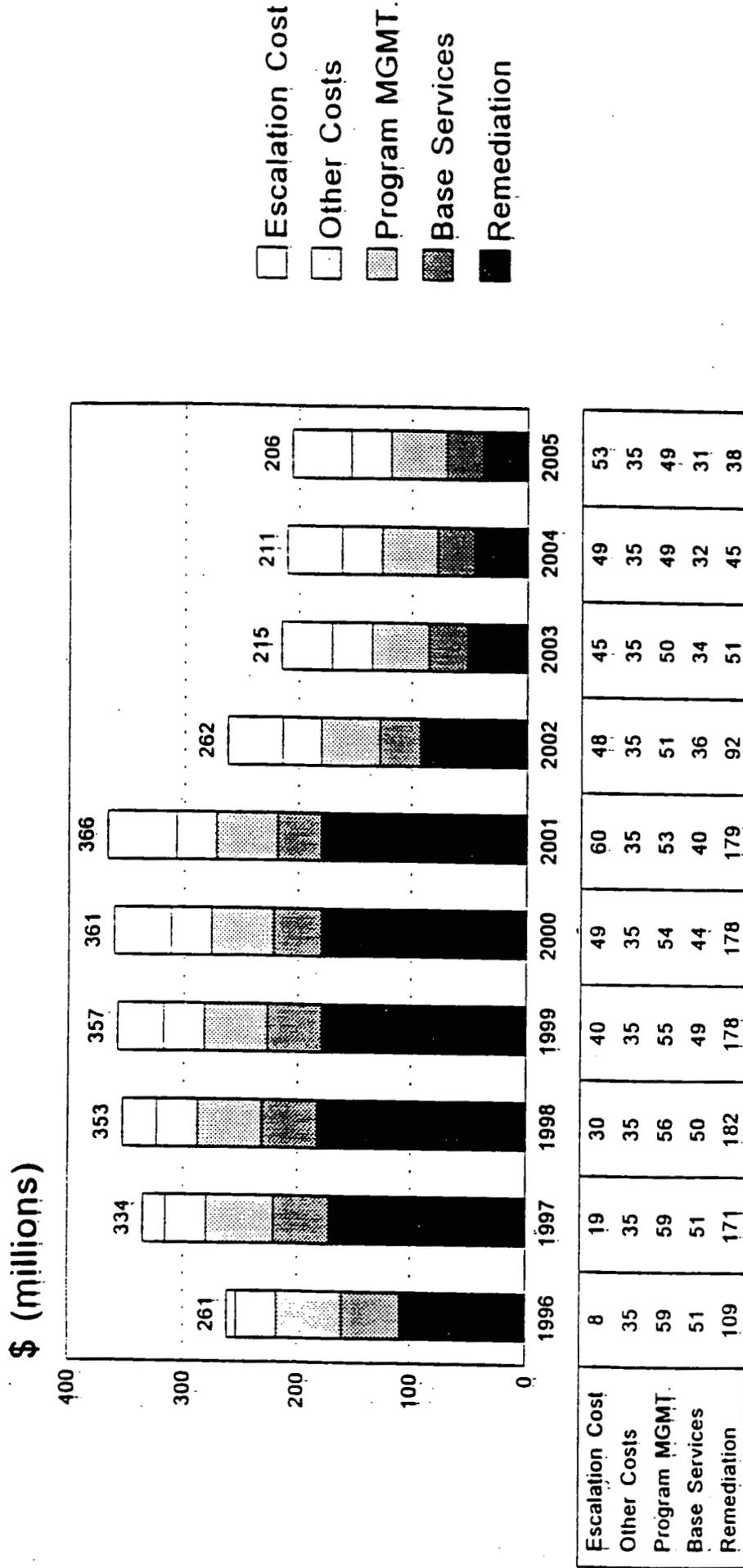
**Revision 03/13/95**

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# 10-Year Cleanup Schedule Based On Unconstrained Funding

FY	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	
OU1	Rail upgrade	Drying facility construction	Pit 6 treatment/shipment	Wet pits treatment/shipment	Dry pits treatment/shipment	D&D of drying facility																				
OU2	Design	Remediation waste units	Construction staging pad/haul roads																							
OU3	R/IFS	Nuclear material disposition	Safe Shutdown		Northern area D&D																					
OU4	Construction vitrification plant	Vitrification process/offsite disposal			Southern area D&D																					
OU5	Advanced Waste Water Treatment Facility operation and groundwater recovery well operation																									
Disposal Facility	Construction/placement of waste	Ongoing monitoring																								

# 10 Year Cleanup Scenario Cost Projection with Escalation

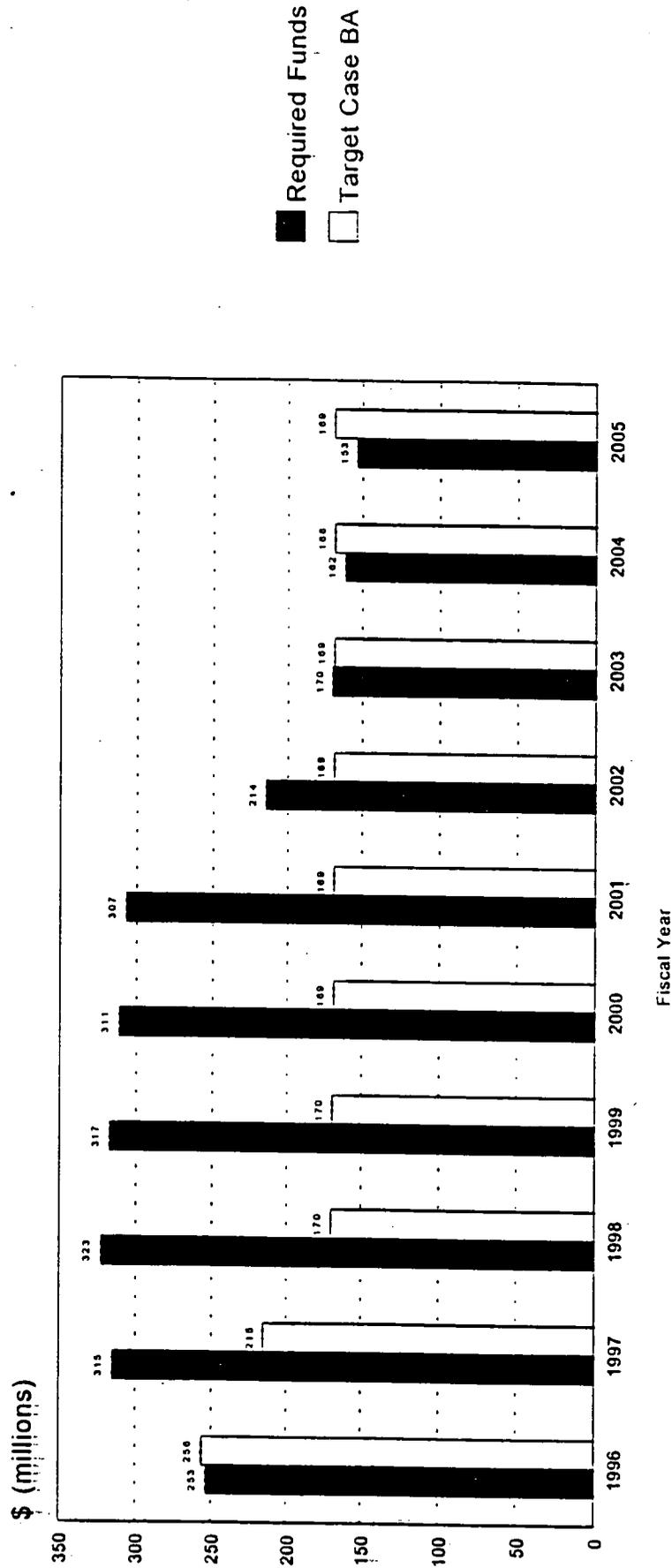


Fiscal Year

- 1- Other costs include DOE support and fees.
- 2- Escalation estimated at 3% per annum(1995 base).
- 3- Support activities are the total of Program Management(ADS 8-B1) and Base Services(ADS 68 D-1).
- 4- Remediation category includes all Operable Units and Waste Management.

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# FERNALD REMEDIATION 10 YEAR COMPLETION STUDY FEMP Funding Required VS Current Target Case - Unescalated



Constant 1995 dollars.

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10 YEAR COMPLETION STUDY

\$ (Millions)

		FERMCO Work Scope Estimate by Activity (Unescalated)										
		Fiscal Year										
		1999	2000	2001	2002	2003	2004	2005	2006	2007		
ADS	Title	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
8-B1	Program Management	58.80	56.13	55.29	54.39	53.19	51.49	50.09	48.89	48.89	0.00	0.00
68-D1	Landlord	50.70	49.97	49.32	43.75	39.94	36.31	33.69	32.33	31.21	0.00	0.00
16-C3	T/S/D	4.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49-B2	Operable Unit 4	31.81	19.10	15.58	17.86	19.59	14.45	0.00	0.00	0.00	0.00	0.00
47-B2	Operable Unit 2	11.60	16.61	15.86	17.25	21.94	16.84	15.03	26.05	19.25	0.00	0.00
46-B2	Operable Unit 1	61.76	76.30	72.53	71.47	68.29	2.71	0.58	0.00	0.00	0.00	0.00
48-B2	Operable Unit 3	41.52	49.32	49.66	46.72	44.16	31.37	11.70	2.11	0.56	0.00	0.00
50-B2	Operable Unit 5	19.06	20.38	24.18	24.83	24.70	26.28	23.98	19.13	18.47	0.00	0.00
Total FEMP Scope BA		280.04	287.80	282.42	276.27	271.81	179.45	135.07	128.51	118.38	0.00	0.00

ADS	Title	Plan Total
8-B1	Program Management	535.97
68-D1	Landlord	418.19
16-C3	T/S/D	21.79
49-B2	Operable Unit 4	134.35
47-B2	Operable Unit 2	172.57
46-B2	Operable Unit 1	370.88
48-B2	Operable Unit 3	307.51
50-B2	Operable Unit 5	217.41
Grand Total FEMP BA		2178.67

**ITEM 4**

**Provide a detailed breakout of costs by year for  
Project Management (8-B1)**

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Revision 03/13/95

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**PROJECT MANAGEMENT COST HISTORY AND PROJECTION**  
(\$ 000)

DESCRIPTION	FY 94 ACTUALS	FY 95 BUDGET	FY 96 BUDGET
SENIOR MANAGEMENT	2,037	1,560	1,618
PUBLIC AFFAIRS	2,902	2,042	1,479
LEGAL AFFAIRS	1,729	1,395	1,367
QUALITY ASSURANCE	2,842	2,760	2,931
STRATEGIC PROGRAMS INTEGRATION	2,394	1,027	783
INFORMATION RESOURCES MANAGEMENT	11,381	8,615	5,987
PROJECT CONTROLS	6,382	4,466	3,853
CONTRACTS & ACQUISITIONS	5,119	6,436	4,924
FINANCE	1,929	1,861	1,885
ADMINISTRATION	7,396	4,486	3,742
REGULATORY PROGRAMS	4,848	3,544	2,684
ENGINEERING MANAGEMENT	11,960	10,465	11,950
CONSTRUCTION MANAGEMENT	2,264	2,435	1,606
ENVIRONMENTAL MANAGEMENT	1,523	3,559	2,816
TECHNOLOGY PROGRAMS	1,691	1,936	600
<b>TOTAL</b>	<b>66,397</b>	<b>56,587</b>	<b>48,225</b>

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**ITEM 5**

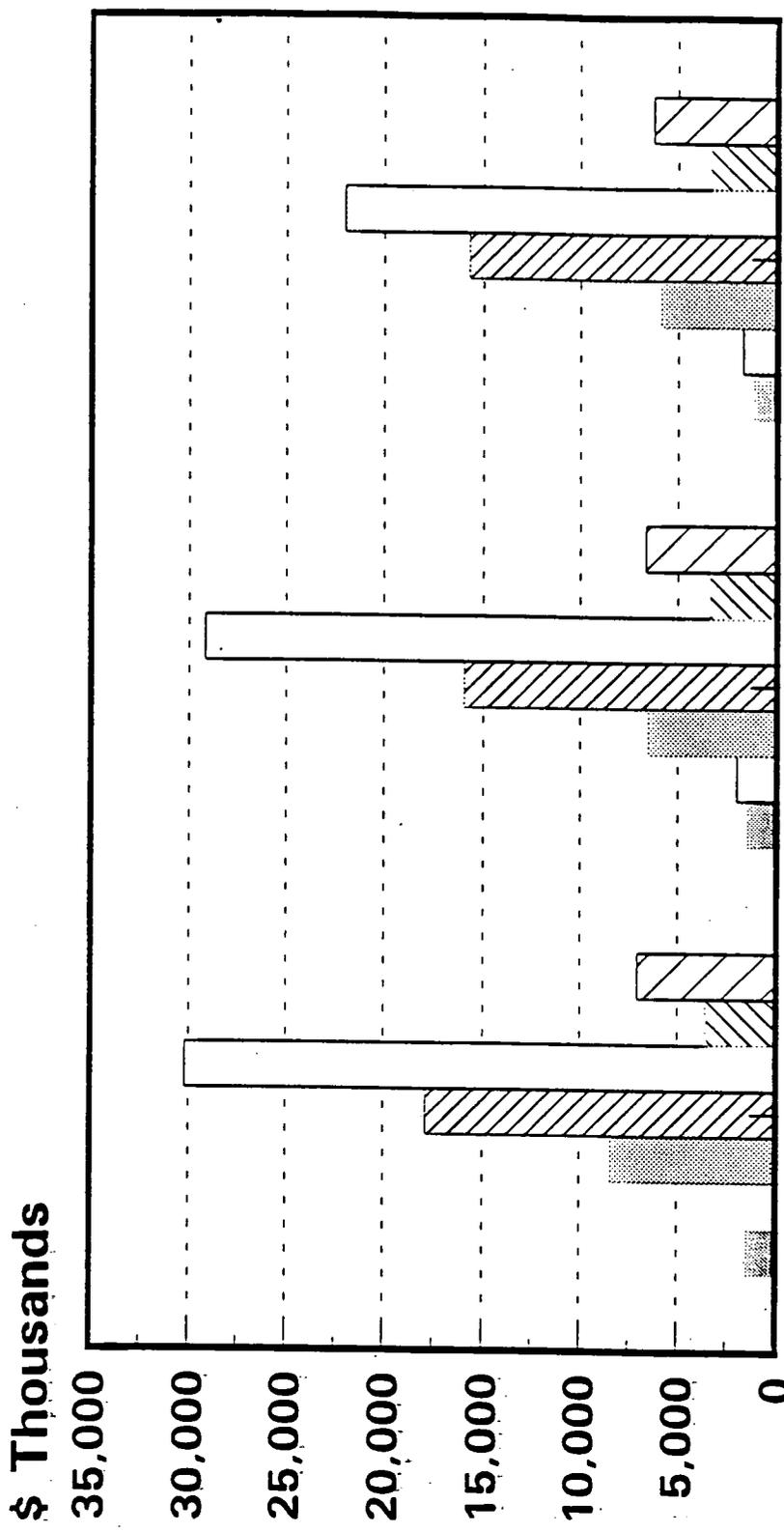
**Review FY 1994 to FY 1996 for 68-D1 and provide a detailed breakout of costs by year for all Landlord activities.**

EPA INQUIRES

Revision 03/13/95

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# 68D1 LANDLORD Activity Cost Projection



	FY 94 ACWP	FY 95 BCWS	FY 96 BCWS
P&IC	1,626	1,462	1,129
ACQ & FIN	145	1,976	1,700
ADMIN	8,405	6,482	5,875
ES&H	17,859	15,935	15,723
RSO	30,192	29,160	22,025
ENG	3,566	3,399	3,401
ENVIRON	7,053	6,632	6,247
<b>TOTAL</b>	<b>68,846</b>	<b>65,046</b>	<b>56,100</b>

**ITEM 6**

**Provide an OU3 Compliance Strategy based upon  
Safe Shutdown Program with no D&D**

EPA INQUIRES

Revision 03/13/95

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JUSTIFICATION FOR SITEWIDE COMPLIANCE APPROACHDISCUSSION

Under the Amended Consent Agreement (ACA), the Fernald Environmental Management Project has been divided into five separate operable units (OUs). The U.S. Environmental Protection Agency (USEPA), in the National Oil and Hazardous Substances Pollution Contingency Plan, endorses the use of operable units for site remediation to allow incremental steps to be taken; typically, these operable units are identified as discrete actions that are bound together by geographical proximity, similarity of contaminants, etc., to enhance remediation planning. Each operable unit will have a Record of Decision (ROD) negotiated with both the USEPA and the Ohio Environmental Protection Agency (OEPA) identifying the appropriate selected remedy (OU3 will have two RODs, one for interim remedial action involving decontamination and dismantling of the structures and one for final disposition of the removed materials). These RODs have been/are being developed independently to satisfy the needs of each OU.

Section 120(e)(2) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that "substantial continuous physical onsite remedial actions shall be commenced at each facility not later than 15 months after completion of the investigation and study." Upon completion of the RODs, there is a need to fully integrate the activities of each of the OUs. This will allow work to be properly planned so that there are no conflicting arrangements for use of construction (or other work) forces or land during remedial actions. Additionally, budget constraints can be more effectively factored in to the planning efforts to assure that priority activities can be accomplished.

The best mechanism to allow fully integrated plans for remediation and meet statutory and regulatory requirements is to combine all of the OUs into one project.

SUMMARY BENEFITS

- 1) Allows full integration of each OU, where activities in one OU must be completed before actions in another OU can begin (e.g., OU3 dismantlement of a building prior to soil remediation and cell construction)
  - Improves planning of remediation activities
  - Allows for a better, stronger, more coherent budget request
  - Will require revision of baseline, ACA, and other key documents to bring them into alignment
- 2) Will allow optimal use of resources
  - Fully integrated scheduling will allow better projection of available and needed resources to accomplish tasks
- 3) Simplifies prioritization process; allows money to be spent where the most benefit (risk reduction) can be gained
  - Aligns with major goal of Administration (both DOE-EM and EPA)
  - Major constraint will be budget
  - Increased difficulty in identifying work that can still be done with remaining funds where there is not enough money to conduct an activity that falls within the priority list

RECOMMENDATION

The most prudent approach towards effective remediation of the Fernald site is to combine all OUs into one project. This will allow improved integration and planning of remediation activities in light of ever-increasing budget constraints. This will also allow meeting the requirement in CERCLA for achieving "substantial continuous physical onsite remedial action."

**ITEM 7**

**What is the Waste Management FFCA Compliance Strategy?**

**EPA INQUIRES**

Revision 03/13/95

**000026**

## FFCA COMPLIANCE STRATEGY

Compliance with the schedules in the Site Treatment Plan is incorporated into each of the alternate remedial priorities scenarios associated with the targeted funding. It is noted that the majority of funding required for FFCA-related activities is in FY 95, FY 96, and FY 97. As implied above, none of the target funding remedial scenarios defer compliance-based or risk mitigation activities.

**ITEM 8**

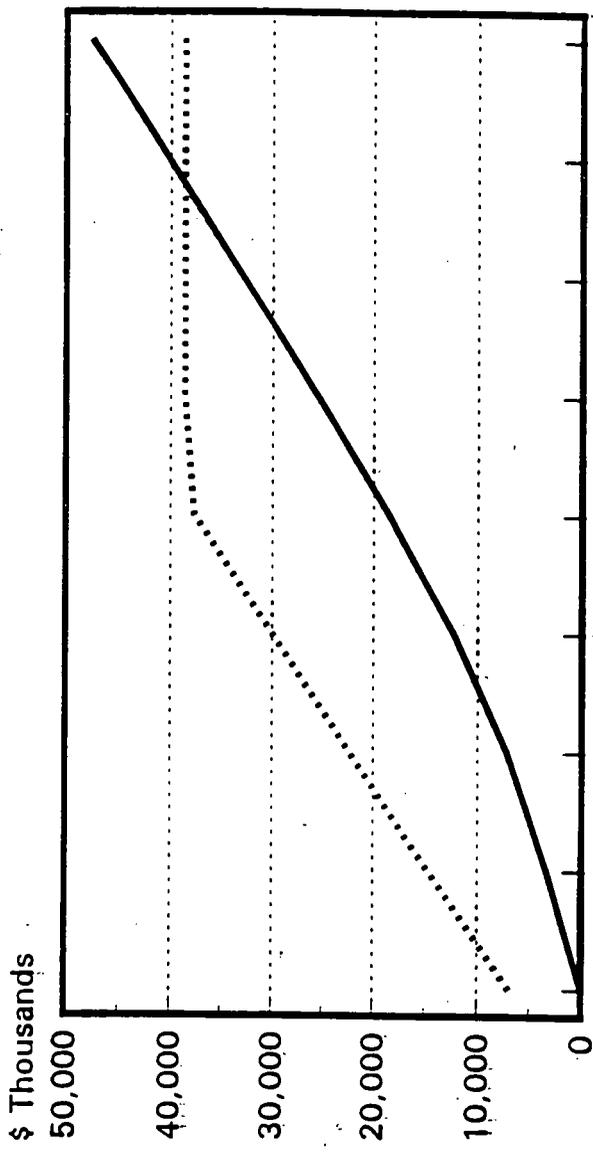
**Provide Cost and Benefit data on current  
Safe Shutdown Program**

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Revision 03/13/95

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# SAFE SHUTDOWN ADS 68D1 CUMULATIVE COST SAVINGS



Cumulative Cost	FY 95	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
SS Cost	6,963	14,685	22,391	30,061	37,646	38,615	38,615	38,615	38,615
ADS Savings	0	3,346	7,171	12,266	18,445	25,508	32,860	40,212	47,564

6756

**ITEM 9**

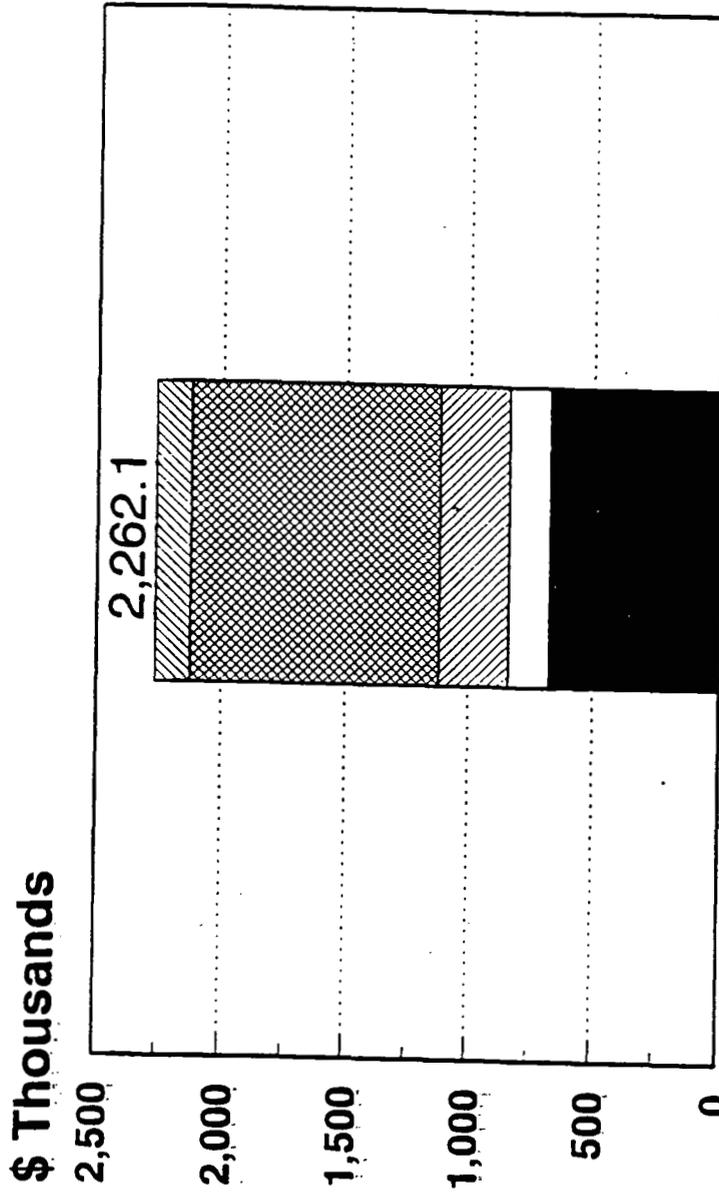
**Provide the cost data to maintain Nuclear material at the site**

**EPA INQUIRES**

Revision 03/13/95

**000030**

# 68D1 LANDLORD NUCLEAR MATERIAL STORAGE ANNUAL COST



Item	FY 1995
Inspection/Drum Overpack	390.2
Material Control/Accountability	283.5
Nuclear Criticality Safety	161.1
Nuclear Materials Administration	287.3
Training	1,000
Other ES&H	140

**ITEM 10**

**Provide the plan and current status on  
Nuclear Material Disposition**

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## NUCLEAR MATERIALS DISPOSITION

### INTRODUCTION

The purpose of this document is to provide a description of FEMP plans to disposition approximately 17,000,000 pounds of nuclear material that remain on site as a legacy of the plants production mission. This nuclear material includes metal (derbies, ingots, cores, recycle scrap),  $UO_3$ ,  $UF_4$ ,  $UO_2/U_3O_8$  and other recoverable residues containing depleted, normal and enriched uranium. The material is currently stored in multiple containers configuration in approximately seven buildings within the Fernald Complex.

### IMPORTANCE OF NUCLEAR MATERIAL DISPOSITION

DOE Defense Programs has declared that Fernald nuclear material is "excess to national security needs" and plans are being put in place to give DOE Environmental Management (EM) full authority to disposition the material. The disposition of this material is very important to the Fernald cleanup mission. This is true for three primary reasons:

1. Material disposition is in the critical path of building D&D. A building cannot be torn down until nuclear material is removed from it.
2. The "hotel costs" of maintaining nuclear material in inventory is in excess of \$1M/year. This expenditure will be required until the material is gone. The cost to maintain nuclear material in inventory reduces the funds available for real site cleanup.
3. The presence of nuclear material increases the hazard category of storage location. As a result, any activities taking place in buildings where nuclear material is stored require additional procedural and safety controls, thus adding time and cost to any scheduled evolution.

### PLANS FOR MATERIAL DISPOSITION

The FEMP has initiated an active program to dispose of Fernald nuclear material. The disposition plan is complex due to: 1) the varying material enrichments and forms, 2) the need to deal with multiple government organizations (DOE-EM, DP & MD, US Enrichment Corp.), 3) the interface required with potential commercial purchasers of the material, 4) the current lack of available packages to ship enriched material and 5) regulatory problems associated with declaring nuclear materials to be waste.

The overall nuclear material disposition plan is illustrated in Enclosure 1. Current activities to implement this plan are as follows:

## Determination of DOE Programmatic Requirements for Fernald Material

1. Multi-Purpose Canister (MPC) Program. DOE has embarked on a major program to fabricate fuel canisters to use for the storage, transportation, and ultimate disposal of commercial nuclear fuel. Depleted metal will very likely be required to fabricate shield plugs for thousands of these canisters. Fernald is working actively with Martin-Marietta and DOE to document DOE needs and effect a transfer of Fernald depleted metal to Oak Ridge for use in this program. Separately, we are exploring other DOE cash fabrication requirements for depleted uranium.

2. High Enriched Uranium (HEU) Blending. The U.S has an on-going program with Russia to remove weapon grade uranium from the former Soviet Union and blend it with low-enriched uranium (LEU) to fabricate commercial nuclear fuel. We have determined that much of the Fernald LEU does not meet the spec for this program due to U-236 contamination. We have, however, agreed to conduct additional sampling and to provide Martin-Marietta with any material we do have that will meet their LEU spec.

## Commercial Sale of Fernald Nuclear Materials

### 1. Manufacturing Sciences Corp. (MSC)

Fernald is currently executing a contract to sell 973,000 pounds of depleted Uranium derbies to MSC. Shipment is expected to be completed by May 1996.

### 2. Allied Signal

Fernald is close to executing an agreement with Allied Signal to provide 671,000 pounds of normal UF<sub>4</sub> and a small quantity of UO<sub>3</sub>. Note that actual transfer will require that DOE grant a waiver for the current DOE material disposition moratorium.

### 3. U.S. Enrichment Corporation (USEC)

By law, the USEC is responsible for the disposition of any enriched material excess to DOE needs. Fernald personnel have met with USEC in Washington and USEC personnel have visited the Fernald site to look at our enriched material inventory. Fernald has provided USEC with a detailed analysis of enriched material and is currently awaiting feedback to identify:

1. Material that USEC desires for their own use;
2. Material that USEC desires to broker with third parties;
3. Material where USEC has no interest but would act as a sales agent if FERMCO/DOE finds a buyer.

Separately, FEMP will be making contact with COGEMA and BNFL in an attempt to re-stimulate interest in Fernald enriched material.

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### Disposition of Waste

The last resort for Fernald nuclear material disposition is to declare the material to be waste and dispose of it accordingly. The first option is not desirable for at least three reasons. First, much of the Fernald material has some "value" which should be recovered. For example, although depleted uranium metal is very costly to generate, currently inventories within DOE are sufficient at least until the turn of the century. This inhibits our ability to find willing "buyers." Second, Fernald material contains uranium which is pyrophoric and therefore could be classified as a characteristic hazardous waste. This would make any material declared waste a "mixed waste" and therefore create large RCRA and waste disposition problems. NTS is not currently permitted to accept mixed waste. Lastly, if Fernald nuclear material was to be declared a waste, it is estimated that the disposition cost could be as high as \$20M. To our knowledge, this cost has not been budgeted by either DOE EM or DP.

### Off-Site Commercial Storage

An option is currently being considered to utilize off-site commercial storage as an interim measure to reduce the "hotel costs" of nuclear material storage. A number of facilities in the United States are licensed to store certain categories of nuclear material. For example, NFS and B&W are licensed to store enriched material. Companies such as American Ecology, SEG, Manufacturing Sciences and ALARON can store normal and depleted material. Each facilitates license contains certain restrictions related to curies, grams of uranium or pounds stored. We are in the early stages of evaluating the practicality and desirability of exploring this option.

### SUMMARY

FEMP is pursuing numerous parallel paths to define our real options for nuclear material disposition. Some of the disposition paths are clear. Most, however, require substantial analysis over the next several months. In general, the FEMP cannot determine any outcome in isolation. Our intent is to push every option to a conclusion - to determine if the option is real or merely imagined. As our options are reduced, the ultimate declaration of certain classes of Fernald nuclear material as waste becomes more real. We can make this final determination, however, only after all other preferable options have been explored and documented.

**ITEM 11**

**Impact at deferred D&D Program**

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**000036**

## BUILDING D&amp;D DEFERRAL CONSEQUENCES

"What are the impacts on soil remediation and cell construction activities if the building D&D is deferred?"

Clearly, deferral of the building D&D will also delay remediation access to the soils underlying the buildings. These soils, evaluated through the Operable Unit 5 RI/FS process, were found to pose risks to potential receptors through two exposure routes: 1) direct contact and 2) the ability of the contaminated soils to impact the Great Miami Aquifer through cross-media pathways.

As demonstrated in the Operable Unit 5 FS and Baseline Risk Assessment, the contaminated soils underlying the buildings generally pose a cross-media risk to the Great Miami Aquifer only over longer-term (up to 1000 year) time periods. The fate and transport modeling evaluations accompanying the Operable Unit 5 Baseline Risk Assessment indicate that the earliest production-area "breakthrough" time for uranium to the aquifer (at concentrations above the proposed MCL) would be 70 years, occurring in the vicinity of Plant 6. Delay of soil remediation over the time periods contemplated will therefore not affect aquifer restoration plans, source loading rates, or groundwater restoration time frames developed for the Great Miami Aquifer through the Operable Unit 5 FS. Recovery Well No. 23 (which is slated for installation in the Plant 6 area) can be installed and operated on schedule even with the D&D delay.

The ability of certain soil contaminants to reach the Great Miami Aquifer within the 1000 year evaluation period was a key factor in setting cross-media cleanup levels for the soils in the production area; deferral will not affect the ability to achieve these cleanup levels (through the excavation plans developed under Operable Unit 5) at a later date. Based on the results of previous groundwater model simulations, lateral expansion of the contaminated perched groundwater zone under the production area will be insignificant during the time frame of the proposed delay. Therefore, the volumes of soil excavation required under Operable Unit 5 (including that necessary to address the contaminated perched groundwater zones) will not be impacted.

Direct contact risks posed by the soils underlying the buildings will be mitigated during the deferral period by the building footprints (which serve as "de-facto" covers minimizing intruder access to the soils) and the institutional arrangements that will be in place to prevent trespassers from entering controlled-access areas during the deferral period.

Relative to cell construction impacts, building D&D deferral will lengthen the total period for which the cell must remain active; however, this should not impact the design of the cell nor its intended function. Materials from other higher-priority remedial efforts (Operable Unit 2 wastes and soils from outside

the production area) can be placed in the cell during the deferral period without consequence. Soils needed for compaction around the D&D debris will still be available through the excavation activities that would occur beneath the buildings. This activity would need to be sequenced to provide the proper quantities of soil at the right time. Sequencing of construction contractor resources and cell operations staff would also need to be managed accordingly to match the intensity of activities taking place at the cell.

The proposed location of the on-property disposal cell is to the east of the former production area, therefore, delays in building D&D will not affect the startup of cell operations.