EXECUTIVE SUMMARY

INTRODUCTION

On June 20, 1996, the U. S. Department of Energy (DOE) Assistant Secretary for Environmental Management (EM) Alvin L. Alm issued a memorandum which directed all EM sites, including the Rocky Flats Environmental Technology Site (Rocky Flats), to develop draft ten year plans which describe how the sites would achieve Assistant Secretary Alm's vision of complete cleanup of most DOE EM sites. Assistant Secretary Alm's stated strategy is that the ten year plans; once developed, integrated, and approved; would serve as the unifying DOE EM Program direction which would drive future budget decisions, sequencing of projects, and actions taken to meet EM Program objectives. Achieving Assistant Secretary Alm's vision through the development and implementation of the ten year plans is guided by the following seven principles:

- Eliminate the most urgent risks
- Reduce facility mortgage and support costs to free up funds for further risk reduction
- Protect worker health and safety
- 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

In response to Secretary Alm's direction, Rocky Flats developed a draft Ten Year Plan which would achieve accelerated cleanup and closure of the Site and rapidly reduce the risks the Site currently poses to its workers, the public, and the environment. The draft Plan was purposefully developed to ensure consistency not only with Assistant Secretary Alm's June 20 guidance, but also with the recently finalized Rocky Flats Cleanup Agreement (RFCA) and the accelerated cleanup and closure strategies embodied in the Site's own cleanup plan known as the Accelerated Site Action Project (ASAP).

KEY ELEMENTS OF THE TEN YEAR PLAN

The key activities that would be accomplished within the planning horizon of the Rocky Flats Ten Year Plan are described below.

- **Special Nuclear Material**
  All Rocky Flats SNM would either be shipped offsite or stabilized and consolidated into a newly-constructed, interim onsite storage facility prior to shipment to an offsite repository.

- **Waste**
  All transuranic (TRU) and transuranic mixed (TRM) wastes would be treated or repackaged and shipped for disposal in DOE's Waste Isolation Pilot Plant (WIPP) located near Carlsbad, New Mexico. A new TRU waste staging and shipping facility would be constructed in order to facilitate rapid shipment of the TRU waste to WIPP. All low-level waste (LLW) and low-level mixed waste (LLMW) would be treated either onsite or offsite, and then disposed offsite. New LLMW treatment and storage facilities would be constructed to store the waste prior to shipment for treatment and/or disposal, thus allowing rapid cleanup of the Site.
- **Facility Disposition**

Almost all Site facilities would be demolished, including all of the former nuclear production facilities by the end of 2006. Facilities used for the storage of plutonium, treatment of LLMW and several office buildings, would remain until the plutonium is removed or there is no longer a need for the facility, in which case it would be demolished. (DOE's stated goal in the RFCA is to have all of the plutonium removed prior to 2015.)

- **Environmental Cleanup**
  Environmental cleanup of the Site would enable the following land uses (future land use designations would ultimately be developed by DOE, appropriate local elected officials, local government managers and the public): (1) approximately 6,100 acres would support open space uses (5,000 acres unrestricted open space), (2) approximately 100 acres would be occupied by the interim plutonium storage facility and capped areas, and (3) the entire 100 acres would eventually support restricted open space once the plutonium was removed. In order to achieve the land uses described above, approximately 52 high risk contaminated sites would be cleaned up at the Site.

COST AND SCHEDULE

As shown in Exhibit 1, Cost Estimate/Funding Profile, Rocky Flats can achieve almost complete cleanup and closure by the end of fiscal year 2006 (September 30, 2006) for a cost of approximately $5.4 billion (FY97 dollars). The total cost to manage the remaining plutonium from FY07 until it is removed by the end of FY15, and perform environmental monitoring is estimated to cost an additional $700 million (FY97 dollars). Following removal of the plutonium and the demolition of the plutonium storage and remaining Site facilities by the end of 2015, the cost to perform the long-term environmental monitoring at the Site is estimated to be $10 million per year (FY97 dollars).

MAJOR ASSUMPTIONS AND KEY DECISIONS

In developing the Rocky Flats Ten Year Plan, a number of assumptions were made. The validity of these assumptions depends upon some key decisions whose outcome would have a significant impact on the Plan. The major assumptions are described below.

- **Plutonium Storage**
  All plutonium will be stored in a new interim storage facility at Rocky Flats until the plutonium is shipped to an offsite repository by the end of 2015.

- **WIPP**
  All TRU waste will be shipped to WIPP starting in 1998 and ending in 2006. WIPP will bear all costs for the transportation and disposal of the Site's TRU wastes.

- **Low-Level Mixed Waste**
  All LLM waste will be treated and shipped offsite for disposal starting in 1997 and ending in 2006. Further, it was assumed that offsite disposal facilities (commercial or DOE) would be able to accept Rocky Flats' treated LLM wastes.

- **Soil Action Levels**
  Radioactively-contaminated soils would be cleaned up to achieve an 85 mrem/year or less exposure limit, thus enabling future open space uses at the Site.

Rocky Flats Ten Year Plan

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1.0 INTRODUCTION

1.1 Purpose

The Rocky Flats Draft Ten Year Plan (Ten Year Plan or Plan) describes the technical scope, schedule, and estimated cost to achieve accelerated risk reduction and significant cleanup of the Site by 2006. The Plan was constructed to meet the request of the U. S. Department of Energy's (DOE)'s Assistant Secretary for Environmental Management, Al Alm, and also to achieve the Site Vision contained in the Rocky Flats Cleanup Agreement (RFCA), which was signed on July 19, 1996.

The Site Vision is the end objective which guides all future decision-making at Rocky Flats. This document was developed by the principals of DOE, Colorado Department of Public Health and Environment (CDPHE), and the Environmental Protection Agency (EPA). It describes, in general terms, the end state condition of the Site. It does not describe in detail either the specific technical requirements or the means of accomplishment. RFCA provides a regulatory framework for establishing cleanup milestones, standards and schedules; however, it does not provide details regarding the total scope of work, and such milestones as it contains must result from more detailed planning. The Ten Year Plan provides the basis for that detailed planning. It contains the strategies, technical approaches, logic, scope of work (organized in a tiered work breakdown structure), funding requirements, and timetable for bringing the Site to interim closure in 10 years. Using the final Ten Year Plan as a basis, planners will then develop for each individual activity the successively more detailed plans, schedules, and cost estimates which are used to formulate budget requests and to ultimately plan, direct, and manage the day-to-day work, leading to ultimate success in achieving the Site Vision. Ultimately, all of the DOE EM Sites' Ten Year Plans will allow DOE to facilitate an integrated approach to waste treatment, material disposition, and other complex issues whose optimal solution may not be achievable on an individual site basis.

1.2 Differences Between Current FY97 Planning Efforts and the Ten Year Plan

The Ten Year Plan represents an approach to Site cleanup employing DOE-stated funding levels and assumptions, and free of considerations not essential to accomplishment of the Plan. Fiscal year 1997 annual work planning, however, must deal with three factors which were not addressed by the guidance for the development of the Ten Year Plan. First, FY97 planning at the Site is proceeding in accordance with the Program Execution Guidance (PEG) issued June 26, 1996. The FY97 PEG funding guidance is lower than that stated for the Ten Year Plan. Second, FY97 planning must address the impacts of FY96 in terms of carryover, funding shortfalls, etc. At present the calculated impact of FY96 on FY97 is $41.2M. Finally, the continuing impacts of workforce restructuring must be addressed. This impact on FY97 could exceed $70M.

1.3 Public Involvement

In parallel with the development of the Draft Ten Year Plan, a Community Relations plan was developed. This plan describes public involvement in many of the major decisions outlined in the Ten Year Plan. It also includes a Decision-Making Process Management Plan which provides a framework for making complex decisions in a public process.

The two major decisions which require public involvement in the near term are the soil action levels and low-level mixed waste management. These two decisions are very closely tied because soil action levels determine how much remediation waste is generated which in turn impacts the methods used to treat and store/dispose of such wastes.

It is anticipated that the public will be involved in framing the decision, analyzing data, and making recommendations on a path forward. The framing process involves getting public input on alternatives as well as the criteria and values by which various alternatives will be evaluated. The evaluation process utilizes a structured multi-attribute decision analysis process which has been widely used in similar situations both in DOE and around the country. Most recently it was used successfully at Rocky Flats in the decision to proceed with the new SNM interim storage vault facility.

1.4 Organization of Site Planning

This Ten Year Plan is a product of the integrated sitewide planning process at Rocky Flats. This plan was developed around twelve major projects as detailed in the following table (Table 1-1: Rocky Flats Ten Year Major Project List). The theme of projectization and the twelve major projects was not developed solely for the Ten Year Plan, but forms the basis for the development of the Fiscal Year 1997 Work Plan. The same twelve projects are included throughout the Ten Year Plan as shown in the data depicted in the appendices.

The main cornerstone to the delineation of the twelve major projects was the development of the current Site Work Breakdown Structure (WBS). The Site WBS is the hierarchy of work to be accomplished to complete the Site mission, major objectives, and integration of activities. The Site WBS is structured in levels of work detail, beginning with the final product, and then separated into identifiable work elements. The WBS focuses on achievement of an Intermediate Site Condition and a Final Site Condition, employing a projectization process. The WBS presents the Site as a single integrated project aimed at mission termination and Site closure. Once the WBS was developed, it was organized into fifty-seven (57) groups or Work Authorization Documents (WADs). The DOE Rocky Flats Field Office (RFFO) will use the WADs to control the work of Kaiser-Hill at the Site. The fifty-seven (57) WADs, each comprised of several WBS elements, were then grouped into the twelve major projects. Also included in Table 1-1 are the corresponding WBS elements contained in each WAD and the corresponding FY98 Activity Data Sheet (ADS) number.

These twelve projects represent artificial division of work activities, or WBS elements; each is actually dependent on the others. Changes may not be made to one project without potentially significant impacts occurring to many or all of the other projects.

Table 1-1: Rocky Flats Ten Year Plan Major Project List

Project No.	Project Title	WAD No.	WAD Project Title	WBS Line Item Number	WBS Title	ADS Number	Remarks
01	Buffer Zone Closure Project	01	Buffer Zone Closure Project	1.1.01	Achieve Intermediate Site Condition for Outer Buffer Zone	RF-0111	
				1.1.02	Achieve Intermediate Site Condition for Formerly Contaminated Buffer Zone	TBD	
				1.1.03	Achieve Intermediate Site Condition for Inner Buffer Zone	RF-0113	
02	Special Nuclear Material Project	10	Pu Storage Project	1.1.04.07.02	Operate and Maintain Existing Pu Storage Facility	RF-0114-2	
				1.1.04.07.04	Operate and Maintain New Pu Storage Facility	TBD	
		13	Pu Processing & Packaging Project	1.1.04.08.01	Develop Pu Prototype Processing and Packaging	RF-0114-2	
		14	PASS Project	1.1.04.08.02	Master Safeguards and Security Agreement Project	RF-6757	Master Safeguards and Security Agreement (92-D-125)
		15	Pu Residue Elimination Project	1.1.04.08.03	Develop SNM Solid Residue Elimination Project	RF-6723	Pu Residue Elimination (96-D-468)
		17	Uranium Decontamination Project	1.1.04.09.01	Operate Enriched Uranium Decontamination Process	RF-0114-2	
		18	HEUN Project	1.1.04.09.02	Operate HEUN Process	RF-0114-2	
		19	SNM Liquid Stabilization Project	1.1.04.09.03	Operate SNM Liquid Stabilization Process	RF-0114-2	
		20	SNM Solid Residue Project	1.1.04.09.04	Operate SNM Solid Residue Elimination Process	RF-0114-2	
		21	SNM Metal/Oxide Project	1.1.04.09.05	Operate Pu Metal/Oxide Stabilization Process	RF-0114-2	
				1.1.04.09.06	Operate Pu Processing and Packaging	RF-0114-2	
		22	SNM Shipping Project	1.1.04.10	Provide SNM Offsite Shipment	TBD	
03	SNM Support Project	09	Building 371 Near-Term Safety Upgrade	1.1.04.07.01	Upgrade Existing Pu Storage Facility	RF-0114-2B	

Table 1-1: Rocky Flats Ten Year Plan Major Project List

Project No.	Project Title	WAD No.	WAD Project Title	WBS Line Item Number	WBS Title	ADS Number	Remarks
		11	Pu Facility Construction Project	1.1.04.07.03	Develop and Implement New Pu Storage Facility	RF-0114-2B	
		12	SNM Support Project	1.1.06.29.06	Provide SNM Capital Equipment and GPP	RF-0114-2A	
		16	SNM Liquid Stabilization Development Project	1.1.04.08.04	Develop SNM Liquid Stabilization Processing Capability	RF-0114-2	
04	Waste Management Project	02	Sanitary Waste and LLW/LLMW Project	1.1.04.01	Develop, Operate & Close Sanitary Waste Management Systems	RF-0114-1	
				1.1.04.02	Develop, Operate & Maintain LLW and LLMW Storage Facilities	RF-0114-1	(Including 1.1.04.02.01 & 1.1.04.02.03 only)
				1.1.04.02.04	Assay and Characterize LL/LLM Waste	RF-0114-2	
		04	TRU/TRUM Storage Project	1.1.04.03	Develop, Operate, and Maintain TRU/TRUM Waste Storage Facilities	RF-0114-1	Excluding 1.1.04.03.02
		06	Waste Disposal Project	1.1.04.04	Provide Offsite Waste Disposal	RF-0114-1	
		07	Waste Treatment Project	1.1.04.05	Operate & Maintain Waste Treatment Processes	RF-0114-1	
05	Waste Management Support Project	03	LLW/LLMW Construction Project	1.1.04.02.02	Develop New LLW/LLMW Storage Facilities	RF-0114-1C	
		05	TRU/TRUM Construction Project	1.1.04.03.02	Develop New TRU/TRUM Storage Facilities	RF-0114-1B	
		08	Waste Management Support Project	1.1.06.29.07	Provide Waste Management Capital Equipment & GPP	RF-0114-1A	
				1.1.04.06	Develop Waste Management Project	TBD	
		48	Building 374 Treatment Facility Project	1.1.04.06.01	Building 374 Liquid Waste Treatment Facility	RF-3829	AWTS
		49	CTMP Project	1.1.04.06.02	CTMP Immobilization of Misc. Waste	RF-3831	
		50	Contaminant Removal Project	1.1.04.06.03	Surface Organic Contaminant Removal	RF-3832	

Table 1-1: Rocky Flats Ten Year Plan Major Project List

Project No.	Project Title	WAD No.	WAD Project Title	WBS Line Item Number	WBS Title	ADS Number	Remarks
06	Environmental Compliance and Restoration Project	23	Closure Cap Project	1.1.04.11	Develop & Construct New Closure Cap(s)	TBD	
		34	771/774 Cluster Project	1.1.06.10	Remove 771/774 Cluster	RF-0116	
				1.1.06.11	Remove 771A Cluster	RF-0116	
07	Industrial Zone Closure Project	25	Industrial Zone Closure Project	1.1.05	Achieve Intermediate Site Condition for Industrial Zone	RF-0115	
08	Production Area Closure Project	26	207 Cluster Project	1.1.06.01	Remove 207 Cluster	RF-0116	
		27	500 Cluster Project	1.1.06.04	Remove 559 Cluster	RF-0116	
				1.1.06.05	Remove 559 Cluster	RF-0116	
				1.1.06.06	Remove 559 Cluster	RF-0116	
		28	700 Cluster Project	1.1.06.15	Remove 790 Cluster	RF-0116	
		29	800 Cluster Project	1.1.06.16	Remove 800A Cluster	RF-0116	
				1.1.06.19	Remove 886 Cluster	RF-0116	
		30	900 Cluster Project	1.1.06.20	Remove 910 Cluster	RF-0116	
				1.1.06.21	Remove 964 Cluster	RF-0116	
				1.1.06.22	Remove 980 Cluster	RF-0116	
		31	371 Cluster Project	1.1.06.02	Remove 371/374 Cluster	RF-0116	
				1.1.06.03	Remove 371A Cluster	RF-0116	
		32	707/750 Cluster Project	1.1.06.07	Remove 707 Cluster	RF-0116	
				1.1.06.07.02	SNM & Hazardous Materials Removal	RF-0116	All except 1.1.06.07.02 Requires separate line item
				1.1.06.08	Remove 750 Cluster	RF-0116	
				1.1.06.09	Remove 750PAD Cluster	RF-0116	
				1.1.06.13	Remove 778 Cluster	RF-0116	
		33	779 Cluster Project	1.1.06.14	Remove 779 Cluster	RF-0116	
		34	771/774 Cluster Project	1.1.06.10	Remove 771/774 Cluster	RF-0116	
				1.1.06.11	Remove 771A Cluster	RF-0116	
		35	776/777 Cluster Project	1.1.06.12	Remove 776/777 Cluster	RF-0116	
		36	881 Cluster Project	1.1.06.17	Remove 881 Cluster	RF-0116	

Table 1-1: Rocky Flats Ten Year Plan Major Project List

Project No.	Project Title	WAD No.	WAD Project Title	WBS Line Item Number	WBS Title	ADS Number	Remarks
				1.1.06.18	Remove 865/883 Cluster	RF-0116	
		37	991 Cluster Project	1.1.06.23	Remove 991 Cluster	RF-0116	
		38	Production Zone Misc. Cluster Project	1.1.06.24	Remove PWTSN Cluster	RF-0116	
				1.1.06.25	Remove SECNPZ Cluster	RF-0116	
				1.1.06.26	Remove INFELN Cluster	RF-0116	
				1.1.06.27	Remove INFWTN Cluster	RF-0116	
				1.1.06.28	No-Action IHSS Close-out	RF-0116	
09	Site Infrastructure Project	39	Utilities Project	1.1.07.01	Provide Utility Services	RF-0117	
		40	Infrastructure Project	1.1.07.02	Provide Site Infrastructure Services	RF-0117	Excluding 1.1.07.02.13,-.14,-.15,-.16,-.17
		42	Infrastructure Capital/ GPP Project	1.1.07.02.14	Provide Infrastructure Capital Equipment	RF-0117-A	
				1.1.07.02.15	Provide Infrastructure GPP	RF-0117-A	
				1.1.07.02.16	Provide Infrastructure Projects	RF-0117-A	
		43	UST Project	1.1.07.02.17	Underground Storage Tank Management Project	RF-0117-A	
				1.1.07.02.17	Underground Storage Tanks	RF-6748	(94-D-122)
		47	Sewage Treatment Project	1.1.07.01.01.09	Sewage Treatment Plant Upgrades	RF-3827	(90-D-126)
		51	HP Project	1.1.06.29.03	Health Physical/Environment Project	RF-6749	(92-D-122)
		52	Infrastructure Replacement Project	1.1.07.02.16	Infrastructure Replacement	RF-6751	
		53	ES&H Enhancement Project	1.1.06.29.01	ES&H Enhancements - Air Monitoring Improvements	RF-6754	(95-D-452)
		54	Plant Fire Security System Project	1.1.07.02.16.02	Plant Fire Security System Replacement	RF-6755	(92-D-123)
		55	Critical Alarms Project	1.1.07.02.16.01	Critical Alarms and Plant Annun. Sys. Upgrade	RF-6756	(91-D-127)
		56	Water System Project	1.1.07.01.01.09	Domestic Fire and Water System Refurb.	RF-6760	

Table 1-1: Rocky Flats Ten Year Plan Major Project List

Project No.	Project Title	WAD No.	WAD Project Title	WBS Line Item Number	WBS Title	ADS Number	Remarks
10	Site Project Management	44	Management Project	1.1.08.01	Provide Management (Overhead) Direction	RF-0118	
				1.1.08.02	Provide General & Administrative Management Support	RF-0118	
		45	Program Support Project	1.1.08.03	Provide Programmatic Support Services	RF-0118	
11	Technical Support Project	41	Analytical Services Project	1.1.07.02.13	Provide Analytical Laboratory Services	RF-0117	
		46	Technical Support Project	1.1.08.04	Provide General Technical Support Services	RF-0118	Excluding 1.1.08.04.01
12	Work For Others/Misc. Project	57	Work for Others Project	1.3	Work for Others	N/A	(for non-FinPlan Activities)

2.0 SCOPE AND SCHEDULE LOGIC

2.1 Statement of Work

The Rocky Flats Environmental Technology Site (Rocky Flats or the Site) Ten Year Plan has been, prepared in response to a request from the U. S. Department of Energy (DOE) Headquarters (HQ) (EM-1) to develop a ten year site cleanup plan. This Ten Year Plan would radically accelerate the reduction of Site risk, and would cleanup almost the entire Site at a cost of about $5.4 billion (FY97 dollars). The total additional cost to achieve the Intermediate Site Condition described in the Rocky Flats Cleanup Agreement (RFCA) is estimated to cost an additional $0.6 billion (FY97 dollars). After 2015, following shipment of all of the Special Nuclear Material (SNM) offsite, the estimated annual cost will be $10 million (FY97 dollars). For comparison purposes, the current annual Site budget is about $600 million.

Under the Plan, the following would occur in ten years: SNM would be stabilized and either shipped offsite or stored onsite in a new, interim storage facility awaiting shipment. The vast majority of Site facilities would be demolished, including all of the former nuclear production facilities. Low-level radioactive waste (LLW), including low-level mixed waste (LLMW), would be placed in consolidated long-term storage facilities and treated either onsite or offsite. Offsite shipment of LLW and LLMW would proceed as quickly as possible. Transuranic (TRU) waste would be treated and shipped to DOE's Waste Isolation Pilot Plant (WIPP) for disposal. The Site would be cleaned up to levels that would allow open space and other appropriate uses. (It is assumed future land use decisions would be made according to RFCA).

At the end of ten years, the remaining facilities left onsite would be the new, interim storage facility for SNM, the LLMW Treatment Facility and several office buildings. All of the facilities would be demolished by the year 2015. Activities occurring after 2015 would consist primarily of long-term environmental monitoring.

The Ten Year Plan has been developed with an overall objective of achieving integration and consistency with the guidance provided by EM-1 (*Guidance for the 10-Year Plan*, dated June 20, 1996), the objectives contained in the *Rocky Flats Cleanup Agreement* (signed July 19, 1996), and to the extent possible, the Accelerated Site Action Project (ASAP) Phase II draft document titled *Choice for Rocky Flats* (Rev. 1, February 1996).

<u>Project End-State Description</u>

At the end of Fiscal Year 2006, the following activities will have been completed:

SNM Stabilization , Consolidation, and Storage Activities

- 3,100 kilograms of plutonium contained within 100,000 kilograms of residue materials resulting from past production activities would be stabilized, and repackaged. Any resulting TRU waste would be shipped to WIPP for disposal and any resulting SNM will be stored onsite.

- 6,700 kilograms of enriched uranium would be packaged and shipped offsite.

- 6,600 kilograms of plutonium metal and 3,200 kilograms of plutonium compounds and oxides would be stabilized, repackaged for long-term storage, and placed in a new, interim, onsite storage facility.

Facility Decommissioning Activities

- The vast majority of the Site's 500+ facilities and structures (this includes buildings, cooling towers, trailers, pump houses, etc.) would be deactivated and demolished (including all of the former nuclear production facilities) by the end of 2006. Facilities used for the storage of SNM, treatment of LLMW, and several office buildings (Buildings 130, 131, and 850) would remain until either the SNM is shipped offsite (i.e., interim SNM storage facility) or a determination is made there is no longer a need for the facility (i.e., LLMW treatment and office buildings).

Waste Management Activities

- All TRU waste would be treated, if necessary, and shipped to WIPP for disposal starting in 1998 and ending in 2006.

- LLW and LLMW would be consolidated for storage, treated (either onsite or offsite), and disposed offsite as quickly as possible.

- New LLW and LLMW management facilities and a TRU staging/shipping facility would be constructed.

- Hazardous and sanitary waste would be shipped offsite for disposal.

- Clean decontamination and decommissioning (D&D) construction debris would be used as clean fill and disposed onsite.

Environmental Cleanup Activities

- Approximately 6,100 acres would support open space uses (5,000 acres unrestricted open space as a result of environmental cleanup).

- Approximately 100 acres would be occupied by a SNM storage facility and capped areas, and would support future restricted open space uses as a result of environmental cleanup.

- Approximately 52 high risk Individual Hazardous Substance Sites (IHSSs) would be cleaned up to reduce or remove the sources of volatile organic and/or radiological contamination; caps would be placed over the areas that cannot be clean closed, and groundwater plumes would be remediated.

- Sources of contamination would be controlled throughout the life of the project and beyond ensuring that water quality standards mandated by the Rocky Flats Cleanup Agreement (RFCA) were not exceeded.

- Final earthen or manmade covers or caps would be place over any contaminated soils (per RFCA) that remain, such as old landfills, to inhibit contaminant migration.

- Continuous environmental monitoring would be performed during and following the project.

2.2 Logic Diagram

The interrelationships between the Ten Year Plan major activities are diagrammatically represented in Figure 2-1. Also, an alternate view of the major plan activities which describe the removal of a typical facility cluster is shown in Figure 2-2.

3.0 MAJOR STRATEGIES

3.1 Major Strategies

In developing the draft Ten Year Plan for the Rocky Flats Environmental Technology Site (Rocky Flats or the Site), a number of major strategies were developed and used in the construction of the scope, schedule logic, and costs. These strategies resulted in the prioritization of work to be accomplished in the plan. These strategies embody the seven guiding principles contained in Assistant Secretary Alm's June 20, 1996 *Guidance on the Ten Year Plan*, the *Rocky Flats Cleanup Agreement* (RFCA) finalized on July 19, 1996, and the Site's own work on an accelerated cleanup plan known as the *Accelerated Site Action Project* (ASAP).

The major strategies employed in the Rocky Flats Ten Year Plan are described below.

- Eliminate the most urgent risks first. These urgent risk reduction activities primarily encompass the accelerated stabilization, consolidation, and early shipment of the Site's Special Nuclear Materials (SNM), including plutonium and enriched uranium.

- Treat plutonium process residues to meet the Waste Isolation Pilot Plant's (WIPP) Waste Acceptance Criteria to enable accelerated offsite shipment of resulting transuranic wastes.

- Reduce the Site's high nuclear facility baseline costs by accelerating deactivation of these facilities through expedited stabilization and removal of SNM from the facilities.

- Rely on other U. S. Department of Energy (DOE) and commercial sites to assist Rocky Flats in the timely removal of the Site's SNM and radioactive wastes as this provides significant mortgage and support cost savings. In the interim, provide cost-effective storage facilities for these materials until they can be shipped offsite.

- Demolish Site facilities and infrastructure to eliminate future funding and safety liabilities such as ongoing surveillance and maintenance, and residual radiological contamination management.

- Treat and ship transuranic and low level wastes (including mixed wastes) offsite as quickly as possible to reduce safety and regulatory risks, and reduce the significant mortgage costs associated with the onsite management of these wastes.

- Cleanup environmentally contaminated areas to the extent that sources of contamination which pose a significant risk are mitigated and controlled. Higher risk areas are preferentially cleaned up over lower risk areas. Site cleanup is performed to the extent necessary to support future open space uses. Future land use designation is assumed to occur as described in RFCA).

- Reduce infrastructure and management costs at a steady pace. Transition service and support activities to offsite sources as quickly as possible.

- Since it was judged there is sufficient proven technologies to cleanup the Site to meet the Ten Year Plan objectives in a timely and cost-effective manner, employ existing technologies to stabilize SNM and treat radioactive wastes.

3.2 Major Decisions

In developing the Rocky Flats Ten Year Plan, a number of assumptions were made which significantly impact the scope, schedule and cost of the Plan. The validity of these assumptions depends upon a series of major decisions whose outcome would have significant impact on the Plan.
The six major decisions and their potential impacts are described below.

Major Decision 1: Plutonium Storage

The Ten Year Plan assumes that plutonium will be stored in a new, interim storage facility at Rocky Flats until the plutonium is shipped offsite to a yet-to-be identified repository by the end of 2015. If an alternate repository for the Site's plutonium is identified in the next few years, and the plutonium can be shipped to the repository ahead of current schedules, then a new, interim storage facility may not have to be constructed. This would result in significant cost savings (costs are not yet quantified) because it would eliminate both the cost of the new facility and the ongoing operations and maintenance of that facility. On the other hand, if the new, interim, onsite plutonium storage facility is not approved for construction and an offsite repository is not able to accept Rocky Flats' plutonium by 2015, then Rocky Flats will be required to retrofit Building 371. Life-cycle cost estimates demonstrate that the cost to retrofit and store plutonium in Building 371 until 2015 will be about $250 million more than for the construction of and storage in a new facility.

Major Decision 2: WIPP Opening

The Ten Year Plan assumes that WIPP will open in 1998 and will receive all of Rocky Flats' transuranic (TRU) wastes by the end of fiscal year 2006. If WIPP is delayed in its opening for more than a year or two, a preliminary life-cycle cost analysis shows that a new, interim onsite TRU waste storage facility should be constructed in order to reduce the costs from the current practice of storing TRU wastes in a number of different locations onsite. The estimated costs to construct a TRU waste storage facility range from $10 million to $90 million, depending on the type of facility required. If WIPP will not open in the foreseeable future and DOE is unable to identify another offsite storage or disposal facility, then not only will a new TRU waste storage facility need to be constructed, but the processing strategy for the Site's high plutonium content process residues (residues are materials left over from past production activities that contain significant quantities of plutonium) will need to change from meeting WIPP requirements to suitability for long-term onsite storage. The projected cost to conduct this additional processing has not been estimated but is considered significant.

Major Decision 3: Soil Action Levels

The Ten Year Plan assumes the radiological cleanup level of soil to be triggered by an 85 millirem/year dose limit, consistent with a draft EPA Radiation Site Cleanup Regulation. The resulting volumes of low-level (and low-level mixed) remediation wastes that would be generated by such a limit are relatively minor when compared to more restrictive limits. For example, early analysis of cleanup to a 15 millirem/year dose limit would result in low-level and low-level mixed waste volumes nearly quadruple current plan estimates. The current strategy in the Ten Year Plan is to dispose of these contaminated soils offsite following treatment, if needed. This can be accomplished within the ten year planning horizon and within the funding constraints of the Ten Year Plan Guidance from DOE EM-1. However, if the actual soil action levels are more restrictive, then a potentially different strategy (such as an onsite storage/disposal strategy) would

need to be evaluated because the sheer volumes of low-level (LLW) and low-level mixed wastes (LLMW) that would be generated may make offsite shipment an unacceptable option from cost and risk perspectives. For example, it is estimated that the costs to store, treat, and dispose the increased amounts of LLW and LLMW offsite could approach $1 billion.

Major Decision 4: Low-Level Mixed Waste Treatment and Disposal

The Ten Year Plan assumes that all Rocky Flat's LLMW can be treated and disposed at costs (per unit volume) currently being discussed with a commercial vendor for a sub-population of LLMW at Rocky Flats. Further, the plan assumes that some commercial disposal facility or DOE site can take Rocky Flats' Resource Conservation and Recovery Act (RCRA) land disposal restricted (LDR) compliant LLMW at the radioactive (i.e., plutonium) concentrations currently in storage and projected to be generated. If these assumptions prove invalid (at least one LLMW disposal site has imposed plutonium concentration limits on wastes they can receive that would severely limit that quantity of Rocky Flats' LLMW which could be sent to them), then a different LLMW strategy (such as onsite, long-term storage or disposal) would need to be evaluated. Clearly, long-term storage or disposal of LLMW at the Site will involve significant, additional facility construction costs, as well as ongoing operations and maintenance costs.

Major Decision 5: Transuranic Waste Disposal Costs

The Ten Year Plan assumes that WIPP will bear the costs of all TRU waste transportation and disposal based on recent guidance from DOE Headquarters (HQ). If Rocky Flats has to bear the costs of transportation and disposal of TRU waste at WIPP, estimated to range from $400-$600 million, then a change in TRU waste management strategy may be needed. A change such as this may necessitate the need for interim, consolidated TRU waste storage because of the potential impact of the additional costs on the total Ten Year Plan. Additionally, the impact of these unplanned, additional costs would probably delay completion of the Plan's Scope of Work within the projected schedule, therefore impacting the total cost of the Plan.

Major Decision 6: Safeguards Termination Limits for Process Residues

The Ten Year Plan assumes that the Site's process residues can be treated and/or repackaged for immediate shipment to WIPP without the need to treat the residues to meet the Safeguards Termination Limits. Recent guidance on Safeguards Termination Limits has been issued from the DOE Office of Safeguards and Security that will require additional processing of some of the residues currently destined for WIPP disposal. Treatment strategies will be driven by the need to get SNM concentrations of the disposed materials below certain specified levels for various material categories either by the removal of the plutonium from the residue material or by treating the residues. Additional costs might be incurred and impacts to the schedule for residue processing with all the attendant impacts to the downstream plan activities would be expected to occur.

Summary

It is important to note that the Rocky Flats Ten Year Plan represents an integrated series of activities. As such, when assumptions, such as the ones described above, used to construct the plan do not hold true, then the impacts to the plan can be significant. For example, if a decision is made not to build a new plutonium storage facility and instead use a retrofitted Building 371 for storage until the end of 2015, the impacts to the Plan's cost and schedule go beyond just the additional costs to construct and operate Building 371; they also effect strategies for infrastructure,

facility decontamination and decommissioning (D&D), and waste management because of the integrated effect of the assumption (i.e., since Building 371 would not be demolished on schedule, then Site infrastructure remains intact longer. As a result, D&D would not be accomplished until sometime after 2006, and the resulting waste will then need to be treated and disposed after D&D. Therefore, the net effect is a much prolonged schedule and a significant increase in total project costs.

Further analyses of the assumptions used in preparation of the Ten Year Plan is needed in order to provide decision-makers with sufficient information to make a decision. Specifically, "sensitivity studies" will be performed to more clearly define the various impacts of a particular decision.

3.3 Cost and Schedule Improvement Opportunities

During the development of the Ten Year Plan for Rocky Flats, a number of potential cost and schedule opportunities emerged. These opportunities, if implemented, would have the effect of shortening the schedule to achieve the Ten Year Plan cleanup objective and would reduce the total cost of the Plan. Further, since some activities at the Site occur after the ten year planning horizon, these opportunities would favorably impact the costs and schedules of those activities as well. The major cost and schedule opportunities are described below.

Opportunity 1: Plutonium Disposition

The Ten Year Plan assumes the interim storage of the Site's plutonium in a new, interim storage facility while awaiting shipment to an offsite repository by the end of 2015. If an offsite repository were available for the Site's plutonium prior to the design and construction of the new onsite storage facility, the Site could begin shipping plutonium to the offsite repository immediately following stabilization and repackaging (if needed). It is estimated that this would result in a project life-cycle cost savings of approximately $150 million.

Opportunity 2: Low-Level Mixed Waste Treatment and Disposal

The Ten Year Plan assumes that the Site's RCRA LDR noncompliant low-level mixed (LLM) wastes will be treated in both onsite and offsite treatment facilities, prior to disposal offsite. The costs to treat the LDR noncompliant LLMW at the Site requires the construction of new waste treatment facilities. If offsite regional LLMW treatment and disposal facilities were constructed, there would be estimated savings of approximately $33 million in capital construction costs alone. Further, assuming that such a regional facility would be processing large quantities of LLMW, then significant additional savings could be realized due to economies of scale.

The Ten Year Plan also assumes that all LLW and LLMW will be disposed offsite. Preliminary analysis shows that for very large volumes of remediation wastes (specifically LLM wastes), onsite disposal in a Corrective Action Management Unit (CAMU) may be more cost-effective than offsite treatment and disposal.

Opportunity 3: Material and Excess Property Disposition

The Ten Year Plan assumed that in the process of deactivating and demolishing all of the 500+ facilities and structures at Rocky Flats, the DOE-mandated process for identifying and dispositioning excess government property would be used. As the Site has begun the deactivation of nuclear and non-nuclear facilities it has become increasingly apparent that the task of dispositioning large amounts of excess property is a formidable and expensive task. Although the

total cost to disposition all of the Site's excess property has not been quantified, it is apparent there may be significant cost savings if an expedited and cost-effective salvage process could be developed and implemented.

Opportunity 4: Reduced Capping Design Criteria

The Ten Year Plan currently assumes that caps will be used as an integral part of the Site's environmental closure strategy. Plans call for construction of caps over the Solar Ponds, as well as the 300 and 700 areas following remediation of contaminated soils. Even though only residual contamination remains, these caps will be required to meet the 1,000 year performance criteria for a LLW disposal facility as stated in State of Colorado siting requirements for hazardous waste landfills, 6 CFR 1007-3, Part 2; Nuclear Regulatory Commission requirements for the effective life of intruder barriers, 10 CFR 61; and DOE Order 5820.2A covering dose exposure limits. The Site is currently analyzing the implications of the regulatory requirements and consulting with DOE's Arid Region Subsurface Focus Group to determine if the 1,000 year cap could be replaced with a more cost-effective, yet protective, capillary break cap. It is unclear whether the DOE Order allows deviation from the 1,000 year cap performance standard. It is estimated that $50 million could be saved if an alternate cap design, such as a capillary break cap, could be used.

Opportunity 5: Manage Cleanup and Closure as a Project

The Rocky Flats Ten Year Plan was developed with an aim toward achieving an integrated cleanup and closure planning project. Recent Site experience in the development of the ASAP, which evaluated strategies for the accelerated cleanup and closure of the Site, reinforced a maxim of project management. Specifically, full funding of early critical path projects can realize significant project life-cycle cost savings. Analysis of the Rocky Flats Ten Year Plan costs and schedule logics indicate that significant cost savings can be realized by more aggressive funding of early activities, especially SNM stabilization and consolidation, as well as deactivation of unneeded nuclear facilities.

4.0 ASSUMPTIONS

The following assumptions were used to develop the Ten Year Plan.

4.1 General Assumptions

Total Site funding target (new Budget Authority or B/A stipulated by Headquarters) is $600 million in FY97 and $657 million per year for FY98-FY06.

The Ten Year Plan achieves the near-term and the intermediate Site conditions contemplated by the Rocky Flats Cleanup Agreement (RFCA) with the exception that Special Nuclear Materials (SNM) are still stored onsite at the end of ten years. The Ten Year Plan provides costs through FY15, when all of the SNM is gone. An annual cost for long-term surveillance and monitoring is provided. Any additional cleanup after FY15 was not costed.

Annual funding for the U. S. Department of Energy, Rocky Flats Field Office (DOE, RFFO) is $80 million in FY97 decreasing to $48 million in FY06.

Site asset disposition results in no net gain or loss.

Workforce management will be conducted strictly per Section 3161 of the Defense Authorization Act and as required by this Ten Year Plan.

Constant FY97 dollars are used for the life of project (i.e., no escalation).

If capital projects are needed, approval by Congress (within the Site's budget authority) can be obtained for a new start in less than one year rather than the current 3 years.

4.2 Special Nuclear Material Stabilization, Consolidation, and Storage Assumptions

With the exception of Highly Enrich Uranyl Nitrate (HEUN), all SNM will be stored at the Site for the life of the ten-year project (i.e., limited offsite shipment).

Compliance with the Site Integrated Stabilization Management Plan (SISMP) Rev. 4 will be achieved, as modified for SNM liquids.

The Ten Year Plan does not accommodate the recent draft changes concerning safeguards termination limits for the Waste Isolation Pilot Plant (WIPP).

Residues will be treated to either meet WIPP Waste Acceptance Criteria and then disposed at WIPP, or managed as SNM.

A new, interim SNM vault will be constructed, as this is the preferred approach for SNM management beyond the Ten Year Plan.

4.3 Facility Decommissioning Assumptions

All former nuclear production facilities will be demolished, as will the vast majority of other Site facilities.

The Ten Year Plan assumes moderate time overlaps of deactivation and subsequent decommissioning activities.

All radioactive materials generated by decontamination and decommissioning (D&D) will be containerized.

Recent U. S. Environmental Protection Agency (EPA) draft guidance on radioactive release limits for D&D construction debris will be used.

4.4 Waste Management Assumptions

The Ten Year Plan cost estimates for transuranic (TRU) and transuranic mixed (TRM) wastes do not include WIPP transportation or disposal costs.

WIPP opens to accept Rocky Flats TRU wastes in 1998. All Rocky Flats TRU waste will be treated as necessary and shipped to WIPP during the ten year period.

Compliance with the Federal Facilities Compliance Act will be met by either onsite or offsite treatment. Low-Level Mixed Waste (LLMW) waste will be treated in accordance with the Site Treatment Plan (STP), but it is assumed that the STP will be revised consistent with Site priorities and schedules developed under the annual RFCA consultative process. RFCA recognizes that process-generated LLMW may be treated to meet statutory LDR requirements for onsite storage prior to treatment to meet regulatory Land Disposal Restricted (LDR) numerical standards for disposal.

Low-Level Waste (LLW) and LLMW generated in excess of shipping capacity will be managed on an interim basis in new onsite facilities (probably metal buildings).

LLW and LLMW will be shipped for disposal throughout the ten year period and beyond until all waste is disposed offsite.

WIPP and offsite disposal facilities for LLW and LLMW will receive all of the wastes according to the shipping schedule described in this Ten Year Plan.

The Ten Year Plan assumes that nonradioactive hazardous waste and uncontaminated solid waste (debris and trash) will be shipped offsite to commercial facilities for disposal (and treatment as applicable).

Preferential disposal of LLMW will occur before LLW.

Offsite disposal sites are available for LLW and LLMW as needed.

Treatment capability is available at commercial and other DOE facilities.

4.5 Environmental Cleanup Assumptions

Environmental cleanup will be performed to standards simliar to those used for Trenches T3 and T4 (85 mrem/yr).

Funding of $10 million per year to Environmental Restoration will be used for Individual Hazardous Substance Site (IHSS) cleanup, planning, and characterization activities starting in FY97.

Cleanup action levels, other than radioactive, will be consistent with the latest RFCA documents.

4.6 Support Assumptions

New capital project starts will be reevaluated in light of the projected ten year schedule (i.e., construct only if critical to support ten years planning activities or required by regulation).

Reductions in Site security will be consistent with the completion of the new interim SNM facility and consolidation of SNM into that facility.

The subsurface utilities between facilities which are outside the facility footprints will be capped and left in place.

The SNM storage vault will not require an inert atmosphere.

5.0 TEN YEAR PLAN COST AND SCHEDULE

This section addresses the methodology and approach used to develop the cost estimate and schedule for the U. S. Department of Energy (DOE) Rocky Flats Environmental Technology Site (Rocky Flats or the Site) Ten Year Plan. The cost, schedule, and work scope for the Rocky Flats Ten Year Plan are integrated by means of a common site-wide Work Breakdown Structure (WBS).

5.1 Methodology

Work Breakdown Structure (WBS)

The WBS identifies all Site work, consolidates it into projects, and divides the project into manageable pieces. The project is dissected into successive levels of detail until adequate management control is possible and individual tasks are fully defined, quantified, estimated, and scheduled. The WBS provides the basis for work scope definition, cost estimating, schedule projections, and reporting.

The top two levels of the WBS represent the Site vision as set forth in the preamble to the Rocky Flats Cleanup Agreement (RFCA) and the end states (intermediate and final) to be achieved. The third level divides the work into cleanup and closure projects to achieve the end state. Within a cleanup or closure project (fourth level) the work is divided by facility cluster, Individual Hazardous Substance Site (IHSS), capital project, or associated waste management or Special Nuclear Material (SNM) work processes.

The Rocky Flats Ten Year WBS:

- Depicts the hierarchical relationship between work elements, reinforces mission-critical and integrating themes, and emphasizes areas for progress toward the Site of the future;

- Supports crosscut reporting by program area, source of funds, DOE Activity Data Sheet, type of work, Financial Management System Improvement Council (FMSIC) category, responsible organization, performing organization, subcontractor, etc.;

- Supports the network logic scheduling of work, and facilitates planning for completion of performance measures by incorporating the performance measure into the schedule logic work flow that has been planned for its completion; and

- Facilitates communication of work completion, ongoing activities, and planned work with the DOE, within Kaiser-Hill and the site subcontractors, and with stakeholders and regulators

Cost Estimating

The cost figures included in the Rocky Flats Ten Year Plan are categorized as planning estimates. The DOE Cost Guide, Volume 6 states that a planning estimate has an accuracy range from -50 percent to + 100 percent. The cost estimates included in this document are within that range of accuracy, and are as credible as possible for this stage of plan definition.

The estimated cost and time duration required for each work activity in the schedule reflect the associated work scope. The funding availability in the initial few years drove the overall project duration. The work from FY 1997 through FY 2002 is funding constrained, work beyond FY 2002 is schedule constrained. The maximum funding in any single fiscal year was $657.6 million.

Cost Estimating System

The Cost Estimating System consists of a database with a cost estimate for each element of the WBS. These cost estimates are either annual operating costs or one-time costs. Putting the individual costs for each WBS element into a database allows the costs to be sorted and summarized into any number of options. The database provides a mechanism for reflecting and documenting changes as additional detail and information become available.

The cost estimate for the Rocky Flats Ten Year Plan was summarized by the WBS. Additional summarizations were done in accordance with the DOE Headquarters (HQ) Ten Year Plan Guidance.

Cost Estimating Approach

The cost estimates cover all activities required to complete the activities at Rocky Flats including contingency and DOE, Rocky Flats Field Office (RFFO) costs. No escalation has been included, except for the initial escalation of FY96-based costs to FY97 dollars. The approach used to estimate each category of cost is addressed later in this document.

The cost estimates in this document have been developed by knowledgeable technical staff. Professional cost estimators assisted in the development of the cost estimates and provided an overall review for consistency and credibility. To ensure that all costs were included but not duplicated, the cost estimates were developed at levels 5, 6, and 7 of the WBS. This also provides a way to complete the Ten Year Plan format requested by DOE, HQ.

The cost estimates are based upon assumptions and data developed by the technical groups that have responsibility for managing the work. These assumptions, technical details, and specific quantities are identified in other parts of this report and in the basis of estimate.

Direct Cost Estimates

Direct costs are those costs associated with each work activity. An example of a direct cost would be the cost required to fill a drum with waste. The direct cost is the cost of the labor hours, plus the incremental cost of equipment, and the price of the drum. The direct cost is the basis from which all other elements of cost are derived.

The direct costs for the Ten Year Plan were provided by technical program staff. For some areas (i.e., construction projects) detailed schedules and estimates have been developed as the basis of estimate (BOE). For other areas (i.e, facility decommissioning, environmental restoration), a detailed estimate was developed for an individual building or IHSS, and the costs were extrapolated for similar buildings or IHSS's.

In some instances costs were entered into the database at WBS Level 7. In general, however, they were entered at Levels 4, 5, and 6. Where possible, the quantities and volumes of work were based on projections provided by the current operating programs. Where unit costs were used, they were a combination of historical averages, cost benchmarks, and estimator judgment.

Indirect Cost Estimates

The indirect costs are defined as those costs that are necessary for the direct activities to be completed but which cannot be assigned to any single activity because of their general nature. The requirements for indirect costs change throughout the time required to complete the RFETS Ten Year Plan. Indirect activities were not estimated as percentage of direct costs. A four-step process was used to estimate indirect costs, as follows:

1. Determine the indirect areas, descriptions, and the cost drivers.
2. Develop rates for each category of indirect cost.
3. Develop fiscal year profiles for the indirect cost drivers.
4. Calculate the annual indirect costs.

The first step was to determine the drivers that influence the indirect costs based on the indirect activities to be performed. The four cost drivers were: head count, annual funding, number of facilities, and the regulatory requirements. Some indirect costs such as executive level management were relatively fixed. Each indirect cost line item was evaluated to determine which driver had the most impact.

The second step was to develop the rates for each area of the indirect cost. The current rates in effect for FY96 were adopted as the base.

The third step was to determine how the cost drivers will change over time. The head count produced a base number of 4,400 site employees for FY96 and included only employees of the Kaiser-Hill Team. The indirect costs for lower-tier subcontractors are included in the direct costs. The ceiling used for annual funding is $600 million in FY97, increasing in FY98 through FY01 to a maximum of $657.6 million, and dropping in the out-years as the project nears completion.

The active facility count is approximately 500 buildings onsite. The count changes as facilities are eliminated and as new facilities are constructed, with the general trend being toward significantly fewer buildings each year. The regulatory drivers and assumptions are identified in the technical scope of work.

The fourth step was to develop the fiscal year cost profiles and the actual calculation of the annual indirect costs based upon steps one through three. This information was derived from the funding profile charts. The indirect costs are included in the cost estimate in WBS 1.1.8.

Escalation

All of the costs were estimated in FY96 dollars. An escalation factor of 3% was applied to develop FY97 dollars. Beyond FY97 no escalation was applied in the estimate.

Contingency

Contingency is a specific provision for unforeseeable elements of cost within a defined project scope. Contingency is used to cover costs resulting from incomplete design, unforeseen and unpredictable conditions, and uncertainties within the defined project scope. Contingency does not include provisions for out-of-scope work and baseline changes.

The application of a contingency cost covers the entire life-cycle of a project from the feasibility studies through execution to close-out. A contingency analysis was performed at the lowest level of the WBS to present a true indication of the cost risk involved with this project. The contingency was applied as a single-line entry on the cost estimate summary spreadsheets. This section provides the approach used to determine the contingency for the Rocky Flats Ten Year Plan.

The DOE Cost Estimating Guide, Volume 6, provided guidance for the analysis and application of contingency for cost estimates prepared for the DOE. Although the Guide does not specifically address process engineering, operations, or maintenance, the general philosophy of the guide was appropriate for those items in the context of Site closure as a single project. Therefore, the methodologies established for the analyses of contingency requirements for the Ten Year Plan cost estimates were as follows:

- *Construction Project Costs* - Construction project estimates have approximately a 25 percent contingency added to cover potential cost increases due to incomplete design, unforeseeable and unpredictable conditions, or uncertainties within the defined project scope. The four factors that were considered in determining the contingency for construction items are:

  1. Project complexity
  2. Design completeness
  3. Market conditions
  4. Special project or site conditions

- *Environmental Restoration (ER) costs* - Estimates for ER activities cover two phases: the assessment phase and the remediation and cleanup phase. The method used to determine contingency cost was dependent on the phase. The assessment phase of an environmental restoration project has a high degree of uncertainty regarding the technical characteristics of the regulatory issues, Site being evaluated, and level of stakeholder concern. However, there is a low cost risk so a contingency of 10-20 percent was applied. The cleanup phase resembles a construction project and a 25 percent contingency was applied.

- *Deactivation/Decommissioning costs* - The contingency rate for facility deactivation and decommissioning was 30-35 percent because of the uncertainty associated with the cost factors. The contingency considered the following four cost factors:

  1. Availability of technology to reach the desired end state
  2. Unknown levels and amounts of contamination to be removed before demolition
  3. Acceptable levels of contamination for materials to be left in place
  4. Uncertainty of schedules for deactivation and decommissioning

- *Operations and Maintenance* - The cost estimates for operations and maintenance were based on historical costs for similar activities. A contingency ranging from 0 to 20 percent was included.

- *Indirect Costs* - Contingencies were considered for indirect cost items that were proportional to external causes and were commensurate with the external drivers.

The contingency reflects the cost risk associated with activities planned in each fiscal year with the exception of FY97. The projected annual funding for FY97 is approximately $20 million short of providing adequate contingency.

Scheduling Approach

Schedules were developed using the same scope identification technique as the cost estimates to ensure consistency between the estimates and schedules. Schedule activities are identified to level 4, 5, 6 or 7 of the WBS, and checks are performed to verify all WBS scope is included in the schedules and to eliminate duplicate activities.

The scope of work associated with each building, area, or process was defined and an activity duration was assigned. A logical sequence for executing the activities within a building, area or process was developed to form a Critical Path Method schedule. The schedules were then linked to other schedules based upon dependencies created by work logic, resource constraints, or funding limitations required to meet the objectives of the Rocky Flats Ten Year Plan.

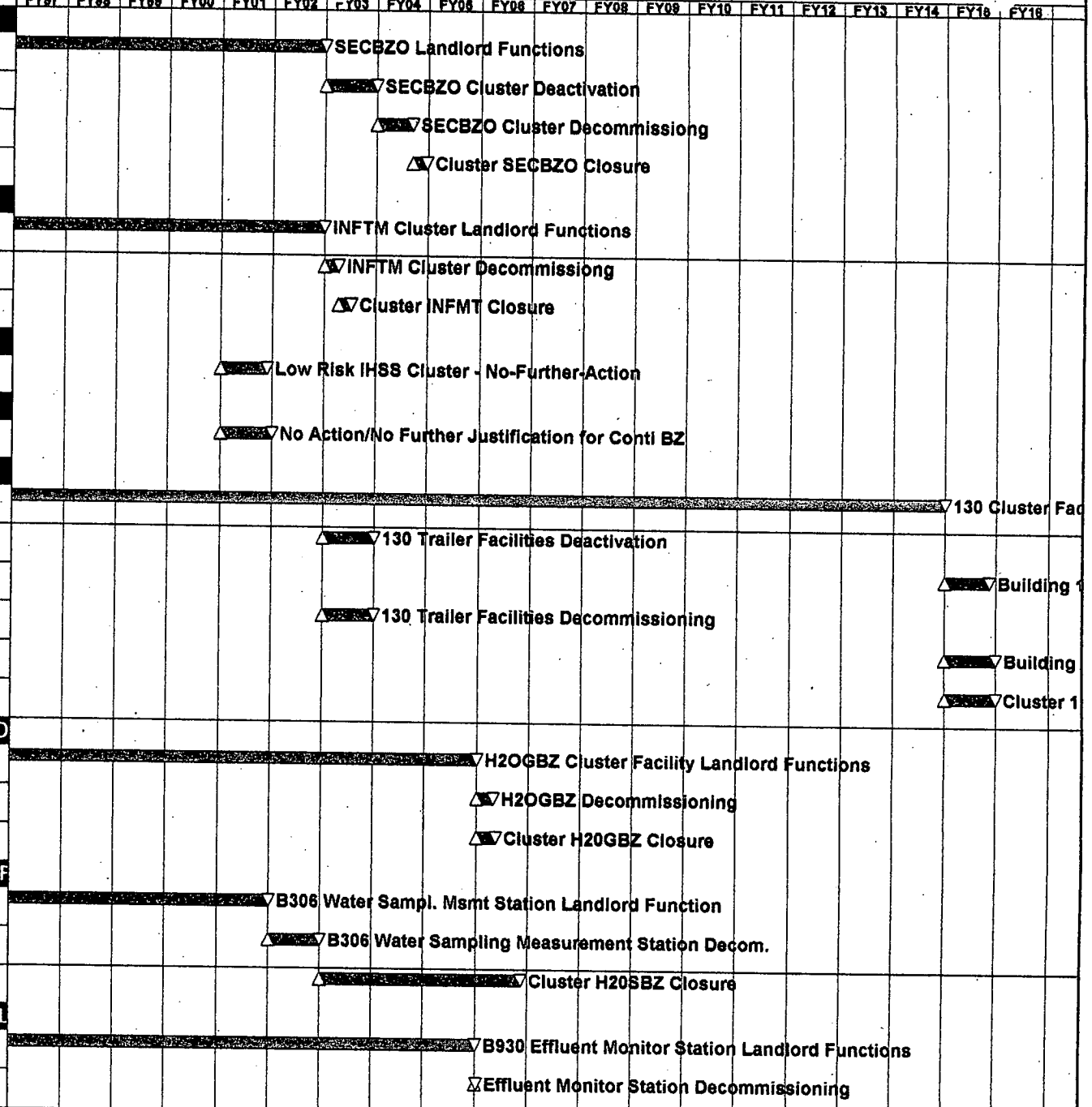
Cost/Schedule Integration and Resource Leveling

After the initial critical path schedule was produced, it was reviewed by senior scheduling staff and task team leaders to verify assumptions, BOE, logic ties, activity duration, float, start and completion dates, and overall presentation. Changes were made to improve activity relationships and refine overall duration for the effort.

Next, resources (costs) were loaded into each schedule activity from the cost estimate. For each schedule activity, the cost was identified as either one-time (cost constant regardless of activity duration) or unit-based (cost increases or decreases as activity duration increases or decreases - usually expressed as cost per year).

After the schedule and cost estimates were integrated, an available funding profile was entered into the system. For the initial cost analysis, an funding ceiling of $657.6 million per fiscal year was used (except for FY97 which has a $600 million ceiling according to DOE, HQ guidance). Using the leveling capability of the system, activity start and completion dates were accelerated or delayed until the activities could be completed within the imposed limitation of funding. In some instances leveling could not achieve the desired funding profile, and activity durations had to be adjusted on an individual basis. The resource-leveling step did not alter the basic logical structure of the schedule; adjusting activity durations required analysis of the critical path to ensure the basic logic structure remained sound. In instances where the original cost and schedule profile had the funding ceiling exceeded in any given year, extension of work into the outyear(s) to accommodate the funding limitation had the effect of lengthening the overall completion time of the project.

WBS	Activity description
SECURITY/OUTER BUFFER ZONE	
1.1.01.01.01.	SECBZO Landlord Functions
1.1.01.01.03.	SECBZO Cluster Deactivation
1.1.01.01.04.	SECBZO Cluster Decommissiong
1.1.01.01.05.	Cluster SECBZO Closure
INFRASTRUCTURE/METEOROLOGICAL	
1.1.01.02.01.0	INFTM Cluster Landlord Functions
1.1.01.02.04.0	INFTM Cluster Decommissiong
1.1.01.02.05.	Cluster INFMT Closure
NA/NFA Outer Buffer Zone IHSS	
1.1.01.03. . .	Low Risk IHSS Cluster -
NA/NFA Contaminated Buffer Zone	
1.1.02.01. . .	No Action/No Further Justification for
CLUSTER 130	
1.1.03.01.01.	130 Cluster Facility Landlord Functions
1.1.03.01.03.	130 Trailer Facilities Deactivation
1.1.03.01.03.	Building 130 Deactivation
1.1.03.01.04.	130 Trailer Facilities Decommissioning
1.1.03.01.04.	Building 130 Decommissioning
1.1.03.01.05.	Cluster 130 Closure
GROUND WATER MONITORING / BUFFER ZO	
1.1.03.02.01.	H2OGBZ Cluster Facility Landlord
1.1.03.02.04.	H2OGBZ Decommissioning
1.1.03.02.05.	Cluster H20GBZ Closure
SURFACE WATER MONITORING/INNER BUFF	
1.1.03.03.01.	B306 Water Sampl. Msmt Station
1.1.03.03.04.	B306 Water Sampling Measurement
1.1.03.03.05.	Cluster H20SBZ Closure
SURFACE WATER MONITORING\INDUSTRIAL	
1.1.03.04.01.	B930 Effluent Monitor Station Landlord
1.1.03.04.04.	Effluent Monitor Station



Project Start	01JAN93
Project Finish	05JAN16
Data Date	02JAN98
Plot Date	01AUG98

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Early Bar
Progress Bar
Critical Activity

ALT8

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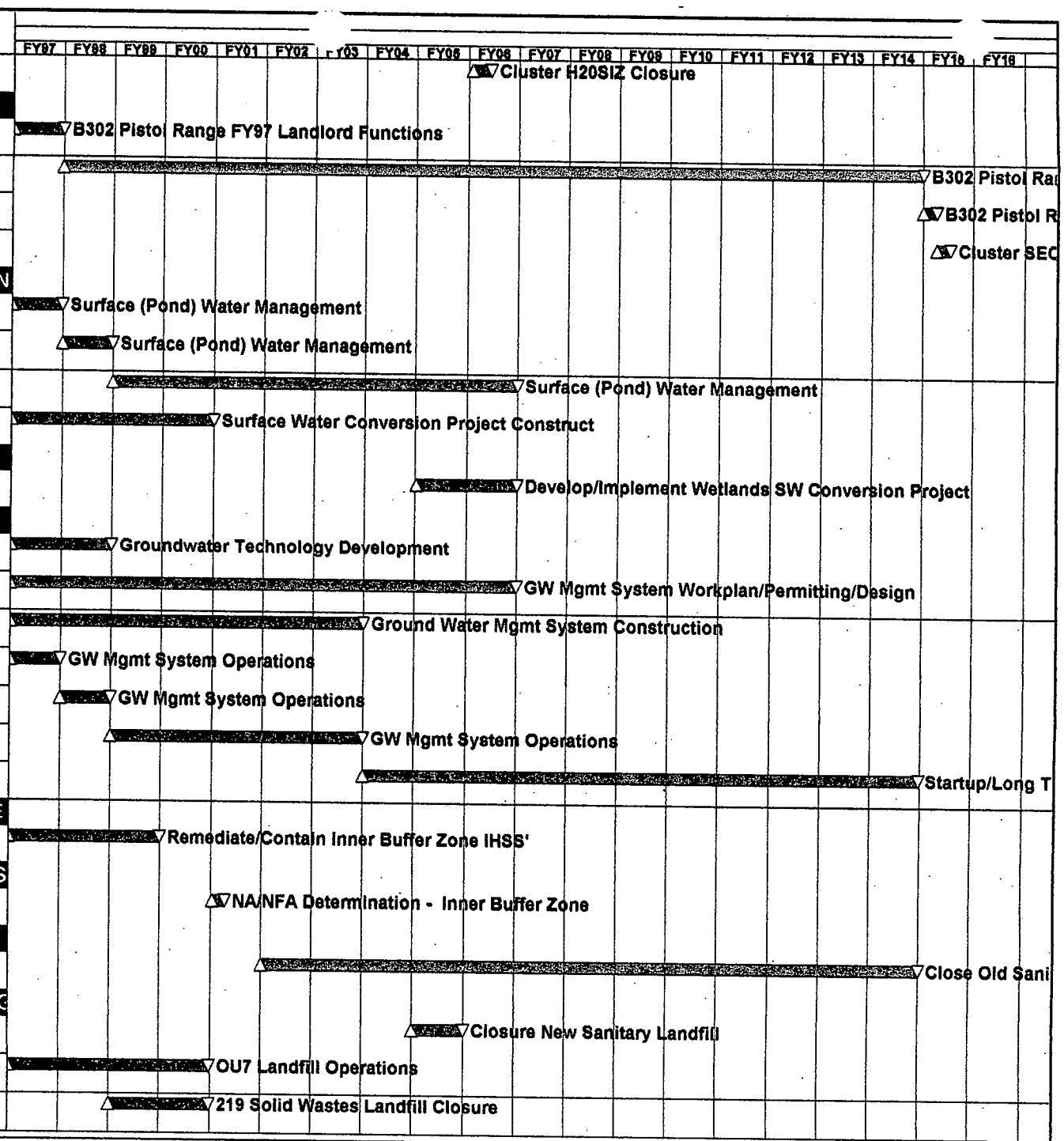
Kaiser-Hill

DOE RFFO Ten Year Plan

WBS	Activity description
1.1.03.04.05.	Cluster H20SIZ Closure
SECURITY/INNER BUFFER ZONE	
1.1.03.05.01.	B302 Pistol Range FY97 Landlord
1.1.03.05.01.	B302 Pistol Range Outyear Landlord
1.1.03.05.04.	B302 Pistol Range Decommissioning
1.1.03.05.05.	Cluster SECBZI Closure
OPER PONDS & DEVELOP SW CONVERSION	
1.1.03.06.01.	Surface (Pond) Water Management
1.1.03.06.01.	Surface (Pond) Water Management
1.1.03.06.01.	Surface (Pond) Water Management
1.1.03.06.03.	Surface Water Conversion Project
Surface Water Conversion Project	
1.1.03.07. . .	Develop/Implement Wetlands SW
GROUNDWATER MANAGEMENT PROJECT	
1.1.03.08.01.	Groundwater Technology Development
1.1.03.08.01.	GW Mgmt System
1.1.03.08.03.	Ground Water Mgmt System
1.1.03.08.04.	GW Mgmt System Operations
1.1.03.08.04.	GW Mgmt System Operations
1.1.03.08.04.	GW Mgmt System Operations
1.1.03.08.04.	Startup/Long Term Ops Gmd Wtr
REMEDIATE/CONTAIN INNER BUFFER ZONE	
1.1.03.09. . .	Remediate/Contain Inner Buffer Zone
NA/NFA INNER BUFFER ZONE LOW RISK IHS	
1.1.03.10. . .	NA/NFA Determination - Inner Buffer
INFRASTRUCTURE/OLD LANDFILL (219)	
1.1.03.11.02.	Close Old Sanitary Landfill (OU5)
DEVELOP OPERATE & SANITARY WASTE MG	
1.1.04.01.03.	Closure New Sanitary Landfill
1.1.04.01.05.	OU7 Landfill Operations
1.1.04.01.06.	219 Solid Wastes Landfill Closure



Project Start	01JAN93	Early Bar
Project Finish	05JAN18	Progress Bar
Data Date	03JAN98	Critical Activity
Plot Date	01AUG98	

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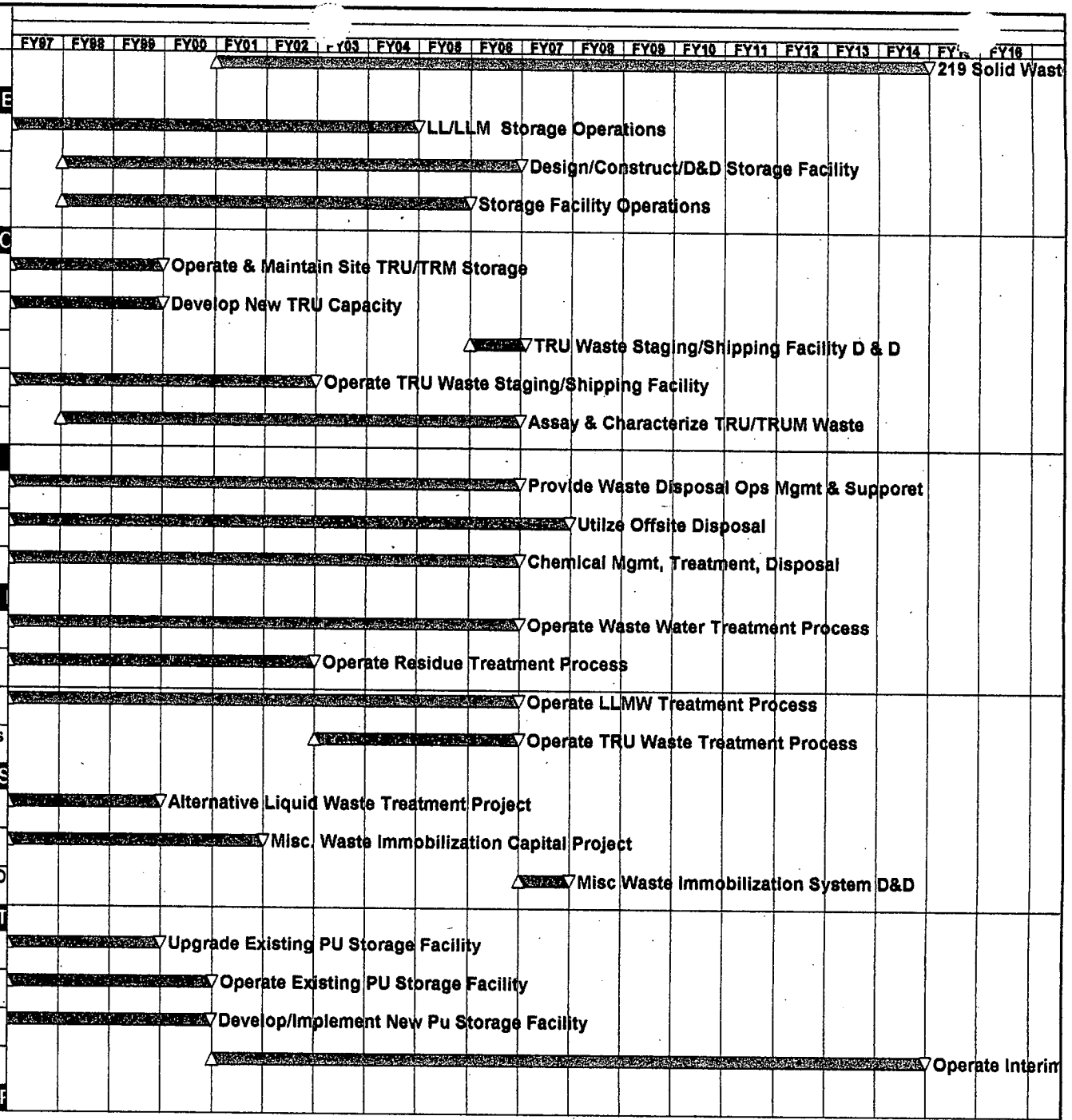
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.04.01.06.	219 Solid Wastes Landfill Monitoring
OPERATE & MAINTAIN LLW/LLMW STORAGE	
1.1.04.02.01.	LL/LLM Storage Operations
1.1.04.02.02.	Design/Construct/D&D Storage Facility
1.1.04.02.03.0	Storage Facility Operations
DEVELOP, OPERATE TRU/TRUM WASTE STO	
1.1.04.03.01.	Operate & Maintain Site TRU/TRM
1.1.04.03.02.	Develop New TRU Capacity
1.1.04.03.02.	TRU Waste Staging/Shipping Facility D
1.1.04.03.03.	Operate TRU Waste Staging/Shipping
1.1.04.03.04.	Assay & Characterize TRU/TRUM
PROVIDE OFFSITE WASTE DISPOSAL	
1.1.04.04.01.	Provide Waste Disposal Ops Mgmt &
1.1.04.04.03.	Utilze Offsite Disposal
1.1.04.04.04.	Chemical Mgmt, Treatment, Disposal
OPERATE & MAINTAIN WASTE TREATMENT	
1.1.04.05.01.	Operate Waste Water Treatment
1.1.04.05.02.	Operate Residue Treatment Process
1.1.04.05.03.	Operate LLMW Treatment Process
1.1.04.05.05.	Operate TRU Waste Treatment Process
DEVELOP WASTE MANAGEMENT PROJECTS	
1.1.04.06.01.	Alternative Liquid Waste Treatment
1.1.04.06.02.	Misc. Waste Immobilization Capital
1.1.04.06.02.	Misc Waste Immobilization System D&D
DEVELOP & OPERATE PU STORAGE FACILIT	
1.1.04.07.01.	Upgrade Existing PU Storage Facility
1.1.04.07.02.	Operate Existing PU Storage Facility
1.1.04.07.03.	Develop/Implement New Pu Storage
1.1.04.07.04.	Operate Interim SNM Storage Facility
DEVELOP SNM STABILZATION CAPABILITY	



Project Start	01JAN93
Project Finish	05JAN19
Data Date	03JAN96
Plot Date	01AUG96

Early Bar
Progress Bar
Critical Activity

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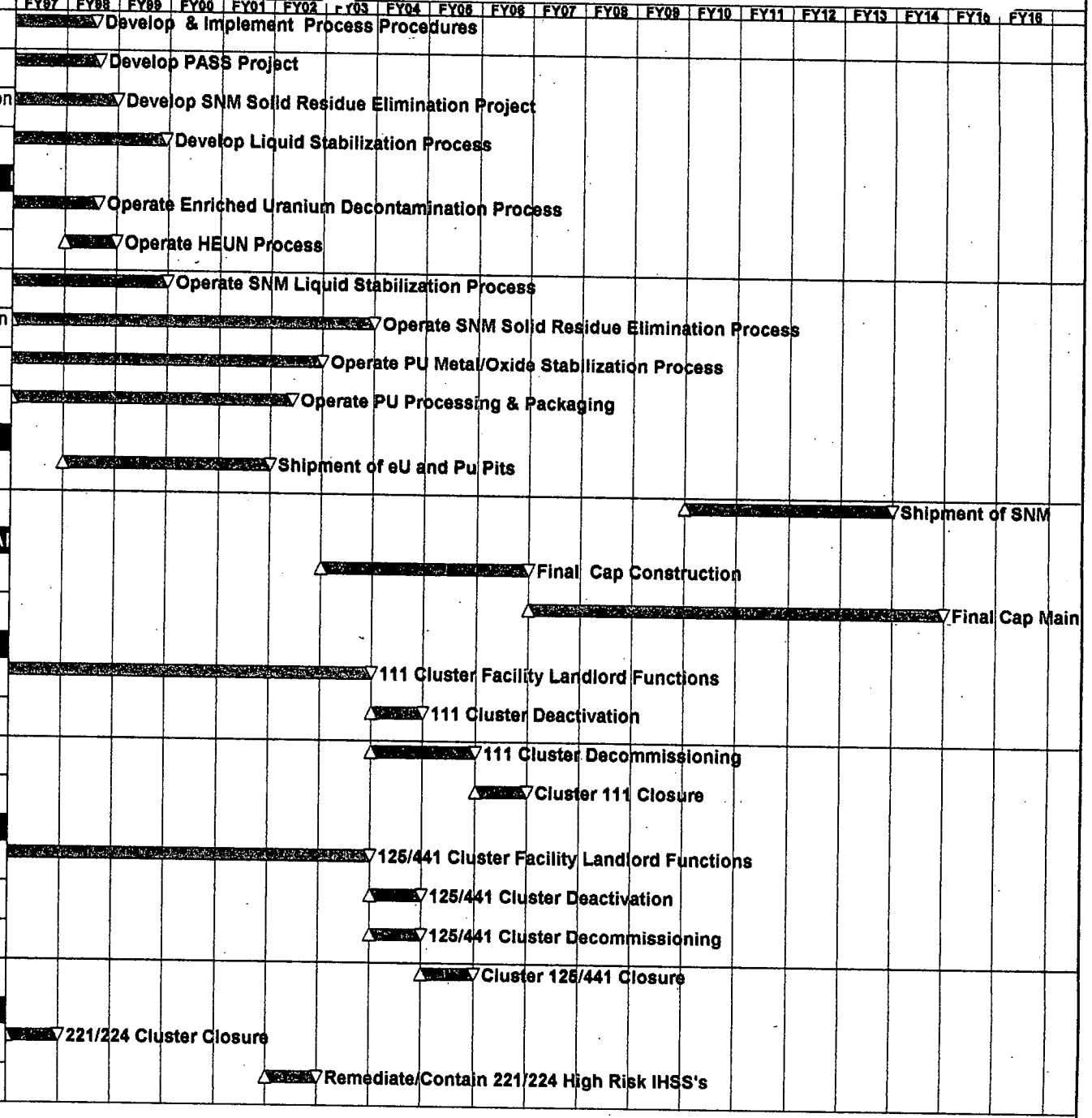
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.04.08.01.	Develop & Implement Process
1.1.04.08.02.	Develop PASS Project
1.1.04.08.03.	Develop SNM Solid Residue Elimination
1.1.04.08.04.	Develop Liquid Stabilization Process
OPERATE & MAINTAIN SNM TREATMENT &	
1.1.04.09.01.	Operate Enriched Uranium
1.1.04.09.02.	Operate HEUN Process
1.1.04.09.03.	Operate SNM Liquid Stabilization
1.1.04.09.04.	Operate SNM Solid Residue Elimination
1.1.04.09.05.	Operate PU Metal/Oxide Stabilization
1.1.04.09.06.	Operate PU Processing & Packaging
PROVIDE SNM OFFSITE SHIPMENT	
1.1.04.10. . .	Shipment of eU and Pu Pits
1.1.04.10. . .	Shipment of SNM
DEVELOP & IMPLEMENT NEW CLOSURE CA	
1.1.04.11.02.	Final Cap Construction
1.1.04.11.02.	Final Cap Maintenance
CLUSTER 111	
1.1.05.01.01.	111 Cluster Facility Landlord Functions
1.1.05.01.03.	111 Cluster Deactivation
1.1.05.01.04.	111 Cluster Decommissioning
1.1.05.01.05.	Cluster 111 Closure
CLUSTER 125/441	
1.1.05.02.01.	125/441 Cluster Facility Landlord
1.1.05.02.03.	125/441 Cluster Deactivation
1.1.05.02.04.	125/441 Cluster Decommissioning
1.1.05.02.05.	Cluster 125/441 Closure
CLUSTER 221/224	
1.1.05.03.05.	221/224 Cluster Closure
1.1.05.03.06.	Remediate/Contain 221/224 High Risk



Project Start	01JAN93
Project Finish	05JAN18
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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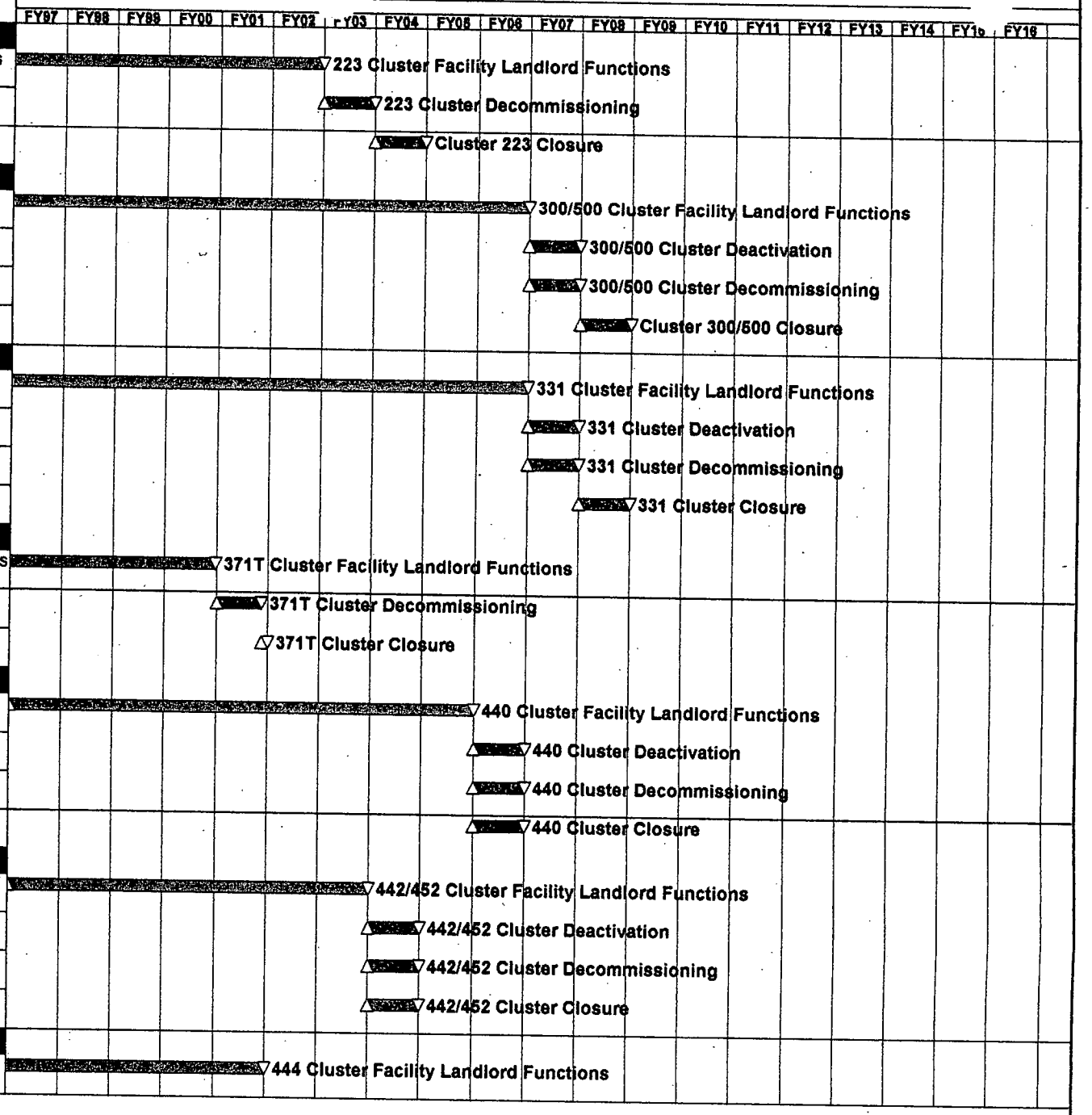
DOE RFFO Ten Year Plan

WBS	Activity description
CLUSTER 223	
1.1.05.04.01.	223 Cluster Facility Landlord Functions
1.1.05.04.04.	223 Cluster Decommissioning
1.1.05.04.05.	Cluster 223 Closure
CLUSTER 300/500	
1.1.05.05.01.	300/500 Cluster Facility Landlord
1.1.05.05.03.	300/500 Cluster Deactivation
1.1.05.05.04.	300/500 Cluster Decommissioning
1.1.05.05.05.	Cluster 300/500 Closure
CLUSTER 331	
1.1.05.06.01.	331 Cluster Facility Landlord Functions
1.1.05.06.03.	331 Cluster Deactivation
1.1.05.06.04.	331 Cluster Decommissioning
1.1.05.06.05.	331 Cluster Closure
CLUSTER 371T	
1.1.05.07.01.	371T Cluster Facility Landlord Functions
1.1.05.07.04.	371T Cluster Decommissioning
1.1.05.07.05.	371T Cluster Closure
CLUSTER 440	
1.1.05.08.01.	440 Cluster Facility Landlord Functions
1.1.05.08.03.	440 Cluster Deactivation
1.1.05.08.04.	440 Cluster Decommissioning
1.1.05.08.05.	440 Cluster Closure
CLUSTER 442/452	
1.1.05.09.01.	442/452 Cluster Facility Landlord
1.1.05.09.03.	442/452 Cluster Deactivation
1.1.05.09.04.	442/452 Cluster Decommissioning
1.1.05.09.05.	442/452 Cluster Closure
CLUSTER444	
1.1.05.10.01.	444 Cluster Facility Landlord Functions



Project Start	01JAN93
Project Finish	05JAN16
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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DOE RFFO Ten Year Plan

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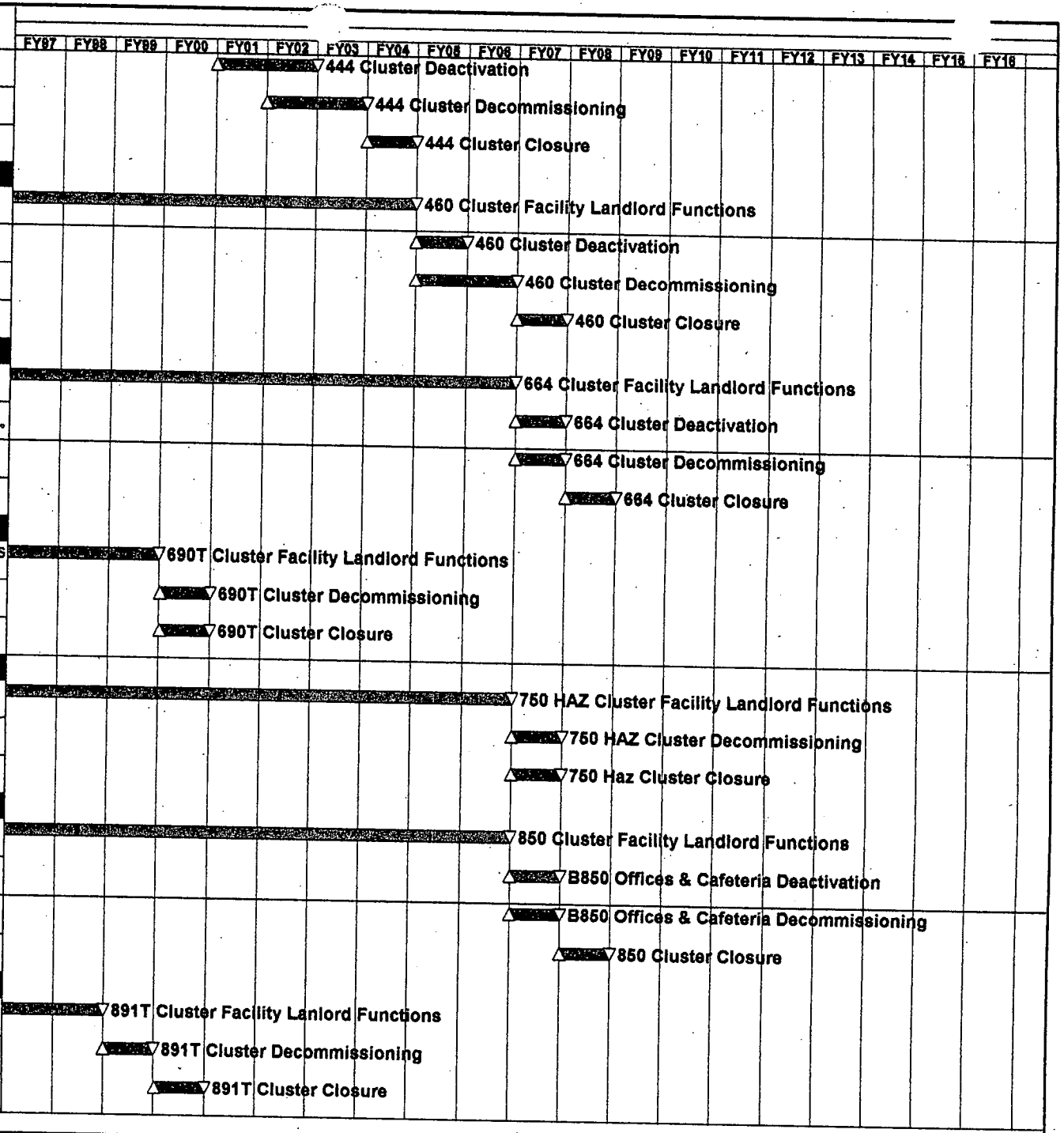
WBS	Activity description
1.1.05.10.03.	444 Cluster Deactivation
1.1.05.10.04.	444 Cluster Decommissioning
1.1.05.10.05.	444 Cluster Closure
CLUSTER460	
1.1.05.11.01.	460 Cluster Facility Landlord Functions
1.1.05.11.03.	460 Cluster Deactivation
1.1.05.11.04.	460 Cluster Decommissioning
1.1.05.11.05.	460 Cluster Closure
CLUSTER 664	
1.1.05.12.01.	664 Cluster Facility Landlord Functions
1.1.05.12.03.	664 Cluster Deactivation
1.1.05.12.04.	664 Cluster Decommissioning
1.1.05.12.05.	664 Cluster Closure
CLUSTER 690T	
1.1.05.13.01.	690T Cluster Facility Landlord Functions
1.1.05.13.04.	690T Cluster Decommissioning
1.1.05.13.05.	690T Cluster Closure
CLUSTER 750 HAZ	
1.1.05.14.01.	750 HAZ Cluster Facility Landlord
1.1.05.14.04.	750 HAZ Cluster Decommissioning
1.1.05.14.05.	750 Haz Cluster Closure
CLUSTER 850	
1.1.05.15.01.	850 Cluster Facility Landlord Functions
1.1.05.15.03.	B850 Offices & Cafeteria Deactivation
1.1.05.15.04.	B850 Offices & Cafeteria
1.1.05.15.05.	850 Cluster Closure
CLUSTER 891T	
1.1.05.16.01.	891T Cluster Facility Lanlord Functions
1.1.05.16.04.	891T Cluster Decommissioning
1.1.05.16.05.	891T Cluster Closure



Project Start	01JAN93
Project Finish	05JAN16
Data Date	02JAN96
Plot Date	01AUG96

Early Bar
Progress Bar
Critical Activity

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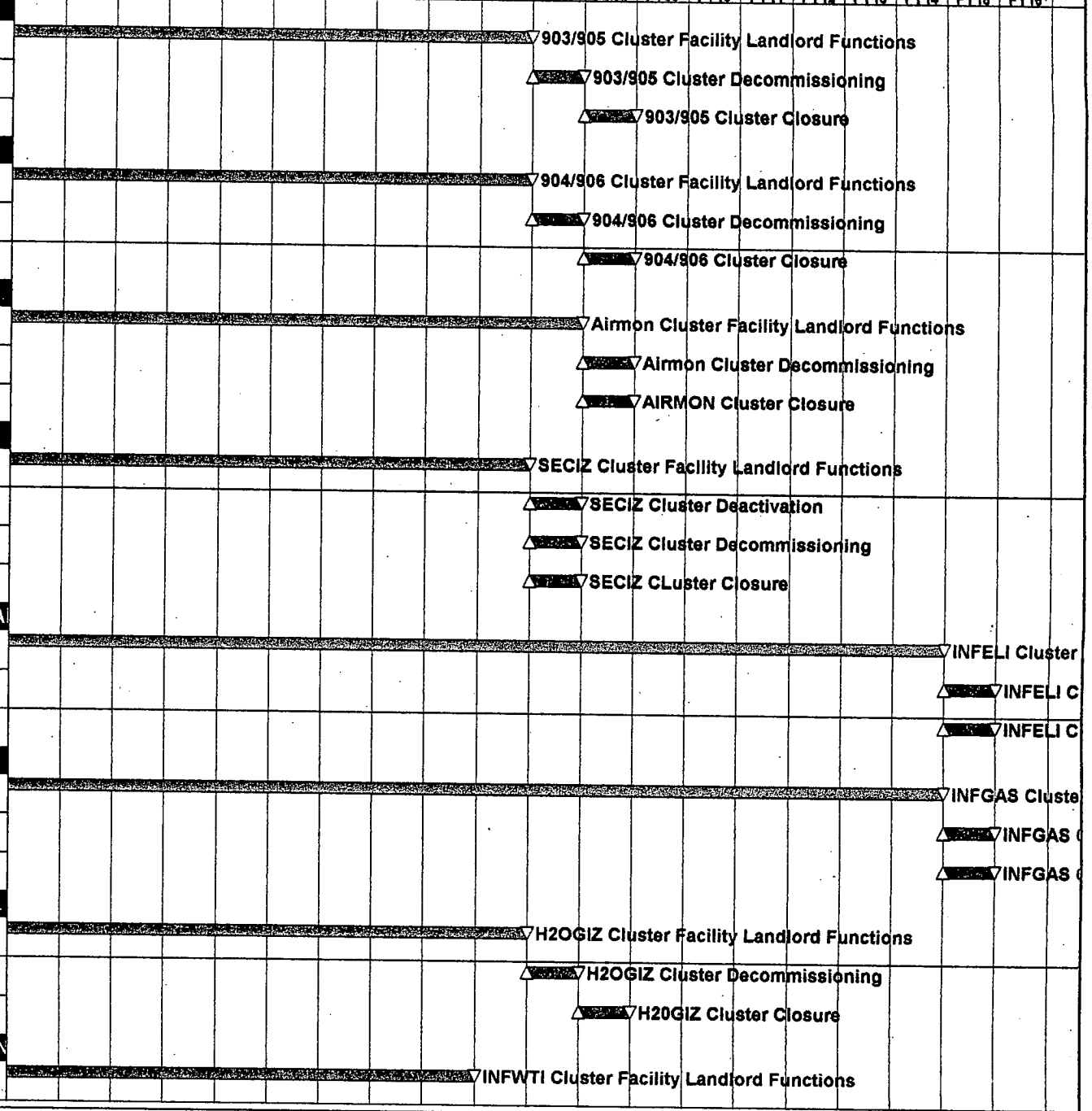
WBS	Activity description
CLUSTER 903/905	
1.1.05.17.01.	903/905 Cluster Facility Landlord
1.1.05.17.04.	903/905 Cluster Decommissioning
1.1.05.17.05.	903/905 Cluster Closure
CLUSTER 904/906	
1.1.05.18.01.	904/906 Cluster Facility Landlord
1.1.05.18.04.	904/906 Cluster Decommissioning
1.1.05.18.05.	904/906 Cluster Closure
AIR MONITORING CLUSTER	
1.1.05.19.01.	Airmon Cluster Facility Landlord
1.1.05.19.04.	Airmon Cluster Decommissioning
1.1.05.19.05.	AIRMON Cluster Closure
SECURITY/INDUSTRIAL ZONE	
1.1.05.20.01.	SECIZ Cluster Facility Landlord
1.1.05.20.03.	SECIZ Cluster Deactivation
1.1.05.20.04.	SECIZ Cluster Decommissioning
1.1.05.20.05.	SECIZ CLuster Closure
INFRASTRUCTURE/ELECTRICAL/INDUSTRIA	
1.1.05.21.01.	INFELI Cluster Facility Landlord
1.1.05.21.04.	INFELI Cluster Decommissioning
1.1.05.21.05.	INFELI Cluster Closure
INFRASTRUCTURE/NATURAL GAS	
1.1.05.22.01.	INFGAS Cluster Facility Landlord
1.1.05.22.04.	INFGAS Cluster Decommissioning
1.1.05.22.05.	INFGAS Cluster Closure
GROUND WATER MONITORING/INDUSTRIAL	
1.1.05.23.01.	H2OGIZ Cluster Facility Landlord
1.1.05.23.04.	H2OGIZ Cluster Decommissioning
1.1.05.23.05.	H20GIZ Cluster Closure
INFRASTRUCTURE/WATER/INDUSTRIAL ZON	
1.1.05.24.01.	INFWTI Cluster Facility Landlord



Project Start	01JAN93
Project Finish	05JAN18
Data Date	03JAN98
Plot Date	01AUG98

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Critical Activity

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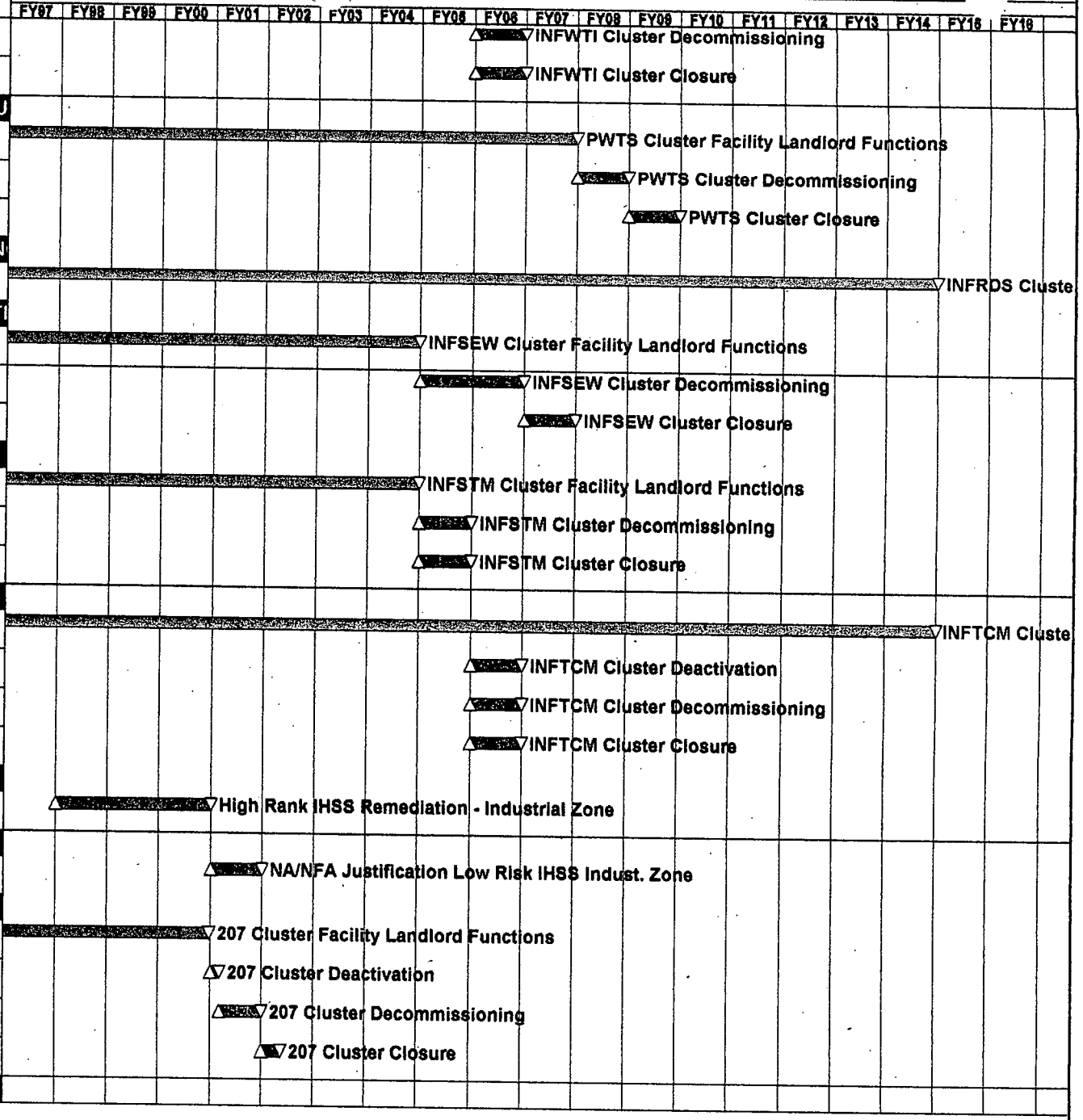
WBS	Activity description
1.1.05.24.04.	INFWTI Cluster Decommissioning
1.1.05.24.05.	INFWTI Cluster Closure
PROCESS WASTE TRANSFER SYSTEM/INDU	
1.1.05.25.01.	PWTS Cluster Facility Landlord
1.1.05.25.04.	PWTS Cluster Decommissioning
1.1.05.25.05.	PWTS Cluster Closure
INFRASTRUCTURE/ROADS/WALKWAYS/FEN	
1.1.05.26.01.	INFRDS Cluster Facility Landlord
INFRASTRUCTURE/SEWER/SEWAGE TREAT	
1.1.05.27.01.	INFSEW Cluster Facility Landlord
1.1.05.27.04.	INFSEW Cluster Decommissioning
1.1.05.27.05.	INFSEW Cluster Closure
INFRASTRUCTURE/STEAM	
1.1.05.28.01.	INFSTM Cluster Facility Landlord
1.1.05.28.04.	INFSTM Cluster Decommissioning
1.1.05.28.05.	INFSTM Cluster Closure
INFRASTRUCTURE/TELECOM & MEDICAL;	
1.1.05.29.01.	INFTCM Cluster Facility Landlord
1.1.05.29.03.	INFTCM Cluster Deactivation
1.1.05.29.04.	INFTCM Cluster Decommissioning
1.1.05.29.05.	INFTCM Cluster Closure
REMEDIATE/CONTAIN HIGH RISK IHSS	
1.1.05.30. . .	High Rank IHSS Remediation -
REMEDIATE CONTAIN LOW RISK IHSS	
1.1.05.31. . .	NA/NFA Justification Low Risk IHSS
CLUSTER 207	
1.1.06.01.01.	207 Cluster Facility Landlord Functions
1.1.06.01.03.	207 Cluster Deactivation
1.1.06.01.04.	207 Cluster Decommissioning
1.1.06.01.05.	207 Cluster Closure
CLUSTER 371/374	



Project Start	01JAN93
Project Finish	05JAN16
Data Date	02JAN96
Plot Date	01AUG96

Early Bar
Progress Bar
Critical Activity

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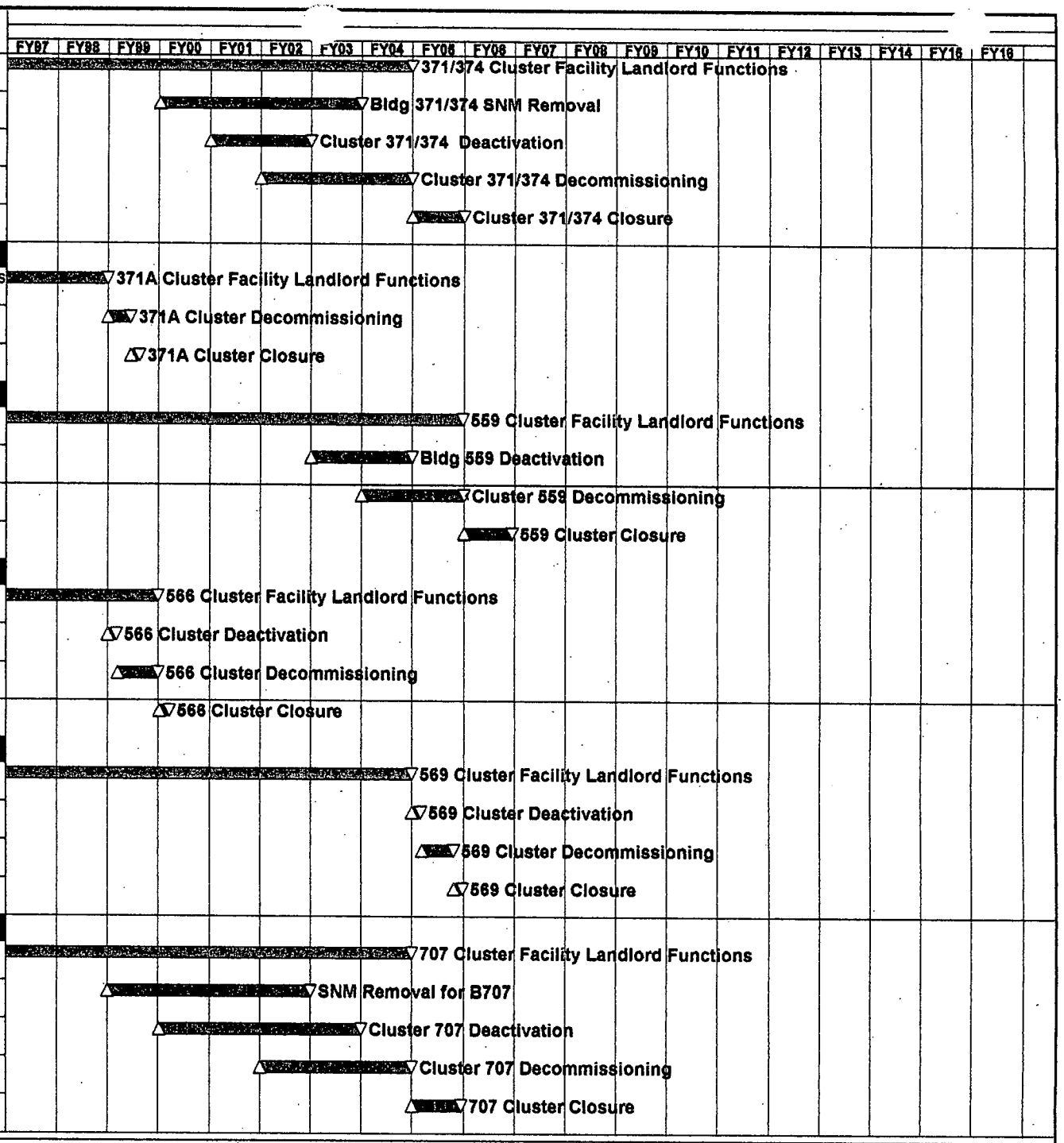
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.06.02.01.	371/374 Cluster Facility Landlord
1.1.06.02.02.	Bldg 371/374 SNM Removal
1.1.06.02.03.	Cluster 371/374 Deactivation
1.1.06.02.04.	Cluster 371/374 Decommissioning
1.1.06.02.05.	Cluster 371/374 Closure
CLUSTER 371A	
1.1.06.03.01.	371A Cluster Facility Landlord Functions
1.1.06.03.04.	371A Cluster Decommissioning
1.1.06.03.05.	371A Cluster Closure
CLUSTER 559	
1.1.06.04.01.	559 Cluster Facility Landlord Functions
1.1.06.04.03.	Bldg 559 Deactivation
1.1.06.04.04.	Cluster 559 Decommissioning
1.1.06.04.05.	559 Cluster Closure
CLUSTER 566	
1.1.06.05.01.	566 Cluster Facility Landlord Functions
1.1.06.05.03.	566 Cluster Deactivation
1.1.06.05.04.	566 Cluster Decommissioning
1.1.06.05.05.	566 Cluster Closure
CLUSTER 569	
1.1.06.06.01.	569 Cluster Facility Landlord Functions
1.1.06.06.03.	569 Cluster Deactivation
1.1.06.06.04.	569 Cluster Decommissioning
1.1.06.06.05.	569 Cluster Closure
CLUSTER 707	
1.1.06.07.01.	707 Cluster Facility Landlord Functions
1.1.06.07.02.	SNM Removal for B707
1.1.06.07.03.	Cluster 707 Deactivation
1.1.06.07.04.	Cluster 707 Decommissioning
1.1.06.07.05.	707 Cluster Closure



Project Start	01JAN93
Project Finish	08JAN16
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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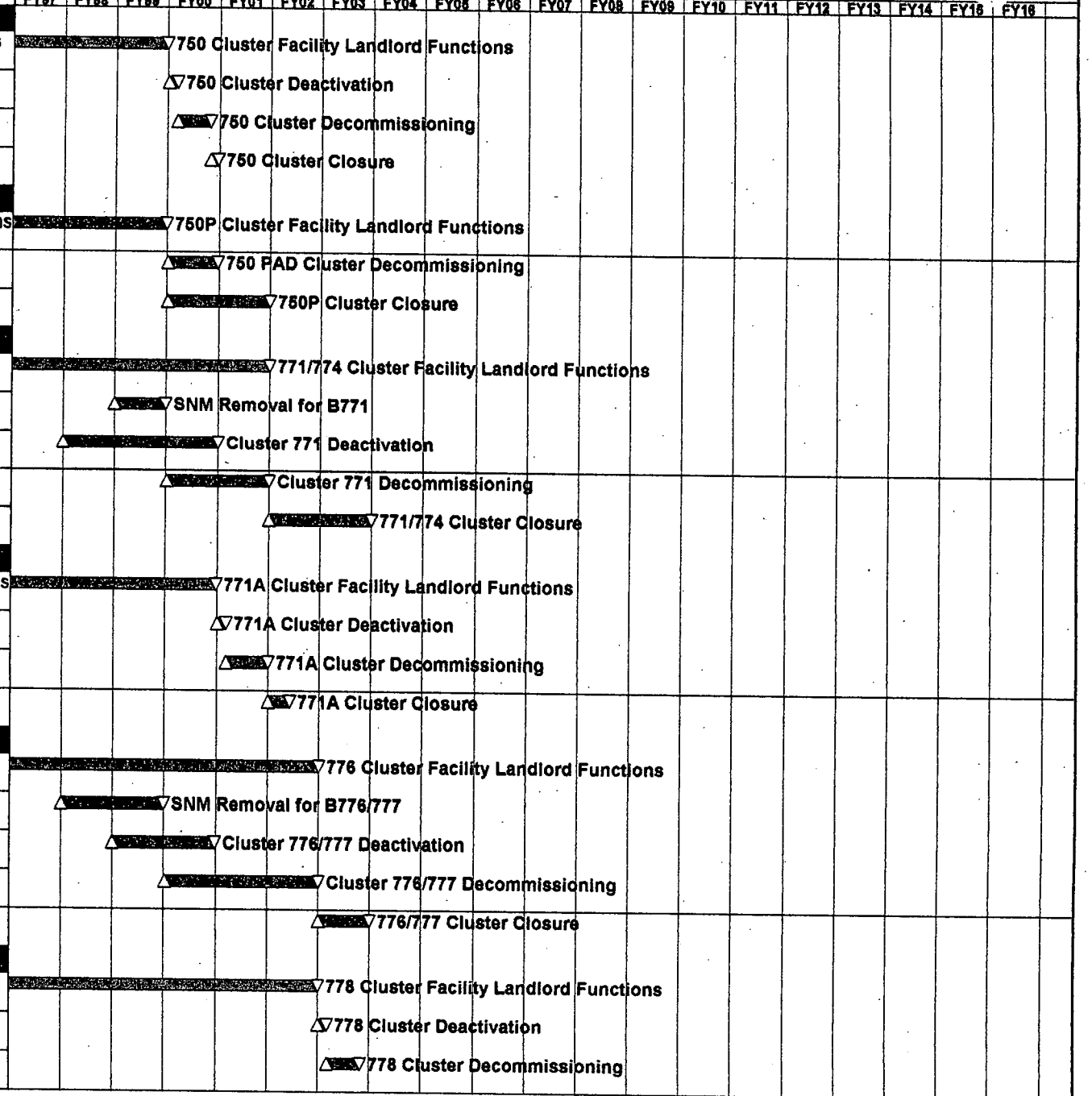
WBS	Activity description
CLUSTER 750	
1.1.06.08.01.	750 Cluster Facility Landlord Functions
1.1.06.08.03.	750 Cluster Deactivation
1.1.06.08.04.	750 Cluster Decommissioning
1.1.06.08.05.	750 Cluster Closure
CLUSTER 750 PAD	
1.1.06.09.01.	750P Cluster Facility Landlord Functions
1.1.06.09.04.	750 PAD Cluster Decommissioning
1.1.06.09.05.	750P Cluster Closure
CLUSTER 771/774	
1.1.06.10.01.	771/774 Cluster Facility Landlord
1.1.06.10.02.	SNM Removal for B771
1.1.06.10.03.	Cluster 771 Deactivation
1.1.06.10.04.	Cluster 771 Decommissioning
1.1.06.10.05.	771/774 Cluster Closure
CLUSTER 771A	
1.1.06.11.01.	771A Cluster Facility Landlord Functions
1.1.06.11.03.	771A Cluster Deactivation
1.1.06.11.04.	771A Cluster Decommissioning
1.1.06.11.05.	771A Cluster Closure
CLUSTER 776/777	
1.1.06.12.01.	776 Cluster Facility Landlord Functions
1.1.06.12.02.	SNM Removal for B776/777
1.1.06.12.03.	Cluster 776/777 Deactivation
1.1.06.12.04.	Cluster 776/777 Decommissioning
1.1.06.12.05.	776/777 Cluster Closure
CLUSTER 778	
1.1.06.13.01.	778 Cluster Facility Landlord Functions
1.1.06.13.03.	778 Cluster Deactivation
1.1.06.13.04.	778 Cluster Decommissioning



Project Start	01JAN93
Project Finish	05JAN16
Data Date	02JAN96
Plot Date	01AUG96

Early Bar
Progress Bar
Critical Activity

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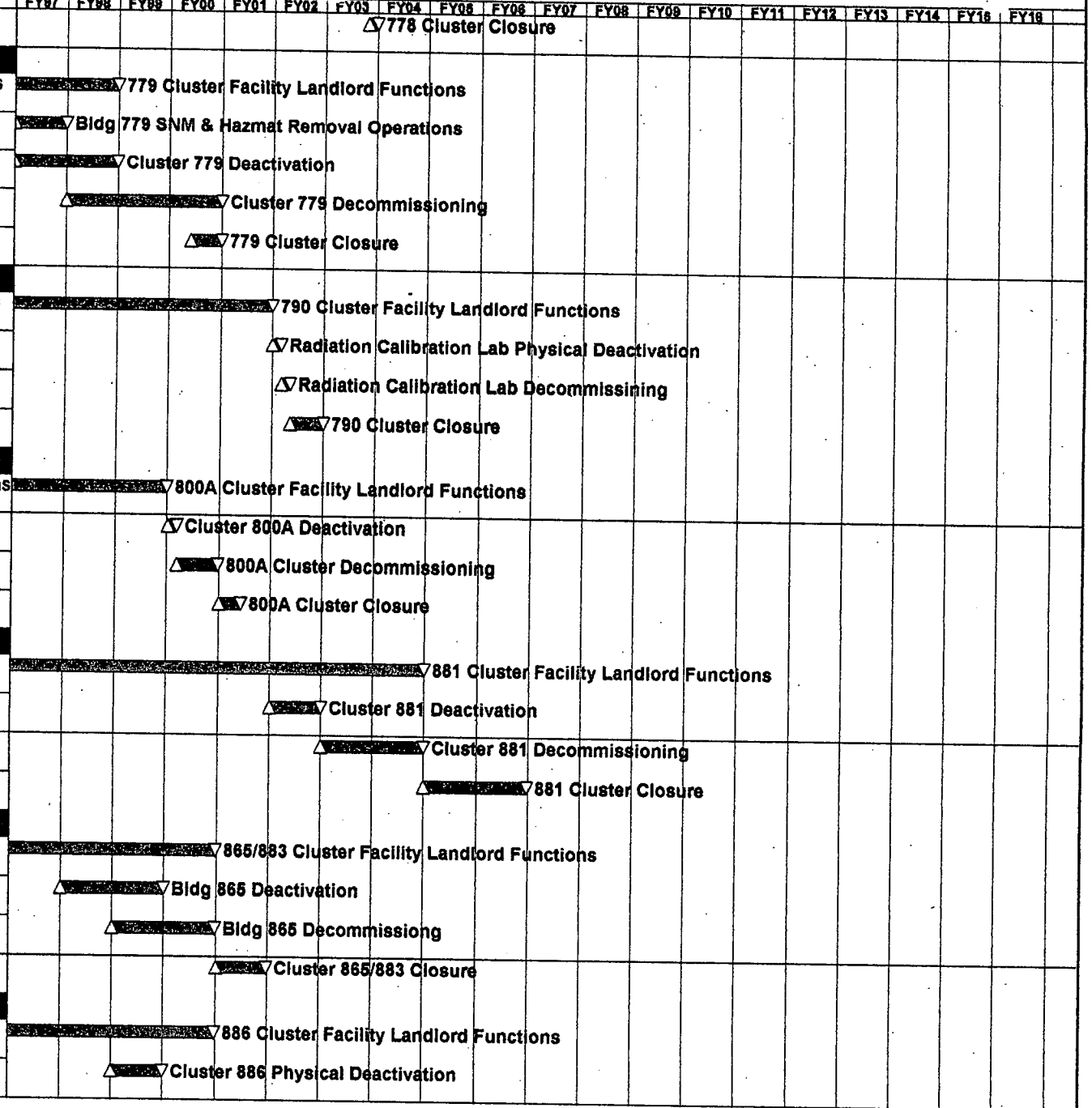
WBS	Activity description
1.1.06.13.05.	778 Cluster Closure
CLUSTER 779	
1.1.06.14.01.	779 Cluster Facility Landlord Functions
1.1.06.14.02.	Bldg 779 SNM & Hazmat Removal
1.1.06.14.03.	Cluster 779 Deactivation
1.1.06.14.04.	Cluster 779 Decommissioning
1.1.06.14.05.	779 Cluster Closure
CLUSTER 790	
1.1.06.15.01.	790 Cluster Facility Landlord Functions
1.1.06.15.03.	Radiation Calibration Lab Physical
1.1.06.15.04.	Radiation Calibration Lab
1.1.06.15.05.	790 Cluster Closure
CLUSTER 800A	
1.1.06.16.01.	800A Cluster Facility Landlord Functions
1.1.06.16.03.	Cluster 800A Deactivation
1.1.06.16.04.	800A Cluster Decommissioning
1.1.06.16.05.	800A Cluster Closure
CLUSTER 881	
1.1.06.17.01.	881 Cluster Facility Landlord Functions
1.1.06.17.03.	Cluster 881 Deactivation
1.1.06.17.04.	Cluster 881 Decommissioning
1.1.06.17.05.	881 Cluster Closure
CLUSTER 865/883	
1.1.06.18.01.	865/883 Cluster Facility Landlord
1.1.06.18.03.	Bldg 865 Deactivation
1.1.06.18.04.	Bldg 865 Decommissiong
1.1.06.18.05.	Cluster 865/883 Closure
Cluster 886	
1.1.06.19.01.	886 Cluster Facility Landlord Functions
1.1.06.19.03.	Cluster 886 Physical Deactivation



Project Start	01JAN93
Project Finish	05JAN19
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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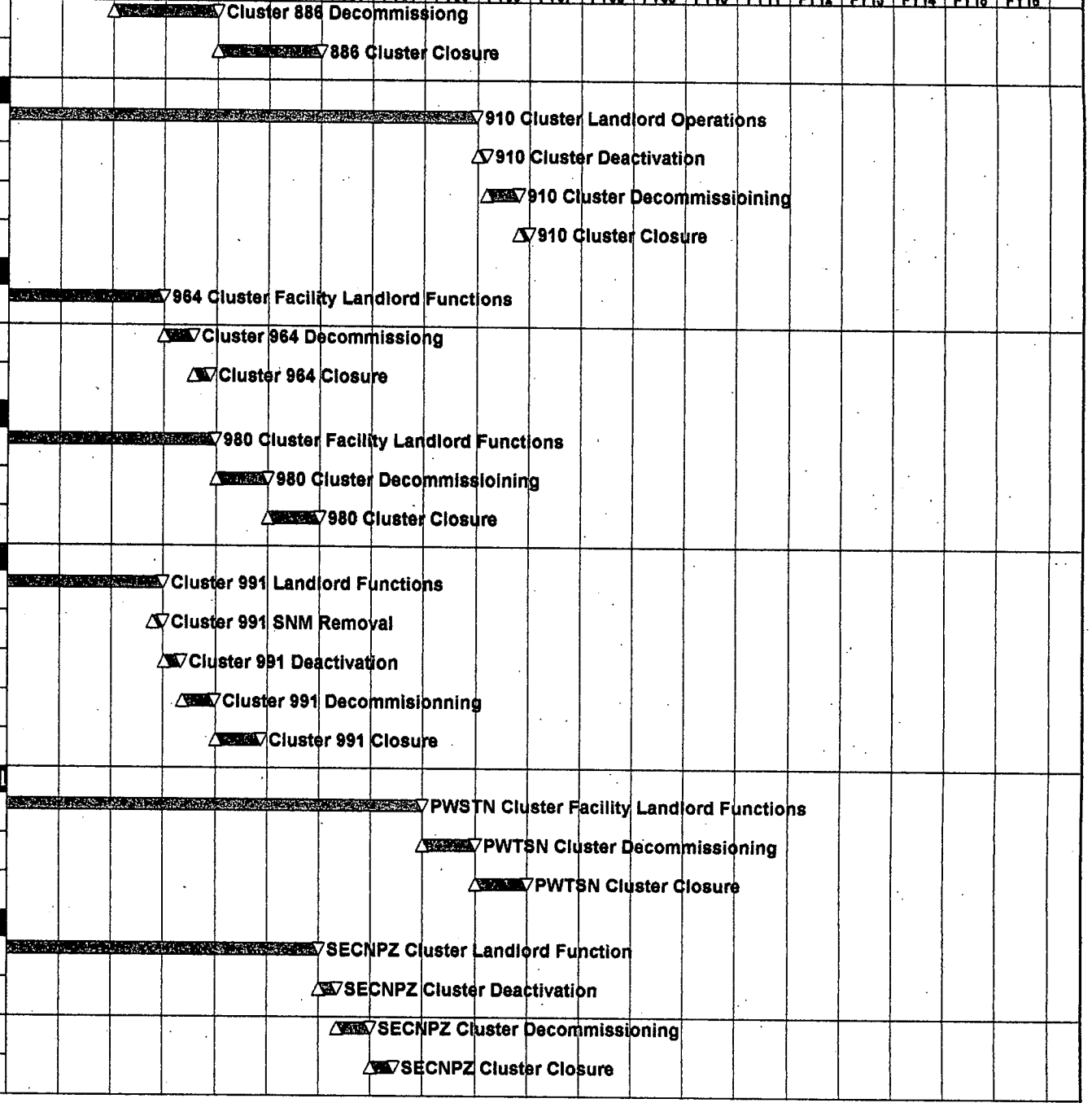
WBS	Activity description
1.1.06.19.04.	Cluster 886 Decommissiong
1.1.06.19.05.	886 Cluster Closure
CLUSTER 910	
1.1.06.20.01.	910 Cluster Landlord Operations
1.1.06.20.03.	910 Cluster Deactivation
1.1.06.20.04.	910 Cluster Decommissioining
1.1.06.20.05.	910 Cluster Closure
CLUSTER 964	
1.1.06.21.01.	964 Cluster Facility Landlord Functions
1.1.06.21.04.	Cluster 964 Decommissiong
1.1.06.21.05.	Cluster 964 Closure
CLUSTER 980	
1.1.06.22.01.	980 Cluster Facility Landlord Functions
1.1.06.22.04.	980 Cluster Decommissioining
1.1.06.22.05.	980 Cluster Closure
CLUSTER 991	
1.1.06.23.01.	Cluster 991 Landlord Functions
1.1.06.23.02.	Cluster 991 SNM Removal
1.1.06.23.03.	Cluster 991 Deactivation
1.1.06.23.04.	Cluster 991 Decommisionning
1.1.06.23.05.	Cluster 991 Closure
PROCESS WASTE TRANSFER SYSTEM NUCL	
1.1.06.24.01.	PWSTN Cluster Facility Landlord
1.1.06.24.04.	PWTSN Cluster Decommissioning
1.1.06.24.05.	PWTSN Cluster Closure
SECURITY/NUCLEAR PRODUCTION ZONE	
1.1.06.25.01.	SECNPZ Cluster Landlord Function
1.1.06.25.03.	SECNPZ Cluster Deactivation
1.1.06.25.04.	SECNPZ Cluster Decommissioning
1.1.06.25.05.	SECNPZ Cluster Closure



Project Start	01JAN93	Early Bar
Project Finish	08JAN16	Progress Bar
Data Date	02JAN98	Critical Activity
Plot Date	01AUG98	

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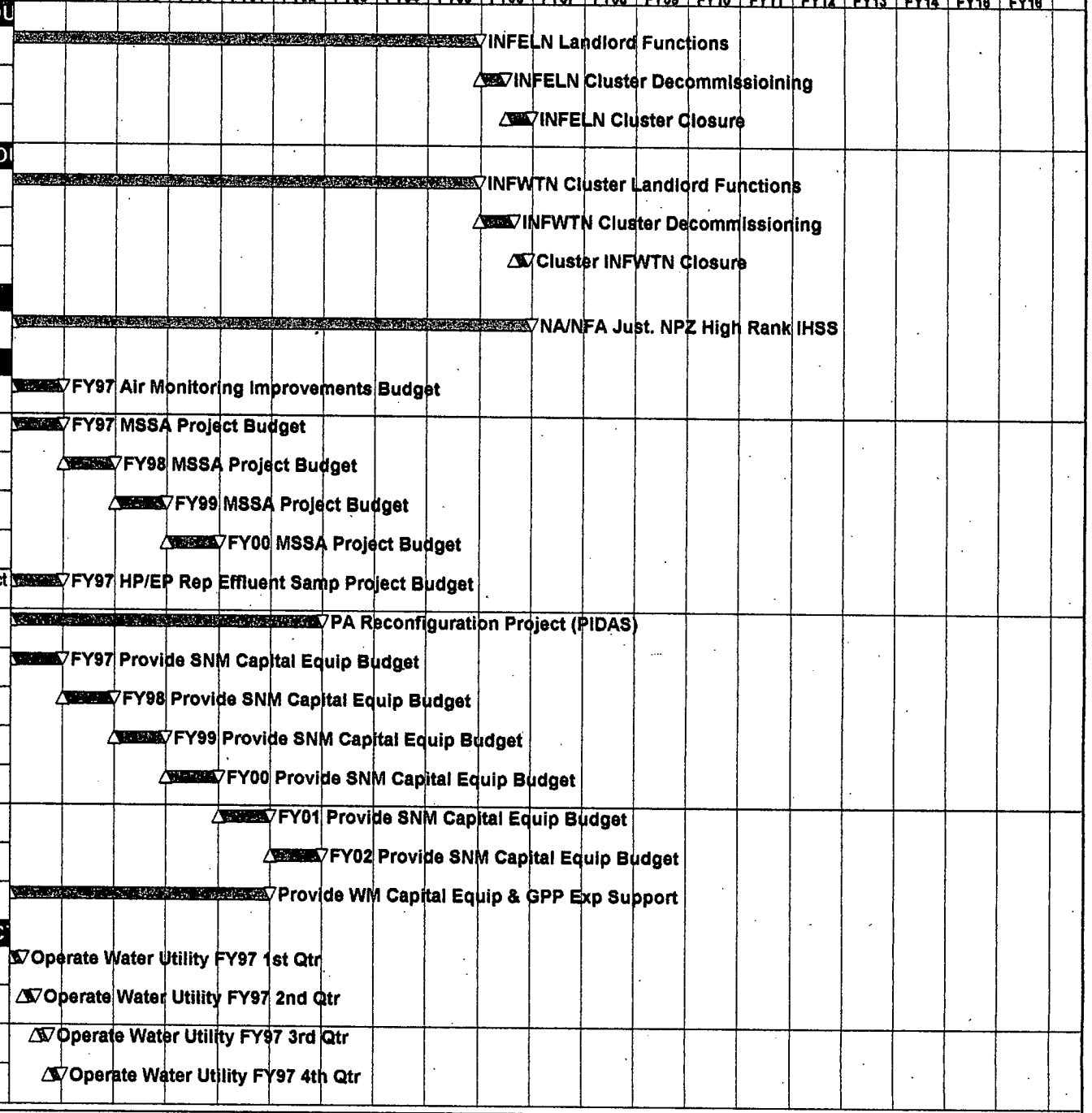
WBS	Activity description
INFRASTRUCTURE/ELECT/NUCLEAR PRODU	
1.1.06.26.01.	INFELN Landlord Functions
1.1.06.26.04.	INFELN Cluster Decommissioining
1.1.06.26.05.	INFELN Cluster Closure
INFRASTRUCTURE/WATER/NUCLEAR PRODU	
1.1.06.27.01.	INFWTN Cluster Landlord Functions
1.1.06.27.04.	INFWTN Cluster Decommissioning
1.1.06.27.05.	Cluster INFWTN Closure
NA/NFA NPZ High Rank IHSS	
1.1.06.28. . .	NA/NFA Just. NPZ High Rank IHSS
NUCLEAR PRODUCTION ZONE PROJECTS	
1.1.06.29.01.	FY97 Air Monitoring Improvements
1.1.06.29.02.	FY97 MSSA Project Budget
1.1.06.29.02.	FY98 MSSA Project Budget
1.1.06.29.02.	FY99 MSSA Project Budget
1.1.06.29.02.	FY00 MSSA Project Budget
1.1.06.29.03.	FY97 HP/EP Rep Effluent Samp Project
1.1.06.29.05.	PA Reconfiguration Project (PIDAS)
1.1.06.29.06.	FY97 Provide SNM Capital Equip
1.1.06.29.06.	FY98 Provide SNM Capital Equip
1.1.06.29.06.	FY99 Provide SNM Capital Equip
1.1.06.29.06.	FY00 Provide SNM Capital Equip
1.1.06.29.06.	FY01 Provide SNM Capital Equip
1.1.06.29.06.	FY02 Provide SNM Capital Equip
1.1.06.29.07.	Provide WM Capital Equip & GPP Exp
INFRASTRUCTURE OPERATIONS & PROJEC	
1.1.07.01.01.	Operate Water Utility FY97 1st Qtr
1.1.07.01.01.	Operate Water Utility FY97 2nd Qtr
1.1.07.01.01.	Operate Water Utility FY97 3rd Qtr
1.1.07.01.01.	Operate Water Utility FY97 4th Qtr



Project Start	01JAN93	Early Bar
Project Finish	05JAN19	Progress Bar
Data Date	02JAN96	Critical Activity
Plot Date	01AUG96	

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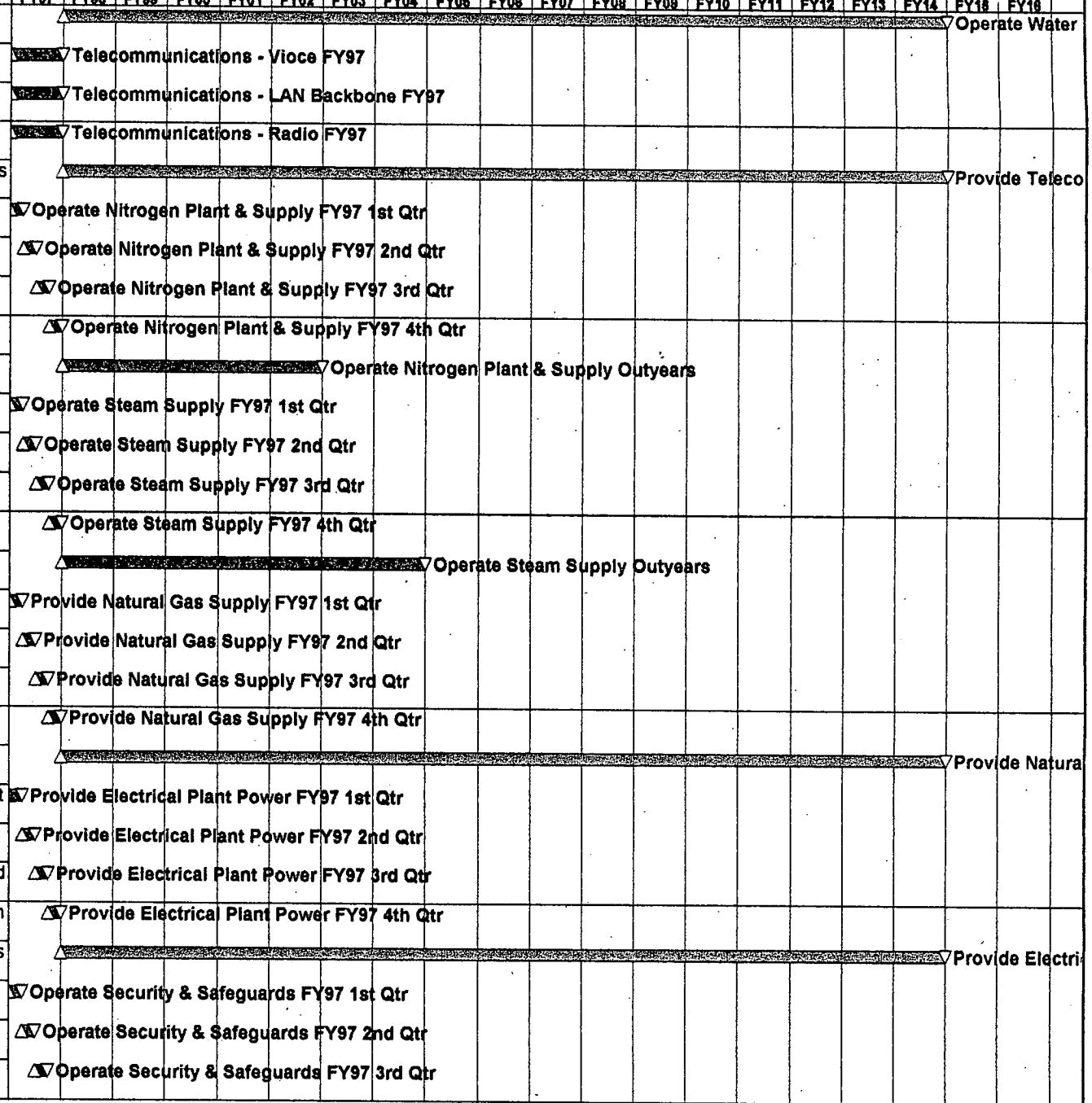
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.07.01.01.	Operate Water Utility Outyear Budget
1.1.07.01.02.	Telecommunications - Vioce FY97
1.1.07.01.02.	Telecommunications - LAN Backbone
1.1.07.01.02.	Telecommunications - Radio FY97
1.1.07.01.02.	Provide Telecom & Computing Services
1.1.07.01.03.	Operate Nitrogen Plant & Supply FY97
1.1.07.01.03.	Operate Nitrogen Plant & Supply FY97
1.1.07.01.03.	Operate Nitrogen Plant & Supply FY97
1.1.07.01.03.	Operate Nitrogen Plant & Supply FY97
1.1.07.01.03.	Operate Nitrogen Plant & Supply
1.1.07.01.04.	Operate Steam Supply FY97 1st Qtr
1.1.07.01.04.	Operate Steam Supply FY97 2nd Qtr
1.1.07.01.04.	Operate Steam Supply FY97 3rd Qtr
1.1.07.01.04.	Operate Steam Supply FY97 4th Qtr
1.1.07.01.04.	Operate Steam Supply Outyears
1.1.07.01.05.	Provide Natural Gas Supply FY97 1st
1.1.07.01.05.	Provide Natural Gas Supply FY97 2nd
1.1.07.01.05.	Provide Natural Gas Supply FY97 3rd
1.1.07.01.05.	Provide Natural Gas Supply FY97 4th
1.1.07.01.05.	Provide Natural Gas Supply Outyears
1.1.07.01.06.	Provide Electrical Plant Power FY97 1st
1.1.07.01.06.	Provide Electrical Plant Power FY97
1.1.07.01.06.	Provide Electrical Plant Power FY97 3rd
1.1.07.01.06.	Provide Electrical Plant Power FY97 4th
1.1.07.01.06.	Provide Electrical Plant Power Outyears
1.1.07.02.01.	Operate Security & Safeguards FY97
1.1.07.02.01.	Operate Security & Safeguards FY97
1.1.07.02.01.	Operate Security & Safeguards FY97



Project Start	01JAN93
Project Finish	08JAN16
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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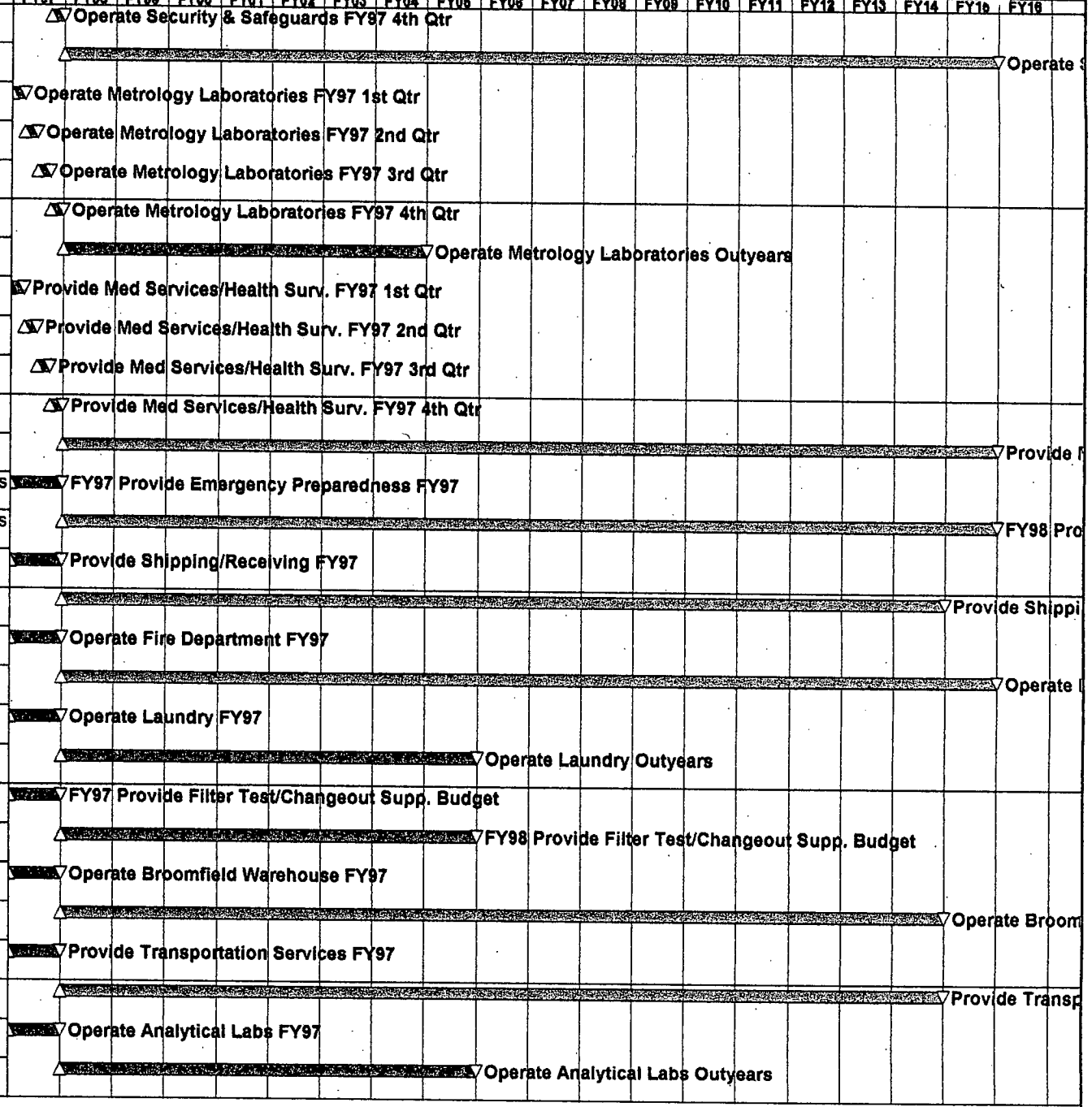
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.07.02.01.	Operate Security & Safeguards FY97
1.1.07.02.01.	Operate Security & Safeguards
1.1.07.02.03.	Operate Metrology Laboratories FY97
1.1.07.02.03.	Operate Metrology Laboratories FY97
1.1.07.02.03.	Operate Metrology Laboratories FY97
1.1.07.02.03.	Operate Metrology Laboratories FY97
1.1.07.02.03.	Operate Metrology Laboratories
1.1.07.02.04.	Provide Med Services/Health Surv.
1.1.07.02.04.	Provide Med Services/Health Surv.
1.1.07.02.04.	Provide Med Services/Health Surv.
1.1.07.02.04.	Provide Med Services/Health Surv.
1.1.07.02.04.	Provide Med Services/Health Surv.
1.1.07.02.05.	FY97 Provide Emergency Preparedness
1.1.07.02.05.	FY98 Provide Emergency Preparedness
1.1.07.02.06.	Provide Shipping/Receiving FY97
1.1.07.02.06.	Provide Shipping/Receiving Outyears
1.1.07.02.08.	Operate Fire Department FY97
1.1.07.02.08.	Operate Fire Department Outyears
1.1.07.02.09.	Operate Laundry FY97
1.1.07.02.09.	Operate Laundry Outyears
1.1.07.02.10.	FY97 Provide Filter Test/Changeout
1.1.07.02.10.	FY98 Provide Filter Test/Changeout
1.1.07.02.11.	Operate Broomfield Warehouse FY97
1.1.07.02.11.	Operate Broomfield Warehouse
1.1.07.02.12.	Provide Transportation Services FY97
1.1.07.02.12.	Provide Transportation Services
1.1.07.02.13.	Operate Analytical Labs FY97
1.1.07.02.13.	Operate Analytical Labs Outyears



Project Start	01JAN93
Project Finish	05JAN16
Data Date	02JAN96
Plot Date	01AUG96

Early Bar
Progress Bar
Critical Activity

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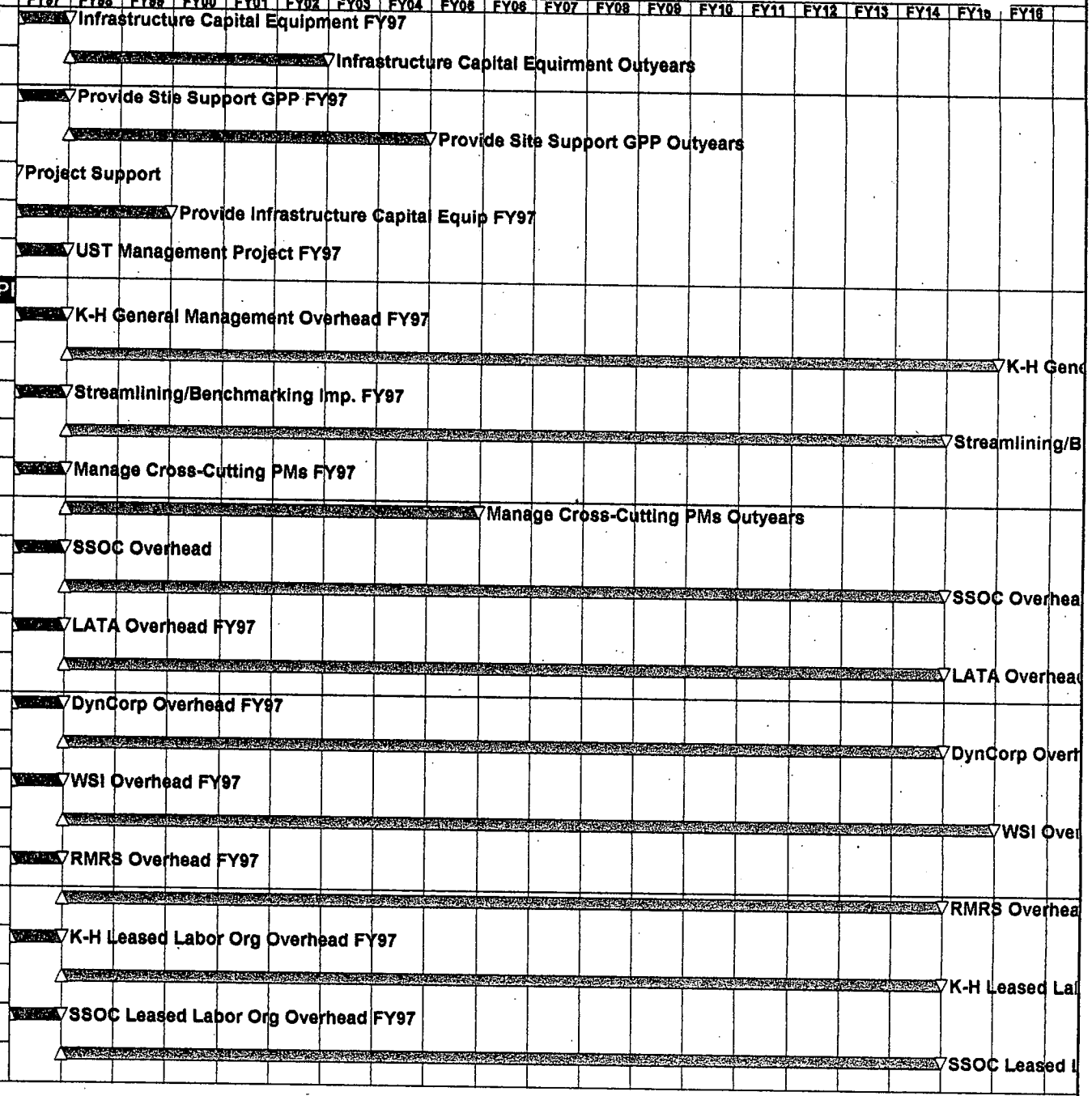
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.07.02.14.	Infrastructure Capital Equipment FY97
1.1.07.02.14.	Infrastructure Capital Equirment
1.1.07.02.15.	Provide Stie Support GPP FY97
1.1.07.02.15.	Provide Site Support GPP Outyears
1.1.07.02.16.	Project Support
1.1.07.02.16.	Provide Infrastructure Capital Equip
1.1.07.02.17.	UST Management Project FY97
PROVIDE MANAGEMENT & TECHNICAL SUPI	
1.1.08.01.01.	K-H General Management Overhead
1.1.08.01.01.	K-H General Management Overhead
1.1.08.01.02.	Streamlining/Benchmarking Imp. FY97
1.1.08.01.02.	Streamlining/Benchmarking Imp.
1.1.08.01.03.	Manage Cross-Cutting PMs FY97
1.1.08.01.03.	Manage Cross-Cutting PMs Outyears
1.1.08.01.04.	SSOC Overhead
1.1.08.01.04.	SSOC Overhead Outyears
1.1.08.01.05.	LATA Overhead FY97
1.1.08.01.05.	LATA Overhead Outyears
1.1.08.01.06.	DynCorp Overhead FY97
1.1.08.01.06.	DynCorp Overhead Outyears
1.1.08.01.07.	WSI Overhead FY97
1.1.08.01.07.	WSI Overhead Outyears
1.1.08.01.08.	RMRS Overhead FY97
1.1.08.01.08.	RMRS Overhead Outyears
1.1.08.01.09.	K-H Leased Labor Org Overhead FY97
1.1.08.01.09.	K-H Leased Labor Org Overhead
1.1.08.01.10.	SSOC Leased Labor Org Overhead
1.1.08.01.10.	SSOC Leased Labor Org Overhead



Project Start	01JAN93	Early Bar	
Project Finish	05JAN16	Progress Bar	
Data Date	02JAN98	Critical Activity	
Plot Date	01AUG98		

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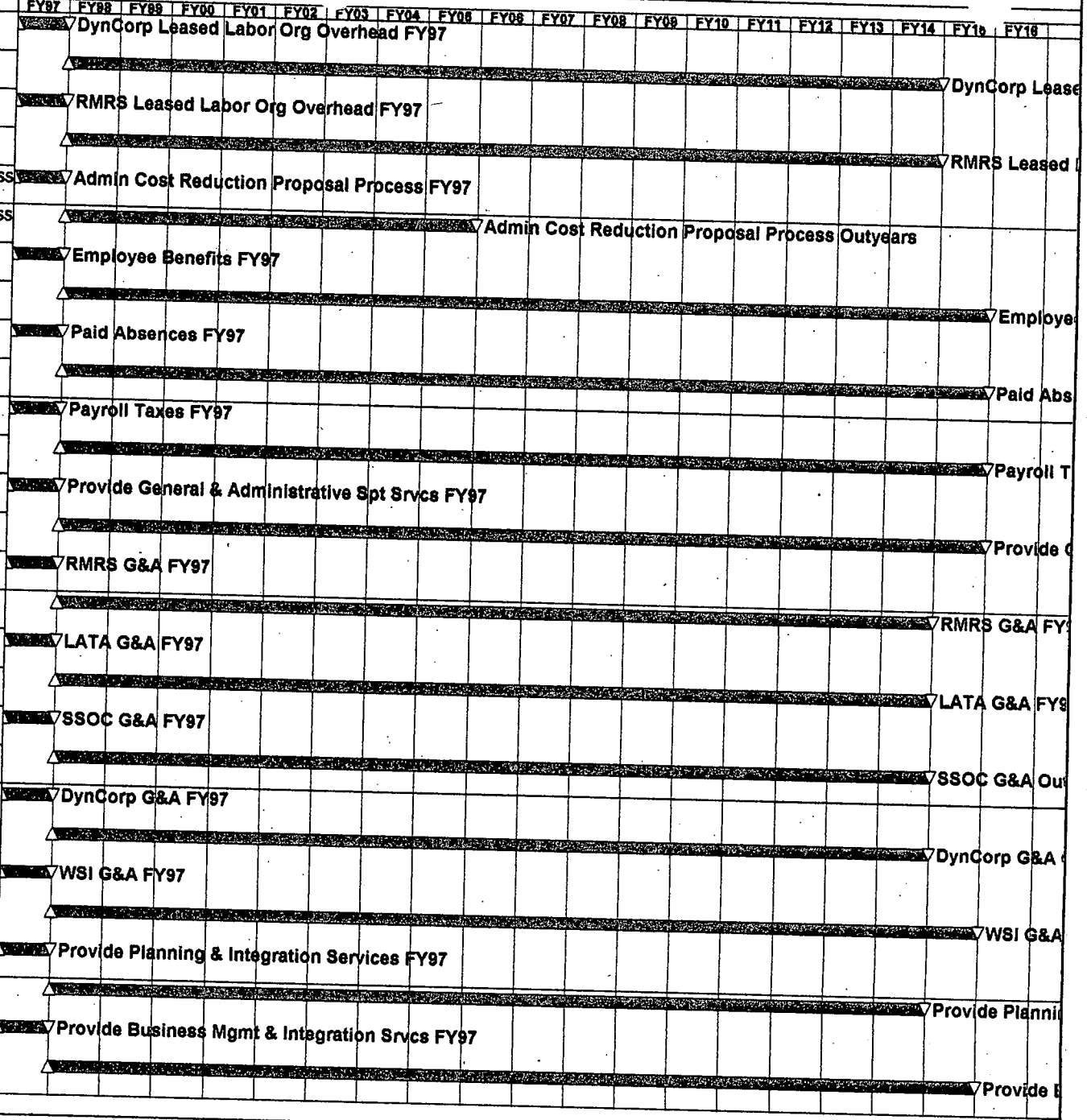
DOE RFFO Ten Year Plan

WBS	Activity description
1.1.08.01.11.	DynCorp Leased Labor Org Overhead
1.1.08.01.11.	DynCorp Leased Labor Org Overhead
1.1.08.01.12.	RMRS Leased Labor Org Overhead
1.1.08.01.12.	RMRS Leased Labor Org Overhead
1.1.08.01.13.	Admin Cost Reduction Proposal Process
1.1.08.01.13.	Admin Cost Reduction Proposal Process
1.1.08.01.14.	Employee Benefits FY97
1.1.08.01.14.	Employee Benefits Outyears
1.1.08.01.15.	Paid Absences FY97
1.1.08.01.15.	Paid Absences Outyears
1.1.08.01.16.	Payroll Taxes FY97
1.1.08.01.16.	Payroll Taxes Outyears
1.1.08.02.01.	Provide General & Administrative Spt
1.1.08.02.01.	Provide Gen & Admin Support Services
1.1.08.02.02.	RMRS G&A FY97
1.1.08.02.02.	RMRS G&A FY97 Outyears
1.1.08.02.03.	LATA G&A FY97
1.1.08.02.03.	LATA G&A FY97 Outyears
1.1.08.02.04.	SSOC G&A FY97
1.1.08.02.04.	SSOC G&A Outyears
1.1.08.02.05.	DynCorp G&A FY97
1.1.08.02.05.	DynCorp G&A Outyears
1.1.08.02.06.	WSI G&A FY97
1.1.08.02.06.	WSI G&A Outyears
1.1.08.03.01.	Provide Planning & Integration Services
1.1.08.03.01.	Provide Planning & Integration Services
1.1.08.03.02.	Provide Business Mgmt & Integration
1.1.08.03.02.	Provide Business Mgmt & Integrtn Srvcs



Project Start	01JAN93
Project Finish	05JAN19
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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DOE RFFO Ten Year Plan

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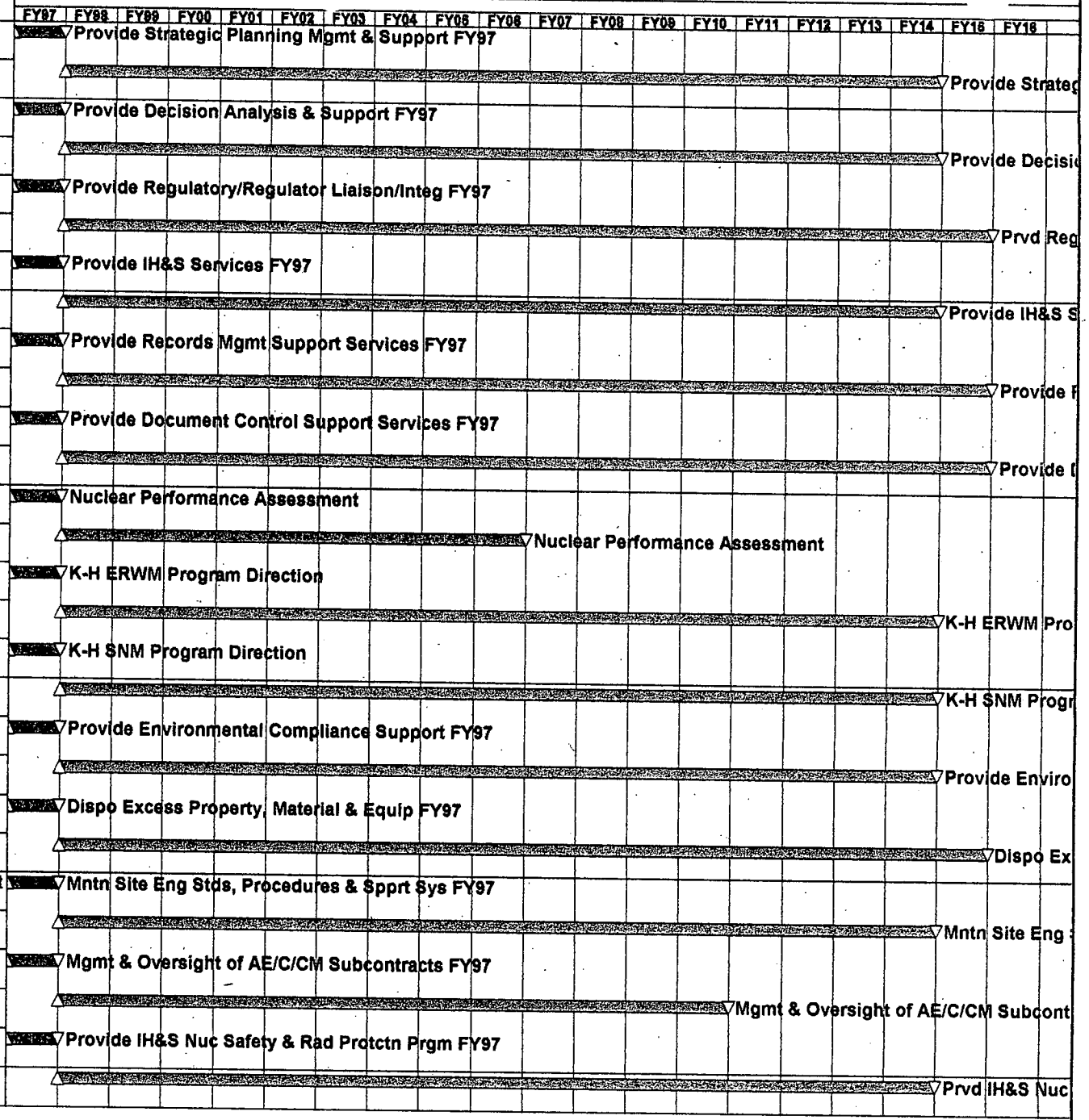
WBS	Activity description
1.1.08.03.03.	Provide Strategic Planning Mgmt &
1.1.08.03.03.	Provide Strategic Plnng Mgmt &
1.1.08.03.04.	Provide Decision Analysis & Support
1.1.08.03.04.	Provide Decision Analysis & Support
1.1.08.03.05.	Provide Regulatory/Regulator
1.1.08.03.05.	Prvd Regulatory/Regulator Liaison/Intg
1.1.08.03.06.	Provide IH&S Services FY97
1.1.08.03.06.	Provide IH&S Services Outyears
1.1.08.03.07.	Provide Records Mgmt Support
1.1.08.03.07.	Provide Records Mgmt Support Srvcs
1.1.08.03.08.	Provide Document Control Support
1.1.08.03.08.	Provide Doc Control Support Services
1.1.08.03.09.	Nuclear Performance Assessment
1.1.08.03.09.	Nuclear Performance Assessment
1.1.08.03.10.	K-H ERWM Program Direction
1.1.08.03.10.	K-H ERWM Program Direction
1.1.08.03.11.	K-H SNM Program Direction
1.1.08.03.11.	K-H SNM Program Direction
1.1.08.04.01.	Provide Environmental Compliance
1.1.08.04.01.	Provide Environmental Compliance
1.1.08.04.03.	Dispo Excess Property, Material &
1.1.08.04.03.	Dispo Excess Property, Material &
1.1.08.04.04.	Mntn Site Eng Stds, Procedures & Spprt
1.1.08.04.04.	Mntn Site Eng Stds, Procs & Spprt Sys
1.1.08.04.05.	Mgmt & Oversight of AE/C/CM
1.1.08.04.05.	Mgmt & Oversight of AE/C/CM
1.1.08.04.07.	Provide IH&S Nuc Safety & Rad Protctn
1.1.08.04.07.	Prvd IH&S Nuc Safety & Rad Protctn



Project Start	01JAN93
Project Finish	05JAN18
Data Date	02JAN98
Plot Date	01AUG98

Early Bar
Progress Bar
Critical Activity

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DOE RFFO Ten Year Plan

WBS	Activity description
1.1.08.05. . .	Provide RFFO Direction and Support
1.1.08.05. . .	Provide RFFO Direction and Support

FY97 FY98 FY99 FY00 FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16

Provide RFFO Direction and Support FY97

Provide R

Project Start	01JAN93
Project Finish	05JAN18
Data Date	02JAN96
Plot Date	01AUG96

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Early Bar
Progress Bar
Critical Activity

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DOE RFFO Ten Year Plan

6.0 SUMMARY

In response to U.S. Department of Energy (DOE) Assistant Secretary for Environmental Management (EM) Alvin L. Alm's request of June 20, 1996, the Rocky Flats Environmental Technology Site (Rocky Flats or the Site) has developed the draft Rocky Flats Ten Year Plan, which describes the activities necessary to achieve accelerated risk reduction and significant cleanup of the Site by the end of fiscal year 2006. The Ten Year Plan, once finalized, will serve as both part of the DOE EM Program's integrated cleanup strategy and the Rocky Flats Cleanup Agreement (RFCA) implementation strategy for achieving the Intermediate Site Condition. The Intermediate Site Condition envisions significant risk reduction and cleanup of the Site as well as removal of the Site's Special Nuclear Materials (SNM) by 2015.

The draft Ten Year Plan outlines a number of significant risk reduction and cleanup activities that will be completed during the ten years. Specifically, this includes the stabilization and consolidation of the Site's plutonium in a new, interim storage facility awaiting offsite shipment; demolition of the vast majority of the Site's facilities, including all of the former nuclear production facilities; environmental cleanup of all of the Site's high risk radiologically and/or chemically contaminated sites; and the treatment and offsite disposal of all transuranic and low-level radioactive wastes.

The cost to achieve the draft Ten Year Plan is estimated to be approximately $5.4 billion (FY97 dollars). Figure 6.1 depicts the funding profile to achieve the activities in the draft Ten Year Plan. Figure 6.1 also describes a strategy for the future prioritization of work. Specifically, the Plan assumes that SNM, the acknowledged source of the Site's highest risks, are preferentially stabilized and consolidated over all other activities. Following SNM, deactivation and demolition (Decommissioning) of the Site's facilities and infrastructure occur in order to achieve reduction of the site baseline (e.g., mortgage reduction). Additionally, some environmental cleanup (ER) occurs in FY97 and increases steadily through demolition of the former nuclear production facilities. Waste management (Waste) activities occur throughout the plan at a relatively constant level in order to support SNM, Decommissioning and ER activities. Waste activities increase toward the end of the ten years as radioactive waste is being treated and shipped offsite for disposal. It is important to note that the Site Baseline begins to rapidly decrease as the SNM is stabilized and consolidated and deactivation of the nuclear facilities begins.

Following the ten year planning horizon, SNM is still being stored onsite awaiting shipment to an offsite repository. Site baseline costs remain level until all of the SNM is shipped. At that time (i.e., 2015) only environmental monitoring activities would continue for the foreseeable future.

Summary Budget Projections

ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($s in Thousands)

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyear	Total
II. Transuranic Waste													
A. Storage	738	3,152	10,129	2,881	1,707	1,912	1,725	2,712	779	739	26,474	0	26,474
B. Treatment (roll up by project)	0	6,325	5,880	5,880	6,370	2,579	1,659	1,659	1,659	1,546	33,556	0	33,556
C. Disposal (roll up by project)													
D. Post-Project Completion Surveillance and Maintenance													
III. Mixed Low Level Waste													
A. Storage	1,909	5,782	1,204	1,183	6,125	921	0	0	0	1,339	18,462	0	18,462
B. Treatment (roll up by project)	13,425	12,788	11,393	11,379	17,765	15,301	13,719	13,568	13,594	12,130	135,061	8,034	143,095
C. Disposal (roll up by project)	6,327	6,902	6,902	6,922	368	30,257	22,056	11,406	13,248	4,092	108,480	0	108,480
D. Post-Project Completion Surveillance and Maintenance													
IV. Low Level Waste													
A. Storage	1,170	1,423	1,560	6,988	9,732	4,836	4,970	3,423	1,266	1,339	36,708	0	36,708
B. Treatment (roll up by project)													
C. Disposal (roll up by project)	0	0	0	0	7,129	7,235	15,436	26,086	18,360	17,661	91,908	75	91,983
D. Post-Project Completion Surveillance and Maintenance													
V. Hazardous Waste													
A. Storage													
B. Treatment (roll up by project)													
C. Disposal (roll up by project)	150	180	222	1,088	1,468	1,042	947	855	728	506	7,186	12	7,198
D. Post-Project Completion Surveillance and Maintenance													
VI. Sanitary Waste													
A. Storage	0	0	0	0	0	0	0	0	0	0	0	0	0
B. Treatment (roll up by project)	5,665	18,540	8,652	0	0	0	0	0	0	0	32,857	0	32,857
C. Disposal (roll up by project)	24	47	90	371	1,299	893	812	731	619	412	5,298	324	5,621
D. Post-Project Completion Surveillance and Maintenance													
IX. Remedial Action (Release Sites)													
A. Assessments	1,603	2,014	3,169	3,360	4,408	2,502	5,604	4,116	6,536	5,369	38,681	2,101	40782
B. Cleanup (Complete)	14,429	18,125	28,519	30,237	39,673	22,518	50,436	37,046	58,827	48,319	348,130	18,908	367,038
C. Post-Project Completion Surveillance and Maintenance	0	0	0	0	0	0	0	0	0	0	0	12,000	12,000

Summary Budget Projections

ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($s in Thousands)

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyear	Total
X. Decommissioning (Facilities)													
A. Assessments	0	321	2,497	9,477	7,776	9,767	10,846	5,998	4,261	3,796	54,740	2,144	56,884
B. Cleanup (Complete)	0	1,687	13,108	49,756	40,826	51,276	56,943	31,492	22,368	19,928	287,385	11,254	298,639
C. Post-Project Completion Surveillance and Maintenance													
XI. Nuclear Materials													
A. Pre-Stabilization storage	3,346	8,379	4,774	1,664	0	0	0	0	0	0	18,162	0	18,162
B. Stabilization (roll up by project)	100,146	75,046	68,428	77,148	79,830	45,734	75	0	0	0	446,407	0	446,407
C. Storage for long term	6,645	27,513	27,167	15,215	5,325	4,030	4,030	3,880	3,880	3,731	101,417	43,113	144,530
D. Safeguards and Security	27,057	29,004	29,664	30,488	31,586	32,959	9,499	9,499	9,499	7,769	217,025	55,779	272,804
XIII. Facilities													
A. Pre-deactivation monitoring													
B. Deactivation (roll up by project)	979	5,019	14,148	12,526	13,369	16,125	6,226	3,136	1,001	632	73,162	554	73,716
C. Long-term monitoring													
XIV. Site Infrastructure (Landlord Program)													
A. Projects	17,417	21,200	16,099	4,427	3,758	2,559	778	778	0	0	67,015	0	67,015
B. Operational activities	96,244	103,164	101,156	89,820	86,353	73,284	57,411	45,236	32,985	9,592	695,245	25,365	720,609
C. Grants and external support	0	0	0	0	0	0	0	0	0	0	0	0	0
XV. All Other													
A. Program Direction	80,000	82,236	79,920	77,700	73,600	69,600	62,400	55,200	48,000	31,003	659,658	61,178	720,836
B. Program Support	217,729	224,827	219,824	215,633	207,331	199,591	174,394	153,397	135,503	112,934	1,861,162	378,524	2,239,686
C. Other (such as National LLW Program)	4,759	3,337	2,781	1,730	927	860	592	592	592	592	16,763	0	16,763
Total B/A	**599,760**	**657,011**	**657,286**	**655,873**	**646,725**	**595,781**	**500,558**	**410,812**	**373,706**	**283,431**	**5,380,943**	**619,365**	**6,000,308**
Total B/O	**52,900**	**29,300**	**12,000**	**14,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Quantity Data

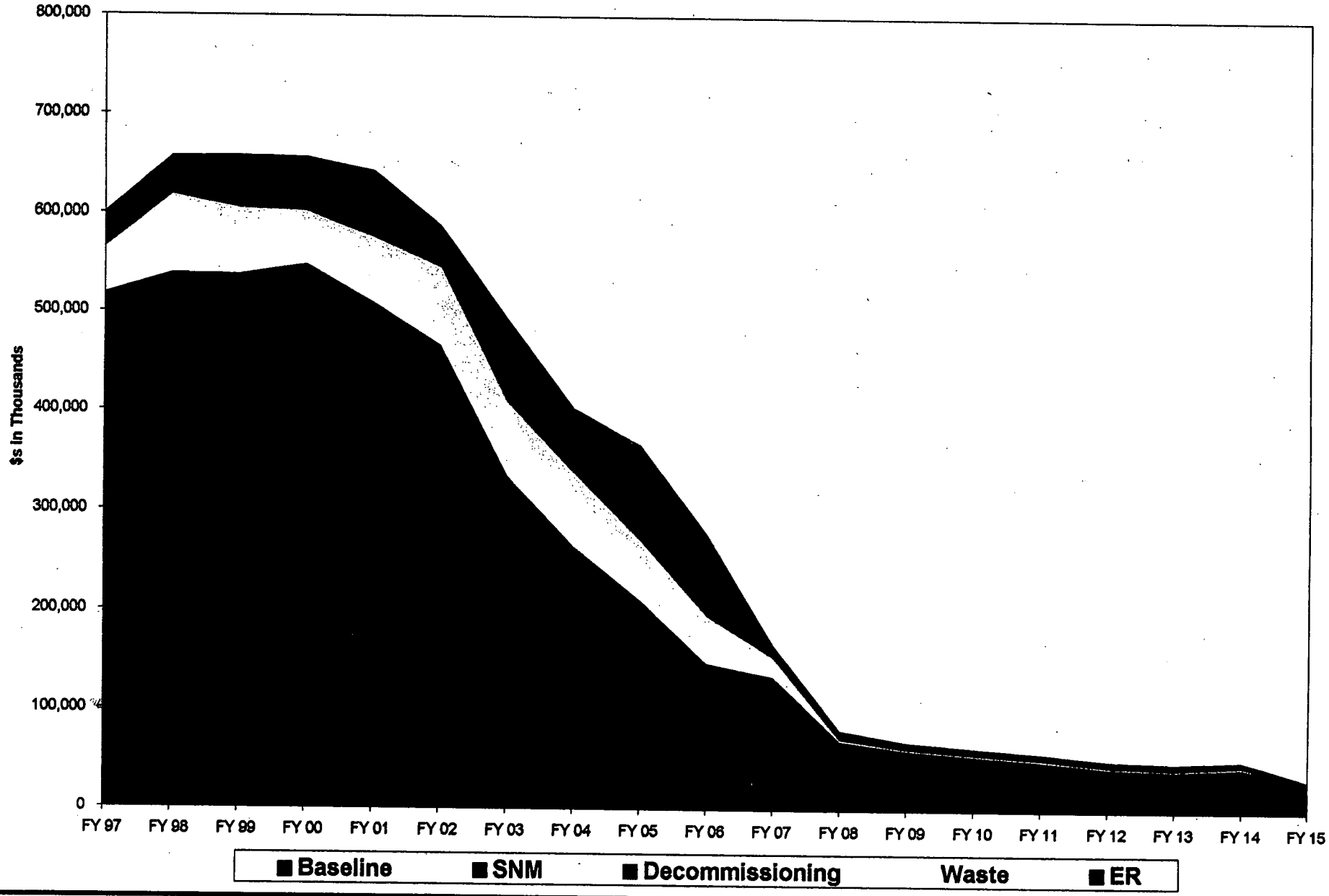
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 200	2007 - Comp	TOTAL
I. High Level Waste	NA												
II. Transuranic Waste (cubic meters)													
A. Storage (prior to treatment)	1256	2153	1277	1057	1057	428	0	0	0	0	7228	0	7228
B. New Waste	78	1098	1083	1152	1278	1364	248	390	112	10	6813	0	6813
C. Treatment/Roadready not requiring treatment	0	1137	1057	1057	1057	428	230	230	230	214	5640.4	0	5640
D. Disposal (WIPP) (roll up by project)	0	141	1764	2079	3721	3765	2900	390	112	10	14882	0	14882
III. Mixed Low Level Waste (cubic meters)													
A. Storage	14002	9686	6100	1699	14931	2917	0	0	0	0	49335	0	49335
B. New Waste	466	328	1058	599	13478	8162	11790	7605	8834	2729	55049	0	55049
C. Treatment (roll up by project)	0	0	0	0	5024	5088	5070	5058	5049	4361	29650	0	29650
D. Disposal (roll up by project)	4644	4644	4644	5000	246	20176	14707	7605	8834	2729	73229	0	73229
IV. Low Level Waste (cubic meters)													
A. Storage	6752	7858	9304	24532	31643	35417	31800	18951	10510	0	176767	60	176827
B. New Waste	672	1106	1446	15228	11865	8598	6676	4546	3802	1267	55206	60	55266
C. Treatment (roll up by project)	0	0	0	0	0	0	0	0	0	0	0	0	0
D. Disposal (roll up by project)	0	0	0	0	4754	4824	10293	17395	12243	11777	61286	60	61346
V. Hazardous Waste (cubic meters)													
A. Storage													
B. New Waste	74	81	100	489	609	432	393	355	302	210	3045	5	3050
C. Treatment (roll up by project)													
D. Disposal (roll up by project)	74	81	100	489	609	432	393	355	302	210	3045	5	3050
VI. Sanitary Waste (cubic meters)													
A. Storage													
B. New Waste	892	1637	3169	13044	42179	28997	26368	23765	20099	13382	173532	10510	184042
C. Treatment (roll up by project)													
D. Disposal (roll up by project)	892	1637	3169	13044	42179	28997	26368	23765	20099	13382	173532	10510	184042
VII. Special Case Waste	NA												
VIII. 11e(2) Byproduct Waste	NA												
IX. Remedial Action (Release Sites)													
A. Completed Assessments (count each release si	1	3	10	5	15	4	5	3	5	3	53	0	53
B. Completed Activities (count each release site)	1	3	10	5	15	4	5	3	5	3	53	0	53

Quantity Data

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 200	2007 - Comp	TOTAL
X. Decommissioning (Facilities)													
A. Completed Assessments (count each facility)													
B. Final Completion (count each facility)	0	0	48	124	91	35	63	62	78	70	571	134	705
XI. Nuclear Materials (kg of Pu)													
A. Pre-Stabilization storage	12600	10750	7800	4550	1300	0	0	0	0	0			
B. Stabilization (projects next level down)	300	1850	2950	3250	3250	1300	0	0	0	0			
C. Storage for long term	0	300	2150	5100	8350	11600	12900	12900	12900	12900			
XII. Spent Nuclear Fuel	NA												
XIII. Facilities													
A. Pre-deactivation monitoring													
B. Deactivation (projects next level down)	0	39	80	63	72	30	78	81	25	79	547	0	547
C. Long-term monitoring													

Figure 6.1

ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
Cost Estimate/Funding Profile
New Budget Authorization Only (Constant FY97 Dollars)



ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
Cost Estimate/Funding Profile
ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($'s in 000's)

	Description	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	Total
1.1.1.	**Release Outer Buffer Zone**	**37**	**37**	**37**	**37**	**305**	**37**	**384**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**937**
1.1.1.01.	Remove SECBZO Cluster	36	36	36	36	36	36	165	61	0	0	0	0	0	0	0	0	0	0	0	443
1.1.1.02.	Remove INFMT Cluster	1	1	1	1	22	1	219	0	0	0	0	0	0	0	0	0	0	0	0	247
1.1.1.03.	No-Action/No-Further-Action Justification for Outer Buffer Zone Low Risk IHSS Cluster	0	0	0	0	247	0	0	0	0	0	0	0	0	0	0	0	0	0	0	247
1.1.2.	**Release Contaminated Buffer Zone**	**0**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**
1.1.2.01.	No-Action/No-Further Action Justification for Contaminated Buffer Zone	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
1.1.3.	**Release Inner Buffer Zone**	**10,278**	**16,262**	**14,815**	**7,222**	**8,796**	**12,240**	**14,272**	**6,173**	**7,172**	**7,843**	**2,585**	**2,437**	**2,411**	**2,411**	**2,411**	**2,411**	**2,411**	**2,411**	**1,090**	**125,652**
1.1.3.01.	Remove 130 Cluster	1,505	1,505	1,505	1,505	1,505	1,505	1,229	662	662	662	662	662	662	662	662	662	662	662	706	18,252
1.1.3.02.	Remove H20GBZ Cluster	44	44	44	44	44	44	44	44	44	482	0	0	0	0	0	0	0	0	0	877
1.1.3.03.	Remove H20SBZ Cluster	21	21	21	21	21	22	21	21	21	103	0	0	0	0	0	0	0	0	0	292
1.1.3.04.	Remove H20SIZ Cluster	2	2	2	2	2	2	2	2	2	112	0	0	0	0	0	0	0	0	0	131
1.1.3.05.	Remove SECBZI Cluster	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	383	421
1.1.3.06.	Operate Ponds and Develop & Implement Surface Water Conversion Project (Flow Through System)	3,677	3,487	3,481	3,100	2,446	2,343	2,266	2,189	2,189	2,189	0	0	0	0	0	0	0	0	0	27,367
1.1.3.07.	Develop & Impement Wetlands Conversion Project	0	0	0	0	0	0	0	0	1,284	1,283	0	0	0	0	0	0	0	0	0	2,568
1.1.3.08.	Develop & Implement Groundwater Management System	4,511	4,706	3,288	2,547	4,241	3,070	5,458	3,185	2,899	2,940	1,852	1,704	1,678	1,678	1,678	1,678	1,678	1,678	0	50,468
1.1.3.09.	Remediate/Contain Inner Buffer Zone High Risk IHSS Cluster	515	6,495	6,471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13,482
1.1.3.10.	No-Action/No-Further Action Justification for Inner Buffer Zone Low Risk IHSS Cluster	0	0	0	0	536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	536
1.1.3.11.	Close Old Sanitary Landfill (OU 5)	0	0	0	0	0	5,251	5,251	69	69	69	69	69	69	69	69	69	69	69	0	11,261
	Develop, Operate & Disposition Waste and SNM Treatment & Storage and Landfills	**124,267**	**133,583**	**122,927**	**108,823**	**105,686**	**81,981**	**69,270**	**68,987**	**75,039**	**64,269**	**9,617**	**3,121**	**3,121**	**4,460**	**4,460**	**4,460**	**4,460**	**8,376**	**0**	**996,907**
1.1.4.01.	Develop, Operate & Close Sanitary Waste Management Systems	103	103	4,353	4,353	54	54	54	54	143	54	54	54	54	54	54	54	54	54	0	9,751
1.1.4.02.	Develop, Operate & Maintain LLW and LLMW Storage Facilities	2,799	6,004	2,304	6,809	12,197	4,429	3,823	2,632	974	2,060	0	0	0	0	0	0	0	0	0	44,032
1.1.4.03.	Develop, Operate & Maintain TRU/TRUM Waste Storage Facilities	671	2,627	8,441	2,401	1,313	1,471	1,327	2,086	599	568	0	0	0	0	0	0	0	0	0	21,504
1.1.4.04.	Provide Offsite Waste Disposal	10,235	8,721	8,329	8,426	8,617	30,997	30,657	30,525	25,814	17,904	316	0	0	0	0	0	0	0	0	180,541
1.1.4.05.	Operate & Maintain Waste Treatment Process	4,389	9,656	9,304	9,292	15,800	13,754	11,830	11,713	11,733	10,520	0	0	0	0	0	0	0	0	0	107,991
1.1.4.06.	Develop Waste Management Projects	12,966	21,721	12,300	5,090	2,765	0	0	0	0	0	6,180	0	0	0	0	0	0	0	0	61,021
1.1.4.07.	Develop, Operate & Maintain PU Storage Facilities	8,688	28,458	25,165	12,614	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	8,240	0	121,969
1.1.4.08.	Develop SNM Stabilization Capability Projects	67,877	13,287	2,060	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83,224
1.1.4.09.	Operate and Maintain SNM Treatment and Packaging Processes	16,540	41,554	49,219	58,386	60,504	28,292	56	0	0	0	0	0	0	0	0	0	0	0	0	254,550
1.1.4.10.	Provide SNM Offsite Shipment	0	1,452	1,452	1,452	1,452	0	0	0	0	0	0	0	0	1,339	1,339	1,339	1,339	0	0	11,165
1.1.4.11.	Develop & Construct New Closure Cap(s)	0	0	0	0	0	0	18,540	18,992	32,791	30,178	82	82	82	82	82	82	82	82	0	101,160
1.1.5.	**Release Industrial Zone**	**8,318**	**10,228**	**11,530**	**25,588**	**12,434**	**14,325**	**11,484**	**7,811**	**16,637**	**20,627**	**4,886**	**1,350**	**356**	**253**	**253**	**253**	**253**	**253**	**5,111**	**151,946**
1.1.5.01.	Remove 111 Cluster	644	644	644	644	644	644	644	1,004	811	52	0	0	0	0	0	0	0	0	0	6,372
1.1.5.02.	Remove 125/441 Cluster	314	314	314	314	314	314	314	576	52	0	0	0	0	0	0	0	0	0	0	2,827
1.1.5.03.	Remove 221/224 Cluster	82	0	0	0	0	906	0	0	0	0	0	0	0	0	0	0	0	0	0	989
1.1.5.04.	Remove 223 Cluster	95	95	95	95	95	95	103	52	0	0	0	0	0	0	0	0	0	0	0	726
1.1.5.05.	Remove 300/500 Cluster	623	623	623	623	623	623	623	623	623	623	1,080	103	0	0	0	0	0	0	0	7,410
1.1.5.06.	Remove 331 Cluster	180	180	180	180	180	180	180	180	180	180	346	103	0	0	0	0	0	0	0	2,248
1.1.5.07.	Remove 371T Cluster	113	113	113	113	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	656
1.1.5.08.	Remove 440 Cluster	235	235	235	235	235	235	235	235	235	494	0	0	0	0	0	0	0	0	0	2,611

ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
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($'s in 000's)

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.09.	Remove 442/452 Cluster	107	107	107	107	107	107	107	335	0	0	0	0	0	0	0	0	0	0	0	1,081
1.1.5.10.	Remove 444 Cluster	908	908	908	908	4,422	6,516	4,574	103	0	0	0	0	0	0	0	0	0	0	0	19,249
1.1.5.11.	Remove 460 Cluster	908	908	908	908	908	908	908	908	4,632	3,905	52	0	0	0	0	0	0	0	0	15,855
1.1.5.12.	Remove 664 Cluster	212	212	212	212	212	212	212	212	212	212	284	52	0	0	0	0	0	0	0	2,458
1.1.5.13.	Remove 690T Cluster	14	14	14	337	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	380
1.1.5.14.	Remove 750 HAZ Cluster	63	63	63	63	63	63	63	63	63	63	236	0	0	0	0	0	0	0	0	865
1.1.5.15.	Remove 850 Cluster	212	212	212	212	212	212	212	212	212	212	517	52	0	0	0	0	0	0	0	2,691
1.1.5.16.	Remove 891T Cluster	298	298	407	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,055
1.1.5.17.	Remove 903/905 Cluster	897	897	897	897	897	897	897	897	897	897	332	103	0	0	0	0	0	0	0	9,403
1.1.5.18.	Remove 904/906 Cluster	519	519	519	519	519	519	519	519	519	519	1,120	258	0	0	0	0	0	0	0	6,566
1.1.5.19.	Remove Airmon Cluster	2	2	2	2	2	2	2	2	2	2	2	61	0	0	0	0	0	0	0	84
1.1.5.20.	Remove SECIZ Cluster	135	135	135	135	135	135	135	135	135	135	305	0	0	0	0	0	0	0	0	1,657
1.1.5.21.	Remove INFELI Cluster	27	27	27	27	27	27	27	27	27	27	13	13	13	13	13	13	13	13	3,470	3,844
1.1.5.22.	Remove INFGAS Cluster	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1,641	1,696
1.1.5.23.	Remove H20GIZ Cluster	89	89	89	89	89	89	89	89	89	89	157	103	0	0	0	0	0	0	0	1,154
1.1.5.24.	Remove INFWTI Cluster	96	96	96	96	96	96	96	96	96	4,353	0	0	0	0	0	0	0	0	0	5,218
1.1.5.25.	Remove PWTS Cluster	152	152	152	152	152	152	152	152	152	152	152	264	103	0	0	0	0	0	0	2,043
1.1.5.26.	Remove INFRDS Cluster	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	0	514
1.1.5.27.	Remove INFSEW Cluster	952	952	952	952	952	952	952	952	4,963	4,963	52	0	0	0	0	0	0	0	0	17,594
1.1.5.28.	Remove INFSTM Cluster	200	200	200	200	200	200	200	200	2,497	0	0	0	0	0	0	0	0	0	0	4,097
1.1.5.29.	Remove INFFCM Cluster	208	208	208	208	208	208	208	208	208	3,717	208	208	208	208	208	208	208	208	0	7,246
1.1.5.30.	Remediate/contain Industrial Zone High Risk IHSS Cluster	0	1,992	3,185	17,276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22,453
1.1.5.31.	No-Action/No-Further Action Justification for Industrial Zone Low Risk IHSS Cluster	0	0	0	0	906	0	0	0	0	0	0	0	0	0	0	0	0	0	0	906
1.1.6.	**Release Nuclear Production Zone**	**58,071**	**63,305**	**81,861**	**100,433**	**109,564**	**89,961**	**78,321**	**44,200**	**21,380**	**6,305**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**653,400**
1.1.6.01.	Remove 207 Cluster	298	298	298	298	2,916	103	0	0	0	0	0	0	0	0	0	0	0	0	0	4,211
.02.	Remove 371/374 Cluster	11,653	11,653	11,653	12,683	17,508	27,887	20,227	7,033	773	0	0	0	0	0	0	0	0	0	0	121,070
03.	Remove 371A Cluster	49	49	129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	226
04.	Remove 559 Cluster	3,394	3,394	3,394	3,394	3,394	3,394	5,387	7,507	4,802	258	0	0	0	0	0	0	0	0	0	38,318
1.1.6.05.	Remove 566 Cluster	81	81	506	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	771
1.1.6.06.	Remove 569 Cluster	42	42	42	42	42	42	42	42	186	0	0	0	0	0	0	0	0	0	0	521
1.1.6.07.	Remove 707 Cluster	8,888	8,888	9,367	10,866	11,263	15,797	20,248	8,978	258	0	0	0	0	0	0	0	0	0	0	94,553
1.1.6.08.	Remove 750 Cluster	405	405	405	1,359	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,573
1.1.6.09.	Remove 750Pad Cluster	595	595	595	1,278	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,320
1.1.6.10.	Remove 771/774 Cluster	8,405	9,500	10,314	21,140	14,080	386	386	0	0	0	0	0	0	0	0	0	0	0	0	64,211
1.1.6.11.	Remove 771A Cluster	107	107	107	107	247	52	0	0	0	0	0	0	0	0	0	0	0	0	0	725
1.1.6.12.	Remove 776/777 Cluster	5,019	6,605	11,745	25,229	23,032	21,288	258	0	0	0	0	0	0	0	0	0	0	0	0	93,177
1.1.6.13.	Remove 778 Cluster	1	1	1	1	1	1	236	0	0	0	0	0	0	0	0	0	0	0	0	242
1.1.6.14.	Remove 779 Cluster	2,835	4,536	3,056	1,614	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,040
1.1.6.15.	Remove 790 Cluster	34	34	34	34	34	215	0	0	0	0	0	0	0	0	0	0	0	0	0	386
1.1.6.16.	Remove 800A Cluster	310	310	310	761	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,744
1.1.6.17.	Remove 881 Cluster	2,869	2,869	2,869	2,869	2,869	5,964	16,039	12,252	386	386	0	0	0	0	0	0	0	0	0	49,371
1.1.6.18.	Remove 865/883 Cluster	1,913	2,763	11,132	7,566	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23,478
1.1.6.19.	Remove 886 Cluster	1,443	1,443	2,820	2,303	258	258	0	0	0	0	0	0	0	0	0	0	0	0	0	8,525
1.1.6.20.	Remove 910 Cluster	102	102	102	102	102	102	102	102	102	612	0	0	0	0	0	0	0	0	0	1,529
1.1.6.21.	Remove 964 Cluster	32	32	32	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	208
1.1.6.22.	Remove 980 Cluster	10	10	10	10	246	52	0	0	0	0	0	0	0	0	0	0	0	0	0	339
1.1.6.23.	Remove 991 Cluster	133	133	174	1,377	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,921
1.1.6.24.	Remove PWTSN Cluster	99	99	99	99	99	99	99	99	3,579	52	0	0	0	0	0	0	0	0	0	4,423
1.1.6.25.	Remove SECNPZ Cluster	268	268	268	268	268	268	2,779	52	0	0	0	0	0	0	0	0	0	0	0	4,441
1.1.6.26.	Remove INFELN Cluster	16	16	16	16	16	16	16	16	16	344	0	0	0	0	0	0	0	0	0	490
1.1.6.27.	Remove INFWTN Cluster	7	7	7	7	7	7	7	7	7	90	0	0	0	0	0	0	0	0	0	150
1.1.6.28.	Remediate/Contain Nuclear Poduction Zone High Risk IHSS Cluster	5,499	0	5,576	0	25,970	7,439	12,496	8,112	11,272	4,564	0	0	0	0	0	0	0	0	0	80,929
1.1.6.29.	Develop Nuclear Production Zone Projects	3,563	9,063	6,797	6,797	6,697	6,592	0	0	0	0	0	0	0	0	0	0	0	0	0	39,508

ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
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1.1.7.	**Provide Infrastructure Operations and Projects**	82,280	84,310	78,645	64,199	62,010	57,312	32,946	31,993	30,038	10,452	10,259	8,457	7,890	7,787	7,787	5,639	5,433	5,433	1,442	594,315
1.1.7.01.	Provide Utility Services and Projects	9,140	8,759	8,759	8,450	8,450	8,450	7,410	6,895	5,878	1,867	1,674	901	335	232	232	232	232	232	0	78,126
1.1.7.02.	Provide Infrastructure Services and Projects	73,141	75,551	69,886	55,749	53,560	48,862	25,536	25,098	24,160	8,586	8,586	7,556	7,556	7,556	7,556	5,408	5,202	5,202	1,442	516,189
1.1.8.	**Provide Management and Technical Support**	297,729	287,512	277,540	264,264	244,288	224,326	197,328	173,831	152,919	119,947	109,875	50,909	43,492	37,462	33,261	29,652	27,782	25,994	7,992	2,606,102
1.1.8.01.	Provide Management	91,945	88,584	85,172	80,632	73,791	66,958	59,388	52,594	45,797	38,974	49,765	10,562	10,049	9,562	9,100	8,557	8,140	7,743	1,649	798,962
1.1.8.02.	Operate General & Administrative Support Services	80,566	82,088	80,082	77,413	73,393	69,376	59,037	51,428	46,408	37,531	27,692	18,447	15,941	14,773	13,785	12,580	11,866	11,072	4,891	788,367
1.1.8.03.	Provide General Technical Support Services	32,991	28,065	26,970	25,514	23,320	21,128	18,952	16,772	14,592	12,403	9,400	6,298	5,983	5,684	5,400	5,130	4,873	4,630	898	269,001
1.1.8.04.	Provide Programmatic Technical Support Services	12,228	11,775	11,316	10,705	9,784	8,865	7,951	7,037	6,122	5,204	4,288	2,873	2,729	2,593	2,249	2,137	2,030	1,928	142	111,956
1.1.8.05.	Provide RFFO Direction and Support	80,000	77,000	74,000	70,000	64,000	58,000	52,000	46,000	40,000	25,835	18,730	12,730	8,790	4,850	2,727	1,248	873	621	412	637,817
1.2.	**Post Closure Monitoring**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,000	10,000
	Subtotal	580,981	595,236	587,355	570,565	543,105	480,181	404,005	333,057	303,185	229,444	137,222	66,274	57,271	52,373	48,172	42,415	40,339	42,467	25,634	5,139,281
	Contingency	18,780	61,774	69,931	85,308	103,620	115,599	96,553	77,756	70,522	53,987	28,997	13,582	11,703	10,785	9,945	8,793	8,378	9,000	6,016	861,028
1.	**RFETS Vision Achieved**	599,761	657,010	657,286	655,873	646,725	595,781	500,558	410,812	373,706	283,431	166,219	79,856	68,973	63,158	58,117	51,208	48,717	51,467	31,650	6,000,308
	Cumulative Total	599,761	1,256,771	1,914,057	2,569,930	3,216,655	3,812,436	4,312,994	4,723,806	5,097,513	5,380,943	5,547,163	5,627,019	5,695,992	5,759,150	5,817,267	5,868,475	5,917,192	5,968,659	6,000,308	

Site (Location): *RFETS*
Waste Type:
Description: *Acceleration of Bldg 371/374 Mission Termination and Deactivation*
Mail Code:
Constant $ Year: *1997*
ADS No.(s):

(i) Fiscal Year	(ii) Alternative Funding	(iii) Discounted Cash Flow (NPV) 3%	(iv) Discounted Cash Flow (NPV) 7%	(v) Target/Min Safe Storage Funding	(vi) Discounted Cash Flow (NPV) 3%	(vii) Discounted Cash Flow (NPV) 7%	(viii) Annual Delta (v) - (ii)	(ix) Cumulative Delta	(x) Internal Rate of Return (IRR)
1997	$32,388	$32,388	$32,388	$33,990	$33,990	$33,990	$1,602	$1,602	
1998	$32,388	$31,445	$30,269	$33,990	$33,000	$31,766	$1,602	$3,204	
1999	$32,388	$30,529	$28,289	$33,990	$32,039	$29,688	$1,602	$4,806	
2000	$34,654	$31,713	$28,288	$33,990	$31,106	$27,746	($664)	$4,142	
2001	$45,269	$40,221	$34,536	$33,990	$30,200	$25,931	($11,279)	($7,137)	
2002	$46,402	$40,027	$33,084	$33,990	$29,320	$24,234	($12,412)	($19,549)	
2003	$25,423	$21,291	$16,940	$33,990	$28,466	$22,649	$8,567	($10,982)	
2004	$16,194	$13,167	$10,085	$33,990	$27,637	$21,167	$17,796	$6,814	
2005	$8,096	$6,391	$4,712	$33,990	$26,832	$19,782	$25,894	$32,708	
2006		$0	$0	$33,990	$26,051	$18,488	$33,990	$66,698	
2007		$0	$0	$33,990	$25,292	$17,279	$33,990	$100,688	
2008		$0	$0	$33,990	$24,555	$16,148	$33,990	$134,678	
2009		$0	$0	$33,990	$23,840	$15,092	$33,990	$168,668	
2010		$0	$0	$33,990	$23,146	$14,105	$33,990	$202,658	
2011		$0	$0	$33,990	$22,471	$13,182	$33,990	$236,648	
2012		$0	$0	$33,990	$21,817	$12,320	$33,990	$270,638	
2013		$0	$0	$33,990	$21,181	$11,514	$33,990	$304,628	
2014		$0	$0	$33,990	$20,565	$10,760	$33,990	$338,618	
2015		$0	$0	$33,990	$19,968	$10,056	$33,990	$372,608	
2016		$0	$0	$20,420	$11,645	$5,646	$20,420	$393,028	
2017		$0	$0	$20,420	$11,306	$5,277	$20,420	$413,448	
2018		$0	$0	$20,420	$10,977	$4,932	$20,420	$433,868	
2019		$0	$0		$0	$0	$0	$433,868	
2020		$0	$0		$0	$0	$0	$433,868	
2021		$0	$0		$0	$0	$0	$433,868	
2022		$0	$0		$0	$0	$0	$433,868	
2023		$0	$0		$0	$0	$0	$433,868	
2024		$0	$0		$0	$0	$0	$433,868	
2025		$0	$0		$0	$0	$0	$433,868	
2026		$0	$0		$0	$0	$0	$433,868	
2027		$0	$0		$0	$0	$0	$433,868	
2028		$0	$0		$0	$0	$0	$433,868	
2029		$0	$0		$0	$0	$0	$433,868	
2030		$0	$0		$0	$0	$0	$433,868	
2031		$0	$0		$0	$0	$0	$433,868	
2032		$0	$0		$0	$0	$0	$433,868	
2033		$0	$0		$0	$0	$0	$433,868	
2034		$0	$0		$0	$0	$0	$433,868	
2035		$0	$0		$0	$0	$0	$433,868	
2036		$0	$0		$0	$0	$0	$433,868	
2037		$0	$0		$0	$0	$0	$433,868	
2038		$0	$0		$0	$0	$0	$433,868	
2039		$0	$0		$0	$0	$0	$433,868	
2040		$0	$0		$0	$0	$0	$433,868	
2041		$0	$0		$0	$0	$0	$433,868	
2042		$0	$0		$0	$0	$0	$433,868	
2043		$0	$0		$0	$0	$0	$433,868	
2044		$0	$0		$0	$0	$0	$433,868	
2045		$0	$0		$0	$0	$0	$433,868	
2046		$0	$0		$0	$0	$0	$433,868	
2047		$0	$0		$0	$0	$0	$433,868	
2048		$0	$0		$0	$0	$0	$433,868	
2049		$0	$0		$0	$0	$0	$433,868	
2050		$0	$0		$0	$0	$0	$433,868	
2051		$0	$0		$0	$0	$0	$433,868	
2052		$0	$0		$0	$0	$0	$433,868	
2053		$0	$0		$0	$0	$0	$433,868	
2054		$0	$0		$0	$0	$0	$433,868	
2055		$0	$0		$0	$0	$0	$433,868	
2056		$0	$0		$0	$0	$0	$433,868	
2057		$0	$0		$0	$0	$0	$433,868	
2058		$0	$0		$0	$0	$0	$433,868	
2059		$0	$0		$0	$0	$0	$433,868	
2060		$0	$0		$0	$0	$0	$433,868	
2061		$0	$0		$0	$0	$0	$433,868	#NUM!
Totals	$273,202	$247,172	$218,591	$707,070	$535,400	$391,753			
NPV Ratio (3%)	53.8%								
NPV Ratio (7%)	44.2%								
IRR	#NUM!								
Payback	#REF!								

Site (Location): *RFETS*
Waste Type:
Description: *Acceleration of Bldg.707 Mission Termination and Deactivation*
Mail Code:
Constant $ Year: *1997*
ADS No.(s):

(i) Fiscal Year	(ii) Alternative Funding	(iii) Discounted Cash Flow (NPV) 3%	(iv) Discounted Cash Flow (NPV) 7%	(v) Target/Min Safe Storage Funding	(vi) Discounted Cash Flow (NPV) 3%	(vii) Discounted Cash Flow (NPV) 7%	(viii) Annual Delta (v) - (ii)	(ix) Cumulative Delta	(x) Internal Rate of Return (IRR)
1997	$24,290	$24,290	$24,290	$25,750	$25,750	$25,750	$1,460	$1,460	
1998	$24,290	$23,583	$22,701	$25,750	$25,000	$24,065	$1,460	$2,920	
1999	$25,344	$23,889	$22,136	$25,750	$24,272	$22,491	$406	$3,326	
2000	$28,642	$26,211	$23,380	$25,750	$23,565	$21,020	($2,892)	$434	
2001	$25,870	$22,985	$19,736	$25,750	$22,879	$19,645	($120)	$314	
2002	$17,369	$14,983	$12,384	$25,750	$22,212	$18,359	$8,381	$8,695	
2003	$7,471	$6,257	$4,978	$25,750	$21,565	$17,158	$18,279	$26,974	
2004		$0	$0	$25,750	$20,937	$16,036	$25,750	$52,724	
2005		$0	$0	$25,750	$20,327	$14,987	$25,750	$78,474	
2006		$0	$0	$25,750	$19,735	$14,006	$25,750	$104,224	
2007		$0	$0	$25,750	$19,160	$13,090	$25,750	$129,974	
2008		$0	$0	$25,750	$18,602	$12,234	$25,750	$155,724	
2009		$0	$0	$25,750	$18,061	$11,433	$25,750	$181,474	
2010		$0	$0	$25,750	$17,534	$10,685	$25,750	$207,224	
2011		$0	$0	$14,876	$9,835	$5,769	$14,876	$222,100	
2012		$0	$0	$14,876	$9,548	$5,392	$14,876	$236,976	
2013		$0	$0	$14,876	$9,270	$5,039	$14,876	$251,852	
2014		$0	$0		$0	$0	$0	$251,852	
2015		$0	$0		$0	$0	$0	$251,852	
2016		$0	$0		$0	$0	$0	$251,852	
2017		$0	$0		$0	$0	$0	$251,852	
2018		$0	$0		$0	$0	$0	$251,852	
2019		$0	$0		$0	$0	$0	$251,852	
2020		$0	$0		$0	$0	$0	$251,852	
2021		$0	$0		$0	$0	$0	$251,852	
2022		$0	$0		$0	$0	$0	$251,852	
2023		$0	$0		$0	$0	$0	$251,852	
2024		$0	$0		$0	$0	$0	$251,852	
2025		$0	$0		$0	$0	$0	$251,852	
2026		$0	$0		$0	$0	$0	$251,852	
2027		$0	$0		$0	$0	$0	$251,852	
2028		$0	$0		$0	$0	$0	$251,852	
2029		$0	$0		$0	$0	$0	$251,852	
2030		$0	$0		$0	$0	$0	$251,852	
2031		$0	$0		$0	$0	$0	$251,852	
2032		$0	$0		$0	$0	$0	$251,852	
2033		$0	$0		$0	$0	$0	$251,852	
2034		$0	$0		$0	$0	$0	$251,852	
2035		$0	$0		$0	$0	$0	$251,852	
2036		$0	$0		$0	$0	$0	$251,852	
2037		$0	$0		$0	$0	$0	$251,852	
2038		$0	$0		$0	$0	$0	$251,852	
2039		$0	$0		$0	$0	$0	$251,852	
2040		$0	$0		$0	$0	$0	$251,852	
2041		$0	$0		$0	$0	$0	$251,852	
2042		$0	$0		$0	$0	$0	$251,852	
2043		$0	$0		$0	$0	$0	$251,852	
2044		$0	$0		$0	$0	$0	$251,852	
2045		$0	$0		$0	$0	$0	$251,852	
2046		$0	$0		$0	$0	$0	$251,852	
2047		$0	$0		$0	$0	$0	$251,852	
2048		$0	$0		$0	$0	$0	$251,852	
2049		$0	$0		$0	$0	$0	$251,852	
2050		$0	$0		$0	$0	$0	$251,852	
2051		$0	$0		$0	$0	$0	$251,852	
2052		$0	$0		$0	$0	$0	$251,852	
2053		$0	$0		$0	$0	$0	$251,852	
2054		$0	$0		$0	$0	$0	$251,852	
2055		$0	$0		$0	$0	$0	$251,852	
2056		$0	$0		$0	$0	$0	$251,852	
2057		$0	$0		$0	$0	$0	$251,852	
2058		$0	$0		$0	$0	$0	$251,852	
2059		$0	$0		$0	$0	$0	$251,852	
2060		$0	$0		$0	$0	$0	$251,852	
2061		$0	$0		$0	$0	$0	$251,852	#NUM!
Totals	$153,276	$142,198	$129,606	$405,128	$328,253	$257,159			
NPV Ratio (3%)	56.7%								
NPV Ratio (7%)	49.6%								
IRR	#NUM!								
Payback	0								

Site (Location): *RFETS*
Waste Type:
Description: *Acceleration of Bldg 776/777 Mission Termination and Deactivation*
Mail Code:
Constant $ Year: *1997*
ADS No.(s):

(i) Fiscal Year	(ii) Alternative Funding	(iii) Discounted Cash Flow (NPV) 3%	(iv) Discounted Cash Flow (NPV) 7%	(v) Target/Min Safe Storage Funding	(vi) Discounted Cash Flow (NPV) 3%	(vii) Discounted Cash Flow (NPV) 7%	(viii) Annual Delta (v) - (ii)	(ix) Cumulative Delta	(x) Internal Rate of Return (IRR)
1997	$15,182	$15,182	$15,182	$14,214	$14,214	$14,214	($968)	($968)	
1998	$18,671	$18,127	$17,450	$14,214	$13,800	$13,284	($4,457)	($5,425)	
1999	$26,184	$24,681	$22,870	$14,214	$13,398	$12,415	($11,970)	($17,395)	
2000	$20,821	$19,054	$16,996	$14,214	$13,008	$11,603	($6,607)	($24,002)	
2001	$3,795	$3,372	$2,895	$14,214	$12,629	$10,844	$10,419	($13,583)	
2002		$0	$0	$14,214	$12,261	$10,134	$14,214	$631	
2003		$0	$0	$14,214	$11,904	$9,471	$14,214	$14,845	
2004		$0	$0	$14,214	$11,557	$8,852	$14,214	$29,059	
2005		$0	$0	$14,214	$11,221	$8,273	$14,214	$43,273	
2006		$0	$0	$14,214	$10,894	$7,731	$14,214	$57,487	
2007		$0	$0	$14,214	$10,577	$7,226	$14,214	$71,701	
2008		$0	$0	$14,214	$10,268	$6,753	$14,214	$85,915	
2009		$0	$0	$14,214	$9,969	$6,311	$14,214	$100,129	
2010		$0	$0	$14,214	$9,679	$5,898	$14,214	$114,343	
2011		$0	$0	$14,214	$9,397	$5,512	$14,214	$128,557	
2012		$0	$0	$14,214	$9,123	$5,152	$14,214	$142,771	
2013		$0	$0	$14,214	$8,858	$4,815	$14,214	$156,985	
2014		$0	$0	$14,214	$8,600	$4,500	$14,214	$171,199	
2015		$0	$0	$14,214	$8,349	$4,205	$14,214	$185,413	
2016		$0	$0	$10,025	$5,717	$2,772	$10,025	$195,438	
2017		$0	$0	$10,025	$5,551	$2,591	$10,025	$205,463	
2018		$0	$0	$10,025	$5,389	$2,421	$10,025	$215,488	
2019		$0	$0		$0	$0	$0	$215,488	
2020		$0	$0		$0	$0	$0	$215,488	
2021		$0	$0		$0	$0	$0	$215,488	
2022		$0	$0		$0	$0	$0	$215,488	
2023		$0	$0		$0	$0	$0	$215,488	
2024		$0	$0		$0	$0	$0	$215,488	
2025		$0	$0		$0	$0	$0	$215,488	
2026		$0	$0		$0	$0	$0	$215,488	
2027		$0	$0		$0	$0	$0	$215,488	
2028		$0	$0		$0	$0	$0	$215,488	
2029		$0	$0		$0	$0	$0	$215,488	
2030		$0	$0		$0	$0	$0	$215,488	
2031		$0	$0		$0	$0	$0	$215,488	
2032		$0	$0		$0	$0	$0	$215,488	
2033		$0	$0		$0	$0	$0	$215,488	
2034		$0	$0		$0	$0	$0	$215,488	
2035		$0	$0		$0	$0	$0	$215,488	
2036		$0	$0		$0	$0	$0	$215,488	
2037		$0	$0		$0	$0	$0	$215,488	
2038		$0	$0		$0	$0	$0	$215,488	
2039		$0	$0		$0	$0	$0	$215,488	
2040		$0	$0		$0	$0	$0	$215,488	
2041		$0	$0		$0	$0	$0	$215,488	
2042		$0	$0		$0	$0	$0	$215,488	
2043		$0	$0		$0	$0	$0	$215,488	
2044		$0	$0		$0	$0	$0	$215,488	
2045		$0	$0		$0	$0	$0	$215,488	
2046		$0	$0		$0	$0	$0	$215,488	
2047		$0	$0		$0	$0	$0	$215,488	
2048		$0	$0		$0	$0	$0	$215,488	
2049		$0	$0		$0	$0	$0	$215,488	
2050		$0	$0		$0	$0	$0	$215,488	
2051		$0	$0		$0	$0	$0	$215,488	
2052		$0	$0		$0	$0	$0	$215,488	
2053		$0	$0		$0	$0	$0	$215,488	
2054		$0	$0		$0	$0	$0	$215,488	
2055		$0	$0		$0	$0	$0	$215,488	
2056		$0	$0		$0	$0	$0	$215,488	
2057		$0	$0		$0	$0	$0	$215,488	
2058		$0	$0		$0	$0	$0	$215,488	
2059		$0	$0		$0	$0	$0	$215,488	
2060		$0	$0		$0	$0	$0	$215,488	
2061		$0	$0		$0	$0	$0	$215,488	38%
Totals	$84,653	$80,416	$75,393	$300,141	$226,363	$164,978			
NPV Ratio (3%)	64.5%								
NPV Ratio (7%)	54.3%								
IRR	38%								
Payback	#REF!								

Site (Location): *RFETS*
Waste Type:
Description: *Acceleration of Bldg 779 Mission Termination and Deactivation*
Mail Code:
Constant $ Year: *1997*
ADS No.(s):

(i) Fiscal Year	(ii) Alternative Funding	(iii) Discounted Cash Flow (NPV) 3%	(iv) Discounted Cash Flow (NPV) 7%	(v) Target/Min Safe Storage Funding	(vi) Discounted Cash Flow (NPV) 3%	(vii) Discounted Cash Flow (NPV) 7%	(viii) Annual Delta (v) - (ii)	(ix) Cumulative Delta	(x) Internal Rate of Return (IRR)
1997	$5,225	$5,225	$5,225	$3,090	$3,090	$3,090	($2,135)	($2,135)	
1998	$5,975	$5,801	$5,584	$3,090	$3,000	$2,888	($2,885)	($5,020)	
1999		$0	$0	$3,090	$2,913	$2,699	$3,090	($1,930)	
2000		$0	$0	$3,090	$2,828	$2,522	$3,090	$1,160	
2001		$0	$0	$3,090	$2,745	$2,357	$3,090	$4,250	
2002		$0	$0	$3,090	$2,665	$2,203	$3,090	$7,340	
2003		$0	$0	$3,090	$2,588	$2,059	$3,090	$10,430	
2004		$0	$0	$3,090	$2,512	$1,924	$3,090	$13,520	
2005		$0	$0	$3,165	$2,498	$1,842	$3,165	$16,685	
2006		$0	$0	$3,165	$2,426	$1,722	$3,165	$19,850	
2007		$0	$0	$3,165	$2,355	$1,609	$3,165	$23,015	
2008		$0	$0		$0	$0	$0	$23,015	
2009		$0	$0		$0	$0	$0	$23,015	
2010		$0	$0		$0	$0	$0	$23,015	
2011		$0	$0		$0	$0	$0	$23,015	
2012		$0	$0		$0	$0	$0	$23,015	
2013		$0	$0		$0	$0	$0	$23,015	
2014		$0	$0		$0	$0	$0	$23,015	
2015		$0	$0		$0	$0	$0	$23,015	
2016		$0	$0		$0	$0	$0	$23,015	
2017		$0	$0		$0	$0	$0	$23,015	
2018		$0	$0		$0	$0	$0	$23,015	
2019		$0	$0		$0	$0	$0	$23,015	
2020		$0	$0		$0	$0	$0	$23,015	
2021		$0	$0		$0	$0	$0	$23,015	
2022		$0	$0		$0	$0	$0	$23,015	
2023		$0	$0		$0	$0	$0	$23,015	
2024		$0	$0		$0	$0	$0	$23,015	
2025		$0	$0		$0	$0	$0	$23,015	
2026		$0	$0		$0	$0	$0	$23,015	
2027		$0	$0		$0	$0	$0	$23,015	
2028		$0	$0		$0	$0	$0	$23,015	
2029		$0	$0		$0	$0	$0	$23,015	
2030		$0	$0		$0	$0	$0	$23,015	
2031		$0	$0		$0	$0	$0	$23,015	
2032		$0	$0		$0	$0	$0	$23,015	
2033		$0	$0		$0	$0	$0	$23,015	
2034		$0	$0		$0	$0	$0	$23,015	
2035		$0	$0		$0	$0	$0	$23,015	
2036		$0	$0		$0	$0	$0	$23,015	
2037		$0	$0		$0	$0	$0	$23,015	
2038		$0	$0		$0	$0	$0	$23,015	
2039		$0	$0		$0	$0	$0	$23,015	
2040		$0	$0		$0	$0	$0	$23,015	
2041		$0	$0		$0	$0	$0	$23,015	
2042		$0	$0		$0	$0	$0	$23,015	
2043		$0	$0		$0	$0	$0	$23,015	
2044		$0	$0		$0	$0	$0	$23,015	
2045		$0	$0		$0	$0	$0	$23,015	
2046		$0	$0		$0	$0	$0	$23,015	
2047		$0	$0		$0	$0	$0	$23,015	
2048		$0	$0		$0	$0	$0	$23,015	
2049		$0	$0		$0	$0	$0	$23,015	
2050		$0	$0		$0	$0	$0	$23,015	
2051		$0	$0		$0	$0	$0	$23,015	
2052		$0	$0		$0	$0	$0	$23,015	
2053		$0	$0		$0	$0	$0	$23,015	
2054		$0	$0		$0	$0	$0	$23,015	
2055		$0	$0		$0	$0	$0	$23,015	
2056		$0	$0		$0	$0	$0	$23,015	
2057		$0	$0		$0	$0	$0	$23,015	
2058		$0	$0		$0	$0	$0	$23,015	
2059		$0	$0		$0	$0	$0	$23,015	
2060		$0	$0		$0	$0	$0	$23,015	
2061		$0	$0		$0	$0	$0	$23,015	50%
Totals	$11,200	$11,026	$10,809	$34,215	$29,621	$24,915			
NPV Ratio (3%)	62.8%								
NPV Ratio (7%)	56.6%								
IRR	50%								
Payback	3								

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1.1.1.01.	**Remove SECBZO Cluster**	**36**	**36**	**36**	**36**	**36**	**36**	**165**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**443**
1.1.1.01.01.	SECBZO Cluster Facility Landlord Functions	36	36	36	36	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	217
1.1.1.01.02.	SECBZO Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.1.01.03.	SECBZO Cluster Deactivation	0	0	0	0	0	0	165	0	0	0	0	0	0	0	0	0	0	0	0	165
1.1.1.01.04.	SECBZO Cluster Decommissioning	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
1.1.1.01.05.	SECBZO Cluster Closure	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	52
1.1.1.01.06.	Remediate/Contain SECBZO Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.1.02.	**Remove INFMT Cluster**	**1**	**1**	**1**	**1**	**22**	**1**	**219**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**247**
1.1.1.02.01.	INFMT Cluster Facility Landlord Functions	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7
1.1.1.02.02.	INFMT Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.1.02.03.	INFMT Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.1.02.04.	INFMT Cluster Decommissioning	0	0	0	0	0	0	168	0	0	0	0	0	0	0	0	0	0	0	0	168
1.1.1.02.05.	INFMT Cluster Closure	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.1.02.06.	Remediate/Contain INFMT Cluster High Risk IHSS	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
1.1.1.03.	**No-Action/No-Further-Action Justification for Outer Buffer Zone Low Risk IHSS Cluster**	**0**	**0**	**0**	**0**	**247**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**247**

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1.1.2.01.	No-Action/No-Further Action Justification for Contaminated Buffer Zone	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21

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1.1.3.01.	**Remove 130 Cluster**	**1,505**	**1,505**	**1,505**	**1,505**	**1,505**	**1,505**	**1,229**	**662**	**662**	**662**	**662**	**662**	**662**	**662**	**662**	**662**	**662**	**662**	**706**	**18,252**
1.1.3.01.01.	130 Cluster Facility Landlord Functions	1,505	1,505	1,505	1,505	1,505	1,505	662	662	662	662	662	662	662	662	662	662	662	662	0	16,979
1.1.3.01.02.	130 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.01.03.	130 Cluster Deactivation	0	0	0	0	0	0	53	0	0	0	0	0	0	0	0	0	0	0	62	115
1.1.3.01.04.	130 Cluster Decommissioning	0	0	0	0	0	0	514	0	0	0	0	0	0	0	0	0	0	0	593	1,107
1.1.3.01.05.	130 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52
1.1.3.01.06.	Remediate/Contain 130 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.02.	**Remove H20GBZ Cluster**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**482**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**877**
1.1.3.02.01.	H20GBZ Cluster Facility Landlord Functions	44	44	44	44	44	44	44	44	44	0	0	0	0	0	0	0	0	0	0	394
1.1.3.02.02.	H20GBZ Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.02.03.	H20GBZ Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.02.04.	H20GBZ Cluster Decommissioning	0	0	0	0	0	0	0	0	0	379	0	0	0	0	0	0	0	0	0	379
1.1.3.02.05.	H20GBZ Cluster Closure	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	103
1.1.3.02.06.	Remediate/Contain H20GBZ Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.03.	**Remove H20SBZ Cluster**	**21**	**21**	**21**	**21**	**21**	**22**	**21**	**21**	**21**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**292**
1.1.3.03.01.	H20SBZ Cluster Facility Landlord Functions	21	21	21	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105
1.1.3.03.02.	H20SBZ Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.03.03.	H20SBZ Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.03.04.	H20SBZ Cluster Decommissioning	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	22
[illegible]03.05.	H20SBZ Cluster Closure	0	0	0	0	0	0	21	21	21	103	0	0	0	0	0	0	0	0	0	165
[illegible]3.06.	Remediate/Contain H20SBZ Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.04.	**Remove H20SIZ Cluster**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**112**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**131**
1.1.3.04.01.	H20SIZ Cluster Facility Landlord Functions	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	19
1.1.3.04.02.	H20SIZ Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.04.03.	H20SIZ Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.04.04.	H20SIZ Cluster Decommissioning	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	9
1.1.3.04.05.	H20SIZ Cluster Closure	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	103
1.1.3.04.06.	Remediate/Contain H20SIZ Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.05.	**Remove SECBZI Cluster**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**383**	**421**
1.1.3.05.01.	SECBZI Cluster Facility Landlord Functions	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	37
1.1.3.05.02.	SECBZI Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.05.03.	SECBZI Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.05.04.	SECBZI Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	332	332
1.1.3.05.05.	SECBZI Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52
1.1.3.05.06.	Remediate/Contain SECBZI Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.06.	**Operate Ponds and Develop & Implement Surface Water Conversion Project (Flow Through System)**	**3,677**	**3,487**	**3,481**	**3,100**	**2,446**	**2,343**	**2,266**	**2,189**	**2,189**	**2,189**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27,367**
1.1.3.06.01.	Direct and Surface Water Project	2,936	2,796	2,627	2,524	2,446	2,343	2,266	2,189	2,189	2,189	0	0	0	0	0	0	0	0	0	24,504

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.06.02.	Surface Water Conversion Project Conceptual Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.06.03.	Surface Water Conversion Project Construct	742	690	855	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,863
1.1.3.07.	**Develop & Impement Wetlands Conversion Project**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,284**	**1,283**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,568**
1.1.3.07.01.	Wetlands Conversion Workplan/Permitting/Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.07.02.	Wetlands Conversion Project Construction	0	0	0	0	0	0	0	0	1,284	1,283	0	0	0	0	0	0	0	0	0	2,568
1.1.3.07.03.	Wetlands Conversion Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.08.	**Develop & Implement Groundwater Management System**	**4,511**	**4,706**	**3,288**	**2,547**	**4,241**	**3,070**	**5,458**	**3,185**	**2,899**	**2,940**	**1,852**	**1,704**	**1,678**	**1,678**	**1,678**	**1,678**	**1,678**	**1,678**	**0**	**50,468**
1.1.3.08.01.	Groundwater Technology Development	103	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206
1.1.3.08.02.	Groundwater Management System Workplan/Permitting/Design	1,185	52	52	52	52	52	52	52	52	52	0	0	0	0	0	0	0	0	0	1,648
1.1.3.08.03.	Groundwater Management System Construction	384	1,639	0	0	1,500	0	2,221	0	0	0	0	0	0	0	0	0	0	0	0	5,743
1.1.3.08.04.	Groundwater Management System Operation	2,840	2,913	3,236	2,496	2,689	3,019	3,186	3,133	2,848	2,888	1,852	1,704	1,678	1,678	1,678	1,678	1,678	1,678	0	42,871
1.1.3.09.	**Remediate/Contain Inner Buffer Zone High Risk IHSS Cluster**	**515**	**6,495**	**6,471**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13,482**
1.1.3.09.01.	IHSS Planning and Authorization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.09.02.	IHSS Source Removal/Containment/Disposition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.09.03.	Obtain Final Approval for IHSS Remediation Completion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.10.	**No-Action/No-Further Action Justification for Inner Buffer Zone Low Risk IHSS Cluster**	**0**	**0**	**0**	**0**	**536**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**536**
1.1.3.11.	**Close Old Sanitary Landfill (OU 5)**	**0**	**0**	**0**	**0**	**0**	**5,251**	**5,251**	**69**	**69**	**69**	**69**	**69**	**69**	**69**	**69**	**69**	**69**	**69**	**0**	**11,261**
1.1.3.11.01.	Old Sanitary Landfill (OU5) Closure Workplan/Permitting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.3.11.02.	Old Sanitary Landfill (OU5) Closure	0	0	0	0	0	5,251	5,251	69	69	69	69	69	69	69	69	69	69	69	0	11,261

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1.1.4.01.	**Develop, Operate & Close Sanitary Waste Management Systems**	**103**	**103**	**4,353**	**4,353**	**54**	**54**	**54**	**54**	**143**	**54**	**54**	**54**	**54**	**54**	**54**	**54**	**54**	**54**	**0**	**9,751**
1.1.4.01.01.	Develop and Implement New Sanitary Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.01.02.	Operate & Maintain New Sanitary Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.01.03.	Closure New Sanitary Landfill	0	0	0	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	89
1.1.4.01.04.	Operate Sanitary Waste Collection Treatment & Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.01.05.	Operate and Maintain 219 Cluster Landfill (OU7)	103	103	103	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	412
1.1.4.01.06.	Closure 219 Cluster Landfill (OU7)	0	0	4,250	4,250	54	54	54	54	54	54	54	54	54	54	54	54	54	54	0	9,249
1.1.4.02.	**Develop, Operate & Maintain LLW and LLMW Storage Facilities**	**2,799**	**6,004**	**2,304**	**6,809**	**12,197**	**4,429**	**3,823**	**2,632**	**974**	**2,060**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**44,032**
1.1.4.02.01.	Operate & Maintain Site LLW/LLMW Storage Facilities	2,776	2,467	2,185	1,928	1,838	1,605	1,310	932	0	0	0	0	0	0	0	0	0	0	0	15,042
1.1.4.02.02.	Develop New LLW/LLMW Storage Facilities	0	3,502	0	3,502	7,004	0	0	0	0	2,060	0	0	0	0	0	0	0	0	0	16,068
1.1.4.02.03.	Operate & Maintain New LLW/LLMW Storage Facilities	23	34	118	1,379	3,355	2,825	2,513	1,700	974	0	0	0	0	0	0	0	0	0	0	12,922
1.1.4.02.04.	Assay & Characterize LL/LLM Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.03.	**Develop, Operate & Maintain TRU/TRUM Waste Storage Facilities**	**671**	**2,627**	**8,441**	**2,401**	**1,313**	**1,471**	**1,327**	**2,086**	**599**	**568**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21,504**
1.1.4.03.01.	Operate & Maintain Site TRU/TRUM Storage Facilities	148	133	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308
1.1.4.03.02.	Develop New TRU/TRUM Storage Facilities	515	1,288	1,288	0	0	0	0	0	0	515	0	0	0	0	0	0	0	0	0	3,605
1.1.4.03.03.	Operate and Maintain New TRU/TRUM Waste Storage Facilities	7	133	131	131	131	53	0	0	0	0	0	0	0	0	0	0	0	0	0	585
1.1.4.03.04.	Assay & Characterize TRU/TRUM Waste	0	1,073	6,996	2,270	1,182	1,418	1,327	2,086	599	53	0	0	0	0	0	0	0	0	0	17,005
1.1.4.04.	**Provide Offsite Waste Disposal**	**10,235**	**8,721**	**8,329**	**8,426**	**8,617**	**30,997**	**30,657**	**30,525**	**25,814**	**17,904**	**316**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**180,541**
1.1.4.04.01.	Provide Waste Disposal Operations Management & Support	1,545	1,545	1,545	1,030	515	464	258	258	258	258	0	0	0	0	0	0	0	0	0	7,674
1.1.4.04.02.	Provide Waste Transport Offsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.04.03.	Utilize Offsite Waste Disposal	5,909	5,940	6,011	6,984	7,896	30,328	30,193	30,061	25,350	17,440	316	0	0	0	0	0	0	0	0	166,430
1.1.4.04.04.	Chemical Management, Treatment, and Disposal	2,781	1,236	773	412	206	206	206	206	206	206	0	0	0	0	0	0	0	0	0	6,438
1.1.4.05.	**Operate & Maintain Waste Treatment Process**	**4,389**	**9,656**	**9,304**	**9,292**	**15,800**	**13,754**	**11,830**	**11,713**	**11,733**	**10,520**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**107,991**
1.1.4.05.01.	Operate Wastewater Treatment Process	4,378	4,378	4,378	4,378	4,378	4,378	3,090	3,090	3,090	3,090	0	0	0	0	0	0	0	0	0	38,625
1.1.4.05.02.	Operate Residue Treatment Process	0	5,271	4,900	4,900	4,900	1,984	0	0	0	0	0	0	0	0	0	0	0	0	0	21,953
1.1.4.05.03.	Operate LL Mixed Waste (LLMW) Treatment Process	12	8	26	15	6,523	7,392	7,463	7,347	7,367	6,241	0	0	0	0	0	0	0	0	0	42,394
1.1.4.05.04.	Operate LLW Waste Treatment Process	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.05.05.	Operate TRU/TRUM Waste Treatment Process	0	0	0	0	0	0	1,276	1,276	1,276	1,189	0	0	0	0	0	0	0	0	0	5,018
1.1.4.06.	**Develop Waste Management Projects**	**12,966**	**21,721**	**12,300**	**5,090**	**2,765**	**0**	**0**	**0**	**0**	**0**	**6,180**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**61,021**
1.1.4.06.01.	Alternative Liquid Waste Treatment Facility Project	5,150	15,450	7,210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27,810
1.1.4.06.02.	CTMP Immobilization of Misc. Waste Project	7,816	6,271	5,090	5,090	2,765	0	0	0	0	0	6,180	0	0	0	0	0	0	0	0	33,211
1.1.4.06.03.	CTMP Surface Organic Treatment Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.06.04.	Future CTMP Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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1.[illegible].06.05.	B774 Sludge Immobilization Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.07.	**Develop, Operate & Maintain PU Storage Facilities**	**8,688**	**28,458**	**25,165**	**12,614**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**2,985**	**8,240**	**0**	**121,969**
1.1.4.07.01.	Upgrade Existing PU Storage Facility	1,522	5,595	2,591	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,709
1.1.4.07.02.	Operate and Maintain Existing PU Storage Facility	1,387	1,387	1,387	1,387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,548
1.1.4.07.03.	Develop & Implement New PU Storage Facility	5,778	21,476	21,187	11,227	0	0	0	0	0	0	0	0	0	0	0	0	0	8,240	0	67,908
1.1.4.07.04.	Operate and Maintain New PU Storage Facility	0	0	0	0	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	0	0	38,804
1.1.4.08.	**Develop SNM Stabilization Capability Projects**	**67,877**	**13,287**	**2,060**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**83,224**
1.1.4.08.01.	Develop PU Prototype Processing and Packaging	16,480	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,686
1.1.4.08.02.	Develop Process for Accountability and Safe Storage (PASS) Project	11,845	5,356	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,201
1.1.4.08.03.	Develop SNM Solid Residue Elimination Project	36,462	5,150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41,612
1.1.4.08.04.	Develop SNM Liquid Stabilization Processing Capability	3,090	2,575	2,060	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,725
1.1.4.09.	**Operate and Maintain SNM Treatment and Packaging Processes**	**16,540**	**41,554**	**49,219**	**58,386**	**60,504**	**28,292**	**56**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**254,550**
1.1.4.09.01.	Operate Enriched Uranium Decontamination Process	361	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	422
1.1.4.09.02.	Operate HEUN Process	0	7,210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,210
1.1.4.09.03.	Operate SNM Liquid Stabilization Process	7,210	6,222	4,668	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18,101
1.1.4.09.04.	Operate SNM Solid Residue Elimination Process	7,308	22,483	38,130	52,224	55,522	25,610	56	0	0	0	0	0	0	0	0	0	0	0	0	201,332
1.1.4.09.05.	Operate PU Metal/Oxide Stabilization Process	1,107	1,792	1,281	1,281	55	55	0	0	0	0	0	0	0	0	0	0	0	0	0	5,571
1.1.4.09.06.	Operate PU Processing and Packaging	554	3,785	5,140	4,880	4,928	2,628	0	0	0	0	0	0	0	0	0	0	0	0	0	21,914
1.1.4.10.	**Provide SNM Offsite Shipment**	**0**	**1,452**	**1,452**	**1,452**	**1,452**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,339**	**1,339**	**1,339**	**1,339**	**0**	**0**	**11,165**
1.1.4.11.	**Develop & Implement New Closure Cap(s)**	**0**	**0**	**0**	**0**	**0**	**0**	**18,540**	**18,992**	**32,791**	**30,178**	**82**	**82**	**82**	**82**	**82**	**82**	**82**	**82**	**0**	**101,160**
1.1.4.11.01.	New Closure Cap(s) Workplan/Permitting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.4.11.02.	New Closure Cap(s) Construction	0	0	0	0	0	0	18,540	18,992	32,791	30,178	82	82	82	82	82	82	82	82	0	101,160

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1.1.5.01.	**Remove 111 Cluster**	**644**	**644**	**644**	**644**	**644**	**644**	**644**	**1,004**	**811**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6,372**
1.1.5.01.01.	111 Cluster Facility Landlord Functions	644	644	644	644	644	644	644	0	0	0	0	0	0	0	0	0	0	0	0	4,505
1.1.5.01.02.	111 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.01.03.	111 Cluster Deactivation	0	0	0	0	0	0	0	193	0	0	0	0	0	0	0	0	0	0	0	193
1.1.5.01.04.	111 Cluster Decommissioning	0	0	0	0	0	0	0	811	811	0	0	0	0	0	0	0	0	0	0	1,622
1.1.5.01.05.	111 Cluster Closure	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	52
1.1.5.01.06.	Remediate/Contain 111 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.02.	**Remove 125/441 Cluster**	**314**	**314**	**314**	**314**	**314**	**314**	**314**	**576**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,827**
1.1.5.02.01.	125/441 Cluster Facility Landlord Functions	314	314	314	314	314	314	314	0	0	0	0	0	0	0	0	0	0	0	0	2,199
1.1.5.02.02.	125/441 Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.02.03.	125/441 Cluster Deactivation	0	0	0	0	0	0	0	179	0	0	0	0	0	0	0	0	0	0	0	179
1.1.5.02.04.	125/441 Cluster Decommissioning	0	0	0	0	0	0	0	397	0	0	0	0	0	0	0	0	0	0	0	397
1.1.5.02.05.	125/441 Cluster Closure	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	52
1.1.5.02.06.	Remediate/Contain 125/441 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.03.	**Remove 221/224 Cluster**	**82**	**0**	**0**	**0**	**0**	**906**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**989**
1.1.5.03.01.	221/224 Cluster Facility Landlord Functions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.03.02.	221/224 Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.03.03.	221/224 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.03.04.	221/224 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.03.05.	221/224 Cluster Closure	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82
1.1.5.03.06.	Remediate/Contain 221/224 Cluster High Risk IHSSs	0	0	0	0	0	906	0	0	0	0	0	0	0	0	0	0	0	0	0	906
1.1.5.04.	**Remove 223 Cluster**	**95**	**95**	**95**	**95**	**95**	**95**	**103**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**726**
1.1.5.04.01.	223 Cluster Facility Landlord Functions	95	95	95	95	95	95	0	0	0	0	0	0	0	0	0	0	0	0	0	571
1.1.5.04.02.	223 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.04.03.	223 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.04.04.	223 Cluster Decommissioning	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.5.04.05.	223 Cluster Closure	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	52
1.1.5.04.06.	Remediate/Contain 223 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.05.	**Remove 300/500 Cluster**	**623**	**623**	**623**	**623**	**623**	**623**	**623**	**623**	**623**	**623**	**1,080**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,410**
1.1.5.05.01.	300/500 Cluster Facility Landlord Functions	623	623	623	623	623	623	623	623	623	623	0	0	0	0	0	0	0	0	0	6,227
1.1.5.05.02.	300/500 Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.05.03.	300/500 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	81	0	0	0	0	0	0	0	0	81
1.1.5.05.04.	300/500 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	999	0	0	0	0	0	0	0	0	999
1.1.5.05.05.	300/500 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	103
1.1.5.05.06.	Remediate/Contain 300/500 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.06.	**Remove 331 Cluster**	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**346**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,248**
1.1.5.06.01.	331 Cluster Facility Landlord Functions	180	180	180	180	180	180	180	180	180	180	0	0	0	0	0	0	0	0	0	1,799
1.1.5.06.02.	331 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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.06.03.	331 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	52
1.1.5.06.04.	331 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	294	0	0	0	0	0	0	0	0	294
1.1.5.06.05.	331 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	103
1.1.5.06.06.	Remediate/Contain 331 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.07.	**Remove 371T Cluster**	**113**	**113**	**113**	**113**	**203**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**656**
1.1.5.07.01.	371T Cluster Facility Landlord Functions	113	113	113	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	453
1.1.5.07.02.	371T Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.07.03.	371T Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.07.04.	371T Cluster Decommissioning	0	0	0	0	152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
1.1.5.07.05.	371T Cluster Closure	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.5.07.06.	Remediate/Contain 371T Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.08.	**Remove 440 Cluster**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**494**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,611**
1.1.5.08.01.	440 Cluster Facility Landlord Functions	235	235	235	235	235	235	235	235	235	0	0	0	0	0	0	0	0	0	0	2,116
1.1.5.08.02.	440 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.08.03.	440 Cluster Deactivation	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0	35
1.1.5.08.04.	440 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	408	0	0	0	0	0	0	0	0	0	408
1.1.5.08.05.	440 Cluster Closure	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	52
1.1.5.08.06.	Remediate/Contain 440 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.09.	**Remove 442/452 Cluster**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**335**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,081**
[illegible]09.01.	442/452 Cluster Facility Landlord Functions	107	107	107	107	107	107	107	0	0	0	0	0	0	0	0	0	0	0	0	746
[illegible]09.02.	442/452 Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.09.03.	442/452 Cluster Deactivation	0	0	0	0	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	94
1.1.5.09.04.	442/452 Cluster Decommissioning	0	0	0	0	0	0	0	190	0	0	0	0	0	0	0	0	0	0	0	190
1.1.5.09.05.	442/452 Cluster Closure	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	52
1.1.5.09.06.	Remediate/Contain 442/452 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.10.	**Remove 444 Cluster**	**908**	**908**	**908**	**908**	**4,422**	**6,516**	**4,574**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19,249**
1.1.5.10.01.	444 Cluster Facility Landlord Functions	908	908	908	908	681	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,314
1.1.5.10.02.	444 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.10.03.	444 Cluster Deactivation	0	0	0	0	3,741	991	0	0	0	0	0	0	0	0	0	0	0	0	0	4,732
1.1.5.10.04.	444 Cluster Decommissioning	0	0	0	0	0	5,525	4,574	0	0	0	0	0	0	0	0	0	0	0	0	10,100
1.1.5.10.05.	444 Cluster Closure	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	103
1.1.5.10.06.	Remediate/Contain 444 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.11.	**Remove 460 Cluster**	**908**	**908**	**908**	**908**	**908**	**908**	**908**	**908**	**4,632**	**3,905**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15,855**
1.1.5.11.01.	460 Cluster Facility Landlord Functions	908	908	908	908	908	908	908	908	0	0	0	0	0	0	0	0	0	0	0	7,266
1.1.5.11.02.	460 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.11.03.	460 Cluster Deactivation	0	0	0	0	0	0	0	0	727	0	0	0	0	0	0	0	0	0	0	727
1.1.5.11.04.	460 Cluster Decommissioning	0	0	0	0	0	0	0	0	3,905	3,905	0	0	0	0	0	0	0	0	0	7,810
1.1.5.11.05.	460 Cluster Closure	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	52
1.1.5.11.06.	Remediate/Contain 460 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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	Description	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	Total
1.1.5.12.	**Remove 664 Cluster**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**284**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,458**
1.1.5.12.01.	664 Cluster Facility Landlord Functions	212	212	212	212	212	212	212	212	212	212	0	0	0	0	0	0	0	0	0	2,123
1.1.5.12.02.	664 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.12.03.	664 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	16
1.1.5.12.04.	664 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	267	0	0	0	0	0	0	0	0	267
1.1.5.12.05.	664 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	52
1.1.5.12.06.	Remediate/Contain 664 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.13.	**Remove 690T Cluster**	**14**	**14**	**14**	**337**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**380**
1.1.5.13.01.	690T Cluster Facility Landlord Functions	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
1.1.5.13.02.	690T Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.13.03.	690T Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.13.04.	690T Cluster Decommissioning	0	0	0	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
1.1.5.13.05.	690T Cluster Closure	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.5.13.06.	Remediate/Contain 690T Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.14.	**Remove 750 HAZ Cluster**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**236**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**865**
1.1.5.14.01.	750 HAZ Cluster Facility Landlord Functions	63	63	63	63	63	63	63	63	63	63	0	0	0	0	0	0	0	0	0	628
1.1.5.14.02.	750 HAZ Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.14.03.	750 HAZ Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.14.04.	750 HAZ Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	185	0	0	0	0	0	0	0	0	185
1.1.5.14.05.	750 HAZ Cluster Closure	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	52
1.1.5.14.06.	Remediate/Contain 750 HAZ Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.15.	**Remove 850 Cluster**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**212**	**517**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,691**
1.1.5.15.01.	850 Cluster Facility Landlord Functions	212	212	212	212	212	212	212	212	212	212	0	0	0	0	0	0	0	0	0	2,123
1.1.5.15.02.	850 Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.15.03.	850 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	161	0	0	0	0	0	0	0	0	161
1.1.5.15.04.	850 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	356	0	0	0	0	0	0	0	0	356
1.1.5.15.05.	850 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	52
1.1.5.15.06.	Remediate/Contain 850 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.16.	**Remove 891T Cluster**	**298**	**298**	**407**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,055**
1.1.5.16.01.	891T Cluster Facility Landlord Functions	298	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	596
1.1.5.16.02.	891T Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.16.03.	891T Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.16.04.	891T Cluster Decommissioning	0	0	407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	407
1.1.5.16.05.	891T Cluster Closure	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.5.16.06.	Remediate/Contain 891T Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.17.	**Remove 903/905 Cluster**	**897**	**897**	**897**	**897**	**897**	**897**	**897**	**897**	**897**	**897**	**332**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,403**
1.1.5.17.01.	903/905 Cluster Facility Landlord Functions	897	897	897	897	897	897	897	897	897	897	0	0	0	0	0	0	0	0	0	8,968
1.1.5.17.02.	903/905 Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.17.03.	903/905 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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1.1.5.17.04.	903/905 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	332	0	0	0	0	0	0	0	0	332
1.1.5.17.05.	903/905 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	103
1.1.5.17.06.	Remediate/Contain 903/905 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.18.	**Remove 904/906 Cluster**	**519**	**519**	**519**	**519**	**519**	**519**	**519**	**519**	**519**	**519**	**1,120**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6,566**
1.1.5.18.01.	904/906 Cluster Facility Landlord Functions	519	519	519	519	519	519	519	519	519	519	0	0	0	0	0	0	0	0	0	5,189
1.1.5.18.02.	904/906 Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.18.03.	904/906 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.18.04.	904/906 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	1,120	0	0	0	0	0	0	0	0	1,120
1.1.5.18.05.	904/906 Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	258	0	0	0	0	0	0	0	258
1.1.5.18.06.	Remediate/Contain 904/906 Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.19.	**Remove Airmon Cluster**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**84**
1.1.5.19.01.	Airmon Cluster Facility Landlord Functions	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	0	23
1.1.5.19.02.	Airmon Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.19.03.	Airmon Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.19.04.	Airmon Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	9
1.1.5.19.05.	Airmon Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	52
1.1.5.19.06.	Remediate/Contain Airmon Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.20.	**Remove SECIZ Cluster**	**135**	**135**	**135**	**135**	**135**	**135**	**135**	**135**	**135**	**135**	**305**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,657**
1.1.5.20.01.	SECIZ Cluster Facility Landlord Functions	135	135	135	135	135	135	135	135	135	135	0	0	0	0	0	0	0	0	0	1,352
1.1.5.20.02.	SECIZ Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.20.03.	SECIZ Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	38
1.1.5.20.04.	SECIZ Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	215	0	0	0	0	0	0	0	0	215
1.1.5.20.05.	SECIZ Cluster Closure	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	52
1.1.5.20.06.	Remediate/Contain SECIZ Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.21.	**Remove INFELI Cluster**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**3,470**	**3,844**
1.1.5.21.01.	INFELI Cluster Facility Landlord Functions	27	27	27	27	27	27	27	27	27	27	13	13	13	13	13	13	13	13	0	374
1.1.5.21.02.	INFELI Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.21.03.	INFELI Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.21.04.	INFELI Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,213	3,213
1.1.5.21.05.	INFELI Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	258
1.1.5.21.06.	Remediate/Contain INFELI Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.22.	**Remove INFGAS Cluster**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**1,641**	**1,696**
1.1.5.22.01.	INFGAS Cluster Facility Landlord Functions	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	56
1.1.5.22.02.	INFGAS Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.22.03.	INFGAS Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.22.04.	INFGAS Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,589	1,589
1.1.5.22.05.	INFGAS Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52
1.1.5.22.06.	Remediate/Contain INFGAS Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.23.	**Remove H20GIZ Cluster**	**89**	**89**	**89**	**89**	**89**	**89**	**89**	**89**	**89**	**89**	**157**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,154**

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1.1.5.23.01.	H20GIZ Cluster Facility Landlord Functions	89	89	89	89	89	89	89	89	89	89	0	0	0	0	0	0	0	0	0	895
1.1.5.23.02.	H20GIZ Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.23.03.	H20GIZ Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.23.04.	H20GIZ Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	157	0	0	0	0	0	0	0	0	157
1.1.5.23.05.	H20GIZ Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	103
1.1.5.23.06.	Remediate/Contain H20GIZ Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.24.	**Remove INFWTI Cluster**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**4,353**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,218**
1.1.5.24.01.	INFWTI Cluster Facility Landlord Functions	96	96	96	96	96	96	96	96	96	0	0	0	0	0	0	0	0	0	0	865
1.1.5.24.02.	INFWTI Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.24.03.	INFWTI Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.24.04.	INFWTI Cluster Decommissioning	0	0	0	0	0	0	0	0	0	4,250	0	0	0	0	0	0	0	0	0	4,250
1.1.5.24.05.	INFWTI Cluster Closure	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	103
1.1.5.24.06.	Remediate/Contain INFWTI Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.25.	**Remove PWTS Cluster**	**152**	**152**	**152**	**152**	**152**	**152**	**152**	**152**	**152**	**152**	**152**	**264**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**2,043**
1.1.5.25.01.	PWTS Cluster Facility Landlord Functions	152	152	152	152	152	152	152	152	152	152	152	0	0	0	0	0	0	0	0	1,676
1.1.5.25.02.	PWTS Cluster Hazardous Materials Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.25.03.	PWTS Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.25.04.	PWTS Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	264	0	0	0	0	0	0	0	264
1.1.5.25.05.	PWTS Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	103
1.1.5.25.06.	Remediate/Contain PWTS Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26.	**Remove INFRDS Cluster**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**0**	**514**
1.1.5.26.01.	INFRDS Cluster Facility Landlord Functions	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	0	514
1.1.5.26.02.	INFRDS Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.26.03.	INFRDS Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.26.04.	INFRDS Cluster Decommissioning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.26.05.	INFRDS Cluster Closure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.26.06.	Remediate/Contain INFRDS Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.27.	**Remove INFSEW Cluster**	**952**	**952**	**952**	**952**	**952**	**952**	**952**	**952**	**4,963**	**4,963**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17,594**
1.1.5.27.01.	INFSEW Cluster Facility Landlord Functions	952	952	952	952	952	952	952	952	0	0	0	0	0	0	0	0	0	0	0	7,617
1.1.5.27.02.	INFSEW Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.27.03.	INFSEW Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.27.04.	INFSEW Cluster Decommissioning	0	0	0	0	0	0	0	0	4,963	4,963	0	0	0	0	0	0	0	0	0	9,926
1.1.5.27.05.	INFSEW Cluster Closure	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	52
1.1.5.27.06.	Remediate/Contain INFSEW Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.28.	**Remove INFSTM Cluster**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**2,497**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,097**
1.1.5.28.01.	INFSTM Cluster Facility Landlord Functions	200	200	200	200	200	200	200	200	0	0	0	0	0	0	0	0	0	0	0	1,599
1.1.5.28.02.	INFSTM Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.28.03.	INFSTM Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.28.04.	INFSTM Cluster Decommissioning	0	0	0	0	0	0	0	0	2,446	0	0	0	0	0	0	0	0	0	0	2,446

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1.1.5.28.05.	INFSTM Cluster Closure	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	52
1.1.5.28.06.	Remediate/Contain INFSTM Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.29.	**Remove INFFCM Cluster**	208	208	208	208	208	208	208	208	208	3,717	208	208	208	208	208	208	208	208	0	7,246
1.1.5.29.01.	INFFCM Cluster Facility Landlord Functions	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	0	3,736
1.1.5.29.02.	INFFCM Cluster Hazardous Materials Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.29.03.	INFFCM Cluster Deactivation	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	0	0	0	0	51
1.1.5.29.04.	INFFCM Cluster Decommissioning	0	0	0	0	0	0	0	0	0	3,407	0	0	0	0	0	0	0	0	0	3,407
1.1.5.29.05.	INFFCM Cluster Closure	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	52
1.1.5.29.06.	Remediate/Contain INFFCM Cluster High Risk IHSSs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.5.30.	**Remediate/contain Industrial Zone High Risk IHSS Cluster**	0	1,992	3,185	17,276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22,453
1.1.5.31.	**No-Action/No-Further Action Justification for Industrial Zone Low Risk IHSS Cluster**	0	0	0	0	906	0	0	0	0	0	0	0	0	0	0	0	0	0	0	906

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1.1.6.01.	**Remove 207 Cluster**	**298**	**298**	**298**	**298**	**2,916**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,211**
1.1.6.01.01.	207 Cluster Facility Landlord Functions	298	298	298	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,192
1.1.6.01.02.	207 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.01.03.	207 Cluster Deactivation	0	0	0	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
1.1.6.01.04.	207 Cluster Decommissioning	0	0	0	0	2,868	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,868
1.1.6.01.05.	207 Cluster Closure	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.01.06.	Remediate/Contain 207 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.02.	**Remove 371/374 Cluster**	**11,653**	**11,653**	**11,653**	**12,683**	**17,508**	**27,887**	**20,227**	**7,033**	**773**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**121,070**
1.1.6.02.01.	371/374 Cluster Facility Landlord Functions	11,653	11,653	11,653	11,653	11,653	8,740	5,827	2,913	0	0	0	0	0	0	0	0	0	0	0	75,746
1.1.6.02.02.	371/374 Cluster SNM & Hazardous Material Removal Operations	0	0	0	1,030	1,648	1,133	515	0	0	0	0	0	0	0	0	0	0	0	0	4,326
1.1.6.02.03.	371/374 Cluster Deactivation	0	0	0	0	4,207	5,237	0	0	0	0	0	0	0	0	0	0	0	0	0	9,443
1.1.6.02.04.	371/374 Cluster Decommissioning	0	0	0	0	0	12,777	13,885	4,120	0	0	0	0	0	0	0	0	0	0	0	30,783
1.1.6.02.05.	371/374 Cluster Closure	0	0	0	0	0	0	0	0	773	0	0	0	0	0	0	0	0	0	0	773
1.1.6.02.06.	Remediate/Contain 371/374 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.03.	**Remove 371A Cluster**	**49**	**49**	**129**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**226**
1.1.6.03.01.	371A Cluster Facility Landlord Functions	49	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97
1.1.6.03.02.	371A Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.03.03.	371A Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.03.04.	371A Cluster Decommissioning	0	0	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77
1.1.6.03.05.	371A Cluster Closure	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.03.06.	Remediate/Contain 371A Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.04.	**Remove 559 Cluster**	**3,394**	**3,394**	**3,394**	**3,394**	**3,394**	**3,394**	**5,387**	**7,507**	**4,802**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**38,318**
1.1.6.04.01.	559 Cluster Facility Landlord Functions	3,394	3,394	3,394	3,394	3,394	3,394	3,394	1,697	849	0	0	0	0	0	0	0	0	0	0	26,304
1.1.6.04.02.	559 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.04.03.	559 Cluster Deactivation	0	0	0	0	0	0	1,993	1,857	0	0	0	0	0	0	0	0	0	0	0	3,850
1.1.6.04.04.	559 Cluster Decommissioning	0	0	0	0	0	0	0	3,953	3,953	0	0	0	0	0	0	0	0	0	0	7,906
1.1.6.04.05.	559 Cluster Closure	0	0	0	0	0	0	0	0	0	258	0	0	0	0	0	0	0	0	0	258
1.1.6.04.06.	Remediate/Contain 559 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.05.	**Remove 566 Cluster**	**81**	**81**	**506**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**771**
1.1.6.05.01.	566 Cluster Facility Landlord Functions	81	81	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243
1.1.6.05.02.	566 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.05.03.	566 Cluster Deactivation	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7

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1.1.6.05.04.	566 Cluster Decommissioning	0	0	419	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	419
1.1.6.05.05.	566 Cluster Closure	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.05.06.	Remediate/Contain 566 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.06.	**Remove 569 Cluster**	**42**	**42**	**42**	**42**	**42**	**42**	**42**	**42**	**186**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**521**
1.1.6.06.01.	569 Cluster Facility Landlord Functions	42	42	42	42	42	42	42	42	0	0	0	0	0	0	0	0	0	0	0	335
1.1.6.06.02.	569 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.06.03.	569 Cluster Deactivation	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	14
1.1.6.06.04.	569 Cluster Decommissioning	0	0	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0	0	0	68
1.1.6.06.05.	569 Cluster Closure	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	103
1.1.6.06.06.	Remediate/Contain 569 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.07.	**Remove 707 Cluster**	**8,888**	**8,888**	**9,367**	**10,866**	**11,263**	**15,797**	**20,248**	**8,978**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**94,553**
1.1.6.07.01.	707 Cluster Facility Landlord Functions	8,888	8,888	8,888	8,888	8,888	6,666	4,444	2,222	0	0	0	0	0	0	0	0	0	0	0	57,775
1.1.6.07.02.	707 Cluster SNM & Hazardous Material Removal Operations	0	0	479	479	479	479	0	0	0	0	0	0	0	0	0	0	0	0	0	1,916
1.1.6.07.03.	707 Cluster Deactivation	0	0	0	1,499	1,895	1,895	2,292	0	0	0	0	0	0	0	0	0	0	0	0	7,581
1.1.6.07.04.	707 Cluster Decommissioning	0	0	0	0	0	6,756	13,512	6,756	0	0	0	0	0	0	0	0	0	0	0	27,024
1.1.6.07.05.	707 Cluster Closure	0	0	0	0	0	0	0	0	258	0	0	0	0	0	0	0	0	0	0	258
1.1.6.07.06.	Remediate/Contain 707 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08.	**Remove 750 Cluster**	**405**	**405**	**405**	**1,359**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,573**
1.1.6.08.01.	750 Cluster Facility Landlord Functions	405	405	405	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,214
1.1.6.08.02.	750 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.08.03.	750 Cluster Deactivation	0	0	0	188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	188
1.1.6.08.04.	750 Cluster Decommissioning	0	0	0	1,119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,119
1.1.6.08.05.	750 Cluster Closure	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.08.06.	Remediate/Contain 750 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.09.	**Remove 750Pad Cluster**	**595**	**595**	**595**	**1,278**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,320**
1.1.6.09.01.	750PAD Cluster Facility Landlord Functions	595	595	595	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,785
1.1.6.09.02.	750PAD Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.09.03.	750PAD Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.09.04.	750PAD Cluster Decommissioning	0	0	0	1,020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,020
1.1.6.09.05.	750PAD Cluster Closure	0	0	0	258	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	515
1.1.6.09.06.	Remediate/Contain 750PAD Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.10.	**Remove 771/774 Cluster**	**8,405**	**9,500**	**10,314**	**21,140**	**14,080**	**386**	**386**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**64,211**
1.1.6.10.01.	771/774 Cluster Facility Landlord Functions	8,405	8,405	6,304	4,202	2,101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29,417

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1.1.6.10.02.	771/774 Cluster SNM & Hazardous Material Removal Operations	0	0	2,142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,142
1.1.6.10.03.	771/774 Cluster Deactivation	0	1,095	1,868	1,868	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,832
1.1.6.10.04.	771/774 Cluster Decommissioning	0	0	0	15,069	11,979	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27,048
1.1.6.10.05.	771/774 Cluster Closure	0	0	0	0	0	386	386	0	0	0	0	0	0	0	0	0	0	0	0	773
1.1.6.10.06.	Remediate/Contain 771/774 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.11.	**Remove 771A Cluster**	**107**	**107**	**107**	**107**	**247**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**725**
1.1.6.11.01.	771A Cluster Facility Landlord Functions	107	107	107	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	427
1.1.6.11.02.	771A Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.11.03.	771A Cluster Deactivation	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
1.1.6.11.04.	771A Cluster Decommissioning	0	0	0	0	234	0	0	0	0	0	0	0	0	0	0	0	0	0	0	234
1.1.6.11.05.	771A Cluster Closure	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.11.06.	Remediate/Contain 771A Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.12.	**Remove 776/777 Cluster**	**5,019**	**6,605**	**11,745**	**25,229**	**23,032**	**21,288**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**93,177**
1.1.6.12.01.	776/777 Cluster Facility Landlord Functions	5,019	5,019	5,019	3,764	2,510	1,255	0	0	0	0	0	0	0	0	0	0	0	0	0	22,587
1.1.6.12.02.	776/777 Cluster SNM & Hazardous Material Removal Operations	0	1,586	1,586	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,172
1.1.6.12.03.	776/777 Cluster Deactivation	0	0	5,140	6,014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,154
1.1.6.12.04.	776/777 Cluster Decommissioning	0	0	0	15,450	20,523	20,034	0	0	0	0	0	0	0	0	0	0	0	0	0	56,006
1.1.6.12.05.	776/777 Cluster Closure	0	0	0	0	0	0	258	0	0	0	0	0	0	0	0	0	0	0	0	258
1.1.6.12.06.	Remediate/Contain 776/777 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.13.	**Remove 778 Cluster**	**1**	**1**	**1**	**1**	**1**	**1**	**236**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**242**
1.1.6.13.01.	778 Cluster Facility Landlord Functions	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1.1.6.13.02.	778 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.13.03.	778 Cluster Deactivation	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
1.1.6.13.04.	778 Cluster Decommissioning	0	0	0	0	0	0	174	0	0	0	0	0	0	0	0	0	0	0	0	174
1.1.6.13.05.	778 Cluster Closure	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.13.06.	Remediate/Contain 778 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.14.	**Remove 779 Cluster**	**2,835**	**4,536**	**3,056**	**1,614**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12,040**
1.1.6.14.01.	779 Cluster Facility Landlord Functions	1,794	1,076	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,870
1.1.6.14.02.	779 Cluster SNM & Hazardous Material Removal Operations	288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	288
1.1.6.14.03.	779 Cluster Deactivation	753	1,915	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,668
1.1.6.14.04.	779 Cluster Decommissioning	0	1,545	3,056	1,511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,111
1.1.6.14.05.	779 Cluster Closure	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.14.06.	Remediate/Contain 779 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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1.1.6.15.	**Remove 790 Cluster**	34	34	34	34	34	215	0	0	0	0	0	0	0	0	0	0	0	0	0	386
1.1.6.15.01.	790 Cluster Facility Landlord Functions	34	34	34	34	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	171
1.1.6.15.02.	790 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.15.03.	790 Cluster Deactivation	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
1.1.6.15.04.	790 Cluster Decommissioning	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.15.05.	790 Cluster Closure	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.15.06.	Remediate/Contain 790 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.16.	**Remove 800A Cluster**	310	310	310	761	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,744
1.1.6.16.01.	800A Cluster Facility Landlord Functions	310	310	310	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	931
1.1.6.16.02.	800A Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.16.03.	800A Cluster Deactivation	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
1.1.6.16.04.	800A Cluster Decommissioning	0	0	0	749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	749
1.1.6.16.05.	800A Cluster Closure	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.16.06.	Remediate/Contain 800A Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.17.	**Remove 881 Cluster**	2,869	2,869	2,869	2,869	2,869	5,964	16,039	12,252	386	386	0	0	0	0	0	0	0	0	0	49,371
1.1.6.17.01.	881 Cluster Facility Landlord Functions	2,869	2,869	2,869	2,869	2,869	2,151	1,434	717	0	0	0	0	0	0	0	0	0	0	0	18,646
1.1.6.17.02.	881 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.17.03.	881 Cluster Deactivation	0	0	0	0	0	3,813	0	0	0	0	0	0	0	0	0	0	0	0	0	3,813
1.1.6.17.04.	881 Cluster Decommissioning	0	0	0	0	0	0	14,604	11,535	0	0	0	0	0	0	0	0	0	0	0	26,139
1.1.6.17.05.	881 Cluster Closure	0	0	0	0	0	0	0	0	386	386	0	0	0	0	0	0	0	0	0	773
1.1.6.17.06.	Remediate/Contain 881 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.18.	**Remove 865/883 Cluster**	1,913	2,763	11,132	7,566	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23,478
1.1.6.18.01.	865/883 Cluster Facility Landlord Functions	1,913	1,913	956	478	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,260
1.1.6.18.02.	865/883 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.18.03.	865/883 Cluster Deactivation	0	851	3,088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,939
1.1.6.18.04.	865/883 Cluster Decommissioning	0	0	7,088	7,088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,176
1.1.6.18.05.	865/883 Cluster Closure	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.18.06.	Remediate/Contain 865/883 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.19.	**Remove 886 Cluster**	1,443	1,443	2,820	2,303	258	258	0	0	0	0	0	0	0	0	0	0	0	0	0	8,525
1.1.6.19.01.	886 Cluster Facility Landlord Functions	1,443	1,443	1,082	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,330
1.1.6.19.02.	886 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.19.03.	886 Cluster Deactivation	0	0	781	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	781
1.1.6.19.04.	886 Cluster Decommissioning	0	0	957	1,942	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,899

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1.1.6.19.05.	886 Cluster Closure	0	0	0	0	258	258	0	0	0	0	0	0	0	0	0	0	0	0	0	515
1.1.6.19.06.	Remediate/Contain 886 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.20.	**Remove 910 Cluster**	**102**	**102**	**102**	**102**	**102**	**102**	**102**	**102**	**102**	**612**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,529**
1.1.6.20.01.	910 Cluster Facility Landlord Functions	102	102	102	102	102	102	102	102	102	0	0	0	0	0	0	0	0	0	0	917
1.1.6.20.02.	910 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.20.03.	910 Cluster Deactivation	0	0	0	0	0	0	0	0	0	382	0	0	0	0	0	0	0	0	0	382
1.1.6.20.04.	910 Cluster Decommissioning	0	0	0	0	0	0	0	0	0	127	0	0	0	0	0	0	0	0	0	127
1.1.6.20.05.	910 Cluster Closure	0	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	103
1.1.6.20.06.	Remediate/Contain 910 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.21.	**Remove 964 Cluster**	**32**	**32**	**32**	**111**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**208**
1.1.6.21.01.	964 Cluster Facility Landlord Functions	32	32	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97
1.1.6.21.02.	964 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.21.03.	964 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.21.04.	964 Cluster Decommissioning	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
1.1.6.21.05.	964 Cluster Closure	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.21.06.	Remediate/Contain 964 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.22.	**Remove 980 Cluster**	**10**	**10**	**10**	**10**	**246**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**339**
1.1.6.22.01.	980 Cluster Facility Landlord Functions	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
1.1.6.22.02.	980 Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.22.03.	980 Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.22.04.	980 Cluster Decommissioning	0	0	0	0	246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	246
1.1.6.22.05.	980 Cluster Closure	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.22.06.	Remediate/Contain 980 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.23.	**Remove 991 Cluster**	**133**	**133**	**174**	**1,377**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,921**
1.1.6.23.01.	991 Cluster Facility Landlord Functions	133	133	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400
1.1.6.23.02.	991 Cluster SNM & Hazardous Material Removal Operations	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
1.1.6.23.03.	991 Cluster Deactivation	0	0	0	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
1.1.6.23.04.	991 Cluster Decommissioning	0	0	0	1,322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,322
1.1.6.23.05.	991 Cluster Closure	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103
1.1.6.23.06.	Remediate/Contain 991 Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.24.	**Remove PWTSN Cluster**	**99**	**99**	**99**	**99**	**99**	**99**	**99**	**99**	**3,579**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,423**
1.1.6.24.01.	PWTSN Cluster Facility Landlord Functions	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0	0	792

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1.1.6.24.02.	PWTSN Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.24.03.	PWTSN Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.24.04.	PWTSN Cluster Decommissioning	0	0	0	0	0	0	0	0	3,579	0	0	0	0	0	0	0	0	0	0	3,579
1.1.6.24.05.	PWTSN Cluster Closure	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	52
1.1.6.24.06.	Remediate/Contain PWTSN Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.25.	**Remove SECNPZ Cluster**	**268**	**268**	**268**	**268**	**268**	**268**	**2,779**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,441**
1.1.6.25.01.	SECNPZ Cluster Facility Landlord Functions	268	268	268	268	268	268	0	0	0	0	0	0	0	0	0	0	0	0	0	1,611
1.1.6.25.02.	SECNPZ Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.25.03.	SECNPZ Cluster Deactivation	0	0	0	0	0	0	99	0	0	0	0	0	0	0	0	0	0	0	0	99
1.1.6.25.04.	SECNPZ Cluster Decommissioning	0	0	0	0	0	0	2,680	0	0	0	0	0	0	0	0	0	0	0	0	2,680
1.1.6.25.05.	SECNPZ Cluster Closure	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	52
1.1.6.25.06.	Remediate/Contain SECNPZ Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.26.	**Remove INFELN Cluster**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**344**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**490**
1.1.6.26.01.	INFELN Cluster Facility Landlord Functions	16	16	16	16	16	16	16	16	16	0	0	0	0	0	0	0	0	0	0	146
1.1.6.26.02.	INFELN Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.26.03.	INFELN Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.26.04.	INFELN Cluster Decommissioning	0	0	0	0	0	0	0	0	0	87	0	0	0	0	0	0	0	0	0	87
1.1.6.26.05.	INFELN Cluster Closure	0	0	0	0	0	0	0	0	0	258	0	0	0	0	0	0	0	0	0	258
1.1.6.26.06.	Remediate/Contain INFELN Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.27.	**Remove INFWTN Cluster**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**150**
1.1.6.27.01.	INFWTN Cluster Facility Landlord Functions	7	7	7	7	7	7	7	7	7	0	0	0	0	0	0	0	0	0	0	60
1.1.6.27.02.	INFWTN Cluster SNM & Hazardous Material Removal Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.27.03.	INFWTN Cluster Deactivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.27.04.	INFWTN Cluster Decommissioning	0	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	38
1.1.6.27.05.	INFWTN Cluster Closure	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	52
1.1.6.27.06.	Remediate/Contain INFWTN Cluster High Risk IHSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.28.	**Remediate/Contain Nuclear Production Zone High Risk IHSS Cluster**	**5,499**	**0**	**5,576**	**0**	**25,970**	**7,439**	**12,496**	**8,112**	**11,272**	**4,564**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**80,929**
1.1.6.29.	**Develop Nuclear Production Zone Projects**	**3,563**	**9,063**	**6,797**	**6,797**	**6,697**	**6,592**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39,508**
1.1.6.29.01.	Air Monitoring Improvements Expense Project	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
1.1.6.29.02.	MSSA Project Expense Support	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400
1.1.6.29.03.	HP/EP Representative Effluent Sample Expense Support	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82
1.1.6.29.04.	Safeguards & Security Modifications Expense Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.6.29.05.	PA Reconfiguration Project (PIDAS) Expense Support	209	309	309	309	309	309	0	0	0	0	0	0	0	0	0	0	0	0	0	1,754

ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
Cost Estimate/Funding Profile
ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($'s in 000's)

#	Description	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	Total
1.1.6.29.06.	Provide SNM and Capital Equipment and GPP	2,966	8,549	6,283	6,283	6,283	6,283	0	0	0	0	0	0	0	0	0	0	0	0	0	36,647
1.1.6.29.07	Provide Waste Management Capital Equipment & GPP - Expense Support	105	105	105	105	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	525

ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
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	Description	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	Total
1.1.7.01.	**Provide Utility Services and Projects**	**9,140**	**8,759**	**8,759**	**8,450**	**8,450**	**8,450**	**7,410**	**6,895**	**5,878**	**1,867**	**1,674**	**901**	**335**	**232**	**232**	**232**	**232**	**232**	**0**	**78,126**
1.1.7.01.01.	Operate Water Utility	857	476	476	476	476	476	476	476	373	219	26	26	26	26	26	26	26	26	0	4,987
1.1.7.01.02.	Provide Telecommunications	5,522	5,522	5,522	5,213	5,213	5,213	4,698	4,183	4,183	1,030	1,030	515	103	52	52	52	52	52	0	48,204
1.1.7.01.03.	Operate Nitrogen Plant & Supply	381	381	381	381	381	381	0	0	0	0	0	0	0	0	0	0	0	0	0	2,285
1.1.7.01.04.	Operate Steam Supply	914	914	914	914	914	914	914	914	0	0	0	0	0	0	0	0	0	0	0	7,312
1.1.7.01.05.	Provide Natural Gas Supply	381	381	381	381	381	381	381	381	381	103	103	103	103	103	103	103	103	103	0	4,354
1.1.7.01.06.	Provide Electrical Plant Power	1,085	1,085	1,085	1,085	1,085	1,085	941	941	941	515	515	258	103	52	52	52	52	52	0	10,984
1.1.7.02.	**Provide Site Infrastructure Services and Projects**	**73,141**	**75,551**	**69,886**	**55,749**	**53,560**	**48,862**	**25,536**	**25,098**	**24,160**	**8,586**	**8,586**	**7,556**	**7,556**	**7,556**	**7,556**	**5,408**	**5,202**	**5,202**	**1,442**	**516,189**
1.1.7.02.01.	Operate Security & Safeguards	24,087	24,087	24,087	24,087	24,087	24,087	6,268	6,268	6,268	6,268	6,268	6,268	6,268	6,268	6,268	4,120	4,120	4,120	1,030	214,328
1.1.7.02.02.	Operate Food Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.7.02.03.	Operate Metrology Laboratories	1,428	1,428	1,428	1,428	913	913	398	398	0	0	0	0	0	0	0	0	0	0	0	8,335
1.1.7.02.04.	Provide Medical Services & Health Surveillance	3,713	3,713	3,713	3,713	3,713	3,713	2,271	2,271	2,271	1,339	1,339	309	309	309	309	309	103	103	52	33,572
1.1.7.02.05.	Provide Emergency Preparedness	2,761	2,761	3,070	3,070	3,070	3,070	1,648	1,648	1,648	206	206	206	206	206	206	206	206	206	103	24,703
1.1.7.02.06.	Provide Shipping/Receiving	5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617	103	103	103	103	103	103	103	103	103	0	51,482
1.1.7.02.07.	Maintain Plant & Road Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.7.02.08.	Fire Operations	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	515	515	515	515	515	515	515	515	515	258	22,887
1.1.7.02.09.	Operate Laundry	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	0	0	0	0	0	0	0	0	0	0	10,282
1.1.7.02.10.	Provide Filter Test & Changeout Support	1,428	1,428	1,119	913	398	258	52	52	52	0	0	0	0	0	0	0	0	0	0	5,698
1.1.7.02.11.	Operate Broomfield Warehouse	109	109	109	187	264	341	418	496	573	52	52	52	52	52	52	52	52	52	0	3,071
[illegible]2.12.	Provide Transportation Services	3,523	3,523	2,802	2,287	1,772	1,257	742	227	258	103	103	103	103	103	103	103	103	103	0	17,315
[illegible]2.13.	Manage and Operate Analytical Labs and Analytical Services	9,997	9,997	9,997	7,422	7,422	4,332	4,332	4,332	4,332	0	0	0	0	0	0	0	0	0	0	62,160
1.1.7.02.14.	Provide Infrastructure Capital Equipment	1,999	2,411	1,896	1,690	1,381	1,072	0	0	0	0	0	0	0	0	0	0	0	0	0	10,451
1.1.7.02.15.	Provide Site Support GPP - Expense Support	4,665	4,459	5,180	2,193	1,781	1,060	648	648	0	0	0	0	0	0	0	0	0	0	0	20,635
1.1.7.02.16.	Provide Infrastructure Projects	10,465	12,875	7,725	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31,065
1.1.7.02.17.	Underground Storage Tanks Management Project	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206

ROCKY FLATS CLOSURE PLAN - 10 YEAR PLAN
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($'s in 000's)

	Description	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	Total
1.1.8.01.	**Provide Management (Overhead) Direction**	**91,945**	**88,584**	**85,172**	**80,632**	**73,791**	**66,958**	**59,388**	**52,594**	**45,797**	**38,974**	**49,765**	**10,562**	**10,049**	**9,562**	**9,100**	**8,557**	**8,140**	**7,743**	**1,649**	**798,962**
1.1.8.01.01.	K-H General Management Overhead	2,518	2,425	2,330	2,205	2,015	1,826	1,638	1,449	1,261	1,072	429	287	273	259	246	234	222	211	103	21,003
1.1.8.01.02.	Streamlining/Benchmarking Implementation	274	264	253	240	219	198	178	158	137	116	47	31	30	28	27	25	24	23	0	2,272
1.1.8.01.03.	Manage Cross-Cutting Performance Measures	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	9
1.1.8.01.04.	SSOC Overhead	4,571	4,402	4,230	4,002	3,657	3,314	2,972	2,631	2,289	1,945	778	521	495	471	447	425	403	383	0	37,936
1.1.8.01.05.	LATA Overhead	219	211	203	192	175	159	142	126	110	93	37	25	24	23	21	20	19	18	0	1,817
1.1.8.01.06.	Dyncorp Overhead	4,846	4,667	4,485	4,243	3,878	3,513	3,151	2,789	2,426	2,062	825	553	525	499	474	450	428	406	0	40,221
1.1.8.01.07.	WSI Overhead	1,095	1,095	1,095	1,095	1,095	1,095	309	309	309	309	309	309	309	309	309	206	206	206	52	10,020
1.1.8.01.08.	RMRS Overhead	2,438	2,348	2,256	2,135	1,951	1,768	1,586	1,403	1,221	1,038	415	278	264	251	238	227	215	204	0	20,237
1.1.8.01.09.	K-H Leased Labor Org Overhead	137	132	127	120	110	99	89	79	69	58	23	16	15	14	13	13	12	11	0	1,136
1.1.8.01.10.	SSOC Leased Labor Org Overhead	2,190	2,109	2,026	1,917	1,752	1,587	1,424	1,260	1,096	932	373	250	237	225	214	203	193	184	0	18,174
1.1.8.01.11.	Dyncorp Leased Labor Org Overhead	931	896	861	815	745	675	605	536	466	396	158	106	101	96	91	86	82	78	0	7,724
1.1.8.01.12.	RMRS Leased Labor Org Overhead	465	448	431	407	372	337	303	268	233	198	79	53	50	48	46	43	41	39	0	3,862
1.1.8.01.13.	Administer the Cost Reduction Proposal Process	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	9
1.1.8.01.14.	Employee Benefits	41,595	40,056	38,494	36,415	33,283	30,155	27,049	23,938	20,826	17,702	41,071	4,635	4,403	4,183	3,974	3,775	3,586	3,407	852	379,399
1.1.8.01.15.	Paid Absences	16,800	16,178	15,547	14,708	13,443	12,179	10,925	9,668	8,411	7,150	2,860	1,916	1,820	1,729	1,643	1,561	1,483	1,409	352	139,782
1.1.8.01.16.	Payroll Taxes	13,865	13,352	12,831	12,138	11,094	10,052	9,016	7,979	6,942	5,901	2,360	1,581	1,502	1,427	1,356	1,288	1,224	1,162	291	115,363
1.1.8.02.	**Provide General & Administrative Support Services**	**80,566**	**82,088**	**80,082**	**77,413**	**73,393**	**69,376**	**59,037**	**51,428**	**46,408**	**37,531**	**27,692**	**18,447**	**15,941**	**14,773**	**13,785**	**12,580**	**11,866**	**11,072**	**4,891**	**788,367**
1.1.8.02.01.	Provide General & Administrative Support Services	72,859	74,647	72,911	70,600	67,120	63,642	54,165	47,092	42,609	34,272	24,970	16,555	14,133	13,045	12,133	11,104	10,458	9,730	4,865	716,911
1.1.8.02.02.	RMRS G&A	2,126	2,047	1,967	1,861	1,701	1,541	1,383	1,224	1,064	905	746	500	475	451	428	407	387	367	0	19,579
1.1.8.02.03.	LATA G&A	797	768	738	698	638	578	518	459	399	339	280	187	178	169	161	153	145	138	0	7,342
1.1.8.02.04.	SSOC G&A	3,189	3,071	2,951	2,792	2,552	2,312	2,074	1,835	1,597	1,357	1,118	749	712	676	642	610	580	551	0	29,368
1.1.8.02.05.	DynCorp G&A	1,063	1,024	984	931	851	771	691	612	532	452	373	250	237	225	214	203	193	184	0	9,789
1.1.8.02.06.	WSI G&A	531	531	531	531	531	531	206	206	206	206	206	206	206	206	206	103	103	103	26	5,378
1.1.8.03.	**Provide Programmatic Support Services**	**32,991**	**28,065**	**26,970**	**25,514**	**23,320**	**21,128**	**18,952**	**16,772**	**14,592**	**12,403**	**9,400**	**6,298**	**5,983**	**5,684**	**5,400**	**5,130**	**4,873**	**4,630**	**898**	**269,001**
1.1.8.03.01.	Provide Planning & Integration Services	239	230	221	209	191	173	156	138	120	102	84	56	53	51	48	46	43	41	0	2,203
1.1.8.03.02.	Provide Business Mgmt & Integration Services	11,214	7,094	6,818	6,450	5,895	5,341	4,791	4,240	3,689	3,135	2,584	1,731	1,644	1,562	1,484	1,410	1,339	1,272	636	72,330
1.1.8.03.03.	Provide Strategic Planning Management and Support	292	282	271	256	234	212	190	168	146	124	103	69	65	62	59	56	53	50	0	2,692
1.1.8.03.04.	Provide Decision Analysis and Support	292	282	271	256	234	212	190	168	146	124	103	69	65	62	59	56	53	50	0	2,692
1.1.8.03.05.	Provide Regulatory/Regulator Liaison and Integration	372	358	344	326	298	270	242	214	186	158	130	87	83	79	75	71	68	64	32	3,458
1.1.8.03.06.	Provide IH&S Services	8,569	8,252	7,930	7,502	6,856	6,212	5,572	4,931	4,290	3,647	3,005	2,013	1,913	1,817	1,726	1,640	1,558	1,480	0	78,911
1.1.8.03.07.	Provide Records Management Support Services	1,329	1,280	1,230	1,163	1,063	963	864	765	665	565	466	312	297	282	268	254	242	229	115	12,352
1.1.8.03.08.	Provide Document Control Support Services	1,329	1,280	1,230	1,163	1,063	963	864	765	665	565	466	312	297	282	268	254	242	229	115	12,352
1.1.8.03.09.	Nuclear Performance Assessment	2,339	2,252	2,164	2,047	1,871	1,695	1,521	1,346	1,171	995	0	0	0	0	0	0	0	0	0	17,401
1.1.8.03.10.	K-H ERWM Program Direction	3,827	3,685	3,541	3,350	3,062	2,774	2,489	2,202	1,916	1,629	1,342	899	854	811	771	732	696	661	0	35,242
1.1.8.03.11.	K-H SNM Program Direction	3,189	3,071	2,951	2,792	2,552	2,312	2,074	1,835	1,597	1,357	1,118	749	712	676	642	610	580	551	0	29,368
1.1.8.04.	**Provide General Technical Support Services**	**12,228**	**11,775**	**11,316**	**10,705**	**9,784**	**8,865**	**7,951**	**7,037**	**6,122**	**5,204**	**4,288**	**2,873**	**2,729**	**2,593**	**2,249**	**2,137**	**2,030**	**1,928**	**142**	**111,956**
1.1.8.04.01.	Provide Environmental Compliance Support	3,676	3,540	3,402	3,218	2,941	2,665	2,390	2,115	1,840	1,564	1,289	864	820	779	740	703	668	635	0	33,852
1.1.8.04.02.	Provide Economic Conversion Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.8.04.03.	Disposition Excess Property, Material, and Equipment	1,642	1,582	1,520	1,438	1,314	1,191	1,068	945	822	699	576	386	367	348	331	314	299	284	142	15,267
1.1.8.04.04.	Maintain Site Engineering Standards, Procesures, and Support Sys.	1,063	1,024	984	931	851	771	691	612	532	452	373	250	237	225	214	203	193	184	0	9,790

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..04.05.	Management and Oversight of the AE/C/CM Subcontract	1,063	1,024	984	931	851	771	691	612	532	452	373	250	237	225	0	0	0	0	0	8,995
1.1.8.04.06.	Provide Site Operations Support Services (KAA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1.8.04.07.	Provide IH&S, Nuclear Safety, and Radiation Protection Programs and Support Services	4,783	4,606	4,427	4,188	3,828	3,468	3,111	2,753	2,395	2,036	1,677	1,124	1,068	1,014	964	915	870	826	0	44,052
1.1.8.05.	**Provide RFFO Direction and Support**	**80,000**	**77,000**	**74,000**	**70,000**	**64,000**	**58,000**	**52,000**	**46,000**	**40,000**	**25,835**	**18,730**	**12,730**	**8,790**	**4,850**	**2,727**	**1,248**	**873**	**621**	**412**	**637,817**

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) X **Project** ___ **Level of Effort Activity**

Project Name or Activity Description: Buffer Zone Closure Project
WAD Number 01

Project Number: RFETS-01

Type of Project or Activity: Remedial Action (Assessments and Cleanup)

Managing or Funding Program (check one or more) __ WM X ER __ TD __ NM __ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This project entails closure of the Buffer Zone surrounding the U. S. Department of Energy (DOE) Rocky Flats Environmental Technology Site (RFETS, or Site). This activity includes landlord functions, deactivation, decontamination and decommissioning (D&D), and environmental restoration activities in the Inner and Outer Buffer Zones; pond operations; and surface and groundwater monitoring.

Releasing the Outer Buffer Zone includes operation of security facilities and meteorological sites until 2002 and removal of these facilities in 2003 to required standards. Low ranked Individual Hazardous Substance Sites (IHSSs) will undergo an administrative close-out called the No Further Action process.

Releasing the Formerly Contaminated Buffer Zone includes the administrative closure of the low ranked IHSSs.

Releasing the Inner Buffer Zone includes the following:

- Landlord functions for the 130 Cluster area until D&D activities have been completed. D&D activities on the 130 Trailers will start in 2003. Building 130 will continue to operate until all Special Nuclear Material (SNM), Transuranic (TRU) waste and Low-Level Waste (LLW) have been shipped offsite.
- Operation of groundwater and surface water monitoring stations until D&D activities have been completed, and the subsequent D&D of these facilities.
- Operation of the firing range until all SNM materials, TRU waste and LLW/LLMW materials have been shipped offsite.

- Operation of the terminal ponds, surface water monitoring, and conversion of the ponds to a flow-through system until D&D activities have been completed, followed by conversion of the ponds to wetlands.
- Groundwater monitoring, design and operation of groundwater containment and treatment systems.
- Environmental restoration activities for remediation of the high risk IHSSs.
- Administrative closure of the low risk IHSSs.
- Closure of the Old Sanitary Landfill.

Facilities/Location: The structures are all within the Inner and Outer Buffer Zone. The high risk IHSSs within the Inner Buffer Zone include trenches T-3, 4, 6, 7, 9, and Property Utilization and Disposal (PU&D) Yard.

Key Assumptions:

- The volume of material requiring remediation was estimated based on upon limited existing site characterization data and could change significantly when additional data are collected. The soil and debris that will be excavated is assumed to contain volatile organic compounds (VOCs) and/or radionuclides. Soils and debris containing only VOCs or low-level mixed (LLM) waste will be excavated and thermally desorbed. Any remaining LLW above negotiated site cleanup levels will be turned over to Waste Management for disposition. Clean soil or LLW below negotiated cleanup levels will be returned to the excavated site and revegetated. The cleanup level for radioactivity is assumed to be 85 mrem/year.

- A number of low-risk IHSSs are assumed to require only administrative close-out.

- Closure of the Old Landfill is based on stabilization and regrade/revegetation.

- All LLW and LLM waste will require containerization.

- The Site will be able to successfully negotiate conversion of the ponds to a flow-through system.

- Groundwater remediation is based on containment and protection of surface water.

- Recently-negotiated reduced groundwater monitoring requirements will be approved (i.e., 75 wells and reduced analytes).

Accomplishments to Date: Trenches T-3 and T-4 have been excavated and treated.

The number of groundwater wells required for sitewide monitoring has been reduced from 300 in 1995 to 150 in 1996 and tentatively to 75 in 1997. The number of analytes required has also been reduced.

FY 2006 End State: The Outer Buffer Zone will be released. IHSSs within the Formerly Contaminated Buffer Zone and the Inner

Buffer Zone will be administratively closed. The high risk IHSSs within the Inner Buffer Zone will be remediated. Ponds will be converted to a flow-through system and a design completed for conversion of the ponds to wetlands. Groundwater from contaminated plumes will be collected and treated. The Old Sanitary Landfill will be closed.

Activities After 2006: Groundwater monitoring will continue. Groundwater collected from contaminated plumes will be treated. Ponds will be converted to wetlands. Building 130 will continue to operate until SNM has been shipped offsite.

Major Cost Drivers:

- Excavation, thermal treatment, and the purchase of containers for long term storage of LLW.
- Landlord costs for buildings in the 130 complex.
- Groundwater and surface water monitoring and pond operation.
- Closure of the Old Sanitary Landfill.

Technologies/Approach: Thermal desorption of soil and debris containing volatile organic compounds and low level mixed wastes.
Use of *ex-situ* treatment of chlorinated organics using iron filings.

Waste Generated: LLW and uranium.

Relation to Other Projects: Construction of New Low-Level Waste facility.
Thermal desorption of other onsite soil and debris containing volatile organic compounds or Low-Level Mixed Waste (LLMW).

Needs from Other Sites: Consultation with Sandia National Laboratory and DOE's Subsurface Focus Group on treatment of contaminated groundwater.

Offers to Other Sites: Lessons learned from thermal desorption and use of iron filings in treating chlorinated organics in groundwater.

Milestone/Schedule Information:

- Remediate all high risk IHSSs - September 1999
- Complete closure of 130 Trailer Complex - September 2003
- Convert ponds to wetlands - September 2006

Costs: See Table 4-1-1

Outputs/Metrics: See Table 4-1-2

Discussion:

The estimate assumes that the surface water ponds will convert from batch-and-release operation to a flow-through system, thereby eliminating substantial pumping costs for transferring water from one pond to another. This is currently being negotiated with the regulatory agencies. Surface water contamination is fairly minimal. Sediments in surface water ponds are below cleanup levels based on a human health risk assessment.

All significant contaminated groundwater plumes have been identified and minimal characterization is necessary to finalize locations for plume containment and collection. The proposed groundwater treatment technology is available and can be constructed with minimal technology development (i.e., only bench scale tests required to size components). Groundwater monitoring costs are based on recently negotiated agreements with regulatory agencies that reduced the number of wells required for sitewide monitoring from 150 to 75 and also reduced the number of analytes. Formal approval has not yet been received. Major deviations would have an effect on volumes of LLW to be disposed. The estimate assumes that all LLW will require containerization.

Cleanup of high risk IHSSs, including under-building contamination, is based on current best available data, which in some cases is only one or two data points. All soils with organic compounds above cleanup levels will be treated by thermal desorption. Treatment cost estimates are based on the subcontract cost for excavation of Trenches T-3 and T-4. Cleanup levels for groundwater and volatile organic compounds in soils have been finalized with the regulatory agencies. Cleanup levels for radionuclides have been agreed upon with regulatory agencies, and are being issued for public comment. The areal extent of the trenches is well defined; however, Trench T-3, which was recently excavated, had to be dug deeper than originally planned (by 50%) because of movement of organics from the trench.

A number of low-risk IHSSs would require only administrative close-out.

Closure of the Old Landfill is based on stabilization and regrade/revegetation. Agreement on this closure has not been finalized with regulatory agencies. The remedy envisions a shallow fix for stabilization. There is a potentially deeper slide plane that may cause future slippage on the hillside, but is not part of the proposed remedy.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) **_X_**Project ____ Level of Effort Activity

Project Name or Activity Description: Special Nuclear Material Project **Project Number:** RFETS-02
WAD Numbers 10, 13, 14, 15, 17, 18, 19, 20, 21, 22

Type of Project or Activity: Nuclear Materials (Stabilization and Long Term Storage)

Managing or Funding Program (check one or more) **__WM** **_X_ER** **__TD** **___NM** **__SO** **_X_DP**

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The Special Nuclear Material (SNM) Project includes activities at The U. S. Department of Energy (DOE)'s Rocky Flats Environmental Technology Site (RFETS or Site) that stabilize, consolidate, and/or remove SNM from the Site. The principle objectives of the project are to:

- Stabilize all forms of SNM for safe interim and long-term storage.
- Consolidate SNM to allow deactivation of facilities and reduce operating costs.
- Ship Plutonium (Pu) and Enriched Uranium(eU) weapons components to other DOE locations.
- Prepare Pu residues for offsite shipment and disposal.

The SNM Subproject activities summarized below are:

- Pu Storage Subproject
- Pu Processing and Packaging Subproject
- Process for Accountability and Safe Storage (PASS) Subproject
- Pu Residue Elimination Subproject
- Uranium Decontamination Subproject
- Highly-Enriched Uranyl Nitrate (HEUN) Subproject
- SNM Liquid Stabilization Subproject
- SNM Solid Residue Subproject
- SNM Metal/Oxide Subproject
- SNM Shipping Subproject

Pu Storage Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This activity is responsible for operating and maintaining Pu storage facilities, both existing (Building 371) and new. It includes those activities in addition to the landlord functions (i.e., vital safety systems maintenance, etc.) necessary to support and related to Pu storage, such as SNM consolidation program management, SNM database management, international inspections, Pu and eU vulnerability support, and pit inspection.

Facilities/Location: Building 371, New Pu Storage Facility

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s). Activities specific to and exclusively pertaining to the programs in this activity will be supported by this activity.

Milestones/Schedule Information: Complete operation of the existing facilities (Building 371) FY/2000
Begin operation of the new facility (ISV) FY/2000

Pu Processing and Packaging Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: To support the Site's commitment to meeting Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 requirements, DOE has contracted with BNFL, Inc., to procure and install the Prototype Plutonium (Pu) Stabilization and Packaging System (SPS).

This element will include the completion of all module preparation work (i.e., decontamination and removal of gloveboxes), program (including funding) and subject matter expert support for BNFL's design and fabrication effort; preparation of Site documents such as Criticality Safety Operating Limits; oversight and management of the installation; testing of the equipment; readiness review; and training of the operators, etc. Also included in this element will be the implementation activities necessary to authorize the use of the new DOE-STD-3013-9X Pu storage container. An additional activity also very closely tied to the development of the prototype SPS is the analysis of selected Rocky Flats plutonium oxide to ascertain its processing characteristics. This work will be done at Los Alamos National Laboratory. This element will be responsible for ensuring that the proper types and quantities of oxide are transferred. At the completion of this activity, the Building 707 SPS will be fully operational.

Facilities/Location: This system will be installed in J-Module of Building 707.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element 707 Cluster Landlord Functions.

Milestones/Schedule Information:

Equipment Delivered	FY96
Equipment Operational	FY97

PASS Subproject:

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: To support the Site's commitment to meeting the DNFSB Recommendation 94-1requirements, DOE has contracted with BNFL, Inc., to procure and install a second Plutonium Stabilization and Packaging System (SPS). This is a subproject within the Master Safeguards and Security Agreement Line Item.

This element will include the completion of all room preparation work (i.e., decontamination and removal of gloveboxes, etc.), program (including funding) and subject matter expert support for BNFL's design and fabrication effort, preparation of Site documents such as Criticality Safety Operating Limits, oversight and management of the installation, testing of the equipment, readiness review, and training of the operators, etc. At the completion of this activity, the Building 371 SPS will be fully operational.

Facilities/Location: This system will be installed in Room 3206 of Building 371.

Key Assumptions: This Activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element, 371 Cluster Landlord Functions. Activities specific to and exclusively pertaining to the SPS will be supported by this Activity.

Milestones/Schedule Information:	Equipment Delivered	FY97
	Equipment Operational	FY98

RFETS Pu Residue Elimination Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: Subrecommendation 5 from the DNFSB recommendation 94-1 states that "preparations be expedited to process containers of possibly unstable residues at the Site and to convert constituent Pu to a form suitable for safe interim storage." This project encompasses all the activities necessary to develop the solid residue elimination project, including stripping out existing facilities and equipment, and developing and installing new equipment to stabilize and/or repackage all solid residues (106,300 kg). Characterization of residues to ensure the proper design basis is also a part of this project. The project includes the activities necessary to develop the following: authorization basis, training for personnel, procedure development, Data Quality Objectives for process certification, Waste Isolation Pilot Plant (WIPP) certification procedures, packaging (pipe component, convenience containers, etc.) and other activities necessary to implement the process capability. Work activities will ensure necessary permits and National Environmental Policy Act (NEPA) documentation are complete as required.

Facilities/Location: Building 707 Module A: 10 furnaces will be installed to pyrochemically oxidize salts.

Building 707 Module D: An unpack/repack facility will be installed to repackage, dry combustibles, firebrick and inorganics, and glass. Classified shapes will be declassified and repackaged in this same area.

Building 707 Module E: 8 furnaces will be installed to calcine sand, slag, and crucible; graphite fines; and incinerator ash.

Building 371 Rm. 3701: A facility to process wet and/or combustibles matrices will have several capabilities: wash and dry for nitrate contaminated combustibles, low temperature thermal desorption for solvent contaminated combustibles and plastics, and an area for miscellaneous aqueous processing to convert plutonium fluorides to oxides. A repackaging area will be included to package the stabilized wastes for safe interim storage.

Key Assumptions: The major cost driver associated with this project is the short performance deadline constrained by DNFSB 94-1. This requires parallel construction and operation of two separate furnace facilities and a wet operations facility rather than sequential utilization of a single facility.

All residues defined by the DNFSB as potentially unstable are assumed to be dangerously unstable and require expedited stabilization, rather than characterization to confirm the need for expedited stabilization. This forces facilities to be scaled larger than necessary.

Due to the limited time for installing and permitting treatment processes, matrix destruction (the technically superior option) is not viable for combustibles.

Building baselines for Building 707 and Building 371 will be adequate to support strip out and installation activities.

Waste Management will relocate wastes currently stored in Building 371 and Building 707 prior to strip out.

Waste Management will receive strip-out wastes at the rate they are generated.

Because the residues have been declared wastes, they are not required to meet safeguards termination limits and require no safeguards, once stabilized and/or repackaged.

The Environmental Assessment completed for the residue elimination project is sufficient to cover current and future treatment activities.

Milestones/Schedule Information:

Complete equipment installation	FY97
Complete all residue treatment	FY02

Uranium Decontamination Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This element will install and operate the enriched uranium decontamination process (eU decontamination). This process will remove the plutonium (Pu) contamination from enriched uranium hemishells, and is a necessary prerequisite to the offsite shipment of the eU. Oak Ridge has agreed to receive and store the Site's inventory of eU. However, since Oak Ridge cannot accommodate any plutonium, all Pu and Pu contamination above certain thresholds must be removed from the eU. Once clean, the hemishells can then be shipped under SNM Shipping.

Gloveboxes and associated equipment in Module A of Building 707 will be modified, and the eU decontamination system, developed and demonstrated at Los Alamos National Laboratory, will be installed and tested to verify operability. Once operational, the inventory of eU that is Pu-contaminated will undergo the process.

Facilities/Location: This system will be installed in Module A of Building 707.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element, specifically the 707 Cluster Landlord Functions. Activities specific to and exclusively pertaining to the SPS will be supported by this activity.

Milestones/Schedule Information:

Equipment operational	FY97	
50% of eU hemishells completed		FY97
100% of eU hemishells completed	FY98	

HEUN Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The Highly Enriched Uranyl Nitrate (HEUN) Subproject removed liquid from Building 886 in FY96. The removal of liquid did not include rinsing the tanks to ensure that the materials in the tanks are less than Category IV for the facility. The scope of work for FY97 in this project is to rinse the tanks and remove the rinsate from Rocky Flats. The HEUN will be processed at Nuclear Fuels Service (NFS) (Erwin, TN), to oxide. The oxide will be packaged and shipped to Oak Ridge Y-12 plant. The assumption for this activity is the current rinse plan will be adequate to remove the hold-up expected in the tanks. Also, it is assumed the tanks will be drained in FY96. The end state for this project is the tanks in Building 886 are emptied and rinsed and HEUN is converted to oxide and in storage at Oak Ridge Y-12.

Facilities/Location: Building 886

Key Assumptions: This Activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element, 707 Cluster Landlord Functions.

Milestones/Schedule Information:

Complete off-site shipment	FY97
Complete processing at NFS	FY98
Ship to Oak Ridge	FY98

SNM Liquid Stabilization Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The presence of solution in process equipment in certain facilities creates an increasing safety risk due to the age and condition of the process equipment. The Solution Stabilization Program was developed to eliminate the existing solutions currently contained in tanks, piping, and other containers stored in Buildings 371, 559, 771, 776, 777 and 779.

The scope of this project is to eliminate all solutions through several processes to prepare them for further processing or final storage. After characterization and sampling, solutions will be processed through Hydroxide or Oxalate Precipitation, Caustic Waste Treatment System (CWTS), or bottled directly for shipment for offsite storage. In addition, some solutions may be blended or processed prior to shipment to Building 374 or 774 for final processing.

Facilities/Location: The Solution Stabilization Program was developed to eliminate the existing solutions currently contained in tanks, piping, and other containers stored in Buildings 371, 559, 771, 776, 777 and 779. Solutions will be drained in the buildings where they are located.

Key Assumptions: This activity assumes that landlord function necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s).

All liquids are processed to meet DNFSB Recommendation 94-1 Schedules and WIPP Waste Acceptance Criteria (WAC), allowing for equipment sizing and multiple shift operations.

Adequate storage will be available for the stabilized liquids and other waste generated during processing.

The building baseline activities for all buildings onsite where liquids are processed will be supported.

Adequate trained and qualified personnel resources are maintained to accomplish established milestones.

Milestones/Schedule Information:

Eliminate all solutions in Building 771	FY98
Eliminate all solutions in Building 371	FY99

Approximately 2,200 liters of solution will be processed quarterly to meet the above milestones.

SNM Solid Residue Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This project will stabilize and/or repackage the 106,000 kg of plutonium-containing residues currently stored at Rocky Flats to meet Interim Safe Storage Criteria as directed by the DOE in response to DNFSB Recommendation 94-1 Subrecommendation 5. The residues contain 3 metric tons of plutonium which may be unstable. The Residue Compliance Agreement states that the residues be removed from the Site. To accomplish this goal, the materials will be configured for interim safe storage and disposal at the WIPP in New Mexico. The project includes characterization necessary for processing and certification of product for safe interim storage; surveillance (pre and post-stabilization); maintenance support of processing equipment and programmatic support, including trade studies, residue database and DNFSB visits.

Facilities/Location: Building 371 Rm. 3701: Process wet and/or combustible matrices using wash and dry for nitrate contaminated combustibles, low temperature thermal desorption for solvent contaminated combustibles and plastics, and an area for miscellaneous aqueous processing to convert plutonium fluorides to oxides. Repackaging will be included to package the stabilized wastes for safe interim storage.

Building 707 Module A: Pyrochemical oxidation of salts.

Building 707 Module D: Unpackage/repackage dry combustibles, firebrick and inorganics, and glass. Classified shapes will be declassified and repackaged in this same area.

Building 707 Module E: Calcination of sand, slag, and crucible graphite fines, and incinerator ash.

Key Assumptions: All residues are either possibly unstable or require repackaging to meet interim safe storage criteria and WIPP WAC, resulting in equipment sizing and multiple shift operations to meet 94-1 schedule recommendations.

The residues will meet Safeguards Termination Limits (STLs) with the currently planned processes to enable disposal at WIPP.

The Residue Stabilization Environmental Assessment (EA) is adequate to meet the NEPA requirements.

Adequate storage will be available for the stabilized residues and other waste generated during processing.

The building baseline activities for Buildings 707 and 371 will be adequate to support the operations described above (combined building/process availability of 60% for Building 707 operations and 49% for Building 371

operations).

The building baseline activities for all buildings onsite where residues are stored (primarily Building 371) will be adequate to support shipment of residues to stabilization/repackaging facilities when required.

Milestones/Schedule Information:

Complete all residue treatment	FY02

SNM Metal/Oxide Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This project will package plutonium (Pu) metal and oxide in a configuration appropriate for 50-year storage. It consists of two elements: (1) an interim action to maintain Pu in a safe, but short-term, storage configuration until, (2) a longer term configuration can be implemented.

The Health and Safety Practices Manual, Section 31.11 (HSP 31.11) promulgates requirements to ensure that Pu, which is potentially pyrophoric when exposed to air, is stored and transferred safely. The first element will maintain all Pu in compliance with these requirements. Typically, this can include periodic surveillance of Pu metal items (i.e., weighing to detect a weight increase), removal of loose oxide, repackaging of the metal item, and thermal stabilization of the Pu oxide.

The second element is directly responsible for completing the Site's commitment to complete DNFSB Recommendation 94-1 for Pu metals and oxides. It initially requires that the Pu Processing and Packaging project, and ultimately the PASS Project, be completed. Utilizing the process lines installed and implemented in these two projects, this element will involve packaging the Site's inventory of Pu metal (not in pits) and oxide (greater than 50% assay) to the requirements of DOE-STD-3013-9X. This will include the separation of loose oxide from the metal; the thermal stabilization of the oxide to less than 0.5% Loss-On-Ignition; and the packaging of the materials in nested, welded, stainless steel containers in inert atmospheres.

Also included in this element is the activity to perform size reduction of physically large Pu metal items. This is necessary because certain items, such as ingots, are physically too large to fit in the DOE-STD-3013-9X storage container. This element will implement and operate the size reduction capabilities residing in Building 707.

Facilities: Plutonium metal items are stored in Buildings 371, 707, 771, and 776/7. HSP 31.11 compliance activities occur in Building 707. The Stabilization and Packaging Systems are located in Buildings 707 and 371.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s). Activities specific to and exclusively pertaining to the metal and oxide processing will be supported by this activity.

Milestones/Schedule Information:	Process first item, Building 707	FY97
	Process first item, Building 371	FY98

SNM Shipping Subproject

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: SNM currently in storage at the Site including pits, enriched uranium, composite parts, scrub alloy, and other types of material will be shipped to offsite receivers. Shipping activities at the Site involve the identification of receivers and negotiation of shipper/receiver agreements, movement of material to packaging areas, packaging the material into DOT approved offsite shipping containers, loading into Safe-Secure Transports, and other related activities All material for which willing and capable receivers exist will be shipped in a time frame that is appropriate for Site, complex, and receiver schedules. Current schedules are subject to change as new or different receivers become available. This element also supports activities necessary to ensure availability of containers, procedure development, etc. This element also includes shipping a limited amount of equipment in support of the Stockpile Reliability Evaluation Program (SREP) to Los Alamos National Laboratory. Selected pits will undergo the crimping and sealing of their tubulation to make them compatible with interim storage and/or off-site shipment.

Facilities: Items to be shipped are currently stored in Buildings 371, 707, 771, and 776/7. Packaging and shipping activities can occur in Buildings 371, 776/777, and 707.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s). Activities specific to and exclusively pertaining to SNM Shipping will be supported by this activity.

This element does not include shipment of HEUN solutions, waste, or residues.

Milestones/Schedule Information:

Complete Special Units Shipments	FY98
Complete Non-War Reserve (WR) Shipments	FY00
Complete Composite Shipments	FY00
Complete eU shipments	FY00

Accomplishments to Date:

- Dispositioned 1212 out of 1858 non-compliant plutonium items
- Stabilized 64 kg of Pu oxide
- Consolidated 254 of 375 Pu items from Building 779 to Building 371
- Completed 45% of planned FY96 offsite shipments of SNM
- Drained 14 of 14 low-level tanks in 771
- Vented approximately 2,600 residue drums
- Drained 12 of 12 ion exchange columns in 771
- Cemented 2372 liters of Pu solution

FY2006 End State:

All project activities completed.

The 106,000 kg of residues will be in a stabilized form which meets the Interim Safe Storage Criteria and also meets the material requirements of WIPP WAC. This will result in a currently estimated 52,000 packages, which can be stored in approximately 22,500 drums. These drums can be repackaged and certified for shipment to WIPP when it becomes available. No stabilization work will be required after 2002. Repackaging to WIPP WAC package requirements will continue past 2006, but are outside the scope of this project.

Activities After 2006:

None

Major Cost Drivers:

Inventory of SNM determine storage, safeguards, security and safety needs.

Technologies/Approaches:

Use of existing technologies is planned.

Relationship to Other Projects:

SNM projects are fully integrated with Cluster Closure Projects.

RFETS Waste Management will receive strip out wastes. Inability to receive the strip out wastes at the rate generated, will delay the project.

Needs from Other Sites:

Other sites are available for receipt of plutonium components (Y-12, LANL, LLNL).

Offers to Other Sites:

None

Costs:

See Table 4-2-1

Output/Metrics:

See Table 4-2-2

Discussion:

All data are based on information from the Site Integrated Stabilization Management Plan and the Integrated Site Baseline. These schedules contain detailed, resource-loaded breakdowns of all activities. The cost and schedules were validated during the DOE Headquarter (HQ) validation of the Rocky Flats Cleanup Agreement (RFCA) commitments. Cost and schedule estimates are within 10-15%. Operational and safety parameters were screened via the Master Activity List (MAL) Process.

There are indications of a possibly for a residue Environmental Impact Statement (EIS) to cover the extensive activities described above. Rocky Flats recognizes these uncertainties and is undertaking measures to minimize their impact if they do occur.

There are challenges to the site in meeting the very tight schedules anticipated.

Funding availability to support these large scale operations is uncertain.

Meeting aggressive schedules despite a number of uncertainties as to scope (i.e., whether the processes being installed are suitable for treating the residues).

A policy on safeguards termination limit is under review; final resolution will have a definite impact, increasing the type and amount of processing and requiring different processes to be installed.

Any activity that could affect the end state definition and thus change the process or scale of process being installed contributed to the uncertainty associated with this project.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) **_X_ Project** **____ Level of Effort Activity**

Project Name or Activity Description: SNM Support Project
WAD Numbers 9, 11, 12, and 16

Project Number: RFETS-03

Type of Project or Activity: Nuclear Materials (Stabilization and Long-Term Storage)

Managing or Funding Program (check one or more) **____WM** **_X_ER** **____ TD** **____ NM** **____ SO** **__ DP**

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The Special Nuclear Material (SNM) Support Project includes activities at Rocky Flats Environmental Technology Site (RFETS) to prepare for interim storage of plutonium and for the treatment of SNM bearing solutions.

The activities summarized below are:

- Building 371 near-term safety upgrades
- Plutonium (Pu) storage facility construction
- SNM support activities
- SNM liquid stabilization development

B371 Near-Term Safety Upgrade Subproject

Subproject or Activity Definition/Work Scope Description

Purpose/Project Addressed: This subproject will perform modifications in Building 371 which are necessary to support its mission as an interim storage location for SNM. These modifications will include conversion of Room 3337 to be a secure storage vault, installation of a glovebox to introduce new pallets to the Stacker/Retriever, enhancements of column line T to increase the building's tolerance of seismic events, modification of fire barriers, drainage system enhancements, and other subprojects as necessary.

Facilities/Location: All modifications will be performed in or around Building 371.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s). Activities specific to and exclusively pertaining to the these modifications will be supported by this Activity.

Milestones/Schedule Information:

Complete Building 371 upgrades	10/99

Pu Facility Construction Subproject

Subproject or Activity Definition/Work Scope Description

Purpose/Problem Addressed: This project will design and construct the new Pu storage facility, which will store plutonium packaged in DOE-STD-3013-9X containers. This facility will replace Building 371 as the interim storage facility for material at the Site, and will operate until a long term storage location can be implemented. It will have shipping facilities, and provide adequate protection for the material. It will be a passive (i.e., not have ventilation components such as filters) facility to keep maintenance and operating costs low.

Facilities/Location: This will be a new facility.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s). Activities specific to and exclusively pertaining to the new facility will be supported by this activity.

Milestones/Schedule Information:

Complete new Pu facility	10/2000

SNM Support Subproject

Subproject or Activity Definition/Work Scope Description

Purpose/Problem Addressed: This subproject will provide capital and general plant project upgrades to Building 371 and other areas as necessary to maintain building function.

Facilities/Location: Building 371.

Key Assumptions: This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s). Activities specific to and exclusively pertaining to these projects will be supported by this activity.

Milestones/Schedule Information:

Complete SNM support projects	10/2000

SNM Liquid Stabilization Development Subproject

Subproject or Activity Definition/Work Scope Description

Purpose/Project Addressed: The presence of solution in process equipment in Buildings 771, 371, and other facilities creates an increasing safety risk due to the age and condition of the process equipment. The Solution Stabilization Program was developed to eliminate the existing solutions currently contained in tanks, piping, and other containers stored in Buildings 371, 559, 771, 776, 777, and 779.

The scope of this subproject enables the processing of solutions to take place and meet established milestones for that project. Specific operative processes include: Caustic Waste Treatment System (CWTS), Oxalate Precipitation, Hydroxide Precipitation, Bottle Box Operation, 371 Portable Vacuum, 771 Portable Vacuum and Acid Neutralization.

Other subprojects that are not within this scope could, however, have an immediate impact if they were to become operational. These items include Building 374, Building 774, Vital Safety Systems in Building 371 and Building 771. Trained, qualified, and available resources must also be available for this scope of work. The qualification of resources includes building specific and job specific training. Approved procedures for the required process must also be available.

Facilities/Location: Buildings 371, 559, 771, 776, 777, and 779

Key Assumptions:

- This activity assumes that landlord functions necessary to support the activities, such as vital safety systems maintenance and surveillance, will be performed under a separate element(s).
- All liquids are processed to meet Defense Nuclear Facilities Safety Board (DNFSB) recommendation 94-1 schedules and Waste Isolation Pilot Project (WIPP) Waste Acceptance Criteria (WAC), allowing for equipment sizing and multiple shift operations.
- Adequate storage will be available for the stabilized liquids and other waste generated during processing.
- The building baseline activities for all buildings onsite where liquids are processed will be supported.
- Adequate trained and qualified personnel resources are maintained to accomplish established milestones.

Milestones/Schedule Information:

CWTS operational	June 1996
Acid Neutralization operational	June 1996
371 Portable Vacuum system operational	June 1996
Building 371 Readiness Assessment completed	October 1996
Eliminate all solutions in Building 771	August 1998
Eliminate all solutions in Building 371	June 1999

Approximately 3,200 liters of solution will be processed quarterly to meet the above milestones.

SNM Support Project Summary

Accomplishments to Date:
- Caustic Waste Treatment System fully developed
- Hydroxide precipitation process fully developed
- Oxalate precipitation process partially developed

FY2006 End State: All project activities complete except D&D of the new storage facility.

Activities After 2006: D&D of the new storage facility in 2015.

Major Cost Drivers: Inventory of SNM determines storage, safeguards, security and safety needs.

Technologies/Approach: Use of existing technologies is planned.

Relation to Other Projects: Liquid stabilization development project fully integrated with SNM Liquid Stabilization Project. 371 Cluster Closure Project integrated with B-371 Near-Term Upgrade Project and the Pu Facility Construction Project.

Needs from Other Sites: None
Offers from Other Sites: None

Costs: See Table 4-3-1

Output/Metrics: N/A

Discussion: All data is based on information from the Site Integrated Stabilization Management Plan. These schedules contain detailed, resource-loaded breakdowns of all activities. The cost and schedules were validated during the DOE Headquarters (HQ) validation of the Rocky Flats Cleanup Agreement (RFCA) commitments. Cost and schedule are within 10-15%. Operational and safety parameters were screened via the Master Activity List process.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) **_X_ Project** **____ Level of Effort Activity**

Project Name or Activity Description: Waste Management Project
WAD Numbers 02, 04, 06, and 07

Project Number: RFETS-04

Type of Project or Activity: Treatment, Storage, and Disposal of Transuranic Waste, Low-Level Mixed Waste, Low-Level Waste, Hazardous Waste, and Sanitary Waste

Managing or Funding Program (check one or more) __ WM _X_ ER __ TD __ NM __ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The scope of the Waste Management Project includes the treatment, storage, and disposal of the following waste types: low-level waste (LLW), low-level mixed (LLM) waste, transuranic (TRU) waste, transuranic mixed (TRM) waste, hazardous waste, and sanitary/ uncontaminated debris and trash. The Waste Management Project will require significant resources to manage these wastes throughout cleanup and closure of the U. S. Department of Energy (DOE)'s Rocky Flats Environmental Technology Site (RFETS, or Site), and will be complete when final disposition of all waste has been accomplished. General descriptions of the scope for waste management activities follow.

LLW and LLM Waste

The source of the LLW and LLM waste will influence the storage, treatment, and disposal requirements. Two sources of LLW and LLM waste are considered in defining management requirements: (1) waste generated from facility maintenance and surveillance, process operations, and facility deactivation with projected volumes of 20,600 m^3 of LLW and 19,800 m^3 of LLM waste; and, (2) waste generated from remediation activities with projected volumes of 40,700 m^3 of LLW and 53,200 m^3 of LLM waste.

Treatment

- LLW and LLM waste generated from non-remediation activities such as facility maintenance and surveillance,

processing operations, and facility deactivation will be treated to meet disposal site acceptance criteria and Land Disposal Restrictions (LDR) (if applicable). Approximately 50 percent (%) of the LLM waste and none of the LLW is estimated to require treatment before disposal; this treatment will be accomplished onsite through utilization of a planned immobilization system ***(Project RFETS-05)***, offsite using existing or planned capabilities, or through some combination of the two, as the waste is generated. LLW and LLM waste generated from remediation activities will be initially stored followed by treatment as funding is available, either onsite or offsite, to meet offsite disposal site acceptance criteria and LDR requirements.

- Process waste water from facility surveillance and maintenance, any continuing processing operations, deactivation, and remediation will be treated in the current liquid waste treatment processes until a proposed Alternate Waste Water Treatment System is operational ***(Project RFETS-05)***. The primary processing method will be evaporation, with solidification of the resulting sludges and reuse of the product water. The solid waste output will managed the same as indicated for other LLW and LLM waste.

Storage

- Non-remediation LLW and LLM waste will be stored onsite on a short-term basis only while awaiting treatment and offsite disposal. Storage will be accomplished in existing Site buildings. Remediation waste will be stored in new above ground pre-engineered metal buildings ***(Project RFETS-05)*** while awaiting additional treatment if necessary and offsite disposal. Storage of remediation waste is expected to be longer term and the length of storage will be determined by available funding, treatment capability, and offsite disposal capability.

Disposal

- All LLW and LLM waste is planned for offsite disposal at either DOE disposal facilities (e.g., NTS) or commercial facilities (e.g., Envirocare). Non-remediation waste will be shipped offsite for disposal as it is generated and treated to meet disposal site criteria. This will be accomplished by FY06. Plans identify direct offsite shipment of stored pondcrete and saltcrete to a commercial TSDF for treatment and disposal. Remediation waste will initially be stored onsite until incremental funding is available to allow treatment and offsite disposal. Current planning assumptions allow offsite disposal of remediation waste to be completed by FY06.

TRU/TRM Waste

All TRU and TRM waste is planned for disposal at DOE's Waste Isolation Pilot Plant (WIPP). Short-term onsite storage and waste/offsite

treatment will occur as required before shipment and disposal. TRU and TRM waste will be generated from two primary sources: (1) residue stabilization/processing and; (2) routine operations, deactivation, and decontamination and decommissioning (D&D). Projected volumes from residue stabilization is 4,700 m^3 (minimum volume packaged for onsite storage) and 2,600 m^3 from other sources.

Treatment

- TRU and TRM waste generated from residue stabilization/processing activities will require repackaging prior to shipment to WIPP. This repackaging step, identified as treatment, is required because initial containerization of these wastes is accomplished in a way to minimize interim onsite storage requirements, not shipment and disposal. Approximately 22,500 drums will require repackaging prior to shipment to WIPP; this results in approximately 58,000 drums to be shipped to WIPP.

  TRU and TRM waste generated from routine operations, deactivation, and D&D will be treated offsite to the maximum extent possible, as required to meet WIPP requirements. Treatment is planned to be performed at the Idaho Advanced Mixed Waste Treatment Project Facility at Idaho National Engineering Laboratory (INEL). Estimates indicate that approximately 35% of the total volume from these sources will require treatment prior to disposal.

Storage

- TRU and TRM waste from residue stabilization will be stored in existing facilities (primarily Building 371) only on an interim basis while waiting for shipment to WIPP. The volumes of TRU and TRM waste from this

source requiring interim storage will be minimized with final repackaging for shipment occurring just prior to shipment. Contingency to address potential changes in generation volumes or disposal capacity could be provided by the proposed new TRU and TRM waste shipping and staging facility on an as needed basis ***(Project RFETS-05)*.**

TRU and TRM waste from other sources will be stored onsite until they can be treated if necessary and shipped to WIPP. This interim storage will also be done in existing Site facilities (primarily Buildings 440 and 664).

Disposal

- TRU and TRM waste will all be shipped to WIPP for disposal. The total projected volume of TRU and TRM waste that will be shipped to WIPP from Rocky Flats is approximately 14,900 m^3. Loading and shipping operations for TRU and TRM waste will occur in existing Building 664 and in the proposed new TRU and TRM waste shipping and staging facility. Shipping rates are planned to be accelerated to achieve removal of all TRU and TRM waste from Rocky Flats at the earliest possible date.

Hazardous Waste

Hazardous (non-radioactive) waste will continue to be shipped offsite to be treated and disposed at commercial Treatment, Storage, and Disposal Facilities (TSDFs). Approximately 3,200 m^3 are projected to be generated through the life of site cleanup and closure. Hazardous waste will be shipped offsite as generated with no storage facilities planned.

Sanitary/Uncontaminated Waste

Sanitary and uncontaminated waste (debris and trash) generated from routine activities/operations and D&D will not require treatment prior to final disposition. Disposal of this waste is planned at offsite commercial landfills or utilized as fill where needed onsite.

Facilities/Location:

LL/LLM Waste

- Storage in existing facilities (Buildings 440, 664, 906) and a new facility (location not currently specified).
- Treatment in existing facilities (Buildings 374, 774, 910) and new facilities (location is currently unspecified).
- Disposal offsite.

TRU and TRM Waste

- Storage existing facilities (Buildings 371,440, 664, 991 vaults).
- Treatment offsite at the Advanced Mixed Waste Treatment Project at INEL.
- Disposal offsite at WIPP.

Hazardous Waste

- Offsite treatment and disposal.

Uncontaminated

- Offsite disposal.

Key Assumptions:

LLW and LLM Waste

- Approximately 50 percent (%) of the LLM waste and none of the LLW is estimated to require treatment before disposal.
- Mixed waste treatment capability/capacity are available as needed.
- Remediation waste can be stored onsite without treatment for LDR.
- Offsite disposal capacity/capability are available as needed.
- Remediation waste projections are based on an 85 mrem/year exposure limit vs. 15 mrem/year.

TRU and TRM Waste

- WIPP opens in April 1998.
- WIPP transportation and receiving capacity will not be a limiting factor for Site shipments.
- Treatment capability/capacity for TRU and TRM waste will be available at the Advanced Mixed Waste Treatment Project at INEL.

Accomplishments to Date: LLW and LLM waste storage capacity has been increased with the completion of the Centralized Waste Storage Facility (Building 906) and the modification of Building 440 for storage.
Mixed waste (saltcrete) shipments have been initiated to Envirocare.

FY 2006 End State: All waste will be dispositioned offsite with any remaining waste facilities undergoing deactivation and decommissioning.

Activities After 2006: D&D of new waste facilities.

Major Cost Drivers: Major waste management cost divers include volumes of waste requiring treatment, storage, and disposal; and waste treatment costs and requirements.
Disposal facility Waste Acceptance Criteria

Technologies/Approach: Remediation waste will be stored in new above ground buildings.
Utilization of existing facilities will be maximized; new facilities will be minimized.
All waste will be disposed offsite.

Relation to Other Projects: New facilities will be developed under the Waste Management Support Project ***(Project RFETS-05)***.
All other Site projects generate waste which must be managed through the activities in this project.

Needs from Other Sites: TRU and TRM waste disposal at WIPP.
TRU and TRM waste treatment at INEL.
LLW and LLM waste disposal at the Nevada Test Site or other sites.

Offers to Other Sites: None

Milestone/Schedule Information:

- LL/LLM Waste
  - Complete shipment of Saltcrete/ Pondcrete to Envirocare for treatment and disposal, 1999
  - Complete offsite disposal of non-remediation waste, 2006.
  - Complete offsite disposal of remediation waste, 2006.

- TRU/TRM Waste
  - Initiate shipment of waste to WIPP, April 1998.
  - Complete shipment of TRU/TRM waste to WIPP, 2006.

Costs: See Table 4-4-1

Outputs/Metrics: See Table 4-4-2

Discussion: Cost estimates for waste management functions are based on unit cost factors which were developed from historical Site costs, information provided by offsite facilities, and projected waste volumes provided by the waste generating projects. This data has undergone some validation through the Rocky Flats Cleanup Agreement (RFCA) validation effort performed by DOE. The accuracy of this data is considered low to medium.

Cost information compared to the Baseline Environmental Management Report (BEMR) represents a significant difference due to the dramatic changes in assumptions related to waste generation projections and the corresponding change in waste management costs.

Regulatory compliance is assumed for all waste management activities. Since all waste will ultimately be disposed offsite, all offsite disposal site criteria, including LDR, are assumed to be met. Costs associated with transportation and disposal of TRU and TRM mixed waste at WIPP are not included in the cost profile per DOE, Headquarters communication.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) ___X___ Project _____Level of Effort Activity

Project Name or Activity Description: Waste Management Support Project **Project Number**: RFETS-05
WAD Numbers 03, 05, 08, 48, 49, and 50

Type of Project or Activity: Transuranic Waste (Disposal), Low-Level Mixed Waste (Storage and Treatment), Low-Level Waste (Storage, and Treatment)

Managing or Funding Program: _____ WM ___X___ ER _____TD _____NM _____SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The goal of this project is to provide the physical capability and capacity to manage (treat, store, and dispose) the varieties of transuranic and low-level wastes that will be generated from other projects at the U.S. Department of Energy (DOE)'s Rocky Flats Environmental Technology Site (RFETS, or Site) in a manner that ensures Waste Management will not impede other aspects of Site closure. This project has been established to provide a mechanism for the development of new waste management subprojects (e.g., treatment, storage facilities) necessary to accommodate the volumes of waste projected to be generated from other RFETS projects. Additionally, this project includes the acquisition of other miscellaneous capital equipment and general plant projects (e.g., new assay equipment, replacement of existing equipment) to maintain the operability of existing treatment/storage facilities and to ensure Waste Management's ability to accommodate future generation from other projects.

This project consists of several subprojects and activities as follows: (1) Low-Level Waste (LLW)/Low-Level Mixed (LLM) Waste Storage Construction subproject, (2) Transuranic (TRU)/Transuranic Mixed (TRM) Waste Staging/Shipping Construction subproject, (3) LLW/LLM Aqueous Process Waste Treatment Construction subproject, (4) LLM Waste Treatment System Construction subproject, and (5) Miscellaneous Waste Management Support Construction activities. (Note: WAD 50 - CTMP Surface Organic Contaminant Removal Project is not funded in the Ten Year Plan.)

The scope of this project includes the design and construction of new facilities. Operating and maintenance aspects of the facilities are included in the ***Waste Management Project (RFETS-04)***. Specific scope of each subproject includes predecisional activities, design, permitting, and facility construction as well as installation of new equipment necessary to maintain operability of existing processes and facilities.

LL/LLM Waste Storage Construction Subproject

Purpose/Project Addressed: Based on an analysis of existing storage capacity for LLW and LLM waste and based on the expectation of future generation from the other RFETS projects, it has been determined that current storage capacity in Buildings 440, 664, and 906 will not be sufficient to allow for continued management of generated wastes. There is currently sufficient long term capacity to allow for storage of expected process waste generation; but there is insufficient capacity to store expected remediation waste generation[1]. Total expected generation of LLW and LLM process waste is approximately 41,000 m^3 with a maximum of 24,000 m^3 in storage at any one time. Based on projections from the ***Buffer Zone Closure Project, Environmental Compliance and Restoration Project, Industrial Zone Closure Project, and Production Area Closure Project (RFETS-01, 06, 07, and 08)***, additional storage capacity for remediation wastes will be required beginning in FY98. Approximately 38,000 m^3 of storage capacity will be required (in 9,400 m^3 "modules") to accommodate the 94,000 m^3 of LLW and LLM waste expected to be generated from these projects. The "modular" concept for storage (i.e., capacity developed in phases) will be pursued based on the desire to implement "just in time" storage and to eliminate the possibility of creating excess capacity in the event that outyear assumptions should change. Four modules at 9,400 m3 capacity per module will be fabricated beginning in FY98 extending through FY01. The modules are expected to be constructed above ground and consist of a pre-engineered metal exterior.

Facilities/Location The new facility location is currently unspecified.

Key Assumptions:

- LLW and LLM wastes generated from other Site projects will not occur at a rate greater than currently projected
- Offsite disposal facilities exist for disposal of LLW and LLM process wastes
- Conceptual design/Title design can be expedited relative to typical capital construction process

Accomplishments to Date: None; this is a newly planned subproject.

FY 2006 End State: The new facility will be constructed and will be operational for storage of LLW and LLM remediation waste.

Activities After 2006: The facility will continue to function as a storage facility for LLW and LLM remediation waste until disposition of the waste is completed in FY06. Following this, the facility will be decommissioned and demolished.

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[1] Process waste includes wastes generated from building deactivation, special nuclear material processing and stabilization, and routine Site operations. Remediation waste includes wastes generated from building decontamination & decommissioning and environmental restoration

Major Cost Drivers:	New facility size (i.e., number of storage "modules") which in turn depends on projected waste generation rates.
Technologies/Approaches:	New facility will consist of storage "modules" linked to provide "just in time" storage capability.
Waste/Materials Generated:	Wastes typical of any fabrication/construction project will be generated. These wastes will be managed as process waste and are expected to be non-radioactive, and non-hazardous.
Relation to Other Projects:	***Waste Management Project (RFETS-04)*** covers the operation and maintenance of all subprojects and activities within this project. Additional project interfaces are discussed in scope narrative
Needs from Other Sites:	Disposal capacity for LLW and LLM process waste.
Offers to Other Sites:	None currently identified.

TRU/TRM Waste Staging/Shipping Construction Subproject

Purpose/Project Addressed: Based on an analysis of existing storage capacity for TRU and TRM waste and the expectation of future generation from the other RFETS projects, it has been determined that current storage capacity in Buildings 440 and 664 will most likely be sufficient to allow for continued management of generated wastes. There is currently sufficient long term capacity to allow for storage of expected generation from Site operations including the ***Industrial Zone Closure, Production Area Closure,*** and ***Site Infrastructure (RFETS-07, 08, and 09)*** projects. Additionally, it is anticipated that sufficient capacity to store expected waste generated from Special Nuclear Material (SNM) consolidation, processing and stabilization will be available in Building 991 (near term) and in Building 371 (intermediate term) pending shipment to the Waste Isolation Pilot Project (WIPP). Surge capacity is being evaluated in Buildings 374 and 707. Total expected generation of TRU and TRM waste from the former is approximately 2,600 m^3, with a maximum of 1,200 m^3 in storage at any one time. Expected generation from the latter (including the ***Special Nuclear Material Project*** and the ***SNM Support Project [RFETS-02, 03]***), is approximately 4,700 m^3 with a maximum of 1,100 m^3 in storage at any one time. Overall, based on the generation and shipping schedules, the maximum inventory on hand requiring storage from both is approximately 2,200 m^3. Given current available capacity, the need for additional storage space is not anticipated. However, in order to limit the maximum on hand inventory to the quantities listed above, additional shipping capability will be necessary upon commencement of operations at WIPP. This subproject will provide for the design/construction of a new pre-engineered metal staging/shipping facility similar to that described for the *LL/LLM Waste Storage Subproject*, with the addition of components needed to provide capability to load and ship vehicles[1]. This new capacity will be required beginning in FY 2000. In addition to providing the tools to facilitate shipment of the residue component to WIPP with minimal impact to existing storage capacity, a staging/shipping facility would allow for contingent storage capacity in the event of future delays in the commencement of operations at WIPP.

Facilities/Location: The new facility location is currently unspecified.

Key Assumptions:

- TRU and TRM wastes generated from other Site projects will not occur at a rate greater than currently projected.
- WIPP will commence operation in FY 1998 and TRUPACT vehicles will be available to support projected shipping rates.
- Sufficient TRU and TRM will be certified for disposal to support projected shipping rates.

Accomplishments to Date: None, this is a newly planned subproject.

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[1] At the current time, although the facilities are similar in construction and operation, the LLW/LLM storage facility and the TRU/TRM staging/shipping facility are identified as separate facilities. As the project progresses and as future uncertainties are eliminated, it may be desirable to combine these facilities into one. The "modular" approach would allow this to occur with minimal impact. Based on the method used to determine the cost and schedule for these facilities, there will be no impact to the overall project cost profile.

FY 2006 End State:	The new facility will be constructed and will be operational for staging/shipping of TRU and TRM waste. The facility could also function as temporary storage contingency should WIPP assumptions change.
Activities After 2006:	Unless required as a storage contingency, the facility will be decommissioned and demolished by 2006.
Major Cost Drivers:	New facility size which in turn depends on projected waste generation rates.
Technologies/Approaches:	New facility will be modular construction with TRUPACT loading capabilities. The facility could potentially include new TRUPACT mobile loading unit capabilities developed by WIPP.
Waste/Materials Generated:	Wastes typical of any fabrication/construction project will be generated. These wastes will be managed as process waste and are expected to be non-radioactive and non-hazardous.
Relation to Other Projects:	***Waste Management Project (RFETS-04)*** covers the operation and maintenance of all subprojects and activities within this project. Additional project interfaces are discussed in scope statement
Needs from Other Sites:	WIPP disposal capacity.
Offers to Other Sites:	None currently identified.

LL/LLM Aqueous Process Waste Construction Subproject

Purpose/Project Addressed: This subproject has been initiated for the purpose of replacing of an existing but aging process waste treatment facility (Building 374). This subproject is currently referred to as the Alternate Water Treatment System (AWTS) and, in addition to ensuring continued capacity to treat LLW and LLM process wastewaters, it offers the added advantage of significantly increasing the operational capability and reducing the operating cost relative to the existing Building 374 operation. Building 374 began operations in 1979 and no major replacement of systems has occurred since. Upgrades to Building 374 equipment and facilities have been planned and initiated on an emergency basis. Recent studies have confirmed the expected deterioration of equipment, obsolescence of process equipment and facility, which ultimately leads to decreased operational capacity and capability. These studies have also confirmed that a new facility could be installed at a significantly lower capital cost and operated more efficiently than continued upgrades to the existing facilities. Construction of a new process waste treatment facility will provide a replacement for the existing capability, but will do so with a much higher degree of reliability. This subproject will ensure the Site's continued capacity to treat process wastewater and wastewater treatment sludges resulting from the implementation of the all other Site projects as well as backlog sludges currently in storage (with the exception of ***Site Project Management*** and the ***Work for Others Misc. Projects [RFETS-10, 11***). AWTS is currently designed to include a wastewater treatment component and a sludge immobilization component, as well as providing for modification of the existing Sitewide process waste transfer piping system. The treatment components will be fabricated using a "modular" approach to facilitate installation and eventual decontamination and decommissioning (D&D). The subproject is currently scoped for location near the existing treatment facility (Building 374), although recent studies have indicated Building 910 may be a more beneficial location. When operational, the AWTS will be capable of treating 3,000,000 gal/year of wastewater and 300,000 gal/year of wastewater treatment sludges. As planned, it will be operational beginning in FY98.

Facilities/Location: The new facility is currently scoped for location near Building 374, however, its location in Building 910 is a high probability.

Key Assumptions: Generation of process wastewater remains at a high enough level to warrant construction of new processes.

Accomplishments to Date: A Scope and Estimate and Construction Project Data Sheet (Schedule 44) have been generated and are currently undergoing modification.

FY 2006 End State: The new facility will be constructed and will be operational for treatment of LLW and LLM process wastewaters and wastewater treatment sludges. By the end of FY06, the facility operation will be terminated (could be sooner depending on process waste water generated by other projects).

Activities After 2006: The facility will be decommissioned and demolished.

Major Cost Drivers:	New facility size (capacity) which in turn depends on projected waste generation rates.
Technologies/Approaches:	New facility will be modular construction including process wastewater treatment module and sludge immobilization module for immobilizing newly generated and backlog wastewater treatment sludges.
Waste/Materials Generated:	Wastes typical of any fabrication/construction project will be generated. These wastes will be managed as process waste and are expected to be non-radioactive and non-hazardous, but could be slightly radioactive based on construction location.
Relation to Other Projects	***Waste Management Project (RFETS-04)*** covers the operation and maintenance of all subprojects and activities within this project. Additional project interfaces are discussed in the scope statement.
Needs from Other Sites:	None currently identified
Offers to Other Sites:	None currently identified

LLM Waste Treatment Construction Subproject

Purpose/Problem Addressed: Existing treatment capacity at RFETS is limited to treatment of process wastewaters (discussed above), residue solution stabilization, and miscellaneous small scale treatments for reactive chemicals, cyanide solutions and other wastes amenable to polymer encapsulation under an existing Research, Development and Demonstration permit issued by the State of Colorado. It is anticipated that LL waste as generated will physically and administratively be controlled to ensure the packaged wastes will be acceptable for disposal, therefore treatment of LL waste is not required. Treatment of LLM waste results from the need to satisfy the waste acceptance criteria for offsite disposal facilities as well as to satisfy existing statutory and regulatory requirements to treat mixed wastes prior to disposal. As with the *LL/LLM Storage Construction Project* description above, there is a benefit to the segregation of process waste from remediation waste. In accordance with the Rocky Flats Cleanup Agreement (RFCA), remediation wastes will be managed under the provisions of the RCRA/CERCLA corrective action requirements, and necessary treatment will be mandated through this process, potentially negating the need to treat remediation wastes to meet the LDR treatment standards. Process wastes are not currently addressed under RFCA, thus are still subject to the prevailing treatment requirements. The purpose of this subproject is to provide the capability and capacity to treat LLM resulting from other Site projects. At the current time, this subproject is scoped to provide for design/construction of a new mixed waste treatment system at RFETS in an unspecified area inside the Protected Area. As opportunities arise (i.e., new onsite locations, offsite disposal facility acceptance requirements are lessened, new technologies developed, etc.) RFETS will continue to make use of offsite commercial and DOE treatment capabilities including shipment to offsite fixed (non-mobile) facilities and/or transport of mobile facilities to RFETS. In either case, this subproject, as costed and scheduled, is representative of the use of onsite RFETS treatment, onsite commercial treatment, or offsite commercial/DOE treatment. Based on an analysis of current LLM waste projections from all other RFETS projects (with the exception of the ***Site Project Management Project*** and the ***Work for Others Misc. Project***), total expected generation of LLM process waste is approximately 20,000 m^3. Of this, 14,000 m^3 consists of pondcrete and saltcrete which will be shipped offsite for commercial treatment and disposal. Of the remaining 6,000 m^3 it is anticipated that 50% will require some form of treatment prior to disposal. (Note: The total expected generation of LLM remediation waste is approximately 53,000 m^3. Also, it is anticipated that 50% of this waste will require treatment prior to disposal offsite. Accordingly, onsite/offsite LLM treatment systems must have the capacity to treat at least 5000 m^3 per year in order to achieve processing of the process waste and remediation waste within the 10 year window. In addition, the systems must posses the capability to immobilize radionuclides, other metals, and low concentrations of organic contaminants. For high concentration of organic contaminants, the systems must be able to separate, remove and destroy the organic compounds. Specific attributes of this subproject include pretreatment (e.g., sorting, size reduction), primary and secondary treatment (e.g., neutralization, precipitation, electrochemical stripping, alkaline chlorination, low

temperature thermal desorption, supercritical carbon dioxide stripping, mercury stripping, catalytic chemical oxidation and other non-incineration organic destruction techniques) and post treatment (e.g., cementation, vitrification, polymer encapsulation) capabilities such that the final waste form and all secondary waste products are acceptable for disposal. Design of an onsite treatment facility has been initiated, with operations scheduled to begin in FY 2001. Operation will continue through FY 2006 to accomplish treatment of newly generated LLM waste[1]. Additionally, in the event that outyear assumptions may be modified to the extent that remediation wastes would require additional treatment, the system would be available for this use. The system would be dismantled following completion of treatment (to be defined post-2006).

Facilities/Location: The new facility location is currently unspecified although it was originally scoped for placement inside the Protected Area.

Key Assumptions:

- LLM wastes generated from other Site projects will not occur at a rate greater than currently projected.
- Sufficient disposal capacity will be available to dispose of treated LLM.
- Schedules originally proposed in Site Treatment Plan (which were funding constrained) can be accelerated with sufficient funding.

Accomplishments to Date: A Scope and Estimate, Construction Project Data Sheet (Schedule 44), Conceptual Design Report, and Title I Design package have been generated and are currently undergoing modification.

FY 2006 End State: The new facility will be constructed and will be operational for treatment of LLM process wastes . By the end of FY 2006 the facility operation will be terminated, unless changes in outyear assumptions relative to remediation waste disposition warrant additional treatment.

Activities After 2006: The facility will be deactivated, decontaminated, decommissioned and demolished by 2006 unless changes in outyear assumptions relative to remediation waste disposition warrant additional treatment.

[3] As discussed earlier, RFETS will continue to maximize use of alternate offsite existing or future treatment capabilities. Given the significant uncertainty associated with availability of future waste treatment capabilities, onsite treatment has been baselined (with the exception of pondcrete/saltcrete) for purposes of the 10 year plan. As offsite uncertainties decrease, the need for an onsite treatment system may be eliminated.

Major Cost Drivers:

- New facility size (capacity) which in turn depends on projected waste generation rates.
- New facility location.
- Availability of more cost effective private or government treatment solutions.

Technologies/Approaches: Technologies and approaches are described in scope narrative above.

Waste/Materials Generated: Wastes typical of any fabrication/construction project will be generated. These wastes will be managed as process waste and are expected to be non-radioactive, non-hazardous but could be slightly radioactive based on construction location.

Relation to Other Projects: ***Waste Management Project (RFETS-04)*** covers the operation and maintenance of all subprojects and activities within this project. Additional project interfaces are discussed in scope statement.

Needs from Other Sites: Availability of operational treatment capacity at facilities such as Transportable Vitrification System (TVS) at Oak Ridge, LANL skid mounted treatment units, INEL Advanced Mixed Waste Treatment Project, and other similar mixed waste treatment facilities with the capability to treat plutonium contaminated waste.

Offers to Other Sites: Polymer Encapsulation (micro and macro) available in FY 2001.

Miscellaneous Waste Management Support Construction Activities

Purpose/Problem Addressed: Although the specific scope of these miscellaneous support activities is not defined, experience has shown that there are several activities performed annually that can not be planned or anticipated. These activities include General Plant Projects (GPP) and Miscellaneous Capital Equipment projects (MCE). GPP are defined as new construction projects of a general nature, of which, total estimated costs must not exceed $2 million per project. Historically, these activities have allowed for modifications, additions, and improvements to land, building and utility systems; construction of small new buildings; and, replacements or additions to roads and other general areas. GPP are by nature difficult to define in advance and are subject to changing priorities and requirements, emergencies, and contingencies arising after budget submission. Typical scope includes predecisional, design, and construction activities.

MCE projects are similar to GPP with the following modifications: includes the acquisition or fabrication of items including major modification or improvements to these items, if they have an anticipated service life of 2 years or more and if they cost $5,000 or more.

Facilities/Location: Activity locations are currently unspecified and depend on needs as they arise during the year.

Key Assumptions:

- Miscellaneous project needs will continue to occur.

Accomplishments to Date: Prior year activities include acquisition and installation of heated cargo containers for enhanced safety related to storage of hazardous waste.

FY 2006 End State: Not applicable - the need for miscellaneous waste projects will cease when the waste management function at the Site ends (assumed to occur when LL/LLM remediation waste has been dispositioned).

Activities After 2006: Not applicable - the need for miscellaneous waste projects will cease when the waste management function at the Site ends (assumed to occur when LL/LLM remediation waste has been dispositioned).

Major Cost Drivers:

- Currently undefined
- Historically, drivers have included waste volumes and equipment and facility size

Technologies/Approaches: Not applicable

Relation to Other Projects: ***Waste Management Project (RFETS-04)*** covers the operation and maintenance of all subprojects and activities within this project. Additional project interfaces are discussed in scope statement

Needs from Other Sites: None currently identified
Offers to Other Sites: None currently identified

Milestone/Schedule Information

Subproject/Activity	Milestone Description	Start Date	Completion Date
LL/LLM Waste Storage Construction Subproject	Conceptual Design/Design & Contract Award	February 1997	August 1998
	Facility Construction	June 1997[4]	December 1998[5]
	Operations	December 1998[6]	n/a
TRU/TRM Waste Staging/Shipping Facility	Conceptual Design/Design & Contract Award	November 1996	August 1999
	Facility Construction	June 1998	December 1999
	Operations	December 1999	n/a
LL/LLM Aqueous Process Waste Subproject	Conceptual Design/Design & Contract Award	December 1996	September 1997
	Facility Construction	September 1997	June 1999
	Operations	June 1999	n/a
LLM Waste Treatment Subproject	Conceptual Design/Design & Contract Award	July 1993 (complete)	March 1998
	Facility Construction	May 1997	August 2000
	Operations	November 2000	n/a
Miscellaneous Waste Management Support Construction Activities	not applicable - milestones to be determined based on annual needs		

[4] repeat on annual basis depending on waste generation rate
[5] repeat on annual basis depending on waste generation rate
[6] repeat on annual basis depending on waste generation rate

Costs: See Table 4-5-1

Outputs/Metrics: N/A

Discussion: Cost and schedule estimates for the LL/LLM Waste Storage facility, the TRU/TRM Waste Staging/Shipping facility, and the LL/LLM Aqueous Process Waste facility were generated in support of, and validated as part of, the Accelerated Site Action Project. The subprojects are in conceptual stage at the present and the estimates represent feasibility cost estimates. Detailed engineering cost estimates will be generated following project approval and funding authorization. The data currently reflects a better than average "order of magnitude" estimate.

Cost and schedule estimates for the LLM Waste Treatment facility were generated in support of development of the RFETS Site Treatment Plan submitted in accordance with the requirements of the Federal Facility Compliance Act of 1992. This subproject has received Key Decision 1 (approval to proceed with Title I design) and as such, the costs have been validated to the extent necessary to grant this Key Decision. The costs represented reflect a high degree of confidence.

Cost and schedule estimates for Miscellaneous Waste Management Support activities will be defined at the time the projects are fully identified and authorized.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) **X Project** **__ Level of Effort Activity**

Project Name or Activity Description: Environmental Compliance and Restoration Project WAD Numbers 23 and 24 **Project Number:** RFET-06

Type of Project or Activity: Remedial Action

Managing or Funding Program (check one or more) ___WM __X_ ER ___ TD ___ NM ___ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The Cap Closure Project includes:

- Closure 219 Cluster Landfill (WBS 1.1.4.01.06) including permitting, design, and construction of a final cover.
- Permitting, design, and construction of final covers over the 300 and 700 areas and the solar ponds (WBS 1.1.04.12).

Environmental Compliance includes:

- Air monitoring, RCRA and Air Permitting, Ecology and NEPA Compliance, and Technical Services Support (GIS, Administrative Record, RFEDS) (WBS 1.1.8.4.1).

Facilities/Location: Final covers will be installed over the Existing Sanitary Landfill (OU 7), the solar ponds, and the portions of the 300 and 700 areas that cannot be clean closed. The Industrial Area will be regraded and revegetated.

Compliance support is sitewide.

Key Assumptions: A 1000-year cap design is required for final covers. The solar pond liner will not require excavation, but will be rolled under the final cover. No CAMU will be constructed.

will	Building-specific monitoring will decrease over time as buildings are decommissioned. Site-specific monitoring continue nearly at existing levels until D&D activities have been completed.
Accomplishments to Date:	A draft white paper has been completed that discusses a preliminary design for the final covers. The Rocky Flats Cleanup Agreement has been signed.
FY 2006 End State:	Construction of the final covers in the 300 and 700 areas will only start in 2006 based on D&D completion of Buildings 371 and 771/774 in 2006.
Activities After 2006:	Construction of the final covers for the 300 and 700 areas and the regrading and revegetation of the Industrial Area will continue through 2007/2008. Some sitewide monitoring would continue until SNM, TRU waste, and LLW are shipped offsite.
Major Cost Drivers:	Labor, equipment, and importing material from offsite for cap construction. Compliance with monitoring requirements.
Technologies/Approach:	Standard cap construction techniques.
Relation to Other Projects:	D&D activities must be completed in the 300 and 700 areas before caps can be constructed and before the Industrial Area can be regraded and revegetated. Monitoring increases as a result of D&D, waste treatment, and storage activities. Building-specific monitoring ends when building D&D is complete.
Needs From Other Sites:	Will need to consult with DOE's Arid Region Group and other DOE groups (i.e., Subsurface Group and National Laboratories) involved in cover design.
Offers to Other Sites:	Lessons learned from landfill design and regulatory negotiations.

Milestone/Schedule Final Cap construction completed the end of FY07
Closure of the 219 Cluster Landfill must start 18 months after active operation of the landfill has stopped (now scheduled for 1998)

Information:

Costs: See Table 4-6-1

Outputs/Metrics: See Table 4-6-2

Discussion: The aerial extent of the cover for the OU7 landfill and the solar ponds is known. The aerial extent of the cover for the 300 and 700 areas was based on the limited site characterization data available to determine which areas could not be clean closed and would require a final cover. The final cover design for the OU7 landfill is based on preliminary discussions with regulatory agencies. The preliminary design for the final cover for the solar ponds and the 300 and 700 areas is based on the requirement for a 1000 year cover. More cost-effective covers and the need for such robust covers is being reviewed.

Compliance monitoring activities, which are based on current RFCA negotiations, are expected to remain the same throughout the D&D process. However, building-specific monitoring will end as buildings complete D&D activities.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) __X__ **Project** ____ **Level of Effort Activity**

Project Name or Activity Description: Industrial Zone Closure Project
WAD Number 25

Project Number: RFETS-07

Type of Project or Activity: Site Infrastructure (Operational Activities), Facilities (Deactivation), Decommissioning (Remedial Action Assessment and Cleanup)

Managing or Funding Program (check one or more) ___ WM __X__ ER ___ TD ___ NM ___ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This project consists of removing industrial zone building clusters and industrial zone Industrial Hazardous Substance Sites (IHSSs). Removal of Industrial Zone Clusters consists of five primary activities for each of the facility clusters listed in the next section. Activity #1, titled Cluster Landlord Functions, consists of those services necessary to ensure that the facilities, equipment, and the immediate area around the facility are maintained in a safe and operable condition. The facilities, equipment and systems are kept in good operable condition through the performance of inspections, surveillance, and monitoring of the fire, utility, safety and life support systems; the performance of necessary and sufficient preventive and corrective maintenance; and proper custodial support to assure clean and sanitary rest rooms, hallways, and common areas, and to provide for snow removal in the immediate area of the facilities.

Activity #2 consists of the removal of hazardous materials from the facilities, including such materials as asbestos, lead-containing substances, excess chemicals, and other substances determined to pose an unreasonable risk to health, safety, and property.

Activity #3, deactivation, consists of the process and activities associated with placing a facility in a safe shutdown condition. It includes removal of salvageable items; draining of tanks, pipes, and equipment; and shutting off utility services except for those necessary for decontamination and decommissioning (D&D) activities.

Activity #4, decommissioning, is the complete decontamination (if required) and removal of the facility.

Activity #5, closure, provides verification that the surface soil in the cluster area meets acceptable risk levels and provides for final closure of the cluster.

IHSSs have been broken into (2) categories: High and Low. High ranked IHSSs will be remediated and Low ranked IHSSs will undergo administrative close-out called the No-Further/ Action-Process.

The High Risk IHSSs include:

- 903 Pad
- 903 Lip Area
- 443, #4 Fuel Oil Tank Leak Area
- West Area Solvent Spill
- Oil Burn Pit, #1 Waste Leak; North of Building 335 and under Sage Avenue East of 4th Street
- PICs/PACs
- Under-Building Contamination

Facilities/Location:

This project involves facility clusters located in the Industrial Area of the U. S. Department of Energy (DOE) Rocky Flats Environmental Technology Site (RFETS or Site). These clusters consist of 180 buildings, office trailers, storage tents, guard posts and a few small sheds, in addition to over 100 assorted tanks and process waste valve vaults. This includes the 111 Bldg. Cluster, 125/441 Cluster, 221/224 Cluster, 223 Cluster, 300/500 Cluster, 331 Cluster, 371T Cluster, 440 Cluster, 442/452 Cluster, 444 Cluster, 460 Cluster, 664 Cluster, 690T Cluster, 750HAZ Cluster, 850 Cluster, 891T Cluster, 903/905 Cluster, 904/906 Cluster, Air monitors (for the entire site), security headquarters (Bldg. 121) and associated facilities including the central alarm station and guard posts in the industrial zone), electrical distribution system and substations, gas distribution system, ground water drainage system, water distribution system, process waste distribution system and valve vaults, plant roads, railroads, fences and grounds (for the entire site), sewage collection system and the sewer plant (for the entire site), the steam plant and distribution system (for the entire site), the telecommunications system (for the entire site), the remediation of high risk Individual Hazardous Substances Sites (IHSSs) locations in the industrial zone, and the Operable Unit (OU) 4 Solar Ponds.

Key Assumptions:

- Deactivation and D&D are assumed to be a continuous process (without time lags due to inadequate funding) to minimize life cycle costs and support the 10-year cleanup goal.
- No D&D radiological waste will be buried, entombed, or added to the soil.
- Buildings identified for economic development (without DOE funding or Site support) can remain.

Accomplishments to Date:

- Ongoing landlord operations of the clusters.
- 500,000-gallon fuel oil storage tanks, 221 and 224, are currently in the deactivation process and will be demolished by the end of FY96.
- The conversion to one substation to support the entire site is in progress and scheduled to be completed in FY97.

FY 2006 End State:

Bldg. 331, which houses the Fire Department, will remain in use until the D&D activities are completed. As plant maintenance declines, maintenance crews will be consolidated into Buildings 333 (Paint Shop) and 334 (Maintenance Shop), which will remain in service through 2006. Building 664 will remain in operation through FY06 for waste storage and shipping. The 750HAZ pad and Building 906, which are primarily waste staging and/or shipping points, will remain until the waste has been shipped offsite. Bldg. 850 will remain in use for administrative functions, such as payroll, finance, procurement, benefits, etc. Air monitors will remain in place through the D&D activities to assure air contamination levels are maintained at acceptable levels. The electrical distribution system, one substation, will continue operating as will the natural gas distribution system. The water plant and distribution system will be replaced with water purification units in the plutonium storage vault, new Transuranic (TRU) waste facility, Building 130, Building 331, and Building 850. Fire water will be maintained through the raw water system and the existing water tower. Ground water monitoring in the industrial zone will continue through FY06 and the process waste collection and distribution will continue through FY07. Roads, rail, fences and grounds will remain in place, but reduced or allowed to degrade as necessary. Sewage treatment will continue; however, the sewage treatment plant will be replaced in FY03 with a sewage lagoon that will remain in place until final closure of the site. Telecom services will be in place, but significantly reduced by FY06 and Medical services will be provided, but from offsite sources.

Activities After 2006:

Buildings 331, 333, 334, and 850 will be deactivated and demolished as the D&D activities wind down in FY06. Bldg. 664, the 750HAZ waste pad, and Building 906 will be deactivated and demolished when the waste shipments are completed (assumed to be in FY06). Air monitoring stations will be disabled and removed in FY08. The electrical and gas distribution systems will continue until closure of the site and then be deactivated and demolished to the degree necessary and sufficient. Ground water monitoring systems will be deactivated in FY07 and removed in FY08. The process waste system will be discontinued in FY07, deactivated in FY08, and valve vaults demolished in FY09. Remaining roads, rails and fences will be left in place. The sewage lagoon will be removed in FY15. Telecom and medical services will be discontinued in FY15.

Major Cost Drivers:

Utility services.

Technologies/Approach:

Standard commercial practices.

Relation to Other Projects:

- Closure of the Nuclear Production Zone facilities.

- Construction of the new low-level waste storage facility.

- Thermal desorption of other onsite soil and debris containing volatile organic compounds or low-level mixed waste.

Relation Other Sites:

Needs from Other Sites: None

Offers to Other Sites: Lessons Learned from thermal desorption.

Milestone/Schedule Information:

By the end of FY00, complete closure of clusters 690T and 891T.
By the end of FY01, complete closure of cluster 371T.
By the end of FY01, remediate high risk IHSSs.
By the end of FY02, remediate/contain 221/224 Fuel Oil Storage Tanks.
By the end of FY04, complete closure of clusters 223, 442/452, and 444.
By the end of FY05, complete closure of cluster 125/441.
By the end of FY06, complete closure of cluster 111 and 440.
After FY06, complete closure of other facilities/clusters.

Costs: See Table 4-7-1

Outputs/Metrics: See Table 4-7-2

Discussion:

Cost estimates for the industrial zone, landlord activities, were based on FY96 budgets, while deactivation activities, decommissioning activities, and closure activities were based on some benchmarking at the Hanford Site, and very limited site experience. The DOE Rocky Flats Cleanup Agreement (RFCA) Validation Team reviewed these costs and found them acceptable for a planning basis but not of sufficient accuracy for annual budget validation. The Team recommended signature of RFCA with no changes as to Landlord or D&D costs.

Cleanup of High Risk IHSSs, including under-building contamination, is based on current best available data, which in some cases is only one or two data points. All soils with organic compounds above cleanup levels will be treated by thermal desorption. Treatment costs are based on subcontract cost for excavation of trenches T-3 and T-4.

Cleanup levels for groundwater and volatile organic compounds in soils have been finalized with the regulatory agencies. Cleanup levels for radionuclides have been agreed upon with regulatory agencies and are being issues for public comment. The areal extent of the trenches is well defined, however, Trench T-3 which was recently excavated, had to be dug deeper than originally planned (by 50%) because of movement of organics from the

trench.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) **__X_ Project** **____ Level of Effort Activity**

Project Name or Activity Description: Production Area Closure Project **Project Number:** RFETS-08
WAD Numbers 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38

Type of Project or Activity: Site Infrastructure (Operations), Facilities (Deactivation), Decommissioning (Assessments & Cleanup), and Nuclear Materials (Pre-Stabilization Storage)

Managing or Funding Program (check one or more) __ WM _X_ ER __ TD __ NM __ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: The former nuclear production area includes the 126 acres within the Protected Area, where plutonium processing and fabrication was conducted in support of the nuclear weapons program. Also included in the nuclear production area, is the 800 complex, which processed enriched uranium, depleted uranium, and beryllium to support the defense programs. There are 225 structures, including and cooling towers within the production area. Additionally, there are 134 other facilities, such as process waste systems and waste tanks, within the production area.

These 359 facilities are grouped into 13 Clusters for purposes of planning and management. Generally these clusters are comprised of a major facility such as Building 707, which fabricated plutonium components, and associated support structures. The Clusters within the production area are:

- 207 Cluster
- 500 Cluster
- 700 Cluster
- 800 Cluster
- 900 Cluster
- 371 Cluster
- 707/750 Cluster
- 776/777 Cluster
- 881 Cluster
- 991 Cluster
- Production Zone Miscellaneous Cluster
- 779 Cluster
- 771/774 Cluster

When all nuclear production was halted in 1989, Special Nuclear Materials (SNM) were left in place without any handling or repackaging pending resumption of nuclear operations. When the Rocky Flats production mission was formally terminated in 1992, it was possible to begin processing, stabilizing and repackaging the SNM to make it safe to store, handle and ship. This effort will continue through approximately 2002. As the effort to stabilize material progresses (see the Special Nuclear Material Project), and as buildings are no longer required to process and store SNM, it is necessary to decommission these nuclear and support facilities to further minimize risk, reduce mortgage costs and to fulfill the site closure mission. The first time that significant nuclear facilities are no longer required for their SNM mission is in FY97. By FY2006, all of these buildings will be deactivated, decontaminated, dismantled and demolished. When demolished, cleanup of under-building soils will be conducted.

During this status transition from an operating SNM facility to a vacant, remediated site, there are six phased activities. They are listed below:

Activity	Primary Function(s)
Facility Landlord	Keep the facility safe and compliant
SNM removal	Remove SNM
Deactivation	Reduce mortgage costs, prepare for decommissioning
Decommissioning	Decontaminate, dismantle and demolish facilities
Cluster Closure	Remediate under-building soils
Remediate/contain High Risk IHSS	Prevent offsite release, allow site closure

Facility Landlord Functions:

The purpose of this activity is to ensure that buildings within Cluster Facilities are maintained in a safe, secure, and environmentally compliant status. Compliance to the authorization basis is demonstrated through the performance of applicable surveillances and/or compensatory measures. Appropriate controls are maintained, and verification inspections are performed to demonstrate compliance to applicable State, Federal, and regulatory requirements. Maintenance and calibration activities are performed to a level that ensures Vital Safety System operability. Building availability will be maintained at the level necessary to support the achievement of SNM and deactivation operations and Performance Measures.

SNM Removal Operations:

This operation removes SNM, in numerous forms, from buildings to support the elimination of individual storage

areas and the Material Access Areas, and transitions buildings to deactivation. Materials include all SNM stored in vaults and vault type rooms, specific items in gloveboxes or other process areas (such as residues), and SNM remaining in equipment and gloveboxes. These materials will be transferred to Building 371 for interim storage. Once the new Pu Storage Facility is completed, all stored materials in Building 371 will be relocated to that facility.

Building 779 work will be substantially completed by the close of FY96 except removal of the remaining SNM holdup necessary to eliminate nuclear and criticality safety issues.

Building 771 has 3 secure storage areas, several residue storage areas, and a large quantity of SNM in gloveboxes and equipment. All must be removed.

Building 776/777 has the largest storage of SNM besides Building 371, with 7 secure storage areas, along with several residue storage areas, and a large quantity of SNM in gloveboxes and equipment. All must be removed.

Building 371 will be the receiver of the rest of the Site's SNM until placed in a new storage facility or shipped offsite. Only after the new interim SNM storage facility is complete will SNM removal operations involve this building. All the SNM (which will be packaged in DOE-STD-3013 containers, or similar) will be transferred to the new facility when available, then, the SNM in gloveboxes and equipment in Building 371 will be collected, packaged, and transferred.

Deactivation:

The first element of deactivation is characterization. This includes the determination of facility, systems and equipment conditions that currently exist in the buildings. In addition, surveys will be provided to support the level of decontamination required for decommissioning.

The second element is planning, which includes producing Work Summary Plans, engineering, applicable studies and obtaining an authorization basis to conduct deactivation activities.

The third element is administrative deactivation. This includes establishing immediate administrative changes in the building operating requirements. Also, equipment calibrations, glovebox glove surveys and classified document removal is accomplished. Additional work scope includes the removal of combustibles from gloveboxes.

The fourth element is authorization basis changes needed to reduce mortgage costs as the deactivation process

proceeds. Safety Analyses will be conducted to allow for the revision of the current authorization basis. Also revised instruction and shift orders are required to reflect the revised authorization basis.

The fifth element is initial physical deactivation. Activities include emptying storage cabinets, reducing the fire load by removing paper and other combustibles, relocating classified tooling and parts, preparing equipment for removal, removing miscellaneous and equipment deemed excess, removing tooling from each building, removing excess chemicals, removing radiological check sources, completing housekeeping cleanup for each building, releasing excess equipment and material to PU&D, labeling contaminants prior to disposal, preparing and packaging waste as necessary for onsite disposal, disposing of hazardous chemicals and materials and completing RCRA closure certification.

The sixth and final element is final physical deactivation. Preliminary decontamination for each building is included. Other contamination will be fixed using ALARA paint. Other activities include de-energizing glovebox electrical and other energized systems connected to the glovebox, removal of gloves and cap glove ports, remediate the ducts, equipment and gloveboxes to allow for the reduction of the building hazard category, isolate and remove auxiliary power equipment, depressurize, drain flush and cap utility piping system; this includes water, stream, hydraulic, air, and oil systems, identify and label contaminants prior to disposal, package and store waste for onsite disposal, replace fire suppression system, de-energize and secure HVAC unit not needed for D&D, disabling the LS/DW system, and downgrading the building hazard classification.

Decommissioning:

Decommissioning at RFETS will be conducted under CERCLA as a removal action. Removal actions, authorized by CERCLA Section 104 d (2), are designed to address immediate threats to human health and the environment. A removal action may be conducted during any point in the CERCLA response process. Typical removal actions include dismantling and decontaminating a building, stabilizing of structures, preventing migration of hazardous substances, or removing of barrels, drums, tanks, or other contaminated materials.

Unless facility circumstances require otherwise, the DOE policy provides that when CERCLA applies, decommissioning will be conducted as a non-time-critical removal actions - actions with a planning horizon of six months or more. Non-time-critical removal actions are the appropriate CERCLA response actions for decommissioning projects for the following reasons:

- With very few exceptions, the contamination in the DOE facilities being decommissioned is well stabilized and contained. Planning and execution may go forward in an organized, deliberate fashion with timing established by reasonable budget profiles and with a safe and satisfactory time table of six months or more.

- The alternative approaches available to conduct decommissioning projects typically are clear and very limited. This usually will eliminate the need for the more detailed analysis of alternatives required for remedial action.

- Non-time-critical removal action requirements provide flexibility to develop decommissioning plans that are appropriate for the circumstances presented.

- Most importantly, non-time-critical removal actions usually will provide benefits to worker safety, public health and the environment more rapidly and cost effectively than remedial actions.

The various stops in the decommissioning framework can be grouped into a series of stages that complete key elements of the process.

Pre-decision

Before the formal decommissioning process begins, the facility will have gone through certain defined activities that set the stage for decommissioning. Such activities center around the transition process as management of the facility transfers from deactivating the facility and establishing a Surveillance and Maintenance (S&M) program to care for the facility until decommissioning can be accomplished. In order to determine appropriate features of the S&M program, information must be obtained about the general nature and extent of contamination (termed preliminary characterization); and information must be available about the specific hazards present in the facility to ensure that they are properly addressed in the S&M program (termed preliminary hazards analysis).

Determination of Action

When the decision is made to proceed with decommissioning, or if conditions should change at the facility (i.e., a leak occurs or a structural weakness is discovered that could affect the containment of contamination), the decommissioning framework treats this as a “discovery” of a release or threatened release. Departmental action proceeds with the conduct of a removal site evaluation (and a formal site inspection, if needed). Whether CERCLA response is appropriate, the basic DOE framework applies. At this point, the scope of the project is defined and initial cost, schedule, and technical baselines are established by the preparation of a Decommissioning Operations Plan.

Choosing the Decommissioning Alternative

This stage of the process involves collecting additional information, performing additional analyses, identifying the decommissioning alternatives, and then choosing the most appropriate alternative with meaningful input from the public.

Since decommissioning at RFETS is being undertaken as a CERCLA response, the NCP mandates action in two areas, subject to local agreements; the preparation of a characterization plan, or the approval of the sampling and analysis plan by EPA, if environmental samples are to be taken and analyzed; and the conduct of a formal community information and input process.

Engineering and Planning

The engineering effort will be performed in a tailored manner to address the specific risks present during decommissioning and to provide measures to mitigate the risks and protect workers, the public and environment.

The following is a description of the major documents to be used in the Decommissioning projects

1. Decommissioning Program Plan (DPP).

   The DPP is the implementing regulatory document for all decommissioning actions at Rocky Flats. This document and responsiveness summary will be part of the decommissioning administrative record. The DPP is the equivalent of an Engineering Evaluation Cost Analysis (EE/CA) and identifies Applicable or Relevant Appropriate Requirements (ARARs).

2. Decommissioning Operation Plan (DOP)

   Decommissioning Actions may be implemented by utilizing a DOP to address high risk concerns not addressed in sufficient detail in the DPP. This document will follow the approval process as identified in the DPP. These actions shall be implemented in a manner in compliance with the applicable requirements of CERCLA, RCRA corrective actions, CHWA and other environmental laws.

   The DOP shall contain a summary description of the building or unit of interest; a summary of risks; a discussion of approaches; a summary of the selected methodology; identification of standard procedures to be utilized; a summary schedule without enforceable milestones; completion criteria; and identification of the ARARs that are specific to this action. DOE may propose to combine several similar actions in one DOP to facilitate a more efficient process. Similar actions are defined as actions which involve similar contaminants and similar response techniques. The DOP is meant to be a management plan.

3. Decommissioning Project Plan

   For the majority of facilities which will be decommissioned, a DOP will not be required. For these facilities a

project specific DPP will be prepared.

Performance of Decommissioning Operations

When the necessary documents are completed and approved and the performing organization has demonstrated its readiness, the decommissioning action will proceed. The DOP and Health and Safety Plan (HASP) will provide for the appropriate safety measures to protect people and the environment. When the specified end condition criteria have been achieved and independently verified, the action is concluded. While the actual decommissioning work is proceeding, the S&M program is phased out in a planned manner as areas and systems are completed, dismantled or otherwise closed out.

Decommissioning and operations are activities which implement the DOP and accomplish the field work. This includes project management, construction management, training, procedure preparation, decontamination of facilities and systems, disassembly of systems, demolition of facilities, management of wastes, industrial safety and radiological control, and quality assurance.

1. Decontamination

   Decontamination activities are performed to remove loose and fixed radioactive contaminants from surfaces (both external and internal) of nuclear facilities and from the equipment items and systems contained therein. Decontamination activities may be either remedial or preventive in nature. They are considered remedial where decontamination is required to reduce existing radiation levels so that necessary operation, inspection, maintenance, dismantlement, disposal, or similar activities can be performed within acceptable guidelines for personnel occupational radiation exposure. The activities are considered preventive where decontamination is performed routinely to control radiation levels so that conditions mandating remedial decontamination do not occur or are significantly retarded.

   Removal of radioactive contaminants from surfaces (i.e., decontamination) regular necessitates simultaneous removal of much larger amounts of non-radioactive materials also present on the contaminated surfaces. The composition and properties of these nonradioacitve materials frequently differ considerably from those of the radioactive contaminants. Thus, considerable information is required to characterize the nature and amounts of all materials present on surfaces to be decontaminated.

   Decontamination activities result in transfer of radioactive and nonradioactive contaminants from the surfaces treated into secondary mediums which then become byproduct radioactive wastes from the decontamination process. Production of these wastes contribute to the waste management scope and cost. Thus, selection and

use of decontamination methods and equipment will include careful consideration of the effects on compliance with radioactive waste management requirements and on subsequent activities to be performed within the facility.

A wide variety of both chemical and physical methods (and combinations thereof) are used to achieve desired decontamination results in various application. Operations range from simple janitorial-type functions (e.g., vacuuming, wiping, and mop-and-bucket scrubbing) to sophisticated chemical processes capable of dissolving adherent corrosion product oxides from the internal surfaces of reactor cooling system piping. Each method and item of equipment used for decontamination work has inherent capabilities and limitation. For this reason, and because of the wide variation in the nature and function of the surfaces to be decontaminated (in addition to the aforementioned violations in the nature and compositions of the contaminants on these surfaces), judicious selection and careful deployment of decontamination methods, equipment, and personnel is crucial to achievement of successful decontamination results.

Finally, planning decontamination activities must include assessment of whether the benefits forecasted (e.g., reduced radiation levels and costs of equipment/materials disposal) justify the dollar costs and personnel occupational radiation exposure incurred to perform the decontamination and resultant waste management/disposal activities. Such assessments require ALARA-type cost benefit analyses of alternative scenarios to determine whether decontamination activities are justified and , if so, which alternative is preferred.

2. Dismantlement/Demolition

Facility process equipment generally is not salvaged for reuse because of contamination levels. Consequently, the dismantlement objectives exclude reassembly concerns and include only efficiency of decontamination, volume reduction, and final handling based on considerations of safety and cost-effectiveness.

In some cases, because of its size or weight, equipment dismantlement will require special handling equipment in conjunction with proper training to assure its proper use. Generally, equipment dismantlement will require standard disassembly and segmenting methods which include powered and manual tools. Pneumatically operated tools and flame-operating tools are used and require contamination control measures.

Highly radioactive heavy-walled metal structure, including vessels, and heavy walled piping, may require remote cutting and handling.

After the majority of the process and support equipment have been removed, the remaining interior structures are evaluated for compliance with release criteria. The contaminated interior structures are subjected to

volume-reduction measures and prepared for final packaging/transportation as radioactive waste.

External structures (e.g., roof, walls, floor) are removed using standard demolition techniques only after all contamination has been removed from the facility. If the external structures are themselves contaminated, additional measures must be taken to prevent the spread of radiological contamination during removal. Decontamination operations and the disassembly/segmentation of radioactively contaminated items will require the application of contamination control devices and methods.

Existing facility High Efficiency Particulate Air (HEPA) filtered systems, if they exist and are operational, should be maintained to provide contamination control coverage. When the facility system is no longer needed, it is dismantled, using its own filtering capability to control the spread of contamination during its dismantlement.

Existing facility HEPA systems may not always provide adequate contamination control for localized uses. Portable HEPA-filtered ventilation units are then used to provide additional contamination-control and ventilation, either in conjunction with the facility systems or as independent systems. Unless monitored for contamination in their exhausts, these units are exhausted into the existing facility HEPA - filtered ventilation system to ensure against the release of contamination to the building interior. High efficiency HEPA-filtered vacuum cleaners will also be utilized for small volume contamination control, as well as for loose surface decontamination operations. These units normally exhaust to the building interior without monitoring of their exhaust.

Surface decontamination operations are a major part of the overall decommissioning effort. Aggressive decontamination methods will be required to remove existing surface coatings, such as paints, varnishes and similar fixatives, as well as base layers of the surface material, which may also contain embedded contamination.

Segmentation of large metal pieces, including process equipment, will be accomplished with plasma arc cutting equipment. If medication or removal is required, it can be efficiently accomplished by utilizing powered equipment.

Good radiological control practices require the containment of loose contamination. During decommissioning, certain work evolutio ns will require

the segmentation of components, the demolition of concrete, and the opening of process systems, which may disturb residual contamination. Typical contamination control measure, including containment envelopes, surfaces fixatives, and

localize
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on.

Cluster Closure and IHSSs

This activity includes all environmental restoration activities relating to site closure within the Nuclear Remediate

The Individual Hazardous Substance Sites (IHSSs) are placed into 2 categories: High and Low. High ranked IHSSs will be remediated and low ranked IHSSs will undergo administrative close-out called the No Further Action process.

The High Risk IHSSs include:

- Trench T-1
- Mound
- Solvent Spills West of Building 730
- Building 776 Solvent Spill
- Original Process Waste Line Tanks and Pipeline
- 712/713 Cooling Tower
- 779 Cooling Tower
- Rad Site South of 779
- S&W Yard
- Under Building Contamination
- Solar Ponds
- Rad Site No. 1 - 700 Area

The other IHSSs within the Nuclear Production Area are No Further Action Sites.

Facilities/Location: See Project Description above.

Key Assumptions: Deactivation and Decommissioning are continuous without a time delay. No Radioactive Waste will be buried, entombed, or disposed of in the soil.

The volume of material requiring remediation was estimated based on existing limited site characterization data and could change significantly when additional data are collected. The soil and debris that will be excavated will

contain either volatile organic compounds and/or radionuclides. Soils and debris containing only VOCs or Low-level mixed waste will be excavated and thermally desorbed. Any remaining Low-level waste above negotiated site cleanup levels will be turned over to Waste Management for disposition. Clean soil or Low-level waste below negotiated cleanup levels will be returned to the excavated site and revegetated. The cleanup level for radionuclides is 85 mRem.

Accomplishments to Date:

- SNM removed from Bldg. 779.
- Preliminary deactivation of Bldg. 779 began in FY96, planning for deactivating Bldg. 771, 779 and 886 will be in place by EOY96.
- Limited ER site characterization has been completed in the Nuclear Production Zone.

FY 2006 End State: All buildings will be demolished and under-building contamination removed, IHSSs will be closed.

Activities After 2006: None. Any long-term groundwater monitoring is covered under WBS 1.1.03.08.

Major Cost Drivers: The radiological contamination of nuclear facilities will require extensive safety and environmental systems to minimize worker exposure and prevent releases. The cost of deactivation, decontamination, and demolition of facilities will differ greatly from an uncontaminated site. Also, the size, complexity, and number of contaminated and uncontaminated facilities requires a length and expensive program.

Technologies/Approach: The approach to decommissioning nuclear facilities will be to utilize available practices and technologies (see scope description above) as a baseline. However, as new technologies become available from private or DOE funded R&D, the new technologies will be evaluated for upgrading the baseline. It is expected that improvements will be made in areas such as contamination measurements and waste characterization, which will both improve the quality and decrease the cost of the activities.

Relationship to Other Projects: The SNM material project must be complete in each nuclear facility prior to conducting extensive deactivation or decommissioning activities within the facility. The deactivation and decommissioning of the Nuclear Production Zone contributes significant waste quantities to the Waste Management Project. For those areas which will be capped, decommissioning of facilities within the areas must first be completed.

Relationship to Other Sites:

Needs from other sites: Consultation with Los Alamos National Laboratory on excavation of depleted uranium in Trench T-1.

Offers to Other Sites: Lessons Learned from thermal desorption.

Milestone/Schedule Information:

All holdup removed from B779	FY97
Remove MAA from B771	FY97
All Holdup removed from B771	FY99
Remove MAA from B776/777	FY00
All holdup removed from B776/777	FY01
MAA from B707	FY01
All holdup removed from B707	FY02
Close 371/374 Cluster	FY05
Close 559 Cluster	FY06
Close 707 Cluster	FY05
Close 771/774 Cluster	FY03
Close 776/777 Cluster	FY03
Close 779 Cluster	FY00
Close 886 Cluster	FY02
Remediate High Risk IHSSs	FY06

Costs: See Table 4.8-1

Outputs/Metrics: See Table 4.8-2

Discussion: Cost estimates for the Facility Landlord Functions are based upon actual data from FY96. Facility Landlord costs, which includes Surveillance and Maintenance, is reduced over time as deactivation and D&D occur. In limited cases, such as Building 371, landlord costs do not decrease for several years because SNM processing and storage activities require a high-level of safety and operability.

In general, it is estimated removal of SNM and hazardous materials combined with deactivation will reduce landlord costs by approximately 75%. Once decontamination and demolition has begun, the functions of maintaining the declining facility systems are included in the scope and costs of D&D. As the Site has no experience in deactivating and decommissioning a nuclear facility, the accuracy of cost estimates is considered low to medium.

The deactivation activity cost estimates are based upon extremely limited Site experience, which has been benchmarked against the Hanford Building 308 and Purex Model. In-depth detailed scope and estimates were

prepared for Building 779, and then modeled to the other nuclear facilities. While the Site does have experience in stripping out gloveboxes, there is no experience in decontaminating and demolishing a significant nuclear facility. The D&D costs are also therefore based upon a detailed estimate for Building 779, modeled to the other facilities. The accuracy of the cost estimates for deactivation and D&D are considered low. The DOE Rocky Flats Cleanup Agreement (RFCA) Validation Team reviewed these costs and found them acceptable for a planning basis, but not of sufficient accuracy for annual budget validation.

For the same reasons discussed above for cost estimates, waste estimates are considered to range between low and medium accuracy.

The deactivation and D&D projects assume that the process will comply with the recently signed RFCA. No different or optimal regulatory flexibility is anticipated.

Cleanup of High Risk IHSSs, including under building contamination, is based on current best available data, which in some cases is only one or two data points. All soils with organic compounds above cleanup levels will be treated by thermal desorption. Treatment costs are based on subcontract cost for excavation of trenches T-3 and T-4.

Cleanup levels for groundwater and volatile organic compounds in soils have been finalized with the regulatory agencies. Cleanup levels for radionuclides have been agreed upon with regulatory agencies and are being issues for public comment. The areal extent of the trenches is well defined, however, Trench T-3 which was recently excavated, had to be dug deeper than originally planned (by 50%) because of movement of organics from the trench.

Low risk IHSSs would require only administrative close-out.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) __X__ **Project** ____ **Level of Effort Activity**

Project Name or Activity Description: Site Infrastructure Project **Project Number**: RFETS-09
WAD Numbers 39, 40, 42, 43, 47, 51, 52, 53, 54, 55, and 56

Type of Project or Activity: Site Infrastructure (Operational Activities)

Managing or Funding Program (check one or more) __ WM __X__ ER __ TD __ NM __ SO __X__ DP

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This worksheet consists of four main subprojects: Utilities Subproject, Infrastructure Services Subproject, and Infrastructure Capital Equipment/General Plant Subprojects(GPP) and Construction Subprojects.

The Utilities Subproject provides for the operation and maintenance of the plant utility works including the water plant, the steam plant, the electrical distribution system, the building transformers, the nitrogen plant, the natural gas supply, the sewage treatment plant, and telecommunication services. Telecommunication systems can be further defined as the central computer system, telephones, radios, pagers, and cell phones, document control, records management, library, correspondence control, printing and photography/graphics.

Infrastructure Services provides for those activities that support the entire plant and includes security and safeguards; cafeteria services; medical services and health surveillance; emergency preparedness; fire protection and prevention; laundry; High Efficiency Particulate Air (HEPA) filter replacement and testing; and logistics, which includes shipping/receiving, warehousing, maintenance of roads, walks and fences, transportation, traffic, and the vehicle fleet. Also included as infrastructure services are the Shift Superintendents providing full time site management coverage and oversight of infrastructure subcontractors.

Infrastructure Capital Equipment/GPP are those activities that provide additional capabilities or facility modifications to support the utilities or services listed above. In general, costs included for these are based on historical data and actual projects cannot be defined at this time. However, projects like steam plant upgrades and a sewage lagoon would be good examples of GPP projects.

Construction Subprojects include the following activities:

Underground Storage Tanks

This project brings 19 underground storage tanks (USTs) into compliance with federal and state regulations requiring overfill and spill prevention, corrosion protection and leak detection. The strategy for bringing the tanks into compliance includes replacing the old tanks with new tanks and then closing the old tanks. Eighteen of the USTs service emergency generators that provide power to buildings involved with either Vital Safety System operations or Security/Emergency Operations Center operations. Those USTs will be replaced with above ground storage tanks (ASTs). The USTs at the Building 331 gas station will be replaced with USTs, and a new fuel island and fuel management system will be constructed. All existing tanks will be closed after the new tanks are in place to avoid an interruption in service to the buildings serviced by the USTs.

Infrastructure: Electrical Distribution System Upgrade

This project is the installation of a new 115 KV/13.8KV plant main substation 679/680 with two large main transformers and associated switchgear. This new substation will replace existing substations 555/558 and 661/675 located along Central Avenue and has the capacity to replace all other substations onsite including 515, 516, 517, 518, 661, 675, and 132. The existing plant electrical distribution system has substantially exceeded its design life span. Repairs have become more frequent and costly and replacement parts are increasingly difficult to locate for the transformers, switchgear and pole line equipment. It is unlikely that the exisiting substation and 13.8kv distribution system would survive through the 10-year life cycle scenario. Also, in any case it would be necessary to consolidate the electrical system and substations as part of the natural evolution of the decommissioning process.

Criticality Alarm and Plant Annunciation System Upgrade (CAPASU)

The CAPASU project has two components. The first component provides a new fiber optic plant wide communication network (COMM NET) which provides the safety, security, and communication network required for RFETS. The fiber optic cables will be distributed along overhead steam lines or other existing structures where possible to reduce cost. The second component of CAPASU will upgrade the deteriorated Life Safety Disaster Warning System (LS/DW) in the highest priority buildings required to support a 10-year program. The LS/DW system provides worker safety related to the annunciation of alarms and dissemination of information within designated Pu facilities, non-Pu facilities, plant support facilities, plant utilities buildings, SNM consolidation buildings, and buildings designated for waste operations and storage. The existing site distribution systems for fire, security, criticality alarms, and communications systems use underground triax cables which have significant deterioration and cannot be relied upon for a 10-year period. Review of site facilities needed to support accelerated

closure of RFETS resulted in a Total Estimate of Cost (TEC) reduction from $29.5M to $13.8M. A recent cost payback analysis indicated a 2-year payback for the reduced cost of the project due to high maintenance and compensatory costs. In addition to high maintenance costs, the underground cabling will be impacted by decommissioning processes since the communication systems loop through buildings and exterior remediation sites. As-built conditions for the existing triax systems will not allow for proper identification of underground routing, so it will be impossible to avoid disruptions to service without construction of expensive bypasses as building decommissioning proceeds. Adequate alarm and communication systems will be required for decommissioning processes when workers will be exposed to highest risks. SNM consolidation will require improved security and accountability systems which require a reliable COMM NET system. Various components of existing systems are also deficient in satisfying ANSI standards, OSHA requirements, RCRA permits and DOE Orders resulting in expensive compensatory measures.

Plant Fire/ Security System Replacement (PFSR)

The PFSR project will provide a replacement of the existing security alarm, fire alarm, and personnel access control systems. It includes the replacement of central monitoring stations, data communications media, multiplex panels, and a majority of the local fire and security alarm panels and sensors. The new plantwide alarm system will be configured with a Central Alarm Station (CAS) in Building 121, a Secondary Alarm Station (SAS) in Building 764, a Fire Dispatch Center (FDC) in Building 331, and a Secondary Fire Dispatch Center (SFDC) in Building 115. The main building multiplex panels will communicate with the CAS, SAS, FDC, and SFDC via a communications network installed under the CAPASU project. This system will be "looped" such that a break at any point on the loop will not disrupt communications. In support of the Ten Year Plan, the extent of these systems has been reduced to include only necessary. This has resulted in a TEC reduction from $62.9M to $39.8M. The cost payback for the project, due to reduced maintenance and compensatory measures, resulted in a less than two year payback. The existing fire and security system is outdated, requires intensive man-hour effort to operate, and is expensive and difficult to maintain. The current system is not in compliance with DOE Orders 5632.1C, 5632.1C-1, as well as NFPA-72. It has grown far beyond its original design capacity. In the process, the ability to annunciate individual devices has, in many cases, been lost. In some areas, dozens of devices are "paralleled" such that they report as a single alarm point. The result is that instead of checking the individual device that alarmed, fire department personnel and security forces are required to check, one at a time, all connected devices. System components, many of them manufactured in the 1950's and 1960's, are well beyond their useful lifetimes, and as a result, failures are occurring at an increasingly high rate. On several major system components, the original equipment manufacturers no longer support the equipment. Labor costs associated with maintenance of the alarm system amounted to $4.2 million for FY92. This constitutes an increase of 33% over FY91, and a 207% increase in the last three years. This cost will continue to increase as the current system continues to deteriorate. As a result of recent RFETS audits, two Compliance Schedule Agreements (CSAs) are outstanding, CSA 16I and 51G. with PFSR as the corrective action to mitigate CSA concerns.

Sewage Treatment Plant Upgrade

The Sewage Treatment Plant (STP) Upgrade project adds several improvements to the existing STP in three phases. Phase I is complete and included sludge watering and drying capabilities. Phase II, currently in construction, provides a 1,600 sq. ft. expansion to Building 995 for laboratory facilities, offices, locker and meeting/lunch rooms, and records storage. Also included are new electrical primary and secondary power, a standby power generator rough in, miscellaneous electrical modifications, and a drain line to drain the hill side north of Building 995. The existing sand filters north of Building 998 are also being enclosed by a 200 sq. ft. extension to Building 998. Phase III will add 500,000 gallon capacity for both influent and effluent holding that is required as part of an IM/IRA agreement. The STP upgrades are required to satisfy Federal Facility Compliance Agreements, NPDES, IM/IRA, and OSHA deficiencies and to prevent unregulated discharge in case of a spill. The upgrades will provide a functional facility for the remaining life of RFETS. Construction is scheduled to be completed by FY97 to meet NPDES and IM/IRA agreement deadlines.

HP/EP: Representative Effluent Samplers (RES)

The RES project replaces existing Record Sampling (RS) units in the Plutonium building effluent stacks. The original project scope also replaced Selective Alpha Air Monitors (SAAMs) in the building ducts/effluent stacks. The original project scope provided a new real time monitor (SAAM) at each of 21 RS locations and at twenty seven other existing SAAM locations sampling from effluent ducts. The original RES project scope replaced RS units and effluent SAAMs in buildings B371/374, B561, B707, B729, B771, B774, B776, and B782 and it replaced effluent SAAMs only in buildings B777, B779, B875, B985 and B991. Effluent stack monitoring is required in accordance with Department of Energy Orders 5400.1, 5480.1B 5480.4 and 6430.1A and CFR 61 subpart H. The Environmental Protection Agency Region VIII issued Rocky Flats Administrative Compliance Order on March 3, 1992 for noncompliance with the radionuclide monitoring protocol of 40 CFR 61, subpart H. The EPA order requires Rocky Flats to be in compliance with 40 CFR 61 subpart H by the end of calendar year 1997. The RES project will ensure Rocky Flats compliance with requirements for air monitoring. Decommission work increases the potential for airborne contamination. Thus the need for representative effluent sampling continues through decommissioning activities.

ES&H: Air Monitoring Improvements

The AMI project replaces two outdated Environmental, Safety and Health alarm/monitoring systems with new reliable state of the art equipment in the plutonium facilities and support buildings. The two AMI systems are the Selective Alpha Air Monitoring (SAAM) system and the Criticality Alarm System (CAS). The SAAM system consists of self contained continuous air monitoring instruments which function to warn personnel that safe levels

of alpha radiation in the air have been exceeded. The CAS consists of neutron radiation sensitive Criticality Detection Instruments (CDIs) connected to a Criticality Alarm Panel (CAP). The CAS functions to warn personnel through audio and visual systems that the building should be immediately evacuated because of unsafe levels of neutron activity. The installation of these new alarm systems will significantly improve worker safety because of the reliability of the modern equipment and the increased detection sensitivity. This original project replaces SAAMs and the CAS in buildings B559/561, B707, B371/B374, B776/777, B771, B774, B729/779/782, B875/886, and B985/991. Due to accelerated closure schedules the installation of the CAS has been deleted in B559/561, B569, B778, B729/779/782, B875/886, and B985/991. New SAAM systems are required because the existing SAAMs and the data collection system do not meet the minimum detection level (8 DAC hours) as required under 10CFR835, DOE Order 5480.11 and the RADCON Manual. The 8 DAC hour detection range requirement is far in excess of the existing SAAMs which are roughly in the 35 to 40 DAC hour detection range. D&D work increases the potential for airborne contamination. The need for SAAMs in the current configuration/ location will be required during decommissioning and additional portable units will be required in the decommissioning areas to augment detection capability. New Criticality Alarm Panels are required because the existing systems do not meet DOE Order requirements for the criticality system to be electronically supervised to warn of malfunctions. The new criticality panels installed under the AMI project will correct the system deficiencies and comply with DOE orders. Present FSARs require Criticality Alarm Systems to be fully operational. It is expected that buildings continue to require alarms due to Pu buildup in the ductwork and other building contamination even after the consolidation of SNM effort removes weapons materials from the buildings.

Domestic and Fire Water System

This project is scoped to install approximately 10,000 lineal feet of new water main, new isolation valves and fire hydrants. The existing underground water distribution system is 45 years old and is subject to frequent breaks. The requirements for the 10-year plan is short enough to allow for continued maintenance along with acceptable risk of line breakage in lieu of a new project. This project would therefore be canceled under the 10-year plan.

Facilities/Location:

Utilities and infrastructure services support the entire plantsite and are located in various buildings across the site. The landlord and maintenance functions of the facilities housing the utilities or services are covered under the landlord clusters. Only the cost of operating and maintaining the process is included here. Construction subprojects support infrastructure reviews and are located in various facilities across the plantsite.

The impacted facilities and location for the subject projects are identified in the Purpose/Problem section above. All projects are located within the one-mile square core facility at the Site.

Key Assumptions: The following assumptions have been applied to all infrastructure projects:

- Utilities are not privatized in this submittal. Efforts are currently underway to consider privatization or commercialization of such utilities as electrical power, natural gas, steam generation, and water treatment.
- The new Plutonium (Pu) Storage vault will not require an inert atmosphere.
- Projects that satisfy regulatory issues and agreements (e.g., UST and STP) that cannot be renegotiated or extended will continue unless D&D timelines will eliminate the need for the facility requiring the upgrade prior to mandated deadlines.
- Projects contributing to a significant annual mortgage reduction through a fast cost payback will continue when facility operations affected by the project exceed the payback period.
- Project will be reasonably descoped or canceled when expedited D&D timelines allow or when ongoing maintenance and compensatory measures can adequately obviate the need for the project.
- Another facility in the U. S. Department of Energy (DOE) complex will accept maintenance and storage of unclassified/classified records.
- Infrastructure cost is directly affected by the schedule for consolidation of Special Nuclear Materials (SNM), and Decontamination and Decommissioning (D&D) of the facilities.
- Reductions in security are directly affected by the schedule, design, and operation of the Pu storage vault.
- Underground utilities will be abandoned in place.

Accomplishments to Date:

- Ongoing utility operations and infrastructure services.

- Underground Storage Tanks – Three of the 19 tanks have been installed and remediated. Design for the remaining tanks has been completed and all replacement tanks are on order.

- Electrical Distribution System Upgrade – Demolition of one primary substation has been completed and construction of the new substation is 50% complete. All construction for the new substation will be completed in September 1996. Design for the revised overhead 13.8kv distribution system has started with construction to be completed by the end of FY97.

- Criticality Alarm and Plant Annunciation System Upgrade (CAPASU) – Construction for the fiber optic COMM NET has started, and is due to be completed in November 1996. Design for the LS/DW upgrades is underway. The scope of the project has reduced from $29.5M to $13.8M as a result of the site accelerated closure schedule for affected buildings.

- Plant Fire/ Security System Replacement (PFSR) – Construction of the Fire Alarm System was awarded July

1996. Design is continuing for security systems. The scope of the project has been recently reduced from $62.9M to $39.8M as a result of the site accelerated closure schedule for affected buildings.

- Sewage Treatment Plant Upgrade – Phases I and II of this project are complete. Phase III, which will install tanks to increase by approximately 500,000 gallons, both influent storage capacity and effluent storage capacity, has started with construction completion scheduled July 1997.

- HP/EP: Representative Effluent Samplers (RES) – Design is complete and construction is 10% complete. All construction will be completed by January 1997.

- ES&H: Air Monitoring Improvements – All design is complete and construction is 50% completed. Construction is scheduled to complete November 1996. Though the use of wireless technologies for SAAMs and other construction efficiencies, the TEC of the project has recently been reduced from $13.7M to $10.7M.

- Domestic and Fire Water System – The 10-year closure initiative will reduce the payback for the project, with the resultant recommendation that emergency maintenance be used to maintain integrity of the underground distribution system. This assumes that the risk of unpredictable line breakage with potential loss of fire water systems is acceptable.

FY 2006 End State:

Utilities Project

- Water plant shut down in FY05; water purification units used in remaining new and existing facilities.
- Steam plant shut down in FY04 when Building 371 is shut down. Remaining facilities fitted or retrofitted with natural gas.
- Electrical distribution system reduced to one substation that primarily supports the D&D activities.
- Nitrogen plant shut down in FY02 when all material is removed from Building 371 to the Pu storage vault.
- The sewage treatment plant will remain in use until 2003 at which time it will be replaced by a sewage lagoon for new facilities, and other suitable compensatory measures for existing facilities still requiring sewage treatment.
- Telecommunications reduced to radios, pagers, telephones, and some records control for the remaining personnel.

Infrastructure Services

- Safeguards/Security is reduced to a force of about 60-80 to continue vigorous surveillance over the new Pu Storage Vault, and relaxed surveillance over the rest of the facilities.

- Medical services continue as long as personnel occupy the site; however, at a reduced state from offsite facilities.
- Emergency Preparedness continues as long as Pu is in the vault.
- Fire Department. continues full operations through the D&D activity.
- Laundry services discontinued once Pu is in the vault and D&D activities are complete or nearly complete to the point where it is more economical to buy disposable protective clothing (assumed to be 2006).
- Filter testing and changeout is discontinued in FY02 when Building 371 is shut down.
- Logistics support will continue in FY06 to support the Pu storage vault, waste facilities, and D&D activities.
- Analytical laboratory services continue to support the Pu storage vault, waste facilities, and D&D activities.
- By 2006 services such as metrology, cafeteria, and Capital/GPP projects have been discontinued.

Construction subprojects provide reliable infrastructure systems that are required to support operations to achieve the FY2006 end state condition. Some systems will remain operational past 2006 (e.g. Sewage Treatment Plant and Electrical Distribution System) for facilities that require such services. As the end state nears, it may be appropriate to evaluate such systems to determine longer-term objectives and the potential need for upgrades and/or downsizing. The construction subprojects will be completed considerably prior to 2006.

Activities After 2006: Utilities operating in FY06 continue through FY15 at a minimal rate to support Pu vault and waste storage facilities.

Infrastructure services operating in FY06 continue through FY15 at a minimal rate to support the Pu vault, waste storage, and shipping of Pu and waste offsite. Security continues with a force of 60-80 personnel to continue surveillance over the Plutonium Storage Vault. The Fire Department continues full operations until Pu is in the storage vault and D&D activities are complete at which time it is reduced to an “early response” force supplemented by local communities. Medical services continue at a reduced rate from offsite medical facilities until all material is shipped offsite. Emergency Preparedness continues until all Pu is offsite, but is performed as collateral duties by personnel on site for other reasons. Shipping/receiving and transportation/traffic continue at a reduced rate until all the Pu and waste is shipped offsite.

Major Cost Drivers: Major cost drivers to infrastructure are:

- Consolidation of material
- Shipment of material offsite
- Resolution of residue
- the D&D Schedule

Major cost drivers within infrastructure include:

- Security force

- Medical programs
- Fire Protection
- Analytical laboratories
- Logistics
- Steam

Construction scope and cost is typically driven by the age of the facilities, the sequence of building D&D, and consolidation activities. In some cases, privatization (e.g., substation upgrades) may require upgraded facilities to encourage private participation in operation of such facilities.

Technologies/Approach: Develop methods/processes to reduce cost of infrastructure, such as installing a new water line from a nearby community so that the water plant could be shut down early. Develop modular steam generating capability or other heating source to replace the steam plant earlier than programmed. Privatize or outsource services like analytical laboratories and electrical distribution. The technologies for the construction subprojects are listed above.

Relation to Other Projects: None. These are standalone projects that support activities across the Rocky Flats Site.

Relation Other Sites:

Needs from Other Sites: None

Offers to Other Sites: None

Milestone/Schedule Information:

The following schedules are current for these infrastructure projects.

Milestone	Design Start	Completion
Underground Storage Tanks	Aug 1995	Dec 1996
Electrical Distribution System Upgrade	April 1995	Sept 1997
Criticality Alarm and Plant Annunciation System Upgrade	July 1994	Sept 1998
Plant Fire/Security System Replacement (includes PA Reconfig)	Aug 1993	July 2000
Sewage Treatment Plant Upgrade	Aug 1991	July 1997
HP/EP: Representative Effluent Samplers	Dec 1993	Jan 1997
ES&H: Air Monitoring Improvements	Aug 1992	Nov 1996

Costs: See Table 4-9-1

Outputs/Metrics: N/A

Discussion: The cost estimates used for infrastructure utilities and services were based on FY96 budget work packages and/or input

from the work package managers/department managers. The budgets used were those submitted in October 1995 with no adjustments made for reductions and rebaselining that occurred throughout FY96. The costs were reviewed by the DOE/Rocky Flats Cleanup Agreement (RFCA) Validation Team a team comprised of HQ and RFFO personnel, and include recommendations made by that team. In general the team felt that the cost estimates were conservation and that, in time, will likely come down. They recommended signature of the RFCA with no changes to about infrastructure costs.

TABLE 4-9-1

Costs

The following table shows the capital and expense funding profile for projects discussed in this attachment. (Dollars in $K)

Project		TEC	Prior Year BA	FY97	FY98	FY99	FY2000	FY2001
Underground Storage Tanks	Capital	8,200	8,200	0	0	0	0	0
	Expense	1,880	1,680	200	0	0	0	0
Electrical Distribution System Upgrade	Capital	10,350	7,900	2,450	0	0	0	0
	Expense	0	0	0	0	0	0	0
CAPASU	Capital	13,800	12,300	1,500	1,500	0	0	0
	Expense	1,662	1,012	350	300	0	0	0
PFSR	Capital	39,800	19,700	6,100	5,000	5,000	4,000	0
	Expense	2,850	1,400	500	400	300	250	0
HP/EP: Representative Effluent Samplers	Capital	8,079	0	0	0	0	0	0
	Expense	9,060	80	0	0	0	0	0
Sewage Treatment Plant	Capital	9,328	0	0	0	0	0	0
	Expense	1,939	1,539	400	0	0	0	0

ES&H: Air Monitoring Improvements	Capital	10,672	10,672	0	0	0	0	0
	Expense	1,137	1,037	100	0	0	0	0
Domestic and Fire Water System	Capital	15,900	0	Note 1	0	0	0	0
	Expense	800	0					

Note 1 – Project canceled under this 10-year plan.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) _____ **Project** ____X___ **Level of Effort Activity**

Project Name or Activity Description: Site Project Management **Project Number:** RFETS-10 WAD Numbers 44 and 45

Type of Project or Activity: All Other (Program Direction and Program Support)

Managing or Funding Program (check one or more) _____ WM ___X__ ER _____ TD _____ NM ___ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This project supplies the managerial and related administrative functions that are needed to support the organizations performing the tasks that lead to completion of the mission. These functions include project management, financial management, legal, human resources, and planning.

Management (Overhead) Direction

This is the function that provides managerial and associated administrative support for managing the Integrating Management Team. This function collects costs for (1) the labor for management, supervision, and administration within these organizations; (2) labor associated with work breakdown structure (WBS) elements that can not be assigned to specific work packages; and (3) miscellaneous administrative costs (e.g., employee training, staff meetings, travel, supplies, educational reimbursement, and costs not directly attributed to a specific program). The elements are:

- General Management Overhead
- Streamlining/Benchmarking Implementation
- Manage Cross-Cutting Performance Measures
- Subcontractor Overhead

- Administer Cost Reduction Proposal Process
- Employee Benefits

- Paid Absences
- Payroll Taxes

General & Administrative Support Services

This function provides the necessary activities to maintain the corporate posture between the Integrating Management Contractor and the major subcontractors. Minimum corporate staffing is used for these activities and the costs are distributed among direct WBS elements using indirect G&A rates. The activities performed under this function include general management, financial management, contract administration, strategic program planning, human resources planning, legal counsel and internal auditing services, Environmental Safety, Health, and Quality (ESH&Q) support services, taxes, communications, standards applications, base fee, insurance, and workforce restructuring.

Programmatic Support Services

This function provides multiple services to various projects. The elements are:

- Planning & Integration
- Business Management & Integration
- Strategic Planning Management and Support
- Decision Analysis and Support
- Regulatory/Regulator Liaison and Integration
- Quality Program and Services
- Records Management Support
- Document Control Support
- Nuclear Performance Assessment
- Program Direction

Facilities/Location: These functions will occur in those portions of buildings and trailers set aside for administrative functions. As groups become smaller and consolidate in select buildings, and decommissioning of buildings proceed, the actual location for these functions will change over time. Facilities currently used for administrative functions include Buildings 060, 111, 750, 850, and most of the trailers. Numerous process buildings also have office

space.

Key Assumptions:

- All Special Nuclear Material will be shipped off plant by 2015 and the SNM facility will be operated until this time.

- TRU and Low-Level waste will have been shipped offsite by 2006 and the corresponding storage facilities decommissioned.
- Some level of utilities and infrastructure services will be required through 2015.
- The majority of the clusters will be removed by 2006. Removal of a few small clusters, plus 130, will continue until 2015.
- Some ER activities, such as monitoring and cap construction, will occur after 2006.

Accomplishments to Date:
- Established Accelerated Site Action Project (ASAP).
- Workforce restructuring.
- Obtained validation of ASAP baseline.

FY 2006 End State: None

Activities After 2006: None

Major Cost Drivers: The existence of a Site population is the primary driver for many of the costs incurred by these functions.

Technologies/Approach: None

Relation to Other Projects: These functions provide the managerial and administrative support to organizations that are tasked with performing activities within the other projects.

Relation Sites:
Needs from Other Sites: None

Offers to Other Sites: None

Milestone/Schedule Information: The functions discussed herein are level-of-effort. These functions will, in some form, continue until Rocky Flats is "closed," although the scope of the individual functions will decline over time. Following are the two significant administrative milestones that have to be met annually.

- Submit to Regulators a Draft Baseline for the Upcoming Fiscal Year August 15 (annually)

(This is done as a requirement of RFCA)

- Complete fiscal year work plan (annually) — September 15

Costs: See Table 4-10-1

Outputs/Metrics: None

Discussion: The data is based on historical information. It has a medium level of confidence and has been validated in association with a DOE evaluation of the RFCA commitment.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) ____ Project ___X__ Level of Effort Activity

Project Name or Activity Description: Technical Support Project **Project Number:** RFETS-11
WAD Numbers 41 and 46
Type of Project or Activity: Site Infrastructure

Managing or Funding Program (check one or more) ___ WM ___X_ ER ___ TD ___ NM __ SO

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed:

Analytical Services Subproject (1.1.7.2.13)
Analytical Services provides sampling and analytical chemistry services in support of sitewide projects and operations baselines. Analytical Services satisfies the requirement of federal, state, and local agencies for characterization of environmental contamination and facility waste, and monitoring of air and water quality. Customer support includes field methods development, sample tracking and analytical results interpretation. Analytical data is validated to support the program reporting requirements and satisfy legal requirements. Current laboratory operations include the following areas of analysis: organic, inorganic, water quality, bioassay, radiochemistry, radioassay, chemical, industrial hygiene, geotechnical, and biota. In addition, a sampling team coordinates both radioactive and nonradioactive sampling events for customers. Major customers include Environmental Restoration, Waste Management, Nuclear Materials, Stabilization, Facility Baseline, and Health & Safety programs.

Provide Economic Conversion Support (1.1.8.4.2)
Provide programmatic support for the planning and execution of Privatization activities (Private Financing, Outsourcing, Commercialization, Employee Spin-off, and Asset Transfer) across all business units. Provide programmatic support for the planning and execution of privatization and economic development activities in concert with the DOE appointed Community Reuse Organization (CRO).

This will include: 1) involvement in the development and communication of DOE and Company policy; and the training in the execution of the policy within the Integrating Management Contractor (IMC) team;. 2) Assist project managers in developing decision models for, and implementing cost-effective strategies in all business areas of privatization and economic conversion; 3) Provide liaison support between the IMC Team and CRO activities; 4) Provide liaison support between the IMC Team and other DOE Privatization and Economic Development contractors; 5) Complete termination and disposition of all programmatic activities at the Oxnard Facility; and 6) Support the Contracts and Procurements Division in the pursuit of privatization and economic development initiatives.

Disposition Excess Property, Material, and Equipment (1.1.8.4.3)

The Excess Property Disposition Project (PDP) will incrementally remove all surplus property, materials, and equipment in support of Site closure. The property, which in many cases can be considered an asset of the DOE, will be transferred to a non-DOE owner. This process will result in a revenue stream to the DOE, which could offset overall Site costs. In cases where the property is a liability (removal costs exceeds residual value), these transfers may be individually costly, but overall the program should require a decreasing amount of funding, as revenues are received, and a decreasing backlog of property remains on the Site.

In order to achieve total Site closure within ten years, a rigorous schedule must be maintained for the removal of materials from the Site. Rocky Flats' 400 plus buildings are filled with property and materials. Most are controlled by DOE regulations and Federal law. These materials must be decontrolled and removed prior to Decontamination and Decommissioning operations.

Individual cluster closure projects will need the PDP as a task component or element. Prompt removal and disposition of excess property will be critical to the success of the individual cluster schedules. All additional (noncluster) related property will need to be addressed in a lump-sum or miscellaneous fashion. It is anticipated that this lump-sum material will comprise a large percentage of the total.

A great deal of the excess property at Rocky Flats has residual value. This residual, or post mission value will either be recaptured by the DOE for the benefit of the Federal Government, or transferred to the community pursuant to Federal Law to mitigate the socio-economic impacts of downsizing the DOE complex.

A number of asset transfers relative to the Site infrastructure will be a crucial cornerstone for economic conversion of the Site. Specifically, these include the Site utility system, roads, the emergency support systems (fire department, medical, etc.) and other related infrastructure. These transfers are likely to be the first major asset transfers in the DOE complex..

Maintain Site Engineering Standards, Procedures and Support Systems (including Technology Integration) (1.1.8.4.4)

Engineering Integration and Site Design Authority (SDA)

Provides guidance, direction, management control, and leadership for engineering activities at the Site. It ensures that Site Engineering programs protect Site personnel and the public through the formal application of DOE Orders and Standards, National codes, regulatory requirements as well as necessary and sufficient industry standards. The SDA is the single point of accountability within Kaiser-Hill regarding the adequacy of configuration change control practices and maintenance of an adequate technical baseline and authorization basis for the Site.

Technical Administrative Support
Provides core infrastructure processes to support Site program teams and the Engineering and Technical Services (ETS) organization. Milestones are dependent upon required project support; funding is based on the degree of engineering required during the fiscal year.

Configuration and Engineering Management Program
Provides expert knowledge of Site facilities Configuration Management (CM) process and, through process improvement studies, assures only necessary and sufficient procedures are used to prove compliance to DOE requirements. This activity includes the internal labor necessary to maintain the CCCP manual. Accomplishing this activity requires reviews of the manual, establishing and maintaining historical files, processing of Document Modification Requests (DMRs), work processing, and acting as the Subject Matter Expert (SME) which includes periodic reviews, research of other regulatory and code documents for continued compliance, coordination with other level one documents, and ensuring that changes to, or the creation of new processes are not in conflict with other procedures.

Technology Integration
Provides the assessment and deployment of technology at Rocky Flats. Technology integration includes providing, evaluating, and/or selecting safe, cost effective technologies, methods, and processes for:

- Waste treatment
- Facility deactivation and decommissioning
- Environmental restoration
- Residue and SNM treatment, packaging, and storage
- Site infrastructure and monitoring cost reduction

Management and Oversight of the AE/C/CM Subcontractor (1.1.8.4.5)
Construction Management and Oversight
Provides continued construction management and oversight of Capital Line Item and other Capital Projects.

Project Management and Oversight.
Provides continued project management and oversight of Capital Line Item and other Capital Projects.

Provide Nuclear Engineering and Radiation Protection Programs and Support Services (1.1.8.4.7)
Fire Protection Engineering
Provides guidance on requirements for the design of fire suppression systems and fire detection systems. Provides technical input for testing and maintenance of fire systems, as well as fire and life safety code interpretations. Technical evaluations and analyses (Fire Hazards Analyses, Engineering Operability Evaluations, etc.) will be provided or technical equivalents determined for those areas that cannot reasonably conform physically or economically to the designated code or standard required by DOE Orders. Decisions concerning fire safe conditions and operations are made for all Site activities. Fire Protection Engineering will provide experienced technical input for

all fire related situations. In addition to providing the minimum safety standards required by various documents, Fire Protection Engineering will provide additional information for the safety of personnel performing various activities at Rocky Flats. Finally Fire Protection Engineering will act as the Site authority having jurisdiction for all contractors and subcontractors.

Nuclear Safety Analysis
Provides all activities required to maintain compliance with DOE Orders, Federal Regulations, and necessary and sufficient standards. In addition, this function incorporates activities necessary to allow the Site to proactively respond to DNFSB safety questions, DOE issues, and respond to sitewide safety issues as they arise. Nuclear Safety is responsible for the development, modification, and maintenance of Technical Safety Requirements/Operational Safety Requirements (TSRs/OSRs) and Justifications for Continued Operation (JCOs) as well as for the evaluation/demonstration of compliance with the approved Authorization Basis in support of nuclear facilities at the Site. Provides technical support and independent review of Nuclear Safety work activities and analyses, accident analyses and risk assessments, and reliability/ unavailability analyses. Develops and documents safety analyses and other information that provides the safety basis for DOE authorization of Rocky Flats activities for design, construction, operation, environmental remediation, waste management, decontamination, or decommissioning.

Nuclear Criticality
Provides all activities required to implement the Nuclear Criticality Safety (NCS) Program at the Site. This requires interfaces with many organizations and disciplines at the Site. Promulgates the NCS requirements for the Site, maintains, updates and revises, as required, the NCS Manual for the Site; develops implementing procedures; provides NCS technical assistance as required; provides oversight of the NCS Program; serves as the K-H point-of-contact for all NCS issues with external customers, including the subcontractors and the DOE; and develops and implements the NCS Engineering Training Program.

Hazard Assessment and Risk Management
Develops and implements hazard assessment and risk management methodologies to ensure Site programs are more responsive to Site hazards in a cost effective manner. Emphasis is placed on ensuring valid identification of significant hazards, risk management opportunities, and cost effective risk management alternatives or strategies in a practical decision context. Timeframe is limited to FY1997-FY2002.)

Radiation Control Program Integration.
Provides the technical direction, expertise and support to develop, implement and manage the Site occupational and environmental radiation protection programs in compliance with 10CFR835, and other applicable DOE Orders. Develops and institutes a Radiation Protection Program that ensures individual internal and external radiation doses are maintained as low as reasonably achievable (ALARA), minimizes the contamination of areas, equipment and personnel, minimizes generation of radioactive waste, minimizes radioactive effluents, provides training of RCTs, documents the health risks associated with occupational radiation exposure, and assists workers in understanding the risks.

Facilities/Location: Analytical Laboratory operations are performed in Building 559 (Mixed Radioactive Laboratory), Building 881 (Environmental Laboratory), and Building 123 (Bioassay/Environmental Laboratory) with satellite locations in Building 707 and Building 771 for the Hot/Mixed Laboratory. Analytical Services also uses offsite commercial laboratories to perform analyses for which capabilities do not exist onsite or cannot be performed in the required time period due to full capacity.

Key Assumptions: All analytical work to be performed by Rocky Flats will be overseen by Analytical Services under the direction of the Analytical Projects Office.

Demand for analytical work is estimated at FY96 levels (approximately 152,000 analyses) with a shift in emphasis away from Environmental Restoration and Waste Management to Stabilization and D&D of facilities.

All samples exceeding thresholds for contamination levels must be performed within the Hot/Mixed Radioactive Laboratory.

Based on the current schedule for facility deactivation, decontamination, and decommissioning, the number of RCTs and radiation workers will substantially increase in the 1997/1998 timeframe and steadily decline to below 1996 levels in the period from 2005 to 2008. While these resources are not funded in this task, they will drive the required funding in this task.

Excess property is controlled largely by DOE regulations and Federal Property Management Law. It is important to note that the IMC is not the decision maker on property transfers. This is the exclusive domain of the DOE Property Management Department. All schedules are predicated on DOE's ability and willingness to concur in property disposition recommendations, and to support IMC project schedules with timely decisions.

Current regulations will be in force throughout the ten year closure project, and that no major regulatory drivers will be added.

DOE and the CRO will develop and implement a system for timely disposition of property, that will support IMC schedules.

A revolving fund for recapture of property sales revenue will be approved and implemented in a fashion that effectively offsets future budget requirements.

Accomplishments to Date:

Technology Integration (mixed waste treatment)
Actual mixed waste at site has been treated to LDR compliance through testing/treatability protocols which include a cyanide destruction treatment system for spent plating bath waste; a Polymer macro-encapsulation system for treating beryllium debris and contaminated lead gloves; a polymer micro-encapsultation system for treating high-level salt waste; an ultraviolet treatment system for destroying excess reactive chemicals; a supercritical carbon dioxide extraction system for treating mixed wastes; and a low temperature thermal desorption treatment system which produced LDR-compliant waste.

Technology Integration (SNM/Residue Stabilization)
A number of successful efforts have furthered the Site's ability to stabilize Special Nuclear Material (SNM) and residues. These include: startup of a microwave vitrification system in Building 774 to treat oily sludge residue; improvement of a LANL-developed electrolytic process to decontaminate uranium hemi-shells; application of a technology upgrade to Selective Alpha Air Monitors (SAAMs) in Building 771; implementation of an improved mechanical device for speeding up the drum venting process; demonstration of a cheaper, quicker ceramification alternative to the current thermal process for stabilizing plutonium; and demonstration of a new co-cementation process for solidifying ion exchange residues and liquids.

Technology Integration (Environmental Remediation and D&D)
Developed and demonstrated an innovative and cheaper asbestos destruction technology; provided the concept for a mobile cyclonic separation process to remove Rashig Rings, thereby accelerating tank closures; and imported a new passive treatment technology (reactive barrier) for in-situ treatment of groundwater at 50% of the cost of current technologies.

FY 2006 End State:

Economic Conversion
All contracting activities will be conducted in a cost-effective manner, similar to commercial counterparts. Projects to economically develop the Site infrastructure and facilities will be completed. Ownership for any remaining facilities (land and buildings) in the industrial area will be transferred to non-DOE entities. Physical infrastructure necessary to support economic conversion will be transferred to and supported by non-DOE authorities.

All Others
As the amount of materials and buildings decrease through FY2006, the funding will decrease, and the scope of each portion of this project will decrease also. However, as long as some plutonium remains at Rocky Flats, a need will remain for some vital safety and engineering functions to continue.

Activities After 2006: Some safety and engineering functions will remain active, though at low levels, as long as plutonium remains at Rocky Flats

Major Cost Drivers: Federal Regulations and DOE Orders.

Technologies/Approach: Current technical parameters for laboratory operations include the actual or possible contamination levels associated with samples sent to the laboratories to be analyzed. This contamination level requires the laboratories to perform screens on samples prior to determination of which laboratory (both onsite laboratories or offsite commercial laboratories) will perform the analysis.

Rocky Flats is seeking the use of best-in-class technologies for all phases of Site cleanup, including SNM solidification, decontamination and decommissioning activities, waste management, environmental restoration, safeguards and securities, and information management technologies. Best-in-class technologies offer the potential for 20-50% reduction in costs over currently accepted commercial technologies.

Relation to Other Projects: Analytical Services supports the other projects based on projected analyses provided by the project.

Relation Sites:

Needs from Other Sites: Analytical Services currently utilizes Oak Ridge National Laboratory (ORNL) to provide quality checks on bioassay analyses performed onsite. In addition, Analytical Services contracts with Quanterra Laboratories in Richland to perform analyses that exceed onsite capacity.

Rocky Flats depends upon other Sites and National Laboratories to demonstrate and provide technologies for Site clean-up activities. The process for this transition includes the Site Technical Coordination Group in DOE RFFO, and through the EM-50 focus areas.

Offers to Other Sites: Analytical Services can perform analytical work for all other DOE facilities within existing capabilities.
Rocky Flats is an ideal test bed for National Technology Demonstration projects

Milestone/Schedule Information:

Analytical Laboratories

Consolidate laboratory operations from current configuration of 3 laboratories to 2 laboratories in FY97.

Reduce laboratory operations to a single laboratory supplemented by mobile laboratories or an offsite laboratory in FY03.

Technology Integration
Provide "host site" support to five National Technology Demonstration Projects in FY97-FY98.

Costs: See Table 4-11-1

Outputs/Metrics: N/A

Discussion:

Analytical Laboratories
Data is based on current projections for support to other projects. This projection is highly dependent upon schedules maintained by the projects for when analyses will be needed. Any schedule slip by a project will result in an equal slip in projected analyses for the laboratories. Work has not been baselined or validated to date.

Economic Conversion
The data presented here are generally accurate. The work has not been baselined or validated.

Excess Property
These data are preliminary in nature. The costs have not been baselined or validated. Current regulations and stakeholder commitments are assumed.

Engineering and Technical Services
The data presented here are generally accurate. The work has not been baselined or validated.

Attachment 4
Appendix C - Supporting Data
Worksheet for Projects and Level of Effort Activities

(Check One) ____ Project __X__ Level of Effort Activity

Project Name or Activity Description: Work for Others Miscellaneous Project WAD Number 57 **Project Number:** RFETS-12

Type of Project or Activity: All Other

Managing or Funding Program (check one or more) ___ WM ___ ER ___ TD ___ NM ___ SO __X__ Other

Project or Activity Definition/Work Scope Description

Purpose/Project Addressed: This project provides a collection point in the Site WBS for work that is not funded through the RFFO Financial Plan (FinPlan). This project makes Rocky Flats resources available to support requests from other facilities in the complex ("Work-for-Others"), as well as other Government agencies and commercial clients. These actions could take many forms including, for example, developing technology, conducting chemical or radiological analyses, and providing technical information. Funding to support this work flows directly to the IMC and is not controlled by RFFO.

Facilities/Location: At this time, it is unknown what materials would be involved, what actions may be required, or where those actions would occur for these special requests. However, any of those activities that would require the handling of radiologically-contaminated materials would take place in buildings or laboratories found within the protected area. Existing Nuclear Facilities that could possibly be used include Buildings 371/374, 559, 707, 771, 771/774, and 776/777. Actions using uncontaminated material could take place in these and several other building located outside the Protected Area such as Buildings 444, 460, 865, 881, 883, and 886. Facility availability would be influenced by the timing of cluster D&D.

Key Assumptions:

- Personnel and budget would be available to perform the work
- A facility would be available to conduct the work
- DOE work scope would not be affected

Accomplishments to Date: None

FY 2006 End State: It is expected that all "Work-for-Others" would be completed by the end of FY2006 because no facilities would remain as available at that time.

Activities After 2006: N/A

Major Cost Drivers: N/A

Technologies/Approach: N/A

Relation to Other Projects: "Work-for-Others" activities would be unrelated to other projects

Relation Sites:

Needs from Other Sites: This work could be requested by other sites, however, it is unknown which sites would request the work.

Offers to Other Sites: N/A

Milestone/Schedule Information: Future schedules and formal costs are unknown. Current expectations are that requests for approximately $1-2 million/year of work might be received from other sources.

Costs: See Table 4-12-1

Outputs/Metrics: N/A

Discussion: FY96 costs were $1.3 Million for Miscellaneous Work. There is a low level of confidence because future "Work-for-Others" needs are not currently known.

Table 4-1-1: Buffer Zone Closure Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-01	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Buffer Zone Closure Project													
	11,185	19,346	17,629	8,566	11,242	15,269	18,375	7,758	8,930	9,809	128,110	25,557	153,667
Total (Operations)	**11,185**	**19,346**	**17,629**	**8,566**	**11,242**	**15,269**	**18,375**	**7,758**	**8,930**	**9,809**	**128,110**	**25,557**	**153,667**

Table 4-2-1: Special Nuclear Material Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-02	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Special Nuclear Material Project													
Pu Storage Project	1,595	1,664	1,664	1,664	3,582	4,030	4,030	3,880	3,880	3,731	29,722	26,118	55,840
Pu Processing & Packaging Project	18,952	247	0	0	0	0	0	0	0	0	19,199	0	19,199
PASS Project	13,622	6,427	0	0	0	0	0	0	0	0	20,049	0	20,049
Pu Residue Elimination Project	41,931	6,180	0	0	0	0	0	0	0	0	48,111	0	48,111
Uranium Decontamination Project	415	74	0	0	0	0	0	0	0	0	488	0	488
HEUN Project	0	8,652	0	0	0	0	0	0	0	0	8,652	0	8,652
SNM Liquid Stabilization Project	8,292	7,467	5,602	0	0	0	0	0	0	0	21,360	0	21,360
SNM Solid Residue Project	8,404	26,979	45,755	62,669	66,626	34,573	75	0	0	0	245,082	0	245,082
SNM Metal/Oxide Project	1,911	6,693	7,705	7,394	5,979	3,621	0	0	0	0	33,302	0	33,302
SNM Shipping Project	0	1,743	1,743	1,743	1,743	0	0	0	0	0	6,971	6,695	13,666
Total (Operations)	**95,121**	**66,126**	**62,470**	**73,470**	**77,929**	**42,224**	**4,105**	**3,880**	**3,880**	**3,731**	**432,937**	**32,813**	**465,750**

Table 4-3-1: Special Nuclear Material Support Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-03	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
SNM Support Project													
B371 Near-Term Safety Upgrade Project	1,751	6,714	3,109	0	0	0	0	0	0	0	11,574	0	11,574
Pu Facility Construction Project	6,645	25,771	25,425	13,472	0	0	0	0	0	0	71,313	10,300	81,613
SNM Support Project	3,275	9,567	7,227	7,428	7,581	7,910	0	0	0	0	42,989	0	42,989
SNM Liquid Stabilization Dev. Project	3,554	3,090	2,472	0	0	0	0	0	0	0	9,116	0	9,116
Total (Construction)	**15,224**	**45,142**	**38,233**	**20,900**	**7,581**	**7,910**	**0**	**0**	**0**	**0**	**134,991**	**10,300**	**145,291**

Table 4-4-1: Waste Management Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-04	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Waste Management Project													
Sanitary Waste and LLW/LLMW Project	3,193	3,126	7,988	9,192	6,818	5,825	5,037	3,489	1,445	67	46,179	536	46,715
TRU/TRUM Storage Project	171	1,607	8,584	2,881	1,707	1,912	1,725	2,712	779	69	22,148	0	22,148
Waste Disposal Project	11,259	10,465	9,995	10,111	11,192	40,286	39,844	39,672	33,548	23,265	229,636	411	230,047
Waste Treatment Project	4,828	11,588	11,164	11,151	20,540	17,880	15,378	15,227	15,253	13,676	136,685	0	136,685
Total (Operations)	**19,451**	**26,786**	**37,731**	**33,335**	**40,257**	**65,902**	**61,984**	**61,100**	**51,024**	**37,078**	**434,648**	**946**	**435,594**

Table 4-5-1: Waste Management Support Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-05	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Waste Management Support Project													
LLW/LLMW Construction Project	0	4,202	0	4,202	9,105	0	0	0	0	2,678	20,188	0	20,188
TRU/TRUM Construction Project	567	1,545	1,545	0	0	0	0	0	0	670	4,326	0	4,326
Waste Management Support Project	105	112	113	117	121	0	0	0	0	0	568	0	568
B374 Treatment Facility Project	5,665	18,540	8,652	0	0	0	0	0	0	0	32,857	0	32,857

CTMP Project	8,597	7,525	6,108	6,108	3,594	0	0	0	0	0	31,932	8,034	39,966
Containment Removal Project	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (Construction)	**14,934**	**31,924**	**16,419**	**10,427**	**12,820**	**0**	**0**	**0**	**0**	**3,348**	**89,871**	**8,034**	**97,905**

Table 4-6-1: Environmental Compliance and Restoration Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-06	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Environmental Compliance and Restoration Project													
Closure Cap Project	0	0	0	0	0	0	23,175	23,740	40,989	37,722	125,627	824	126,451
Environmental Compliance Project	3,676	3,781	3,674	3,572	3,383	3,198	2,868	2,539	2,209	1,877	30,775	7,800	38,575
Total (Other)	**3,676**	**3,781**	**3,674**	**3,572**	**3,383**	**3,198**	**26,043**	**26,279**	**43,197**	**39,600**	**156,402**	**8,624**	**165,026**

Table 4-7-1: Industrial Zone Closure Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-07	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Industrial Zone Closure Project													
	8,326	11,186	12,924	30,021	15,173	18,212	14,482	9,663	21,897	27,318	169,204	17,033	186,236
Total (Operations)	**8,326**	**11,186**	**12,924**	**30,021**	**15,173**	**18,212**	**14,482**	**9,663**	**21,897**	**27,318**	**169,204**	**17,033**	**186,236**

Table 4-8-1: Production Area Closure Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-08	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total

Production Area Closure Project													
207 Cluster Project	298	318	322	331	3,936	129	0	0	0	0	5,334	0	5,334
500 Cluster Project	3,517	3,756	4,351	3,938	3,951	4,123	6,814	9,931	6,595	322	47,298	0	47,298
700 Cluster Project	34	37	37	38	39	280	0	0	0	0	465	0	465
800 Cluster Project	1,754	1,873	3,763	3,915	386	322	0	0	0	0	12,012	0	12,012
900 Cluster Project	145	154	156	258	449	187	122	122	122	816	2,533	0	2,533
371 Cluster Project	11,702	12,498	12,748	14,171	21,058	36,336	26,433	9,058	966	0	144,968	0	144,968
707/750 Cluster Project	9,889	10,562	11,255	15,787	13,678	20,327	26,981	11,787	322	0	120,588	0	120,588
779 Cluster Project	3,104	5,647	3,972	2,087	0	0	0	0	0	0	14,811	0	14,811
771/774 Cluster Project	8,511	10,514	11,923	26,802	18,922	547	483	0	0	0	77,701	0	77,701
776/777 Cluster Project	5,019	7,264	14,006	32,082	30,592	28,551	322	0	0	0	117,836	0	117,836
881 Cluster Project	4,781	6,212	17,360	12,929	3,428	7,729	21,437	16,433	483	483	91,275	0	91,275
991 Cluster Project	133	142	193	1,790	129	0	0	0	0	0	2,388	0	2,388
Production Zone Misc. Cluster Project	6,439	417	7,113	433	32,912	9,767	19,517	10,351	18,949	6,324	112,223	0	112,223
Total (Operations)	**55,327**	**59,394**	**87,200**	**114,561**	**129,480**	**108,297**	**102,109**	**57,682**	**27,437**	**7,945**	**749,432**	**0**	**749,432**

Table 4-9-1: Site Infrastructure Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-09	**FY 97**	**FY 98**	**FY 99**	**FY 00**	**FY 01**	**FY 02**	**FY 03**	**FY 04**	**FY 05**	**FY 06**	**10yr TOTAL**	**Outyears**	**Total**
Site Infrastructure Project													
Utilities Project	8,740	9,355	9,460	9,379	9,717	10,140	8,892	8,274	7,054	2,240	83,251	4,882	88,133
Infrastructure Project	45,809	48,924	48,695	49,333	49,423	50,877	24,667	24,142	23,794	10,303	375,965	67,273	443,239
Total (Operations)	**54,548**	**58,278**	**58,154**	**58,712**	**59,140**	**61,017**	**33,559**	**32,416**	**30,848**	**12,543**	**459,216**	**72,156**	**531,372**
Infrastructure Capital/GPP Project	14,619	12,544	5,186	4,311	3,637	2,559	778	778	0	0	44,411	0	44,411
UST Project	206	0	0	0	0	0	0	0	0	0	206	0	206
Sewage Treatment Project	400	0	0	0	0	0	0	0	0	0	400	0	400
HP Project	82	0	0	0	0	0	0	0	0	0	82	0	82
Infrastructure Replacement Project	0	0	0	0	0	0	0	0	0	0	0	0	0
ES&H Enhancement Project	100	0	0	0	0	0	0	0	0	0	100	0	100

Plant Fire Security System Project	660	7,476	10,800	0	0	0	0	0	0	0	18,936	0	18,936
Critical Alarms Project	1,850	1,068	0	0	0	0	0	0	0	0	2,918	0	2,918
Water System Project	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (Construction)	**17,918**	**21,088**	**15,986**	**4,311**	**3,637**	**2,559**	**778**	**778**	**0**	**0**	**67,053**	**0**	**67,053**
Total	**72,466**	**79,366**	**74,140**	**63,023**	**62,777**	**63,576**	**34,337**	**33,194**	**30,848**	**12,543**	**526,269**	**72,156**	**598,425**

Table 4-10-1: Site Projects Management Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-10	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Site Projects Management													
Management Project	172,511	182,277	178,474	175,430	169,262	163,600	142,110	124,826	110,646	91,806	1,510,943	295,407	1,806,350
Program Support Project	32,991	29,973	29,128	28,321	26,818	25,353	22,742	20,127	17,510	14,884	247,846	57,954	305,800
Provide RFFO Direction and Support	80,000	82,236	79,920	77,700	73,600	69,600	62,400	55,200	48,000	31,003	659,658	61,178	720,836
Post Closure Monitoring	0	0	0	0	0	0	0	0	0	0	0	12,000	12,000
Total (Other)	**285,502**	**294,487**	**287,522**	**281,450**	**269,679**	**258,553**	**227,252**	**200,152**	**176,156**	**137,692**	**2,418,447**	**426,540**	**2,844,986**

Table 4-11-1: Technical Support Project Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-11	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Technical Support Project													
Analytical Services Project	9,997	10,676	10,796	8,238	8,535	5,198	5,198	5,198	5,198	0	69,035	0	69,035
Technical Support Project	8,552	8,795	8,547	8,310	7,869	7,440	6,673	5,906	5,138	4,367	71,598	17,363	88,961
Total (Other)	**18,548**	**19,472**	**19,344**	**16,548**	**16,404**	**12,638**	**11,871**	**11,104**	**10,336**	**4,367**	**140,633**	**17,363**	**157,996**

Table 4-12-1: Work For Others Miscellaneous Projects Costs ($ in Thousands)

Note: All costs are in constant FY97 dollars, and include contingency.

RFETS-12	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Work For Others Misc. Projects													
	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (Other)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

RFETS 10-Year Plan
Major Project/Wad Funding Profile
ALL COSTS ARE IN CONSTANT FY97 DOLLARS (Costs include Contingency)
($s in Thousands)

Major Project	WAD #	WAD PROJECT TITLE	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
Buffer Zone Closure Project															
	1	Buffer Zone Closure Project	11,185	19,346	17,629	8,566	11,242	15,269	18,375	7,758	8,930	9,809	128,110	25,557	153,667
	Project Total		**11,185**	**19,346**	**17,629**	**8,566**	**11,242**	**15,269**	**18,375**	**7,758**	**8,930**	**9,809**	**128,110**	**25,557**	**153,667**
Special Nuclear Material															
	10	Pu Storage Project	1,595	1,664	1,664	1,664	3,582	4,030	4,030	3,880	3,880	3,731	29,722	26,118	55,840
	13	Pu Processing & Packaging Project	18,952	247	0	0	0	0	0	0	0	0	19,199	0	19,199
	14	PASS Project	13,622	6,427	0	0	0	0	0	0	0	0	20,049	0	20,049
	15	Pu Residue Elimination Project	41,931	6,180	0	0	0	0	0	0	0	0	48,111	0	48,111
	17	Uranium Decontamination Project	415	74	0	0	0	0	0	0	0	0	488	0	488
	18	HEUN Project	0	8,652	0	0	0	0	0	0	0	0	8,652	0	8,652
	19	SNM Liquid Stabilization Project	8,292	7,467	5,602	0	0	0	0	0	0	0	21,360	0	21,360
	20	SNM Solid Residue Project	8,404	26,979	45,755	62,669	66,626	34,573	75	0	0	0	245,082	0	245,082
	21	SNM Metal/Oxide Project	1,911	6,693	7,705	7,394	5,979	3,621	0	0	0	0	33,302	0	33,302
	22	SNM Shipping Project	0	1,743	1,743	1,743	1,743	0	0	0	0	0	6,971	6,695	13,666
	Project Total		**95,121**	**66,126**	**62,470**	**73,470**	**77,929**	**42,224**	**4,105**	**3,880**	**3,880**	**3,731**	**432,937**	**32,813**	**465,750**
SNM Support Project															
	9	B371 Near-Term Safety Upgrade Project	1,751	6,714	3,109	0	0	0	0	0	0	0	11,574	0	11,574
	11	Pu Facility Construction Project	6,645	25,771	25,425	13,472	0	0	0	0	0	0	71,313	10,300	81,613
	12	SNM Support Project	3,275	9,567	7,227	7,428	7,581	7,910	0	0	0	0	42,989	0	42,989
	16	SNM Liquid Stabilization Development Proj	3,554	3,090	2,472	0	0	0	0	0	0	0	9,116	0	9,116
	Project Total		**15,224**	**45,142**	**38,233**	**20,900**	**7,581**	**7,910**	**0**	**0**	**0**	**0**	**134,991**	**10,300**	**145,291**
Waste Management Project															
	2	Sanitary Waste and LLW/LLMW Project	3,193	3,126	7,988	9,192	6,818	5,825	5,037	3,489	1,445	67	46,179	536	46,715
	4	TRU/TRUM Storage Project	57	1,607	8,584	2,881	1,707	1,912	1,725	2,712	779	69	22,034	0	22,034
	6	Waste Disposal Project	11,259	10,465	9,995	10,111	11,192	40,286	39,844	39,672	33,548	23,265	229,636	821	230,457
	7	Waste Treatment Project	4,828	11,588	11,164	11,151	16,113	9,828	7,328	7,175	7,202	6,722	93,099	0	93,099
	Project Total		**19,337**	**26,786**	**37,731**	**33,335**	**35,830**	**57,851**	**53,933**	**53,048**	**42,974**	**30,124**	**390,948**	**1,357**	**392,305**
Waste Management Support Project															
	3	LLW/LLMW Construction Project	0	4,202	0	4,202	9,105	0	0	0	0	2,678	20,188	0	20,188
	5	TRU/TRUM Construction Project	567	1,545	1,545	0	0	0	0	0	0	670	4,326	0	4,326
	8	Waste Management Support Project	105	112	113	117	121	0	0	0	0	0	568	0	568
	48	B374 Treatment Facility Project	5,665	18,540	8,652	0	0	0	0	0	0	0	32,857	0	32,857
	49	CTMP Project	8,597	7,525	6,108	6,108	3,594	0	0	0	0	0	31,932	8,034	39,966
	50	Containment Removal Project	0	0	0	0	0	0	0	0	0	0	0	0	0
	Project Total		**14,934**	**31,924**	**16,419**	**10,427**	**12,820**	**0**	**0**	**0**	**0**	**3,348**	**89,871**	**8,034**	**97,905**
Environmental Compliance and Restoration Project															
	23	Closure Cap Project	0	0	0	0	0	0	23,175	23,740	40,989	37,722	125,627	824	126,451
	24	Environmental Compliance Project	3,676	3,781	3,674	3,572	3,383	3,198	2,868	2,539	2,209	1,877	30,775	7,800	38,575
	Project Total		**3,676**	**3,781**	**3,674**	**3,572**	**3,383**	**3,198**	**26,043**	**26,279**	**43,197**	**39,600**	**156,402**	**8,624**	**165,026**
Industrial Zone Closure Project															
	25	Industrial Zone Closure Project	8,326	11,186	12,924	30,021	15,173	18,212	14,482	9,663	21,897	27,318	169,204	17,033	186,236
	Project Total		**8,326**	**11,186**	**12,924**	**30,021**	**15,173**	**18,212**	**14,482**	**9,663**	**21,897**	**27,318**	**169,204**	**17,033**	**186,236**
Production Area Closure															
	26	207 Cluster Project	298	318	322	331	3,936	129	0	0	0	0	5,334	0	5,334
	27	500 Cluster Project	3,517	3,756	4,351	3,938	3,951	4,123	6,814	9,931	6,595	322	47,298	0	47,298
	28	700 Cluster Project	34	37	37	38	39	280	0	0	0	0	465	0	465
	29	800 Cluster Project	1,754	1,873	3,763	3,915	386	322	0	0	0	0	12,012	0	12,012
	30	900 Cluster Project	145	154	156	258	449	187	122	122	122	816	2,533	0	2,533
	31	371 Cluster Project	11,702	12,498	12,748	14,171	21,058	36,336	26,433	9,058	966	0	144,968	0	144,968
	32	707/750 Cluster Project	9,889	10,562	11,255	15,787	13,678	20,327	26,981	11,787	322	0	120,588	0	120,588
	33	779 Cluster Project	3,104	5,647	3,972	2,087	0	0	0	0	0	0	14,811	0	14,811

RFETS 10-Year Plan
Major Project/Wad Funding Profile
ALL COSTS ARE IN CONSTANT FY97 DOLLARS (Costs include Contingency)
($s in Thousands)

Major Project	WAD #	WAD PROJECT TITLE	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyears	Total
	34	771/774 Cluster Project	8,511	10,514	11,923	26,802	18,922	547	483	0	0	0	77,701	0	77,701
	35	776/777 Cluster Project	5,019	7,264	14,006	32,082	30,592	28,551	322	0	0	0	117,836	0	117,836
	36	881 Cluster Project	4,781	6,212	17,360	12,929	3,428	7,729	21,437	16,433	483	483	91,275	0	91,275
	37	991 Cluster Project	133	142	193	1,790	129	0	0	0	0	0	2,388	0	2,388
	38	Production Zone Misc. Cluster Project	6,439	417	7,113	433	32,912	9,767	19,517	10,351	18,949	6,324	112,223	0	112,223
	Project Total		**55,327**	**59,394**	**87,200**	**114,561**	**129,480**	**108,297**	**102,109**	**57,682**	**27,437**	**7,945**	**749,432**	**0**	**749,432**
Site Infrastructure Project															
	39	Utilities Project	8,740	9,355	9,460	9,379	9,717	10,140	8,892	8,274	7,054	2,240	83,251	4,882	88,133
	40	Infrastructure Project	45,809	48,924	48,695	49,333	49,423	50,877	24,667	24,142	23,794	10,303	375,965	67,273	443,239
	42	Infrastructure Capital/GPP Project	14,619	12,544	5,186	4,311	3,637	2,559	778	778	0	0	44,411	0	44,411
	43	UST Project	206	0	0	0	0	0	0	0	0	0	206	0	206
	47	Sewage Treatment Project	400	0	0	0	0	0	0	0	0	0	400	0	400
	51	HP Project	82	0	0	0	0	0	0	0	0	0	82	0	82
	52	Infrastructure Replacement Project	0	0	0	0	0	0	0	0	0	0	0	0	0
	53	ES&H Enhancement Project	100	0	0	0	0	0	0	0	0	0	100	0	100
	54	Plant Fire Security System Project	660	7,476	10,800	0	0	0	0	0	0	0	18,936	0	18,936
	55	Critical Alarms Project	1,850	1,068	0	0	0	0	0	0	0	0	2,918	0	2,918
	56	Water System Project	0	0	0	0	0	0	0	0	0	0	0	0	0
	Project Total		**72,466**	**79,366**	**74,140**	**63,023**	**62,777**	**63,576**	**34,337**	**33,194**	**30,848**	**12,543**	**526,269**	**72,156**	**598,425**
Site Project's Management															
	44	Management Project	172,511	182,277	178,474	175,430	169,262	163,600	142,110	124,826	110,646	91,806	1,510,943	295,407	1,806,350
	45	Program Support Project	32,991	29,973	29,128	28,321	26,818	25,353	22,742	20,127	17,510	14,884	247,846	57,954	305,800
		Provide RFFO Direction and Support	80,000	82,236	79,920	77,700	73,600	69,600	62,400	55,200	48,000	31,003	659,658	61,178	720,836
		Post Closure Monitoring	0	0	0	0	0	0	0	0	0	0	0	12,000	12,000
	Project Total		**285,502**	**294,487**	**287,522**	**281,450**	**269,679**	**258,553**	**227,252**	**200,152**	**176,156**	**137,692**	**2,418,447**	**426,540**	**2,844,986**
Technical Support Project															
	41	Analytical Services Project	9,997	10,676	10,796	8,238	8,535	5,198	5,198	5,198	5,198	0	69,035	0	69,035
	46	Technical Support Project	8,552	8,795	8,547	8,310	7,869	7,440	6,673	5,906	5,138	4,367	71,598	17,363	88,961
	Project Total		**18,548**	**19,472**	**19,344**	**16,548**	**16,404**	**12,638**	**11,871**	**11,104**	**10,336**	**4,367**	**140,633**	**17,363**	**157,996**
Work For Others Misc. Projects															
	57	Work for Others Project	0	0	0	0	0	0	0	0	0	0	0	0	0
	Project Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	RFETS PROJECT TOTAL		**599,647**	**657,010**	**657,286**	**655,873**	**642,298**	**587,729**	**492,508**	**402,760**	**365,656**	**276,477**	**5,337,244**	**619,776**	**5,957,020**

Table 4-1-2: Buffer Zone Closure Project Outputs/Metrics

BUFFER ZONE CLOSURE PROJECT (RFETS-01)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997-2006	2007-Comp
Facilities												
# of Facilities Deactivated	0	0	0	0	0	0	23	0	0	0	23	1
# of Facilities Decommissioned	0	0	0	0	0	9	16	9	0	13	47	4
Waste Generation (cubic meters)												
SAN												2510
Remedial Action												
# of Assessments		2	4		1		2				9	
# of Remedial Actions Completed		2	4		1		2				9	
Waste Generation (cubic meters):												
HAZ Storage or Disposal	0	0	110	0	0	0	0	0	0	0	110	0
HAZ Treated with TD	0	0	8550	0	0	0	0	0	0	0	8550	0
LLMW Storage or Disposal	0	0	60	0	0	0	0	0	0	0	60	0

Table 4-2-2: Special Nuclear Materials Project Outputs/Metrics

SPECIAL NUCLEAR MATERIAL PROJECT (RFETS-02)

Activity (kg of Pu)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Pre-Stabilization	12600	10750	7800	4550	1300	0	0	0	0	0
Stabilization	300	1850	2950	3250	3250	1300	0	0	0	0
Post Stabilization	0	300	2150	5100	8350	11600	12900	12900	12900	12900

Residue Processing Was	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997-2006
Generation (cubic meters)											
LLW	6	282	282	282	282	113	0	0	0	0	1247
LLMW	40	35	4	4	4	2	0	0	0	0	89
TRU/TRM (storage)	60	1077	1057	1057	1057	428	0	0	0	0	4736
TRU/TRM (ship)	131	2782	2762	2762	2762	1099	0	0	0	0	12298

Table 4-4-2: Waste Management Project Outputs/Metrics

WASTE MANAGEMENT PROJECT (RFETS-04)

Waste in cubic meters	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997 - 2006	2007 - Comp.
Transuranic Waste												
A. Storage (prior to treatment)	1256	2153	1277	1057	1057	428	0	0	0	0	7228	0
C. Treatment/Roadready not requiring treatment	0	1137	1057	1057	1057	428	230	230	230	214.4	5640.4	0
D. Disposal (WIPP) (roll up by project)	0	141	1764	2079	3721	3765	2900	390	112	10	14882	0
Mixed Low Level Waste												
A. Storage	14002	9686	6100	1699	14931	2917	0	0	0	0	49335	0
C. Treatment (roll up by project)	0	0	0	0	5023.5	5088	5070	5058	5048.5	4361	29650	0
D. Disposal (roll up by project)	4644	4644	4644	5000	246	20176	14707	7605	8834	2729	73229	0
Low Level Waste												
A. Storage	6752	7858	9304	24532	31643	35417	31800	18951	10510	0	176767	60
C. Treatment (roll up by project)	0	0	0	0	0	0	0	0	0	0	0	0
D. Disposal (roll up by project)	0	0	0	0	4754	4824	10293	17395	12243	11777	61286	60
Hazardous Waste												
A. Storage												
C. Treatment (roll up by project)												
D. Disposal (roll up by project)	74	81	100	489	609	432	393	355	302	210	3045	5
Sanitary Waste												
A. Storage												
C. Treatment (roll up by project)												
D. Disposal (roll up by project)	892	1637	3169	13044	42179	28997	26368	23765	20099	13382	173532	10510

Table 4-6-2: Environmental Compliance and Restoration Project Outputs/Metrics

ENVIRONMENTAL COMPLIANCE AND RESTORATION PROJECT (RFETS-06)

Remedial Actions	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997-2006
Assessments				1				1	1	1	4
Remedial Actions Completed				1				1	1	1	4

Table 4-7-2: Industrial Zone Closure Project Outputs/Metrics

INDUSTRIAL ZONE CLOSURE PROJECT (RFETS-07)

Facility D&D	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**1997-2006**	**2007-Comp.**
# of Facilities Deactivated	0	23	19	7	15	11	0	76	23	70	244	71
Waste Generation (cubic meters):												
LLW	0	0	0	0	817	283	0	0	0	0	1100	10
LLMW	0	0	0	0	16	5	0	0	0	0	21	0
# of Facilities Decommissioned	0	0	23	26	13	9	4	33	39	38	185	130
Waste Generation (cubic meters):												
SAN	0	386	1166	6112	20718	14165	12888	11625	9830	6509	83399	8000
HAZ	0	5	15	80	273	187	170	154	130	86	1100	5
LLW	0	0	0	592	2525	648	683	115	0	159	4722	50
LLMW	0	9	0	4	283	753	817	144	0	58	2068	0
Remedial Actions	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**1997-2006**	**2007-Comp.**
# of Assessments			1	2	4	1					8	0
# of Remedial Actions Completed			1	2	4	1					8	0
Waste Generated (cubic meters):											0	
HAZ *Treated with TD*	0	0	1700	0	0	0	0	0	0	0	1700	0
LLMW *Storage or Disposal*	0	0	0	260	0	0	0	0	0	0	260	0
LLMW *Treated with TD*	0	1150	80	0	920	0	0	0	0	0	2150	0
LLW *Storage or Disposal*	0	0	80	260	920	0	0	0	0	0	1260	0

Table 4-8-2: Production Area Closure Project Outputs/Metrics

PRODUCTION AREA CLOSURE PROJECT (08)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1997-2006
Facility D&D											
# of Facilities Deactivated	0	16	61	56	57	19	55	5	2	9	280
Waste Generated (cubic meters)											
LLW	0	176	512	1149	2153	1398	1218	394	0	0	7000
LLMW	0	3	10	21	37	33	17	6	0	0	127
TRU/TRM	0	3	7	14	19	19	10	2	0	0	74
# of Facilities Decommissioned	0	0	25	98	78	17	43	20	39	19	339
Waste Generated (cubic meters)											
SAN	0	386	1166	6112	20718	14165	12888	11625	9830	6509	83399
HAZ	0	5	15	80	273	187	170	154	130	86	1100
LLW	0	2	26	2303	5525	5642	4310	3621	3435	790	25654
LLMW	0	0	28	408	1415	3673	4421	3064	1539	358	14906
TRU/TRM	0	0	2	64	186	231	224	376	101	0	1184
Remedial Actions	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**1997-2006**
# of Assessments	1	0	4	0	13	4	3	1	4	2	32
# of Remedial Actions Complete	1	0	4	0	13	4	3	1	4	2	32
Waste Generated (cubic meters):											
HAZ Storage or Disposal	0	0	0	0	70	0	0	0	0	0	70
HAZ Treated with TD	0	0	0	0	0	0	1704	1069	708	466	3947
LLMW Storage or Disposal	0	0	0	850	6397	4499	6412	4281	4689	2229	29357
LLMW Treated with TD	3060	0	1530	0	140	0	0	0	0	0	4730

TEN-YEAR PLAN
Attachment 5
Appendix D
Mortgage Reduction

Project Title	10-Year Plan Net Present Value at 3%	Target Net Present Value at 3%	Internal Rate of Return	Payback Period
	($1 M)	($1 M)	(%)	(Years)
Mission Termination and Deactivation of Building 371/374	247	535	*	*
Mission Termination and Deactivation of Building 707	142	328	*	*
Mission Termination and Deactivation of Building 776/777	80	300	38% *	6 *
Mission Termination and Deactivation of Building 779	11	30	50% *	4 *
Mission Termination and Deactivation of Building 771/774	88	291	100% *	4 *

* Incremental IRR and Payback calculations are dependent upon the cost profiles of the projects being evaluated. The calculation worksheet provided does not properly calculate these values for all of the mortgage reduction projects included in this plan.

Attachment 5
Mortgage Reduction Project

1.0 MISSION TERMINATION AND DEACTIVATION OF BUILDING 371/374 RFETS PROJECT #2

1.1 Scenario Descriptions

Default Scenario (Minimum Safe Storage)

The default scenario is provided for comparison purposes only, and would only be considered for budgets less than the current Ten-Year Plan targets (assuming that annual funding levels take escalation into consideration).

This scenario includes surveillance and maintenance of Buildings 371/374 and the draining of plutonium liquid from tanks and lines. It does not include Special Nuclear Material (SNM) stabilization and consolidation, cleanup of highly contaminated areas, or treatment and consolidation of plutonium residues. No other deactivation takes place and building baseline costs remain high indefinitely. Over time maintenance costs would rise as the facility ages. Unstabilized nuclear materials would present increasing hazards from deteriorating containers and ongoing chemical and nuclear degradation. Highly-contaminated areas could potentially leak contamination to other areas of the facility. Worker risks would continue to increase, with the potential for an eventual release outside the buildings.

Target Scenario (BEMR)

The target scenario is based on the previously published Baseline Environmental Management Report (BEMR II) estimates that existed prior to the feasibility study of Accelerated Site Action Project (ASAP) Phase 1. This scenario involves stabilization and consolidation of SNM, draining of plutonium liquid from tanks and lines, cleanup of highly contaminated areas, and treatment and consolidation of plutonium residues. Mission termination and deactivation of Buildings 371/374 is scheduled to be completed by FY23 because the facility remains in operation to fulfill the ongoing missions of residue and SNM storage.

Accelerated Scenario (Ten-Year Plan)

The accelerated scenario has the same scope as the target scenario, but with a higher funding level and improved schedule logic. The primary benefit to this scenario is the cost savings that results from the termination of the mission in FY-03. Deactivation would begin in FY02 and finishes in FY05. This overlap in operations and deactivation allows an even quicker deactivation which further increases overall cost savings.

This scenario remains constrained by available budget in the first two to three years as a result of the Rocky Flats Environmental Technology Site (RFETS or the Site's) priority to meet all compliance requirements with Federal Facility Compliance Agreement (FFCA), Defense Nuclear Facilities Safety Board (DNFSB), Rocky Flats Cleanup Agreement (RFCA), Resource Conservation and Recovery Act (RCRA) and other mandatory drivers. The schedule could be accelerated further with additional early year funding. This would improve the mortgage reduction beyond that calculated for the accelerated scenario.

1.2 Assumptions

The accelerated scenario assumes that the current standards for nuclear operations remain the same and that the commitments of DNFSB Recommendations 94-1 and 94-3 do not change. This includes the completion of the new Interim Storage Vault (ISV) for plutonium metals and oxides.

It also assumes that the Alternate Water Treatment System (AWTS) capital project to treat liquid radioactive wastewater is completed on schedule in order to allow deactivation of the Building 374 evaporator systems. The evaporator is also crucial to liquid stabilization activities.

Another necessary capital project is the Residue Elimination Project (REP) which must be completed to facilitate residue treatment and shipment to the Waste Isolation Pilot Project (WIPP). WIPP must open on time and accept Rocky Flats transuranic wastes which include the plutonium residues. The residues must be moved out of Building 371.

This activity is logic tied in the schedule to SNM stabilization and consolidation; both missions must be completed in Building 371 in order to complete deactivation in those process areas.

Plutonium liquid stabilization involves draining tanks and piping and utilizes the recently completed, but not yet operational Caustic Waste Treatment System (CWTS). Should CWTS startup be delayed there will be a resulting impact on schedule.

1.3 Sensitivities

If WIPP does not open on schedule, a new storage facility must be built to accept the residues which need to be moved out of B-371 to allow deactivation.

If the new plutonium repackaging line is not completed in Building 371 on schedule, a slip of about _ day per day of delay is incurred.

If the ISV is not built and loaded on schedule then Building 371 may require significantly more extensive upgrades (per DNFSB Recommendation 94-3) with resulting higher costs.

1.4 Basis for Project Choice as a Mortgage Reduction Candidate

The Site is already on a path towards closure. All facilities will eventually be demolished. The rate at which facility baselines can be reduced is directly proportional to the cost savings. Current nuclear facility baselines are estimated to be $400 million at RFETS. The inability to fund mortgage reduction activities such as this stretches the closure schedule proportionally.

The probability of success is high because mission termination and closure is the Site mission. Many of the mission termination activities are already underway, and the cost estimates and schedules are being refined with experience. Kaiser-Hill will complete the Integrated Site-Wide Baseline by August 1, 1996.

Stakeholder support for this activity is high. Stakeholders are very knowledgeable and have made nuclear facility deactivation a high priority as a means of freeing up funds for risk reduction activities. In this case, the risk reduction activity and the mortgage reduction activities share the mission termination work scope. Liquid and solid residue stabilization, SNM stabilization, SNM consolidation and ISV startup are all listed on the Risk Reduction Table. In addition, privatization of

the plutonium storage mission (ISV) and residue processing are a high priority and are described in the Privatization Table.

1.5 Data Quality

Medium: Planning estimates for the target have been validated by DOE Headquarters (HQ). The accelerated scenario uses the same cost and schedule logic and cost estimates with an increased funding cap in the first two years.

2.0 MISSION TERMINATION AND DEACTIVATION OF BUILDING 707 RFETS PROJECT #2

2.1 Scenario Descriptions

Default Scenario (Minimum Safe Storage)

The default scenario is provided for comparison purposes only, and would only be considered for budgets less than the current Ten-Year Plan targets (assuming that annual funding levels take escalation into consideration).

This scenario includes surveillance and maintenance of Building 707. It does not include SNM stabilization and consolidation, cleanup of contaminated areas, or treatment and consolidation of plutonium residues. No other deactivation takes place and building baseline costs remain high indefinitely.

Over time, maintenance costs would rise as the facility ages. Unstabilized nuclear materials would present increasing hazards from deteriorating containers and ongoing chemical and nuclear degradation. Highly-contaminated gloveboxes could potentially leak contamination to other areas of the facility. Worker risks would continue to increase, with the potential for an eventual release outside the building.

Target Scenario (BEMR)

The target scenario is based on the previously published BEMR estimates that existed prior to the feasibility study of ASAP Phase 1. This scenario involves stabilization and consolidation of SNM (including enriched uranium part decontamination), cleanup of contaminated areas and treatment and consolidation of plutonium residues. Mission termination and deactivation of Building 707 is scheduled to be completed in FY13.

Accelerated Scenario (Ten-Year Plan)

The accelerated scenario has the same scope as the target scenario, but with a higher funding level and improved schedule logic. The mission termination activities are scheduled for completion in FY02 with deactivation beginning in FY00 and completed in FY03. This overlap in operations and deactivation allows quicker mission termination and follow-on deactivation , maximizing overall cost savings.

This scenario remains constrained by available budget in the first two to three years as a result of the Site's priority to meet all compliance requirements with FFCA, DNFSB, RFCA, RCRA and other mandatory drivers. The schedule could be accelerated further with additional early-year funding. This would improve the mortgage reduction beyond that calculated for the accelerated scenario.

2.2 Assumptions

The accelerated scenario assumes that the current standards for nuclear operations remains the same and that the commitments of DNFSB Recommendations 94-1 and 94-3 do not change.

This includes the transfer of plutonium metals and oxides to Building 371 prior to the opening of the ISV.

Another necessary capital project is the Residue Elimination Project (REP) which must be completed to facilitate residue treatment and shipment to WIPP. WIPP must open on time and accept Rocky Flats transuranic wastes which include the plutonium residues. The residues will be treated in Building 707.

This activity is logic tied in the schedule to SNM stabilization and consolidation, both missions must be completed in Building 707 in order to begin deactivation in those process areas.

2.3 Sensitivities

Building 371 seismic upgrades must be completed on schedule to allow SNM consolidation to occur.

If WIPP does not open on schedule, a new storage facility must be built to accept the residues which need to be moved out of Building 707 to allow deactivation.

If the new plutonium repackaging line in Building 707 is not completed on schedule, a slip of about a day per day of delay is incurred.

2.4 Basis for Project Choice as a Mortgage Reduction Candidate

The Site is already on a path towards closure. All facilities will eventually be demolished. The rate at which facility baselines can be reduced is directly proportional to the cost savings. Current nuclear facility baselines are estimated to be $400 M at RFETS. The inability to fund mortgage reduction activities such as this stretches the closure schedule proportionally.

The probability of success is high because mission termination and closure is the Site mission. Many of the mission termination activities are already underway and the cost estimates and schedules are being refined with experience. Kaiser-Hill will complete the Integrated Site-Wide Baseline by August 1, 1996.

Stakeholder support for this activity is high. Stakeholders are very knowledgeable and have made nuclear facility deactivation a high priority as a means of freeing up funds for risk reduction activities. In this case, the risk reduction activity and the mortgage reduction activities share the mission termination work scope. Solid residue stabilization, SNM stabilization and SNM consolidation are all listed on the Risk Reduction Table. In addition, privatization of the solid residue treatment is a high priority and is described in the Privatization Table.

2.5 Data Quality

Medium: Planning estimates for the target have been validated by DOE HQ. The accelerated scenario uses the same cost and schedule logic and cost estimates with an increased funding cap in the first two years.

3.0 MISSION TERMINATION AND DEACTIVATION OF BUILDING 776/777 RFETS PROJECT #2

3.1 Scenario Descriptions

Default Scenario (Minimum Safe Storage)

The default scenario is provided for comparison purposes only, and would only be considered for budgets less than the current Ten-Year Plan targets (assuming that annual funding levels take escalation into consideration).

This scenario includes surveillance and maintenance of Buildings 776/777. It does not include SNM stabilization and consolidation, cleanup of highly contaminated gloveboxes, or treatment and consolidation of plutonium residues. No other deactivation takes place and building baseline costs remain high indefinitely. Wastes remain unconsolidated.

Over time, maintenance costs would rise as the facility ages. Unstabilized nuclear materials would present increasing hazards from deteriorating containers and ongoing chemical and nuclear degradation. Highly-contaminated areas could potentially leak contamination to other areas of the facility. Worker risks would continue to increase, with the potential for an eventual release outside the buildings.

Target Scenario (BEMR)

The accelerated scenario is based on the previously published BEMR estimates that existed prior to the feasibility study of ASAP Phase 1. This scenario involves stabilization and consolidation of SNM, cleanup of highly contaminated areas, and treatment and consolidation of plutonium residues. Mission termination and deactivation of Buildings 776/777 is scheduled to be completed in FY18.

Accelerated Scenario (Ten-Year Plan)

The accelerated scenario has the same scope as the target, but with a higher funding level and improved schedule logic. The mission termination activities are expected to complete in FY99 with deactivation beginning in FY99 and completing in FY00 allowing quicker mission termination and follow-on deactivation which maximizes overall cost savings.

This scenario remains constrained by available budget in the first two to three years as a result of the Site's priority to meet all compliance requirements with FFCA, DNFSB, RFCA, RCRA and other mandatory drivers. The schedule could be accelerated further with additional early year funding. This would improve the mortgage reduction beyond that calculated for the Accelerated Scenario.

3.2 Assumptions

The accelerated scenario assumes that the current standards for nuclear operations remains the same and that the commitments of DNFSB Recommendations 94-1 and 94-3 do not change. This includes the transfer of plutonium metals and oxides to Building 371 prior to the opening of the ISV. The current storage vaults must be emptied as part of SNM consolidation. The enriched uranium decontamination mission in Building 707 must also be completed.

This activity is logic tied in the schedule to SNM stabilization and consolidation; both missions must be completed in order to begin deactivation in those process areas.

Another necessary capital project is the Residue Elimination Project (REP) which must be completed to facilitate residue treatment and shipment to WIPP. WIPP must open on time and accept Rocky Flats transuranic wastes which include the plutonium residues. The residues must be moved out of Building 776/777 and if WIPP does not open then they must be moved into alternate storage locations

Low level waste storage capacity must be available to allow movement of waste containers out of Building 776/777.

3.3 Sensitivities

Building 707 must accept the enriched uranium parts for decontamination and Y-12 must accept the enriched uranium parts after decontamination is complete.

Building 371 seismic upgrades must be completed on schedule to allow SNM consolidation to occur.

3.4 Basis for Project Choice as a Mortgage Reduction Candidate

The Site is already on a path towards closure. All facilities will eventually be demolished. The rate at which facility baselines can be reduced is directly proportional to the cost savings. Current nuclear facility baselines are estimated to be $400 M at RFETS. The inability to fund mortgage reduction activities such as this stretches the closure schedule proportionally.

The probability of success is high because mission termination and closure is the Site mission. Many of the mission termination activities are already underway and the cost estimates and schedules are being refined with experience. Kaiser-Hill will complete the Integrated Site-Wide Baseline by August 1, 1996.

Stakeholder support for this activity is high. Stakeholders are very knowledgeable and have made nuclear facility deactivation a high priority as a means of freeing up funds for risk reduction activities. In this case, the risk reduction activity and the mortgage reduction activities share the mission termination work scope. Residue stabilization, SNM stabilization and SNM consolidation are all listed on the Risk Reduction Table. In addition, privatization of the solid residue treatment is a high priority and is described in the Privatization Table.

3.5 Data Quality

Medium: Planning estimates for the target have been validated by DOE HQ. The accelerated scenario uses the same cost and schedule logic and cost estimates with an increased funding cap in the first two years.

4.0 MISSION TERMINATION AND DEACTIVATION OF BUILDING 779 RFETS PROJECT #2

4.1 Scenario Descriptions

Default Scenario (Minimum Safe Storage)

The default scenario is provided for comparison purposes only, and would only be considered for budgets less than the current Ten-Year Plan targets assuming that annual funding levels take escalation into consideration.

This scenario includes surveillance and maintenance of Building 779. It does not include SNM stabilization and consolidation, cleanup of contaminated areas, or treatment and consolidation of plutonium residues. No other deactivation takes place and building baseline costs remain high indefinitely.

Over time, maintenance costs would rise as the facility ages. Unstabilized nuclear materials would present increasing hazards from deteriorating containers and ongoing chemical and nuclear degradation. Highly-contaminated areas could potentially leak contamination to other areas of the facility. Worker risks would continue to increase, with the potential for an eventual release outside the building.

Target Scenario (BEMR)

The target scenario is based on the previously published BEMR estimates that existed prior to the feasibility study of ASAP Phase 1. This scenario involves stabilization and consolidation of SNM, cleanup of highly contaminated areas and treatment and consolidation of plutonium residues. Mission termination and deactivation of Building 779 is scheduled to be completed in FY07.

Accelerated Scenario (Ten-Year Plan)

The accelerated scenario has the same scope as the target scenario, but with a higher funding level and improved schedule logic. The mission termination activities are scheduled for completion in FY96, with deactivation beginning in FY97 and completed in FY98. This overlap in operations and deactivation allows quicker mission termination and follow-on deactivation, maximizing overall cost savings.

This scenario remains constrained by available budget in the first two to three years as a result of the Site's priority to meet all compliance requirements with FFCA, DNFSB, RFCA, RCRA and other mandatory drivers. The schedule could be accelerated further with additional early year funding. This would improve the mortgage reduction beyond that calculated for the Accelerated Scenario.

4.2 Assumptions

The accelerated scenario assumes that the mission work is completed in FY96 as currently planned.

4.3 Sensitivities

There are no sensitivities identified as the project has a relatively simple scope and the work is further along than in any other plutonium building.

4.4 Basis for Project Choice as a Mortgage Reduction Candidate

The Site is already on a path towards closure. All facilities will eventually be demolished. The rate at which facility baselines can be reduced is directly proportional to the cost savings. Current nuclear facility baselines are estimated to be $400 M at RFETS. The inability to fund mortgage reduction activities such as this stretches the closure schedule proportionally.

The probability of success is high because mission termination and closure is the Site mission. Many of the mission termination activities are already underway and the cost estimates and schedules are being refined with experience. Kaiser-Hill will complete the Integrated Site-Wide Baseline by August 1, 1996.

Stakeholder support for this activity is high. Stakeholders are very knowledgeable and have made nuclear facility deactivation a high priority as a means of freeing up funds for risk reduction activities. Privatization of the Building 779 deactivation is a high priority and is described in the Privatization Table.

4.5 Data Quality

Medium: Planning estimates for the target have been validated by DOE HQ. The accelerated scenario uses the same cost and schedule logic and cost estimates with an increased funding cap in the first two years.

5.0 MISSION TERMINATION AND DEACTIVATION OF BUILDING 771/774 RFETS PROJECT #2

5.1 Scenario Descriptions

Default Scenario (Minimum Safe Storage)

The default scenario is provided for comparison purposes only, and would only be considered for budgets less than the current Ten-Year Plan targets (assuming that annual funding levels take escalation into consideration).

This scenario includes surveillance and maintenance of Buildings 771/774 and the draining of plutonium liquid from tanks and lines. It does not include SNM stabilization and consolidation, cleanup of highly-contaminated areas, or treatment and consolidation of plutonium residues. No other deactivation takes place, and building baseline costs remain high indefinitely.

Over time, maintenance costs would rise as the facility ages. Unstabilized nuclear materials would present increasing hazards from deteriorating containers and ongoing chemical and nuclear degradation. Highly-contaminated areas could potentially leak contamination to other areas of the facility and worker risks continue to increase with the potential for an eventual release outside the building.

Target Scenario (BEMR)

The target scenario is based on the previously published BEMR estimates that existed prior to the feasibility study of ASAP Phase 1. This scenario involves stabilization and consolidation of SNM, draining of plutonium liquid from tanks and lines, cleanup of highly-contaminated areas, and treatment and consolidation of plutonium residues. The schedule for achieving mission termination and deactivation of Building 771/774 is scheduled to be completed in FY13.

Accelerated Scenario (Ten-Year Plan)

The accelerated scenario has the same scope as the target scenario, but with a higher funding level and improved schedule logic. The mission termination activities are scheduled for completion in FY98, with deactivation beginning in FY98 and completed in FY00. This overlap in operations and deactivation allows quicker mission termination and follow-on deactivation , maximizing overall cost savings.

This scenario remains constrained by available budget in the first two to three years as a result of the Site's priority to meet all compliance requirements with FFCA, DNFSB, RFCA, RCRA and other mandatory drivers. The schedule could be accelerated further with additional early year funding. This would improve the mortgage reduction beyond that calculated for the accelerated scenario.

5.2 Assumptons

The accelerated scenario assumes that the current standards for nuclear operations remains the same and that the commitments of DNFSB Recommendations 94-1 and 94-3 do not change. This includes the transfer of plutonium metals and oxides to Building 371 prior to the opening

of the ISV.

It also assumes that either the Building 374 evaporator or the AWTS is operational to support liquid stabilization effluents.

Another necessary capital project is the Residue Elimination Project (REP), which must be completed to facilitate residue treatment and shipment to WIPP. WIPP must open on time and accept Rocky Flats transuranic wastes ,which include the plutonium residues. The residues must be moved out of Building 771.

This activity is logic tied in the schedule to SNM stabilization and consolidation; both missions which must be completed in Building 771 in order to begin deactivation in those process areas.

5.3 Sensitivities

Building 371 seismic upgrades must be completed on schedule to allow the SNM consolidation to occur.

The project is also sensitive to the success of the hydroxide and oxalate precipitation processes. Unforeseen process development problems could cause delay.

5.4 Basis for Project Choice as a Mortgage Reduction Candidate

The Site is already on a path towards closure. All facilities will eventually be demolished. The rate at which facility baselines can be reduced is directly proportional to the cost savings. Current nuclear facility baselines are estimated to be $400 M at RFETS. The inability to fund mortgage reduction activities such as this stretches the closure schedule proportionally.

The probability of success is high because mission termination and closure is the Site mission. Many of the mission termination activities are already underway and the cost estimates and schedules are being refined with experience. Kaiser-Hill will complete the Integrated Site-Wide Baseline by August 1, 1996.

Stakeholder support for this activity is high. Stakeholders are very knowledgeable and have made nuclear facility deactivation a high priority as a means of freeing up funds for risk reduction activities. In this case, the risk reduction activity and the mortgage reduction activities share the mission termination work scope. Solid and liquid stabilization, SNM stabilization and SNM are all listed on the Risk Reduction Table. In addition, privatization of the solid residue treatment is a high priority and is described in the Privatization Table

5.5 Data Quality

Medium: Planning estimates for the target have been validated by DOE HQ. The accelerated scenario uses the same cost and schedule logic and cost estimates with an increased funding cap in the first two years.

Table 5-E-1 Risk Reduction Projects

Project Title	Worker			Public			Environment		
	Before	During	After	Before	During	After	Before	During	After
1. Special Nuclear Material Project #2a, HEUN Removal	*High*	*High*	*None*	*Low*	*Low*	*None*	*Low*	*Low*	*None*
2. Special Nuclear Material Project #2b, Liquid Residue Stabilization	*Medium*	*High*	*None*	*Low*	*Low*	*None*	*Low*	*Low*	*None*
3. Special Nuclear Material Project #2c, Solid Residue Stabilization	*Medium*	*Medium*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*	*Low*
4. Special Nuclear Material Project #2d, SNM Consolidation	*High*	*High*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*	*Low*
5. Special Nuclear Material Project #2e, SNM Stabilization	*High*	*High*	*Low*	*Medium*	*Medium*	*Low*	*Low*	*Low*	*Low*
6. Special Nuclear Material Project #2f, SNM Vault	*None*	*None*	*Low*	*None*	*None*	*Low*	*None*	*None*	*Low*
7. Special Nuclear Material Project #2g, SNM Offsite Shipment	*Low*	*Medium*	*None*	*Low*	*Medium*	*None*	*Low*	*Low*	*None*
8. Infinity Room Cleanup	*High*	*High*	*Low*	*None*	*None*	*None*	*Low*	*Low*	*None*

Attachment 5
Appendix E - Risk Reduction Project

1.0 INTRODUCTION

The purpose of the Ten Year Plan is to plan and schedule the closure of the Rocky Flats Environmental Technology Site (RFETS, or Site) within ten years, given a prescribed level of funding. Although the plan fully addresses the operations at the Site, only a portion of those actions will produce substantial reduction in risk to workers, the public, and the environment. The following identifies those projects that should produce the greatest reduction in risk to these recipients.

The sources of risk at the Site include both certain categories of materials and varying situations associated with those materials. Special Nuclear Materials (SNM) and radioactive and hazardous wastes at the Site are all sources of risk to workers, the public, and the environment. However, the level of risk associated with those materials will vary within a given situation. For example, a plutonium processing building may have rooms that vary widely in the levels of contamination, ranging from highly contaminated ("infinity rooms") to non-contaminated (offices); consequently, the risk to personnel may vary room to room.

The top five risk reduction projects were selected to address significant risk issues at the Site. All pertain to SNM, generally addressing the treatment and storage of the material. Specific risk levels vary among the different SNM materials, but in general the projects can be expected to reduce the potential risks for different hazards/concerns such as criticalities, worker exposures, pyrophoricity, spills and leaks, security, and material dispersibility (e.g., following an accidental release). Assigning a high priority to these projects is consistent with the stakeholders' strong desire to make the temporary storage of SNM at the Site as safe as possible. With all work at the Site divided into twelve large projects, the five risk reduction projects are five subprojects of Project 2 - SNM Project. The five risk reduction projects selected are:

Risk Reduction Project	WAD
HEUN Removal	WAD 18 - HEUN Project
Liquid Residue Stabilization	WAD 16 - SNM Liquid Stabilization Development Project WAD 19 - SNM Liquid Stabilization Project
Solid Residue Stabilization	WAD 15 - Pu Residue Elimination Project WAD 20 - SNM Solid Residue Project
SNM Consolidation	WAD 9 - Building 371 Near-Term Safety Upgrade Project WAD 10 - Pu Storage Project
SNM Stabilization	WAD 13 - Pu Processing and Package Project WAD 14 - PASS Project

Some of these projects are divided into two stages: (1) engineering and construction, and (2) process operation. For example, the risk reduction project SNM Consolidation is divided into the Building 371 Near-Term Safety Upgrade Project (engineering and construction) and the Pu Storage Project (operation of Building 371 for SNM storage).

In addition to the five above, three additional projects have been included here in order to present an enhanced risk reduction picture of the Site. These three projects address, in general, the same risk concerns as the top five. They are:

Risk Reduction Project	WAD
SNM Vault	WAD 10 - Pu Storage Project WAD 11 - Pu Facility Construction Project
SNM Offsite Shipment	WAD 22 - SNM Shipping Project
Infinity Room Cleanup (Project 8)	WAD 31 - 371 Cluster Project WAD 34 - 771/774 Cluster Project

The first additional project provides temporary storage of SNM using the new SNM storage vault. The second meets the ultimate goal of the stakeholders: the eventual shipment of SNM to an offsite facility (outside Colorado) for final disposition. The third involves cleanup of highly contaminated areas within Buildings 371 and 771. These projects should be viewed as supplementing the original five.

Table 5-E-1, Risk Reduction Projects, lists qualitative risk levels for each of the eight projects identified. The following assumptions provided the basis for deriving the qualitative risk to workers, the public, and the environment for the operations cited. Many of the projects are successive, consequently the “before” risk for some projects equates to the “after” risk for other projects.

1.1 Worker Risk

Before

- The risk varies depending on the type of material involved (e.g., uranium or plutonium), the form the material is in (e.g., solution, oxide, or metal), its storage configuration (e.g., tanks or vaults), the type of activities the workers are performing (e.g., inventory), and worker proximity to the material (e.g., inside or outside a glovebox). Because of the wide diversity in material, the associated risk contributors such as pyrophoricity and leak/spills, as well as the variation in requirements (e.g., storage and inspection), the risk to the workers is generally greatest in the “before” phase. Because of the As Low As Reasonably Achievable (ALARA) standards which will be in effect for activities occurring during this phase, much of the elevated risk comes from potential incidents (e.g., spills and criticalities) rather than exposures.

During

- Operations involving SNM are expected to occur inside a building. The exception is offsite shipment, where some portion of the operation is confined to the vehicle providing transport.

- Workers in the immediate area of an SNM operation would be expected to receive background radiological exposures from the room containing the operation and direct exposures from the operation itself. However, ALARA standards should keep worker exposures within acceptable limits; appropriate protective equipment will be used as needed.

- The potential may exist for accidents, criticalities, and other occurrences while conducting operations. Because of the difference in operations, the level of worker risk is expected to vary among operations. However, analysis of the operation should identify the areas of concern and appropriate actions to mitigate the potential for these incidents. As these operations proceed, the potential for incidents decline as material is converted to a stable form and stored safely.

Note: Because of the ALARA standards and the ability to plan actions to mitigate the potential for accidents, the risk to workers was not used as a discriminator when selecting the list of projects.

After

- All operations are expected to decrease the long-term risk to workers because SNM material would be converted to a stable product (eliminating concerns such as pyrophoricity), stored in a safe configuration (reducing the potential for criticalities), and eventually sent offsite, thereby eliminating all potential concerns. ALARA standards would limit exposures produced during activities in the "after" phase. The status of material in this stage will produce a net reduction in risk to workers when compared to the "before" phase. Because of ALARA standards the bulk of the risk reduction will be found in amelioration of potential incidents.

1.2 Public Risk

Before

- The risk the public experiences is generally attributed to airborne emissions only. All buildings housing the operations described have filtration systems that minimize the amount of SNM released to the air and, consequently, minimize the risk to the public. However, catastrophic events (e.g., earthquakes) could produce greater release, given the current state of many buildings and the form of the SNM stored in those buildings. The infinity rooms present a possible source of contamination to nearby groundwater because of the deteriorating conditions of the room floors.

During

- Operations will be confined to the buildings (excluding offsite shipment). The filtration previously mentioned will continue to minimize release to the public and the corresponding risk. Risk to the public would decrease as ongoing operations stabilize and consolidate SNM.

After

- All operations are expected to produce a net decrease in public risk from both potential incidents and emissions, when compared to the "before" phase. SNM will be converted to a

stable product (reducing concerns such as dispersibility), stored in a safe configuration (reducing risk from potential catastrophic events), and eventually sent offsite, thereby eliminating potential concerns.

1.3 Environmental Risk

Before

- Same consequences as described for public risk.

During

- Same consequences as described for public risk.

After

- Same consequences as described for public risk.

2.0 PROJECT DESCRIPTION: HEUN REMOVAL

This project involves drainage of Highly Enriched Uranyl Nitrate (HEUN) from eight tanks and lines in Building 886. HEUN has been identified as one of the highest risk elements at Rocky Flats. HEUN removal is comprised of the following steps: 1) breach primary containment and drain headers; 2) drain, inventory, and bottle HEUN; 3) package bottles; 4) transfer packaged solution to approved location; 5) recirculate and rinse tank; and 6) bottle and package rinsate. The packaged bottles are then sent to Nuclear Fuel Services for conversion to oxide, and then shipped to the Y-12 plant at Oak Ridge, TN, for long-term storage.

The risk benefit will be a reduction in the potential for criticalities, reduced worker safety risks, and reduced surveillance and security requirements for the building.

2.1 Assumptions

No deviations from guidance or risk data sheets.

2.2 Sensitivities

None. When the activity is complete the risk is removed.

2.3 Basis for Project Choice as a Risk Reduction Project

- Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1.
- Endorsement by regulators and local stakeholder groups.
- Mortgage reduction issue; specifically treatment (solution removal) allows for elimination of monitoring programs and eventual decontamination and decommissioning (D&D) of Building 886.

2.4 Data Source and Data Quality

The Activity Control Envelope (see ref. 1) report contains extensive review of potential hazards associated with the solution removal activities. The report concludes that successful solution removal will reduce risks significantly and that risks during the activity can be controlled through procedures and training.

<u>References</u>

- Building 886 HEUN Solution Removal Activity Control Envelope, Kaiser-Hill report 886-ACE-HEU-001, Rev. 0, March 21, 1996.
- DNFSB Recommendation 94-1.
- Site Integrated Stabilization Management Plan (SISMP), Rocky Flats Environmental Technology Site Version 4.0, March 11, 1996.

3.0 PROJECT DESCRIPTION: LIQUID RESIDUE STABILIZATION

This project stabilizes aqueous solutions containing plutonium and uranium in accordance with the Implementation Plan for DNFSB Recommendation 94-1, and the Residue Consent Order negotiated with the State of Colorado. The solutions are currently stored in tanks, piping, and bottles in Buildings 371 and 771; and in bottles in Building 559, 776/777, and 779. Processes to achieve stabilization include oxalate precipitation in Building 771, caustic waste treatment in Building 371, and hydroxide precipitation in Building 771.

This project includes tapping and draining plutonium nitrate tanks and lines.

3.1 Assumptions

No deviations from guidance or risk data sheets.

3.2 Sensitivities

None, when the activity is completed, the risk is removed.

3.3 Basis for Project Choice as a Risk Reduction Project

- DNFSB Recommendation 94-1.
- Mortgage reduction potential; specifically elimination of monitoring and surveillance requirements.
- Reduced potential for Resource Conservation and Recovery Act (RCRA) non-compliance fines.

3.4 Data Source and Data Quality

References

- K-H report 371-ACE-TAP-001, Rev. 0, June 28, 1995.
- DNFSB Recommendation 94-1.
- SISMP, Version 4.0.
- Actinide Solution Disposition Study.
- Los Alamos National Laboratory (LANL) Report on Plutonium Liquids.
- Mixed Residue Tank Systems Management Plan (MRTSMP)

4.0 PROJECT DESCRIPTION: SNM CONSOLIDATION

This project stabilizes the solid residues in accordance with the Implementation Plan for DNFSB Recommendation 94-1, and the Residue Consent Order negotiated with the State of Colorado. Five "buckets" of solid residues will be stabilized: salts, ash, wet/miscellaneous, combustibles, and inorganics. According to the SISMP, the probable process for salts is pyrochemical oxidation followed by repackaging. For ash, the probable processes are calcination, and/or repackaging. Wet/miscellaneous residues should be stabilized through conversion to oxides followed by calcination, drying, or shape declassification and repackaging. Combustibles should undergo cementation, low-temperature thermal desorption followed by water oxidation, microwave melting, or repackaging. Inorganics should undergo repackaging. The type of material will dictate what process is used for residues within a specific bucket. It should be noted that these processes are subject to change.

4.1 Assumptions

No deviations from guidance or risk data sheets

4.2 Sensitivities

- Residue sampling in FY96 and FY97 may provide additional data to support the need for more or less treatment.
- New safeguards NN-51 guidance may alter treatment scenarios.

4.3 Basis for Project Choices as a Risk Reduction Project

- High priority activity according to DNFSB.
- Mortgage reduction potential; specifically, elimination of monitoring and surveillance requirements.
- Reduced potential for RCRA non-compliance fines.

4.4 Data Source and Data Quality

<u>References</u>

- Plutonium Residue Elimination Project, RDS No. R96A0020, March 1996.
- DNFSB Recommendation 94-1.
- SISMP, Version 4.0.

5.0 PROJECT DESCRIPTION: SNM CONSOLIDATION

This project consolidates plutonium in Building 371 prior to shipping the material to an offsite repository. Consolidation has as its objectives the following: reduce public risk from oxides and the more dispersible residues, minimize worker dose from multiple material movements, relocate inventory in Room 3189, Building 371; and implement Building 371 Stacker-Retriever loading limits. An existing framework for SNM consolidation and management is currently in place under the SISMP.

5.1 Assumptions

No deviations from guidance or risk data sheets.

5.2 Sensitivities

Additional upgrades to Building 371 would be required if the decision is made not to build the new Interim Storage Vault (ISV).

5.3 Basis for Project Choice as a Risk Reduction

- Facilitates stabilization, repackaging, future storage, and eventual offsite shipment of SNM. Each of these is in itself a risk reduction activity. Each also has impacts on mortgage reduction.
- Safeguards and security is enhanced by consolidation.
- Addresses DNFSB Recommendations 94-1 and 94-3.
- Improves inventory management.
- Reduces need for maintaining other buildings in operational status (i.e., speeds deactivation of Buildings 707, 779, 559, 776/77, 771).

5.4 Data Source and Data Quality

References

- SISMP, Version 4.0.
- Integrated Program Plan, DNFSB Recommendation 94-3 (June 17, 1993, Rev. F), and associated task reports.
- Develop, Operate, and Dispose SNM Facilities, RDS Number R96A0036 (partially applicable), April 1996.
- Consolidation and Interim Storage of Special Nuclear Material at the Rocky Flats Environmental Technology Site, Environmental Assessment, DOE/EA 1060, June 1995.
- DNFSB Recommendations 94-1, and 94-3.

6.0 PROJECT DESCRIPTION: SNM STABILIZATION

As part of the Rocky Flats response to DNFSB Recommendation 94-1, SNM is to be thermally stabilized for eventual repackaging, storage, and shipment. Stabilization occurs in conjunction with consolidation. The objectives of SNM stabilization are to meet DOE Standard 3013 stabilization requirements for oxides and metal, reduce worker risk, and meet interim safe storage criteria for residues. An existing framework for SNM consolidation and management is currently in place under the SISMP. The SISMP reflects the plans for accomplishing the Recommendation 94-1 Implementation Plan objectives. The specific risk reduction opportunity covered by this document is the stabilization of oxides and metals.

6.1 Assumptions

No deviation from guidance or risk data sheets

6.2 Sensitivities

Consolidation schedule impacts stabilization schedule and vice versa.

6.3 Basis for Project Choice as a Risk Reduction Project

- Facilities repackaging, future storage, and eventual offsite shipment of SNM. Each of these is in itself a risk reduction activity. Each also has impacts on mortgage reduction.
- Safeguards and security is enhanced by stabilizing and consolidating.
- Addresses DNFSB Recommendations.
- Being accomplished now it has relatively short project lifecycle.

6.4 Data Source and Data Quality

Information regarding this project has been shared with the public through several public forums. The concepts of the SISMP have also been shared with stakeholders. Stabilization is consistent with and a part of the RFCA, which has undergone extensive review by outside parties.

The durations, current risks, and expected risk reductions are documented within or can be inferred from the SISMP and related documents. RDS Number R96A0036 is used as a reference for the risk reduction levels for the workers and the environment. The Integrated Program Plan for DNFSB Recommendation 94-3 and its supporting documentation contains data from which the public risk has been extracted.

<u>References</u>

- SISMP, Version 4.0.
- Integrated Program Plan, DNFSB Recommendation 94-3 (June 17, 1993, Rev. F), and associated task reports.
- Develop, Operate, and Dispose SNM Facilities, RDS Number R96A0036.

- Consolidation and Interim Storage of Special Nuclear Material at the Rocky Flats Environmental Technology Site, Environmental Assessment, DOE/EA 1060, June 1995.
- DNFSB Recommendations 94-1 and 94-3.

7.0 PROJECT DESCRIPTION: SNM VAULT

As part of the Rocky Flats response to DNFSB Recommendation 94-3, it was recommended that an ISV be designed and constructed for use as the interim SNM storage until an offsite receiver could be identified. SNM would be transferred from Building 371 after consolidation, stabilization, and repackaging. The ISV design is passive in nature, and is robust enough to withstand all postulated design basis accident events (e.g., seismic events and other natural phenomena). Safeguards and security are also significantly enhanced though construction of the ISV.

7.1 Assumptions

No deviation from the guidance or the risk data sheets.

7.2 Sensitivities

- Timing of offsite SNM shipment impacts the cost effectiveness of the ISV. Sufficiently early offsite shipment of SNM eliminates the benefits of ISV.
- The passive design of the ISV is key to its cost-effectiveness. If requirements are placed upon the vault design that necessitate inclusion of active functions (e.g., International Atomic Energy Act monitoring or repackaging of failed containers), the benefits of the ISV are less certain.

7.3 Basis for Project Choice as a Risk Reduction Project

- The ISV eliminates all concerns and significantly decreases the impacts from a design basis event.
- The ISV is supported by state and local regulators, and stakeholder groups.
- Significant mortgage reduction occurs if Building 371 can be eliminated as a necessary storage location; operating and maintenance costs projected for the ISV are lower than for Building 371.
- Safeguards and security are significantly enhanced with the ISV design.
- Approved by DOE Offices, S-3 and EM-1.
- Potential candidate for privatization.

7.4 Data Source and Data Quality

Information regarding the ISV has been shared extensively with the public through several public forums associated with DNFSB Recommendation 94-3. The issue has been very well publicized by the local press as well. The ISV is addressed within the Integrated Program Plan prepared in response to DNFSB Recommendation 94-3.

The risk to the workers and the environment in the before stage assumes SNM has been consolidated, stabilized, and repackaged prior to implementation of the ISV. Therefore, the before risk for SNM offsite shipment should be similar to the after risks for the consolidation, stabilization/repackaging efforts. Those efforts are addressed separately and are also partly addressed in DNFSB Recommendations 94-1 and 94-3. However, stabilization does not contribute as much to the reduction in risk to the workers and public as does the increased seismic capacity of the ISV. In other words, the reduction in risk due to the use of the ISV comes in large part from the increased resistance to seismic events versus Building 371.

The Integrated Program Plan for DNFSB Recommendation 94-3 and its supporting documentation contains data from which the public risk has been extracted.

References:

- SISMP, Version 4.0.
- Integrated Program Plan, DNFSB Recommendation 94-3 (Rev. F, June 17, 1993), and associated task reports
- ISV, RDS R96A0038, April 1996.
- DNFSB Recommendations 94-1 and 94-3.

8.0 PROJECT DESCRIPTION: SNM OFFSITE SHIPMENT

As part of the Rocky Flats response to DNFSB Recommendation 94-1 and 94-3, shipment of SNM to offsite receivers is planned. The objectives are shipment of residues to a disposition facility when available; and shipment of oxides, metals, and pits offsite upon receiver identification. An existing framework for SNM consolidation and management is currently in place under the SISMP. The SISMP reflects the plans for accomplishing the Recommendation 94-1 Implementation Plan objectives. The Integrated Program Plan for DNFSB Recommendation 94-3 also discusses offsite shipment of SNM. The specific risk reduction opportunity covered by this document is the shipment of SNM offsite.

8.1 Assumptions

No deviation from guidance or risk data sheets

8.2 Sensitivities

- Receivers must be identified prior to shipment of SNM. Their ability to accept the packaging and amount of SNM stored at Rocky Flats affects shipping schedules, which then may impact risk duration to workers and the public.
- The facility being used for interim storage during the shipping phase also affects risk profile. Building 371, although acceptable for interim storage following completion of near-term and other upgrades, will not be as robust as a new ISV. Although slight, the risk to the workers and public will be higher if Building 371 is being used as compared to a new vault.

8.3 Basis for Project Choice as a Risk Reduction Project

- Offsite shipping completely eliminates any concerns associated with SNM at Rocky Flats.
- Offsite shipment is supported by state and local regulators, and stakeholder groups and is included in the RFCA.
- Mortgage reduction candidate. Following offsite shipment, maintenance, operating, and security costs associated with SNM storage are eliminated.

8.4 Data Source and Data Quality

Information regarding offsite shipment has been shared with the public through several public forums associated with DNFSB Recommendations 94-1 and 94-3. Further, the concepts of the SISMP have been shared with stakeholders. Offsite shipment is addressed within the Integrated Program Plan prepared for DNFSB Recommendation
94-3.

The risk to the workers and the environment in the before stage assumes SNM has been consolidated, stabilized, and repackaged. Therefore, the before risk for SNM offsite shipment should be similar to the after risks for the consolidation, stabilization/repackaging efforts. Those efforts are addressed separately and are also addressed as part of DNFSB Recommendations 94-1 and 94-3.

The Integrated Program Plan for DNFSB Recommendation 94-3 and its supporting documentation contains data from which the public risk has been extracted.

References

- SISMP, Version 4.0.
- Integrated Program Plan, DNFSB Recommendation 94-3 (June 17, 1993, Rev. F), and associated task reports
- Develop, Operate, and Dispose SNM Facilities, RDS Number R96A0036, (partially applicable).
- ISV, RDS Number R96A0038, (partially applicable).
- DNFSB Recommendations 94-1 and 94-3.

9.0 PROJECT DESCRIPTION: INFINITY ROOM CLEANUP

At Rocky Flats there are more than 20 so-called "infinity rooms" which have been contaminated by releases that occurred during plutonium operations at the site. The rooms are called “infinity rooms” because the levels of alpha radiation are too high for standard monitoring equipment to measure. There are also rooms called “canyon” rooms, located in process buildings. Some of these canyon rooms are also highly contaminated.

This project would remediate the contamination in selected infinity rooms in Building 771, and selected canyon rooms in Building 371. The priority candidates are:

- Room 141, Building 771
- Room 1117, Building 371
- Room 3559, Building 371
- Room 3561, Building 371.

These rooms were chosen for the following reasons:

- Room 141 - Vacuum pump leakage resulted in significant floor deterioration between 1964 and 1972, when pumps were removed. The floor has been capped twice since then; floor composition is like sand or aggregate. Plutonium migration to the underlying gravel foundation, and from there to the water source, could occur under certain circumstances (e.g., high water table). This is a public health and safety concern.

- Room 1117 - This room is located in the sub-basement of Building 371. An acid spill in 1983 resulted in substantial erosion of the concrete floor (approximately 6 out of 10 inches of the floor). The floor has been capped. Plutonium migration is also a concern for this room. This is a public health and safety concern.

- Rooms 3559, 3561 - These rooms are highly contaminated and also have excessive amounts of debris such as tools and construction scrap within them. The loss of HVAC could result in spreading the airborne contamination from within these rooms to other rooms within Building 371, especially if the contamination migrates to the Zone II HVAC areas. This is a worker health and safety concern.

9.1 Assumptions

No deviation from guidance or risk data sheets except these were "out-year" activities.

9.2 Sensitivities

- The methodology employed during cleanup can significantly affect the potential for worker risk. Enhanced decontamination techniques, such as “ALARA” paint, PAPR breathing apparatus (positive pressure respirators), and improved methods for particle size reduction can substantially minimize the amount of time, and the number of people, required for cleanup. However, these methods are new and not extensively employed at Rocky Flats. Enhanced methodology could decrease the time required for cleanup by an order of magnitude (i.e., from tens of years to years).
- The time when cleanup is attempted will also impact worker risk. If cleanup is attempted

while the buildings are in the operation mode, it will be more difficult to carry out some of the activities. If the buildings are in decommissioning and decontamination mode, cleanup can be made easier.

- The ability to remove the majority of SNM from the rooms prior to detailed extensive cleanup will impact worker risk. In addition, removing SNM minimizes security and safeguards concerns and improves the efficiency of the work force by enabling more workers (e.g., uncleared or minimally cleared) to work on the project.
- The experience level of the workforce will impact the risk levels. Less experienced workers are more prone to make mistakes during dress-out and cleanup activities.
- Activity levels within the infinity rooms may preclude human entry for extended cleanup; robotics may be required for some tasks.

9.3 Basis for Project Choice as a Risk Reduction Project

- Public concern has been expressed.
- Cleanup enhances ability of workers to conduct other activities within the buildings without potential safety concern, especially in Building 371.
- Mortgage reduction. May be able to reduce or eliminate monitoring programs in place for these rooms; sampling around buildings may also be reduced.

9.4 Data Source and Data Quality

The contamination events in some rooms were highly publicized by the local press. In addition, the issues have been raised as part of the overall decontamination and decommissioning discussions which have taken place with the stakeholders.

Sampling and monitoring programs have established the risk levels (as correlated to the Derived Airborne Concentrations or DACs) for the rooms. DAC levels exceeding 250,000 exist. Cleanup may lower these levels to 50,000 or less.

TEN-YEAR PLAN
Attachment 5
Appendix F
Privatization

Project Title	Type	Estimated M&O Cost ($1 M)	Estimated Privatization Cost ($1 M)	Estimated Savings ($1 M)
Interim Plutonium Storage Vault	Mission Direct	709	532	177 *
Pondcrete/Saltcrete Treatment and Disposal	Mission Direct	125	33	92
Building 779 Decontamination and Decommissioning	Mission Direct	25	19	6 *
Wastewater and Sludge Treatment Consolidation Project	Services	78	58	20 *
TRU Waste Repackaging and Staging Facility	Mission Direct	4	3	1 *
Low Level Waste Storage Facility	Mission Direct	57	43	14 *
Low Level Waste Storage CAMU	Mission Direct	59	44	15 *
Building 886 Decontamination and Decommissioning	Mission Direct	11	8	3 *

* No formal privatization estimates have been completed for this project. For the purposes of this plan, it is assumed that overall privatization costs will be 25 percent lower than M&O costs, due to competitive pressure of market forces and the predictability of costs under a fixed price contract.

Attachment 5
Appendix F - Privatization

1.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #1

Project Name: Interim Plutonium Storage Vault

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :** 303-966-7211

1.1 Background

The Department of Energy (DOE) currently stores Special Nuclear Material (SNM) at the Rocky Flats Environmental Technology Site (Site) in facilities not specifically designed for that purpose. It is DOE's responsibility to store this SNM in a safe and secure manner. While the current facilities provide the necessary safety and security, upgrades will be required to allow continued storage, and operations costs are high. The facility is operated under a cost reimbursable-type contract.

1.2 Options

Two options are being analyzed at this time for continuation of the storage mission through 2015. At that time the plutonium is to be removed from Rocky Flats and stored elsewhere per an agreement with the State of Colorado. The DOE will either upgrade the current facility to meet continued storage requirements or build a new facility for this purpose.

Under the new facility option there are three sub-options. One is to construct and operate the facility as a Government Owned Contractor Operated (GOCO). The other sub-option is a Contractor Owned Contractor Operated (COCO) or privatized facility.

1.3 Description of Privatization Approach

For the purposes of this project, privatization would be considered as follows:

A private vendor, selected by competitive procurement, is awarded a fixed price contract for storage services. The vendor uses private funding to design, permit, construct, operate, decontaminate and decommission a storage facility for SNM. At the time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The vendor would be paid for providing storage services for a fixed term after operations of their facility begin. The payments could be annual, semi-annual, or other, but they would

not start until the safe storage of the plutonium is provided. The payment would be made from annual appropriations and by costing (outlay) the original obligation for amortization of the capital costs. This approach is similar to the privatization approach being implemented to treat the Hanford Tank Farm Waste.

The facility would have to meet a set of performance specifications developed by DOE to ensure the plutonium is stored safely. At this time, the ability to produce such specifications is considered achievable as the type of facility anticipated is simple in concept: store SNM for a given time period to meet specific safety and security requirements.

1.4 Issues

There is one issue that needs to be addressed to determine feasibility of a privatization approach, specifically whether or not to allow a private company to perform the nuclear material safeguard and security mission. It is expected that DOE would require a specific level of oversight associated with the requirement but that a suitable arrangement could be made with a private vendor. This is currently under review.

Table F-1: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
OE	50	50	50	50	65	84	30	30	16	16	16
CE	5	17	16	8							
LI	4.5	0.5	0.5	2.5							
GPP				2.5							
Total	59.5	67.5	66.5	63	65	84	30	30	16	16	16

Category	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
OE	16	16	16	16	16	18	18	20			593
CE									2.2	2.2	50.4
LI											8
GPP											2.5

Total	**16**	**16**	**16**	**16**	**16**	**18**	**18**	**20**	**2.2**	**2.2**	**653.9**

1.5 Basis For Determining Privatization Would Be Cost Effective

Discussions with private firms over the past year indicate the potential for savings, and specific privatization cost estimates are nearing completion. This data will be analyzed in conjunction with DOE Rocky Flats Field Office (RFFO) and will be available through that office for consideration.

1.6 Basis For Selection

The privatization approach may reduce costs to the Government over other approaches to completion of the SNM storage mission. It is expected that mortgage reduction in the form of reduced cost associated with storage in existing facilities will be significant.

1.7 Data Confidence

Medium

2.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #2

Project Name: Pondcrete/Saltcrete Treatment and Disposal

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :** 303-966-7211

2.1 Background

Rocky Flats is currently storing approximately 9,400 cubic meters of regulated low-level mixed (LLM) waste in the form of pondcrete and saltcrete. Pondcrete was derived from the evaporation and direct cementation of sludges from solar evaporation ponds, used to evaporate process water. Saltcrete is derived from low-level liquid process waste evaporation. The wastes are currently stored in the original cardboard containers overpacked by metal containers. The containers are stored in tents on concrete pads. These structures require ongoing surveillance and maintenance which is expensive.

The Rocky Flats Site Treatment Plan outlines current plans for the construction of a waste treatment facility onsite. This treatment facility is currently scheduled to be on-line in the year 2005. The combined Pondcrete and Saltcrete volumes represent approximately seventy-five percent of the LLM wastes onsite.

2.2 Options

As an option to the onsite treatment, a contract for treatment and disposal would be awarded to a privately owned offsite facility. This contract would require the removal, treatment, and disposal of the wastes within a two year period. At that time, the storage pads would be ready for Decontamination and Decommissioning (D&D).

2.3 Description of Privatization Approach

A solicitation would be issued to private industry to submit bids on a fixed priced basis for the transport, treatment, and disposal of existing backlogs of Pondcrete and Saltcrete. Information would be made available to bidders as to the composition and quantities of waste, as well as the known characteristics and packaging.

For preliminary discussion purposes, it is assumed that treatment facilities would be operating assets of the private treatment firm; therefore, DOE would not be required to enter into any

capital-leases or lease purchases. Regular progress payments would be negotiated with the successful bidder.

The bidder would be responsible for regulatory compliance, and these costs would be factored into the bid price. Some degree of oversight would be required by Kaiser-Hill and DOE, but this would be negotiated.

2.4 Issues

It is assumed that the labor union employees within Kaiser-Hill would be reassigned to other work, and not laid off as a result of this outsourcing. Approximately twenty-one salaried personnel would become redundant as a result of the action, and it was assumed that Voluntary Separation would become available for them pursuant to section 3161 of the Defense Authorization Act.

Table F-2: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE	7	7	7	7	7	7	7	7	33	33	122
CE								10			10
LI											
GPP											
Total	7	7	7	7	7	7	7	17	33	33	132

2.5 Basis For Determining Privatization Would Be Cost Effective

Unsolicited proposals have been received by Kaiser-Hill relative to this effort. In addition, formal cost estimates were prepared as a basis for treatment and disposal costs under both the privatized and onsite treatment options.

Kaiser-Hill and RFFO have both prepared formal economic "Make or Buy" analysis supporting the conclusion that privatization is a cost-beneficial option.

2.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the waste treatment and storage mission. It is expected that mortgage reduction in the form of reduced cost associated with compliant storage in existing facilities, as well as the avoidance of substantial outlay for capital facilities will be significant.

2.7 Data Confidence

High

3.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #3

Project Name: Building 779 Decontamination and Decommissioning

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :** 303-966-7211

3.1 Background

Since the completion of the Rocky Flats Production mission in 1991, a number of facilities have become candidates for D&D. The ongoing cost of maintaining these facilities is very high, and D&D could substantially reduce the Rocky Flats mortgage. During the past five years, several efforts have been underway, which could facilitate the privatization of D&D. First, as a very high priority, SNM stabilization and consolidation has been underway. This will result in the removal of SNM from the facility, which drives the majority of the authorization basis and safeguards and security requirements.

3.2 Options

The option that will be framed in the economic analysis. One is the continued D&D of the facility pursuant to the Integrating Management Contractor's (IMC) plan, versus a privatized contract to D&D the facility within three years. Two is the continued maintenance of the building baseline at its current escalating level, versus a private contract to D&D the facility with seven years.

3.3 Description of Privatization Approach

Authority for D&D of the facility will be pursued as a construction project under DOE authority pursuant to §161(u) of the Atomic Energy Act. Budget authority for the contract will be scored in the first year, and amortized over the life of the contract (estimated to be under ten years). Budget scoring will be prepared pursuant to the direction of the Office of Management and Budget.

As a result of the competitive procurement process, a private vendor is awarded a fixed-price contract for D&D services. The vendor uses private funding to engineer, mobilize, decontaminate and decommission the facility as described in a performance specification. The basic approach will be to demolish the building to the slab at ground level. At the time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The

vendor would be paid for providing D&D services to a fixed work scope.

Payments to the privatized contractor will be negotiated and will correspond to the savings in the surveillance and maintenance costs realized by the Government. No payments will be made until savings is realized, and the final payment will not be made until the building is demolished per the performance specifications produced for the solicitation. The payment would be made from annual appropriations and by costing (outlay) the original obligation for amortization of the capital costs.

3.4 Issues

Several issues exist for this project. They can be fundamentally divided into those that need resolution prior to the issuance of a Request for Expression of Interest (RFI) and those that can be resolved during the solicitation process.

Pre-Solicitation Issues

- Labor Union issues. The project will impact union jobs, and agreement should be reached with the union before any final decisions on the project are reached.
- National Environmental Policy Act (NEPA). A decision on the project approach to a NEPA determination needs to be made.
- A determination needs to be made by DOE-HQ on the statutory authority of DOE to enter into such a contract.

Post-Solicitation Issues

- A firm Performance Specification needs to be prepared by the IMC during the RFI phase of the solicitation. This will ultimately drive the scope of the contract. Preliminary evaluations indicate that demolishing the building to the concrete slab at ground level will be the most cost-effective for a single procurement option. As an alternative, a phased solicitation approach could be adopted.

Table F-3: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE	2	10	8	5							25
CE											
LI											

GPP											
Total	**2**	**10**	**8**	**5**							**25**

3.5 Basis For Determining Privatization Would Be Cost Effective

Kaiser-Hill and RFFO will prepare formal economic "Make or Buy" analysis to evaluate whether privatization is a cost-beneficial option. Proposals will be solicited by Kaiser-Hill relative to the results of the economic analysis.

3.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the D&D mission. It is expected that mortgage reduction in the facilities will be significant.

3.7 Data Confidence

Medium

4.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #4

Project Name: Wastewater and Sludge Treatment Consolidation Project

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :** 303-966-7211

4.1 Background

Process wastewater and sludges are currently treated in Buildings 374 and 774, with the majority of treatment occurring in Building 374. The maintenance and operation of Building 374 in particular is very expensive with the equipment operating at only 60 percent of its design capacity. The project initiated to replace and upgrade the process equipment is currently on hold while other alternatives are considered. The volume of process wastewater to be generated over the next ten years requires a dependable treatment system. Building 374 cannot be that system without major upgrades. Sludge treatment is also included in the overall process chain and there is no currently operating system in Building 374. An entirely new system will be required.

4.2 Options

The options that will be framed in the economic analysis are: continued operation of the facilities throughout the life-cycle of the Site Closure (ASAP) plan, versus a private contract to consolidate treatment into a privatized facility within two years.

4.3 Description of Privatization Approach

For the purposes of this project, privatization would be considered as follows:

A private vendor, selected by a competitive procurement process, is awarded a fixed price contract for waste water treatment services. The vendor uses private funding to design, permit (if required), construct, operate, decontaminate and decommission a waste water and sludge treatment facility. At the time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The vendor would be paid for providing treatment services for a fixed term after operations of their facility begin. The payments could be annual, semi-annual, or other, but they would not start until the compliant treatment of water is provided. The payment would be made from annual appropriations and by costing (outlay) the original obligation for amortization of the capital costs. This approach is similar to the privatization approach being implemented to treat the Hanford Tank Farm Waste.

The facility would have to meet a set of performance specifications developed by DOE to ensure the water is treated in a compliant fashion. At this time, the ability to produce such specifications is considered achievable as the type of facility anticipated is simple in concept.

4.4 Issues

- Union and salaried employees are currently involved in these activities. Agreement with the labor unions needs to be reached prior to a decision to proceed.
- A permitting and regulatory strategy needs to be completed by Kaiser-Hill prior to issuance of a solicitation to industry.

Table F-4: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE	0.5	1.2	3	3	3	5.5	5.5	5.5	5.5	5.5	40.5
CE	2.5	10.8	15								37.2
LI											
GPP											
Total	3	12	18	3	3	5.5	5.5	5.5	5.5	5.5	77.7

4.5 Basis For Determining Privatization Would Be Cost Effective

Kaiser-Hill and DOE/RFFO will prepare formal economic "Make or Buy" analysis to evaluate whether privatization is a cost-beneficial option. Proposals will be solicited by Kaiser-Hill relative to the results of the economic analysis.

4.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the water treatment mission. It is expected that mortgage reduction in the facilities will be significant.

4.7 Data Confidence

Medium

5.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #5

Project Name: TRU Waste Repackaging and Staging Facility

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :** 303-966-7211

5.1 Background

Kaiser-Hill currently conducts, or is planning to conduct repackaging operations for transuranic (TRU) residues and wastes in several buildings, including 707, 371, 771, and 776. The operation, maintenance, and surveillance required by these buildings is substantial. Due to the age of these facilities, it is expected that costs will continue to increase in the future. In addition, several of these facilities, or portions thereof, have no long term mission, and would be available for D&D as soon as TRU operations could be relocated.

5.2 Options

The options that will be framed in the economic analysis are: continued operation of the facilities throughout the life-cycle of the Site Closure (ASAP) plan, versus a private contract to consolidate repackaging and staging into a privatized facility within two years

5.3 Description of Privatization Approach

For the purposes of this project, privatization would be considered as:

A private vendor, selected by a competitive procurement, is awarded a fixed-price contract for TRU repackaging and staging services. The vendor uses private funding to design, permit, construct, operate, decontaminate and decommission the facility. At time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The vendor would be paid for providing contracted services for a fixed term after operations of their facility begin. The payments could be annual, semi-annual, or other, but they would not start until the compliant repackaging and staging of the TRU wastes is provided. The payment would be made from annual appropriations and by costing (outlay) the original obligation for amortization of the capital costs. This approach is similar to the privatization approach being implemented to treat the Hanford Tank Farm Waste.

The facility would have to meet a set of performance

specifications developed by DOE to ensure the plutonium is stored safely. At this time, the ability to produce such specifications is considered achievable as the type of facility anticipated is simple in concept.

5.4 Issues

- Union and salaried employees are currently involved in these activities. Agreement with the labor unions needs to be reached prior to a decision to proceed.

- A regulatory strategy needs to be completed by Kaiser-Hill prior to issuance of a solicitation to industry.

Table F-5: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE				0.4	0.4	0.15					0.95
CE											
LI	0.5	1.25	1.25								3
GPP											
Total	0.5	1.25	1.25	0.4	0.4	0.15					3.95

5.5 Basis For Determining Privatization Would Be Cost Effective

Kaiser-Hill and DOE,RFFO will prepare formal economic "Make or Buy" analysis to determine whether privatization is a cost-beneficial option. Proposals will be solicited by Kaiser-Hill relative to the result of the economic analysis.

5.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the SNM storage mission. It is expected that mortgage reduction in the facilities will be significant.

5.7 Data Confidence

Medium

6.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #6

Project Name: Low Level Waste Storage Facility

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :** 303-966-7211

6.1 Background

Kaiser-Hill currently conducts, or is planning to conduct waste storage operations for LLW in several buildings. The operation, maintenance, and surveillance costs required by these buildings is substantial. Due to the age of these facilities, it is expected that costs will continue to increase in the future. In addition, several of these facilities, or portions of the facilities, have no long term mission, and would be available for D&D or economic conversion, as soon as waste operations could be relocated.

6.2 Options

The options that will be framed in the economic analysis are: continued operation of the facilities throughout the life-cycle of the Site Closure (ASAP) plan, versus a privatized contract to consolidate all LLW storage into a privatized facility within two years.

6.3 Description of Privatization Approach

For the purposes of this project, privatization would be considered as follows:

A private vendor, selected by a competitive procurement process, is awarded a fixed price contract for Low Level waste storage services. The vendor uses private funding to design, permit, construct, operate, decontaminate and decommission a facility for TRU wastes. At the time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The vendor would be paid for providing contracted services for a fixed term after operations of their facility begin. The payments could be annual, semi-annual, or other, but they would not start until compliant storage of the wastes is provided. The payment would be made from annual appropriations and by costing (outlay) the original obligation for amortization of the capital costs.

The facility would have to meet a set of performance specifications developed by DOE to ensure the waste is stored in a compliant and safe manner. At this time, the ability to produce such specifications is considered achievable as the type

of facility anticipated is simple in concept.

6.4 Issues

- Union and salaried employees are currently involved in these activities. Agreement with the labor unions needs to be reached prior to a decision to proceed.

- A regulatory strategy needs to be completed by Kaiser-Hill prior to issuance of a solicitation to industry.

Table F-6: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE		4	5	8	10	10	10	7	3		57
CE											
LI		3.5	3.5	3.5	7						17.5
GPP											
Total		7.5	8.5	11.5	17	10	10	7	3		74.5

6.5 Basis For Determining Privatization Would Be Cost Effective

Kaiser-Hill and DOE/RFFO will prepare formal economic "Make or Buy" analysis to determine whether privatization is a cost-beneficial option. Proposals will be solicited by Kaiser-Hill relative to the result of the economic analysis.

6.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the waste storage mission. It is expected that mortgage reduction in the facilities will be significant.

6.7 Data Confidence

Medium

7.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #7

Project Name: Low Level Waste Storage CAMU

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :**303-966-7211

7.1 Background

Kaiser-Hill currently conducts, or is planning to conduct waste storage operations for LLW in several buildings. The operation, maintenance, and surveillance costs required by these buildings is substantial. Due to the age of these facilities, it is expected that costs will continue to increase in the future. In addition, several of these facilities, or portions of the facilities, have no long term mission, and would be available for D&D, or economic conversion, as soon as waste operations could be relocated. At the present time, a Corrective Action Management Unit (CAMU) is not included in the Ten Year Plan. However, the LLW decision process may, in the next year, elect to construct a CAMU.

7.2 Options

The options that will be framed in the economic analysis are: continued operation of the facilities throughout the life-cycle of the Site Closure plan, versus a privatized contract to consolidate all low level waste storage into a privatized CAMU within two years. Depending on the ultimate disposal option selected for the waste, the CAMU would either undergo D&D at the expense of the contractor, or would be ultimately purchased by the Government (to support an onsite disposal option).

7.3 Description of Privatization Approach

For the purposes of this project, privatization would be considered as follows:

A private vendor, selected by a competitive procurement process, is awarded a fixed price contract for LLW Storage Services in an approved CAMU. The vendor uses private funding to design, permit, construct, operate, decontaminate and decommission a CAMU facility for LLW. At the time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The vendor would be paid for providing contracted services for a fixed term after operations of their facility begin. The payments could be annual, semi-annual, or other, but they would not start until compliant storage of the wastes is provided. The payment would be made from annual appropriations and by costing (outlay) the original

obligation for amortization of the capital costs.

The facility would have to meet a set of performance specifications developed by DOE to ensure the waste is stored in a compliant and safe manner. At this time, the ability to produce such specifications is considered achievable as the type of facility anticipated is simple in concept.

7.4 Issues

- Union and salaried employees are currently involved in these activities. Agreement with the labor unions needs to be reached prior to a decision to proceed.
- A regulatory strategy needs to be completed by Kaiser-Hill prior to issuance of a solicitation to industry.

Table F-7: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE	0.5	1.2	3	3	3	3	3	3	1	1	21.7
CE	2.5	10.8	15			4.5	4.5				37.3
LI											
GPP											
Total	3	12	18	3	3	3	7.5	7.5	1	1	59

7.5 Basis For Determining Privatization Would Be Cost Effective

Kaiser-Hill and DOE/RFFO will prepare formal economic "Make or Buy" analysis to determine whether privatization is a cost-beneficial option. Proposals will be solicited by Kaiser-Hill relative to the results of the economic analysis.

7.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the waste storage mission. It is expected that mortgage reduction in the facilities will be significant.

7.7 Data Confidence

Medium

8.0 ROCKY FLATS CANDIDATE PRIVATIZATION PROJECT #8

Project Name: Building 886 Decontamination and Decommissioning

Program: EM-40

Project is not in the FY 98 Budget Allocation Approved for Rocky Flats

Preparer: Kaiser-Hill Economic Conversion **Phone :**303-966-7211

8.1 Background

Since the completion of the Rocky Flats Production mission in 1991, a number of facilities have become candidates for D&D. The ongoing cost of maintaining these facilities is very high, and D&D could substantially reduce the Rocky Flats mortgage. During the past five years, efforts were initiated, which could facilitate the privatization of D&D. First, as a very high priority, Highly Enriched Uranyl Nitrate (HEUN) Solution removal has been underway in Building 886. It is anticipated that this will be completed in fiscal year 1996. Completion of this project will result in the removal of the drivers for the majority of the authorization basis and safeguards and security requirements. At that time, the facility will be ready for D&D.

8.2 Options

There are two options that will be framed in the economic analysis. Case 1 is to continue D&D of the facility pursuant to the IMC's plan, versus a privatized contract to D&D the facility within seven years. Case 2 is to continue maintenance of the building baseline at its current escalating level, versus a privatized contract to D&D the facility within seven years.

8.3 Description of Privatization Approach

Authority for D&D of the facility will be pursued as a construction project under DOE authority pursuant to §161(u) of the Atomic Energy Act. Budget authority for the contract will be scored in the first year, and amortized over the life of the contract (estimated to be under ten years). Budget scoring will be prepared pursuant to the direction of the Office of Management and Budget.

A private vendor, selected by a competitive procurement process, is awarded a fixed price contract for D&D services. The vendor uses private funding to engineer, mobilize, decontaminate and decommission the facility as described in a performance specification. The basic approach will be to eliminate the building to the slab at ground level. At time of contract signing, DOE would obligate sufficient funds to cover construction costs and interest to be able to pay the vendor in the event DOE cancels the contract for its convenience. The vendor would be paid for providing D&D services to a fixed work

scope.

Payments to the privatized contractor will be negotiated and will correspond to realized savings in the surveillance and maintenance costs to the Government. No payments will be made until savings is realized, and the final payment will not be made until the building is demolished per the Performance Specifications produced for the solicitation. The payment would be made from annual appropriations and by costing (outlay) the original obligation for amortization of the capital costs.

8.4 Issues

- Union and salaried employees are currently involved in these activities. Agreement with the labor unions needs to be reached prior to a decision to proceed.
- A regulatory strategy needs to be completed by Kaiser-Hill prior to issuance of a solicitation to industry.

Table F-8: Current Non-privatized Baseline Life Cycle Cost Estimate By Fiscal Year

($ in millions)

Category	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
OE			5.2	5.8							11
CE											
LI											
GPP											
Total			5.2	5.8							11

8.5 Basis For Determining Privatization Would Be Cost Effective

Kaiser-Hill and DOE/RFFO will prepare formal economic "Make or Buy" analysis to determine whether privatization is a cost-beneficial option. Proposals will be solicited by Kaiser-Hill relative to the results of the economic analysis.

8.6 Basis For Selection

The privatization approach may reduce costs to the government over other approaches to completion of the facility D&D mission. It is expected that mortgage reduction in the facilities will be significant.

8.7Data Confidence

Medium

Summary Budget Projections

ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($s in Thousands)

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyear	Total
II. Transuranic Waste													
A. Storage	738	3,152	10,129	2,881	1,707	1,912	1,725	2,712	779	739	26,474	0	26,474
B. Treatment (roll up by project)	0	6,325	5,880	5,880	6,370	2,579	1,659	1,659	1,659	1,546	33,556	0	33,556
C. Disposal (roll up by project)													
D. Post-Project Completion Surveillance and Maintenance													
III. Mixed Low Level Waste													
A. Storage	1,909	5,782	1,204	1,183	6,125	921	0	0	0	1,339	18,462	0	18,462
B. Treatment (roll up by project)	13,425	12,788	11,393	11,379	17,765	15,301	13,719	13,568	13,594	12,130	135,061	8,034	143,095
C. Disposal (roll up by project)	6,327	6,902	6,902	6,922	368	30,257	22,056	11,406	13,248	4,092	108,480	0	108,480
D. Post-Project Completion Surveillance and Maintenance													
IV. Low Level Waste													
A. Storage	1,170	1,423	1,560	6,988	9,732	4,836	4,970	3,423	1,266	1,339	36,708	0	36,708
B. Treatment (roll up by project)													
C. Disposal (roll up by project)	0	0	0	0	7,129	7,235	15,436	26,086	18,360	17,661	91,908	75	91,983
D. Post-Project Completion Surveillance and Maintenance													
V. Hazardous Waste													
A. Storage													
B. Treatment (roll up by project)													
C. Disposal (roll up by project)	150	180	222	1,088	1,468	1,042	947	855	728	506	7,186	12	7,198
D. Post-Project Completion Surveillance and Maintenance													
VI. Sanitary Waste													
A. Storage	0	0	0	0	0	0	0	0	0	0	0	0	0
B. Treatment (roll up by project)	5,665	18,540	8,652	0	0	0	0	0	0	0	32,857	0	32,857
C. Disposal (roll up by project)	24	47	90	371	1,299	893	812	731	619	412	5,298	324	5,621
D. Post-Project Completion Surveillance and Maintenance													
IX. Remedial Action (Release Sites)													
A. Assessments	1,603	2,014	3,169	3,360	4,408	2,502	5,604	4,116	6,536	5,369	38,681	2,101	40782
B. Cleanup (Complete)	14,429	18,125	28,519	30,237	39,673	22,518	50,436	37,046	58,827	48,319	348,130	18,908	367,038
C. Post-Project Completion Surveillance and Maintenance	0	0	0	0	0	0	0	0	0	0	0	12,000	12,000

Summary Budget Projections

ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($s in Thousands)

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyear	Total
X. Decommissioning (Facilities)													
A. Assessments	0	321	2,497	9,477	7,776	9,767	10,846	5,998	4,261	3,796	54,740	2,144	56,884
B. Cleanup (Complete)	0	1,687	13,108	49,756	40,826	51,276	56,943	31,492	22,368	19,928	287,385	11,254	298,639
C. Post-Project Completion Surveillance and Maintenance													
XI. Nuclear Materials													
A. Pre-Stabilization storage	3,346	8,379	4,774	1,664	0	0	0	0	0	0	18,162	0	18,162
B. Stabilization (roll up by project)	100,146	75,046	68,428	77,148	79,830	45,734	75	0	0	0	446,407	0	446,407
C. Storage for long term	6,645	27,513	27,167	15,215	5,325	4,030	4,030	3,880	3,880	3,731	101,417	43,113	144,530
D. Safeguards and Security	27,057	29,004	29,664	30,488	31,586	32,959	9,499	9,499	9,499	7,769	217,025	55,779	272,804
XIII. Facilities													
A. Pre-deactivation monitoring													
B. Deactivation (roll up by project)	979	5,019	14,148	12,526	13,369	16,125	6,226	3,136	1,001	632	73,162	554	73,716
C. Long-term monitoring													
XIV. Site Infrastructure (Landlord Program)													
A. Projects	17,417	21,200	16,099	4,427	3,758	2,559	778	778	0	0	67,015	0	67,015
B. Operational activities	96,244	103,164	101,156	89,820	86,353	73,284	57,411	45,236	32,985	9,592	695,245	25,365	720,609
C. Grants and external support	0	0	0	0	0	0	0	0	0	0	0	0	0
XV. All Other													
A. Program Direction	80,000	82,236	79,920	77,700	73,600	69,600	62,400	55,200	48,000	31,003	659,658	61,178	720,836
B. Program Support	217,729	224,827	219,824	215,633	207,331	199,591	174,394	153,397	135,503	112,934	1,861,162	378,524	2,239,686
C. Other (such as National LLW Program)	4,759	3,337	2,781	1,730	927	860	592	592	592	592	16,763	0	16,763
Total B/A	**599,760**	**657,011**	**657,286**	**655,873**	**646,725**	**595,781**	**500,558**	**410,812**	**373,706**	**283,431**	**5,380,943**	**619,365**	**6,000,308**
Total B/O	**52,900**	**29,300**	**12,000**	**14,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Support Cost Crosscut

ALL COSTS ARE IN CONSTANT FY97 DOLLARS
($s in Thousands)

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	10yr TOTAL	Outyear	Total
General Support	172,511	182,277	178,474	175,430	169,262	163,600	142,110	124,826	110,646	91,806	1,510,943	295,407	1,806,350
Mission Support	45,218	42,549	41,349	40,203	38,070	35,991	32,284	28,571	24,857	21,128	350,219	83,117	433,336
Total	**217,729**	**224,827**	**219,824**	**215,633**	**207,331**	**199,591**	**174,394**	**153,397**	**135,503**	**112,934**	**1,861,162**	**378,524**	**2,239,686**