

## APPENDIX C

### FACILITY DECOMMISSIONING

#### 1.0 INTRODUCTION

Facility Decommissioning is the process by which excess Site buildings will be modified or demolished to conform to the varying end states of the ASAP alternatives. There are more than 500 Site buildings and other structures (excluding tanks) including 9 major plutonium processing buildings (with an additional 60 or more smaller buildings and structures which support the major plutonium buildings), 60 or more buildings and other structures associated with uranium processing or waste storage, and more than 350 other buildings and structures (e.g., office buildings, storage facilities, laboratories, shops, trailers).

Three different options to decommission these buildings were evaluated. When combined with other ASAP activities such as Waste Management and Environmental Restoration, these three options support all of the ASAP Alternatives (see Table C-1). These basic decommissioning options are (1) a combination of Entombment and Dismantlement, (2) Dismantlement, and (3) Mothball. These options are illustrated in Table C-1 and Figure C-1 and defined in Subsection 4.0 of this appendix. All three decommissioning options will include deactivation activities to reduce risk and baseline costs.

The Entombment/Dismantlement option would demolish both contaminated (radiological and hazardous constituents) and uncontaminated Site buildings. Selected uncontaminated building foundations and concrete slabs would be left in place. For contaminated facilities, the concrete would be decontaminated to meet acceptable limits for residual radioactive contamination and the limits for low-level radioactive waste ( $<100$  nCi/gm), and would be entombed. A few buildings, such as Building 371, Building 771, and Building 991 vaults, have either substantial basements or significant below-grade structures. This offers the option of also entombing containerized low-level waste in the basements. In no case would transuranic (TRU) waste be entombed. All radiological waste, either concrete structures or containerized, would be covered by an engineered and maintained cap which would prevent release to the atmosphere or groundwater, or exposure to surface water. This option performs the minimum reasonable facility cleanup and waste removal consistent with Site closure, given permanent institutional control. Environmental restoration (e.g., capping, groundwater collection) is required to complete this option.

The Dismantlement option is similar to the Entombment/Dismantlement option except that all radiologically contaminated building structures, including foundations, are demolished and removed. The Dismantlement option would support releasing the Site for unrestricted use. The Dismantlement option represents the maximum building cleanup required to achieve the least residual contamination and associated risk. Environmental remediation of soils and other media adjacent to and associated with the buildings is required to complete this option.

The Mothball option places buildings in a deactivated configuration. The buildings can safely remain in this stabilized configuration for a long period of time with only basic surveillance and maintenance required. For nuclear buildings, deactivation includes removing and/or stabilizing radiological and hazardous materials, removing excess equipment, de-energizing electrical and alarms systems, draining tanks and pipes, and isolating ventilation systems so the building can be unoccupied and locked in a safe, stable state. For radiologically uncontaminated buildings, the process is similar but much simpler. Although the option discussed in this document assumes the buildings will remain indefinitely in this condition, it

must be realized that at some future date the buildings would either require major maintenance (e.g., roof replacement) or demolition resulting in additional cost and risk. While the structurally sound concrete buildings would be mothballed, the temporary (e.g., trailers) and short-lived structures (tents and sheet metal buildings) would be demolished as part of the decommissioning process in order to prevent costly maintenance and eliminate unsightly and hazardous conditions from spreading debris. This option performs the minimum facility cleanup consistent with reasonable reduction in Site risk and baseline cost.

The Phase I ASAP document evaluated a feasible alternative for decommissioning which included a combination of entombment and dismantlement. The major differences between the ASAP Phase I evaluation and this evaluation are (1) a more detailed analysis of three decommissioning options was performed, and (2) more detailed cost and waste estimates were completed.

Table C-1 lists the ASAP Alternatives and identifies the decommissioning option which supports each alternative. Each option is described in more detail in Subsection 4.0 of this appendix.

**Table C-1  
Site Alternative And Decommissioning Options**

ALTERNATIVE	DECOMMISSIONING OPTION	COMMENT
1, Unrestricted	Dismantlement (option 2)	All buildings, including any new storage facilities, demolished and removed.
2, BEMR I	Dismantlement (option 2)	All buildings, including foundations and soil 12 inches below floor level, removed.
3a, Phased Shipment	Dismantlement (option 2)	Buildings, except for any new storage facilities, demolished and foundations excavated. Any required soil remediation accomplished by Environmental Restoration.
3b, Priority Shipment	Dismantlement (option 2)	Buildings, except for any new storage facilities, demolished and foundations excavated. Any required soil remediation accomplished by Environmental Restoration.
3c, Excavation	Dismantlement (option 2)	Buildings, except for any new storage facilities, demolished and foundations excavated. Any required soil remediation accomplished by Environmental Restoration.
3d, Leveled Buildings	Entombment/Dismantlement (option 1)	Buildings, except for any new storage facilities, demolished but foundations are not excavated. Soil under buildings not excavated or treated. No waste is entombed in the foundations.
3e, Entombment and Landfill	Entombment/Dismantlement (option 1)	Buildings, except for any new storage facilities, demolished but foundations are not excavated and containerized low level waste entombed. Soil under buildings not excavated or treated.
4, Mothball	Mothball (option 3)	Buildings deactivated, partially decontaminated, and left standing.

Figure C-1 depicts the simplified sequence of events that would occur for the decommissioning options. The sequence for individual building decommissioning will be based on: (1) building availability, (2) funding availability and cost, (3) risk reduction, and (3) waste disposal availability. Figure C-2 is a graphic representation of the physical activities which would occur during decommissioning.

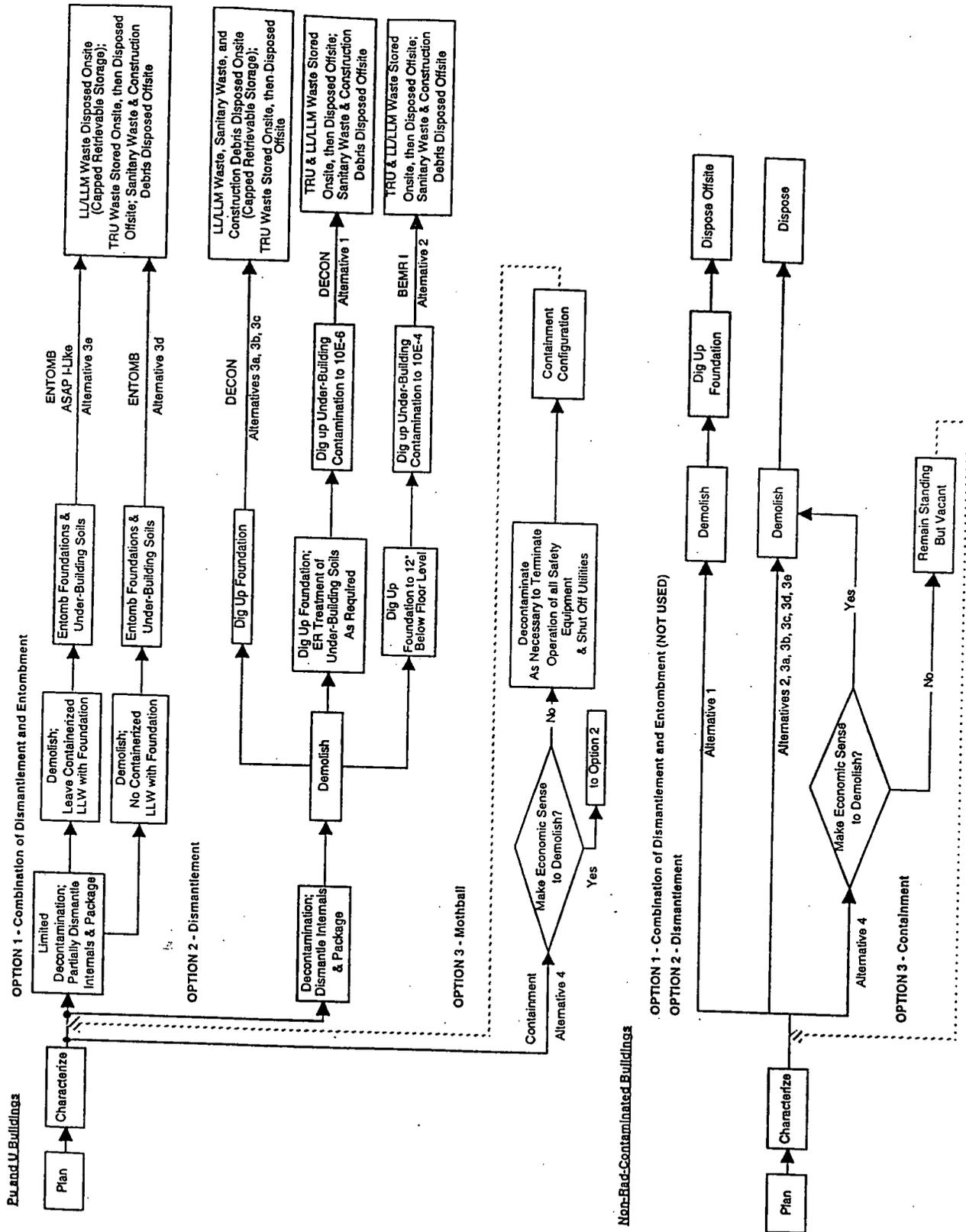


Figure C-1 Facility Decommissioning Options

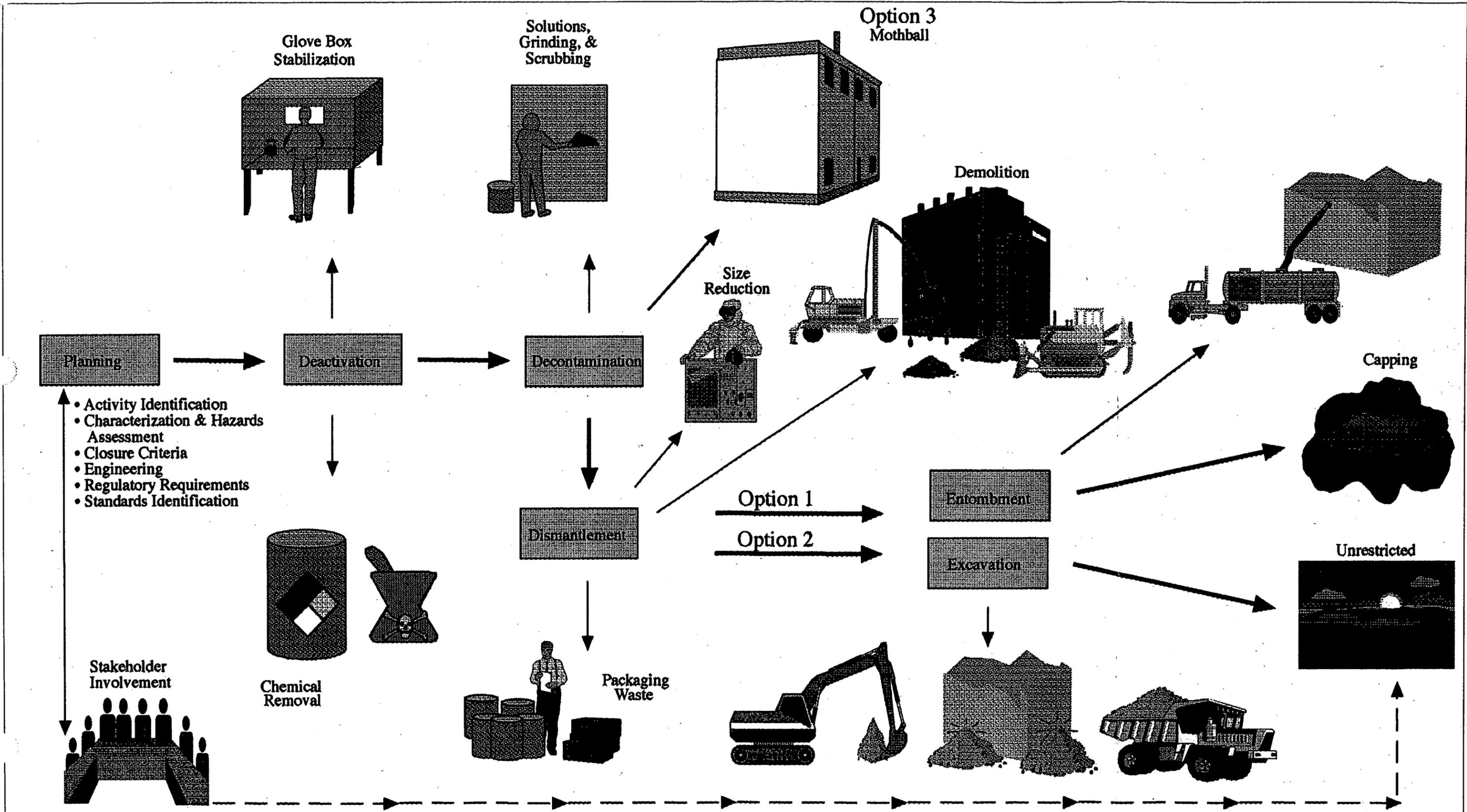
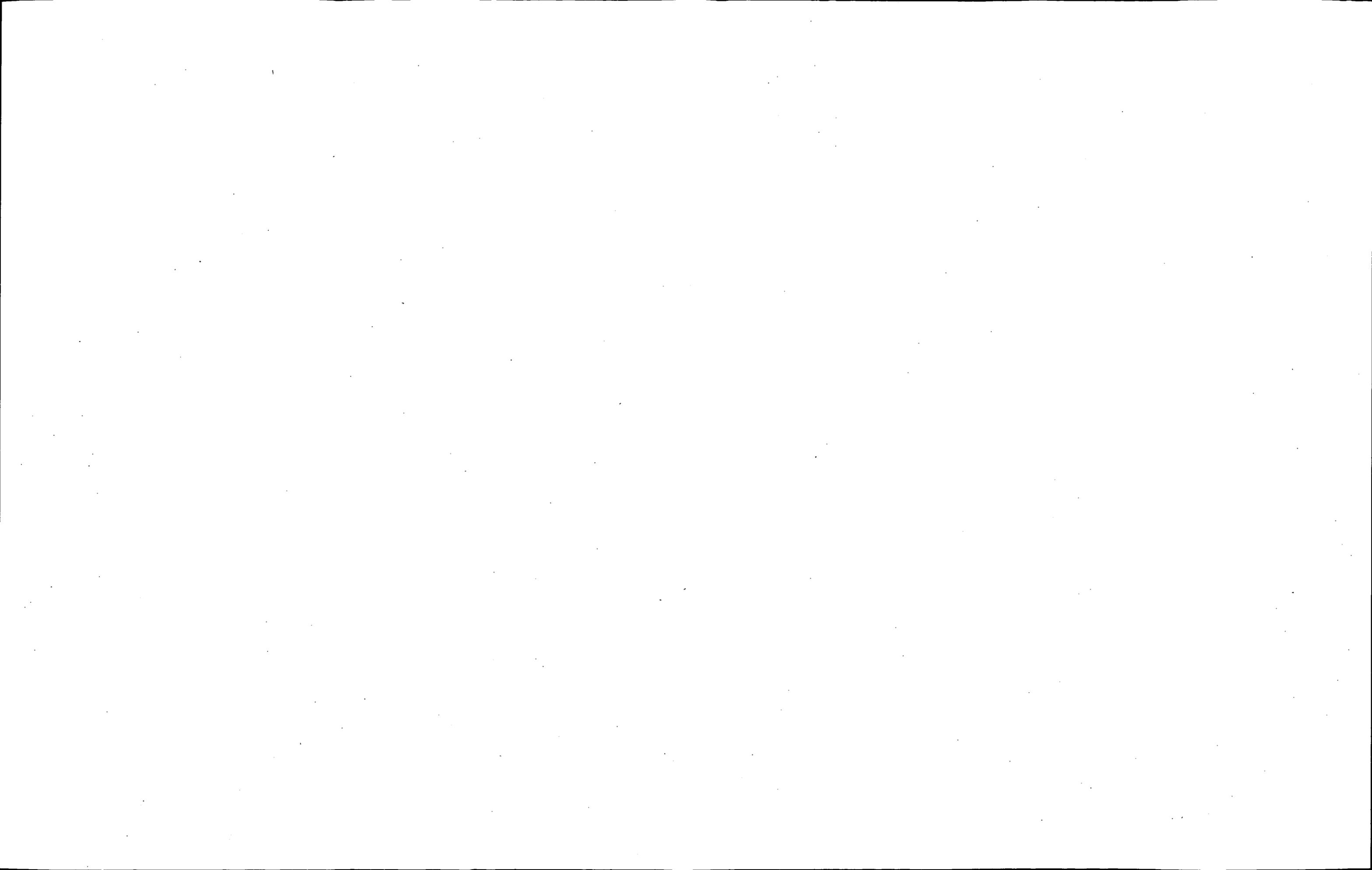


FIGURE C-2 EXAMPLE OF A CONTAMINATED FACILITY DECOMMISSIONING PROCESS



## 2.0 TASK INTERDEPENDENCIES

The following are the key task interdependencies for Facility Decommissioning:

- SNM Stabilization will remove containerized SNM, stored SNM, and significant nonfixed SNM to acceptable levels, and will process and remove residues, and radioactive liquids.
- Waste Management will remove containerized waste from the buildings and complete waste processing activities.
- Waste materials generated during decommissioning will generally be packaged by Facility Decommissioning, then the waste will be turned over to Waste Management for storage, shipping and disposal.
- Soils under and around buildings will be left for Environmental Restoration to disposition. This includes soils, underground pipes and underground tanks associated with Individual Hazardous Substance Sites (IHSSs) and Operable Units (OUs).
- Environmental Restoration will cap decommissioned foundations and/or entombed structures and will also construct and maintain groundwater barrier(s) and monitoring systems associated with the cap.
- Infrastructure will provide the long-term Surveillance and Maintenance (S&M) of buildings placed into a mothballed configuration.
- Infrastructure will relocate personnel from within buildings prior to decommissioning.
- Infrastructure will relocate any infrastructure support functions and complete any capital projects associated with Site infrastructure needs to support the ASAP schedule. (e.g., relocation of labs, fire systems upgrades)
- Resource Conservation and Recovery Act (RCRA) closure activities will be completed by the appropriate ASAP task (e.g., SNM Stabilization Task will close RCRA residue tanks), unless a RCRA closure plan integrated with the building decommissioning plan is developed for final closure.

## 3.0 GENERAL ASSUMPTIONS

- Risk-based closure standards for decommissioning will be defined and agreed upon by the Department of Energy (DOE), Colorado Department of Public Health and the Environment (CDPHE), and the Environmental Protection Agency (EPA).
- A lead regulatory agency will be established for the decommissioning activities based upon the proposed Memorandum of Agreement on agency oversight for Site cleanup.
- Buildings which are radiologically uncontaminated and have an economic value could be retained for some future use. The major plutonium buildings have been contaminated within their structure and it is assumed they could never be decontaminated to allow public reuse.
- Pu holdup in ducting and equipment will be removed by the SNM stabilization task to a level which allows for down grading the building security category. The remainder of Pu holdup will be removed by decommissioning.

- Deactivation will be closely followed by other decommissioning (D&D) work. Extensive delays between deactivation and D&D could significantly affect cost estimates.

## 4.0 DECOMMISSIONING OPTION DESCRIPTIONS

### 4.1 Entombment/Dismantlement Option

#### 4.1.1 Project Scope

This option is similar to the ASAP Phase I Feasible Alternative. The Phase I feasible alternative for ASAP was to decommission all Site facilities using a combination of dismantlement and entombment alternatives resulting in the onsite disposal of low-level decommissioning wastes at their point of generation (e.g., in basements of buildings) and/or relocating wastes to onsite waste disposal cells, which would be covered with an engineered cap. Transuranic (>100 nCi/gm) and hazardous wastes were to be packaged separately and stored onsite pending ultimate disposal at an offsite facility.

It is intended that above-grade building structures within the Protected Area would either be demolished and used as rubble to construct the cap, or left standing (within the height constraint of the cap). Building structures outside the Protected Area were to be removed, dismantled or demolished, made into rubble, and used as fill within the engineered cap.

#### 4.1.2 Assumptions

The following assumptions were made for this option:

- Where practical and compatible with the building structures, low-level decommissioning waste could be disposed onsite at its point of generation and/or relocated to onsite cells.
- Clean waste would be made into rubble and used as fill material onsite.
- Land Disposal Restrictions (LDR) waste standards will not apply since decommissioning waste would be defined as remediation waste.
- Decommissioning will be conducted under CERCLA as a non-time-critical removal action or to less restrictive requirements than are currently in place at the Site.

#### 4.1.3 Key Issues

The following are key issues for this option:

- Approval is needed from DOE, EPA, and CDPHE for onsite waste disposal.
- A streamlined approach to transition buildings from operations to decommissioning must be implemented in order to succeed within the estimated cost and schedule.
- A determination must be made as to which DOE orders are essential for accomplishing the decommissioning activities safely.
- A determination of acceptable contamination levels for material left in foundations, underground and in building structures must be made.
- The Decommissioning Program Plan, once approved by DOE, CDPHE, EPA and stakeholders and regulators, will suffice as the authorization to conduct all decommissioning operations.

#### 4.1.4 Decommissioning Approach

The decommissioning task includes the elements of deactivation, decontamination, and demolition. Deactivation includes the removal of equipment, tooling, and chemicals, and the de-energizing or stabilization of electrical systems, piping systems, and equipment. Decontamination will remove radiological and hazardous constituent contamination to provide for the most effective dismantlement and demolition. Under this option the final disposition of the facilities includes a combination of dismantlement, demolition, entombment, and removal of the facilities and equipment. Model C-1 demonstrates the decommissioning of a plutonium building. This model was constructed for Building 779. The description of Model C-1 is found at the end of this appendix.

#### 4.1.5 Decommissioning Authorization Basis

Specific authorization basis guidance related to DOE decommissioning projects has not been developed. Currently, a safety analysis approach exists for DOE facilities dedicated to producing nuclear materials for national defense. These requirements and content of safety analysis for production facilities is not relevant and/or appropriate for the decommissioning of facilities.

Buildings which are Hazard Category 2 or 3 will be deactivated and SNM removed with the intent that the buildings can be recategorized as Radiological Facilities to the maximum extent possible.

The decision-based approach for documentation of safety analysis planned for decommissioning buildings focuses on maximum use of the graded approach and the condition of the building after completion of deactivation activities. For buildings approaching decommissioning, the safety documentation will be based on the activities remaining during decommissioning activities. The decision-based approach proposed is a seven-step process.

1. Review existing operational hazards/safety documentation
2. Evaluate hazards of the building
3. Verify removal of hazardous and radioactive materials
4. Determine whether the building exceeds Hazard Category 3 thresholds
5. Incorporate safety documentation into a Health and Safety Plan for decommissioning of the building
6. Prepare the necessary safety analysis documentation
7. Integrate safety documentation into decommissioning project documentation

A major element of the proposed decision-based approach is evaluation of the safety conditions that remain at the time of decommissioning of the facility. The evaluation of safety conditions should focus on the radioactive and hazardous material inventories that remain after completion of deactivation activities. Ideally, all of the nuclear and hazardous material should be removed during deactivation. However, experience has shown that many of the facilities scheduled to undergo decommissioning still have radioactive and hazardous material remaining in the facilities and process lines. A thorough and proper review of material inventories should be conducted and incorporated into the safety documentation. In addition, although deactivation focuses on removal of energy sources from the facility, occupational hazards may still exist that would influence the level of detail required for the

safety documentation. Both material inventories and occupational hazards should be addressed during development of the safety documentation.

#### 4.1.6 Closure Criteria

The closure criteria for this decommissioning option will be consistent with that for restricted release of radiologically contaminated facilities as proposed by the Site Decommissioning Closure Standards working group. This standard has yet to be finalized.

#### 4.1.7 Waste Estimates

The waste estimates for the Entombment/Dismantlement option (for Alternatives 3d and 3e) are intended to be utilized by Waste Management in evaluating waste storage, shipping and disposal options. It must be emphasized that these waste volume estimates are order-of-magnitude estimates and will be refined once detailed characterization of each facility has been accomplished.

Under this option, waste is to be disposed either at its point of generation or at designated areas under an engineered cap. It is estimated that decommissioning wastes to be disposed of onsite includes 25,000-50,000 m<sup>3</sup> of LLW, 2,000-4,000 m<sup>3</sup> of hazardous waste, 20,000-40,000 m<sup>3</sup> of LLMW, and 1,000-3,000 m<sup>3</sup> TRU/TRM waste. In addition, approximately 133,000 m<sup>3</sup> of uncontaminated construction debris will be generated. For Alternative 3e approximately 70,000 m<sup>3</sup> of uncontaminated construction debris and 9,000-11,000 m<sup>3</sup> of LLW would be entombed in Buildings 371, 771, and in the Building 991 vaults.

#### 4.1.8 Key Cost and Schedule Features

Tables C-2 and C-3 summarize preliminary cost and schedule information for this decommissioning option. These facilities were scheduled based on the following: availability, risk reduction, regulatory requirements, cost, and waste generation. A significant uncertainty exists in the decommissioning schedule estimates, and additional planning must be conducted. The durations shown are based upon beginning decommissioning while building operations are still continuing. Exact start dates cannot be determined until more detailed schedules are prepared during ASAP Phase III.

Upon completion of the decommissioning task, there will be no surveillance and maintenance costs associated with the decommissioned buildings. However, long-term surveillance and maintenance costs would occur in conjunction with the waste stored within the engineered cap.

The estimated cost of decommissioning the facilities is on the order of \$800 million (1996 dollars with no contingency). This is based on revised cost estimates prepared during ASAP Phase II.

### 4.2 **Dismantlement Option**

#### 4.2.1 Project Scope

Under this option all buildings will be totally dismantled and all contamination removed from the facility. Some uncontaminated structures and debris could remain buried or be used to back-fill excavated buildings, or as fill to blend with adjacent ground contours.

#### 4.2.2 Assumptions

The following assumptions were made for the dismantlement option:

- Unrestricted release criteria will be developed and accepted by DOE, EPA, CDPHE and stakeholders and regulators.
- Final site release surveys are performed in accordance with NUREG/CR 5849, Manual for Conducting Radiological Surveys in Support of License Termination, June 1992.

#### 4.2.3 Key Issues

The following are key issues identified as they relate to this option.

- A residual contamination level for unrestricted release of soils must be agreed upon and established by the affected stakeholders and regulators.
- The Decommissioning Program Plan, once approved by DOE, CDPHE, EPA, and stakeholders and regulators, will suffice as the authorization to conduct all decommissioning operations.
- A determination must be made as to which DOE orders are essential for accomplishing decommissioning activities safely.

#### 4.2.4 Decommissioning Approach

This decommissioning option includes the same elements as the entombment /dismantlement decommissioning option described previously in Subsection 4.1. In addition, all waste will be packaged in containers and transferred to waste management. Waste will be size-reduced to fit into waste containers and packaged in accordance with appropriate waste criteria.

#### 4.2.5 Decommissioning Authorization Basis

The authorization basis approach for this decommissioning option is the same as referenced in Subsection 4.1.

#### 4.2.6 Closure Criteria

The closure criteria for the dismantlement configuration will be consistent with that for unrestricted release of radiologically contaminated facilities as proposed by the Site Decommissioning Closure Standards working group. This standard has yet to be finalized.

#### 4.2.7 Waste Estimates

The estimates for the dismantlement option (Alternatives 1, 2, 3a, 3b, and 3c) are intended to be utilized by the Waste Management Task in evaluating waste storage, shipping and disposal options. It must be emphasized that these waste volume estimates are order-of-magnitude estimates and will be refined once detailed characterization of each facility has been accomplished.

It is estimated that decommissioning wastes to be disposed of includes 35,000-50,000 m<sup>3</sup> of LLW, 2,000-4,000 m<sup>3</sup> of hazardous waste, 20,000-40,000 m<sup>3</sup> of LLMW, and 1,000-3,000 m<sup>3</sup> TRU/TRM waste. In addition, approximately 166,000 m<sup>3</sup> of construction debris would be generated.

#### 4.2.8 Key Cost and Schedule Features

Tables C-2 and C-3, found at the back of this appendix, summarize cost and schedule information for decommissioning site facilities for unrestricted use. The estimated cost of decommissioning the facilities is on the order of \$900 million (1996 dollars without contingency). The tables do not list the three new Site buildings (TRU waste interim storage, LLW interim storage, and SNM interim storage) as the designs are not yet available. However, overall costs and decommissioning durations have been estimated and included in the total estimates.

### 4.3 **Mothball Option**

#### 4.3.1 Project Scope

The scope of this option places the major plutonium and uranium processing building complexes as well as the major office and maintenance type buildings into a contained, deactivated configuration. Some infrastructure support buildings will remain onsite (e.g. electric substation, fire water storage) to support the long term surveillance and maintenance of these buildings. The remainder of the nonpermanent buildings, trailers, cargo containers, tents, and tanks which are more temporary in design and construction would be decommissioned, and either demolished or removed from the Site. These temporary structures are inexpensive to remove, and in fact in some cases would yield economic return if sold at auction. More importantly, if left exposed to the high winds and climate at the Site, they could disintegrate and become a safety hazard to the Site and to the offsite public. It would be possible to maintain these flimsy structures; however it would not generally be cost-effective to do. Prior to making individual building-by-building decisions whether to deactivate or demolish, more accurate cost analyses will be conducted.

Mothballing includes deactivating systems and equipment within a building with the goal of stabilizing radiological and hazardous constituents and reducing baseline cost of the facility. The final configuration is building specific; however, the desired end state is such that the only required surveillance is periodic building inspections for building integrity, radiological safety, fire protection, and health and safety. This configuration basically removes hazardous materials, removes excess equipment, de-energizes electrical and alarm systems, depressurizes and drains fluid systems, converts wet-pipe fire systems to dry-pipe, and isolates building systems, equipment, and ventilation units so that the building can be locked in a safe, stable, and stagnant state. This process does not dismantle, remove or size reduce contaminated equipment unless it is necessary to meet the established closure criteria. The scope of this option also includes placing the associated support buildings for each major building into a mothball configuration. An example of this is the Building 707 complex which includes Building 707, Building 708, Building 711, and Building 718.

The methodology for decommissioning the other Site buildings as a part of this option is as discussed in Subsection 4.1.

The following Site infrastructure would be necessary to support the mothballed configuration of the buildings within this option: fire suppression and alarm systems, electrical power distribution, waste water treatment, and access roads.

#### 4.3.2 Assumptions

The following assumptions were made for this option:

- The key assumption for the cost and waste estimates is that the detailed cost and waste estimates from Building 779 can be extrapolated accurately to the other major buildings.

Varying degrees of contamination, complexity of equipment and systems, and physical state of the contaminant (liquid as compared to solid) can affect the total cost of the option.

- For radiologically contaminated buildings, 75% and for nonradiologically contaminated buildings, 90%, of all office equipment (desks, chairs, computers) will be sent to Property, Utilization and Disposal (PU&D) for disposition.
- Decontamination of highly contaminated areas (e.g. gloveboxes, inside of certain rooms) will consist of wipe down, strip coat, with fixative applied. No new techniques will have to be developed.
- The decommissioning scope and cost estimate does not include revitalizing mothballed systems or constructing new systems to support demolition at the end of the extended mothball period.

#### 4.3.3 Key Issues

The following are key issues identified as they relate to the Mothball option:

- This option assumes that the mothball configuration is indefinite but at some future date the demolition of the buildings will have to be conducted.
- Decommissioning waste should be defined as remediation waste, which would not be required to meet LDR waste standards.
- A method for final characterization of the building to ensure that the closure criteria is met must be developed.
- The closure criteria to be applied to the Mothball option must be defined and agreed upon by the DOE, DNFSB, EPA, and CDPHE.

#### 4.3.4 Decommissioning Approach

Mothballing is the process of placing a facility in a safe and stable condition to protect the workers, the public, and the environment. This approach includes all of the necessary planning and implementation activities to place the buildings into a mothball configuration and takes place after a program or building operation or processing function has been completed. The approach to mothballing a building has been developed into two major phases. Each phase progressively reduces the risk and surveillance and maintenance costs of the building, although at increasing implementation costs.

The first phase would be conducted in conjunction with the completion of building operations activities and be effective at reducing or eliminating surveillance and maintenance costs. This includes the reduction in operating surveillances in areas that are no longer used, eliminating RCRA inspections by closing units no longer required to support operations, and by changing authorization basis documentation and therefore eliminating surveillance and maintenance requirements upon completion of operations. Additionally this includes the removal of items such as excess chemicals, combustibles, and classified materials so that the inspections associated with them can be reduced or eliminated. After completing the initial phase of deactivation, the facility has a lower baseline operating cost while preparing it for final disposition.

The final phase of deactivation includes all required activities necessary to place surplus buildings, equipment, systems, and other ancillary structures into containment. This phase

generally includes removing or stabilizing hazardous materials, de-energizing electrical and alarm systems, depressurizing and draining fluid systems, and isolating building systems, equipment, and ventilation units so that the building can be locked in a safe, stable and stagnant state. This process may also include some decontamination and encapsulation of radiological materials to meet the closure criteria. This phase also reduces baseline costs to their lowest possible level by eliminating surveillances and maintenance to achieve long term cost savings. Model C-2 demonstrates the mothballing of a plutonium building. This model is constructed for Building 779. The description of Model C-2 is found at the end of this appendix.

#### 4.3.5 Work Authorization Basis

Established Site infrastructure procedures along with the necessary health and safety reviews and nuclear safety reviews constitute the work authorization basis for deactivation activities to complete the containment of the radiologically contaminated facilities. Currently, the nuclear buildings are Nuclear Safety Hazard Category 2 and 3.

The appropriate authorization basis documentation will be necessary to conduct activities while there is nuclear material in the buildings above the DOE Standard 1027-92 thresholds. However, when all nuclear material is removed to below the Category 3 threshold, the building will be recategorized.

The Health and Safety Requirements for the deactivation activities include Industrial Hygiene, Occupational Safety and Health, Radiological Protection, and Fire Protection. These requirements are defined in existing Site policies and procedures and will be implemented throughout the deactivation process to ensure worker safety. A Health and Safety Plan will be developed prior to deactivation.

The necessary deactivation activities for each building will be evaluated using an Unreviewed Safety Question Determination. This will serve as the governing document to evaluate that these deactivation activities are bounded by the existing safety analysis in the Building's Safety Analysis Report (SAR). Once verification is complete that SNM has been removed from the facility and administrative controls have been established to prevent any reintroduction of nuclear material, the Building SAR, Operational Safety Requirements, and baseline documentation will be canceled to reduce the building surveillance and maintenance requirements.

#### 4.3.6 Mothballing Criteria

The criteria for the mothballed configuration will be consistent with that for restricted release of radiologically contaminated facilities as proposed by the Site Decommissioning Closure Standards working group. This standard has yet to be finalized.

#### 4.3.7 Waste Estimates

The waste estimates for the Mothball option are intended to be utilized by Waste Management in evaluating waste storage, shipping, and disposal options. It must be emphasized that these waste volume estimates are order-of-magnitude estimates and will be refined once detailed characterization of each facility has been accomplished.

Waste Estimates for the Mothball Alternative are:

7,000-9,000 m<sup>3</sup> of LLW, 50-100 m<sup>3</sup> of TRU/TRM waste, 50-100 m<sup>3</sup> of hazardous waste, 4,000-6,000 m<sup>3</sup> sanitary waste, and 100-200 m<sup>3</sup> LLMW.

The above volumes do not include the wastes which would be generated when the facility is eventually dismantled and demolished.

#### 4.3.8 Key Cost and Schedule Elements

Table C-3 summarizes cost and schedule information for mothballing the permanent Site buildings. Table C-2 summarizes the cost and schedule information for deactivating, decommissioning, and removing the other buildings. Figure C-3 illustrates the cost variations of the different levels of decommissioning.

The estimated total cost for placing the permanent Site buildings into a mothball condition is approximately \$67 million and to decommission the temporary buildings is approximately \$30 million (1996 dollars and no contingency).

The annual surveillance and maintenance (S&M) costs for major Pu buildings once they are placed in a containment configuration is approximately \$275 thousand per year per building. This cost estimate is based on the Hanford Building 308 Surveillance and Maintenance Plan. This cost estimate is consistent with the desired minimum surveillance requirements of periodic building inspections.

In evaluating the mothball option the ultimate decommissioning cost for dismantlement and demolition at some future date must be considered. Mothball is a temporary option which permits immediate short term reduction of risk as well as baseline operating costs.

A cost benefit analysis is necessary for each building to determine the most cost-effective containment or demolition decision. For an administrative type building this is relatively simple. As an example, Building 441, an office building, has an estimated cost to mothball of \$100 thousand, while the estimated cost to decommission and demolish is \$370 thousand. The long term surveillance and maintenance cost for the building is estimated at \$20 thousand per year with approximately \$100 thousand every 15 years for roof replacements, with the first replacement before FY00. This gives about a 9-year break- even point where the mothballing cost and long term S&M cost exceed the decommissioning and demolition cost estimate. This type of evaluation is necessary on all of the buildings.

## 5.0 SUMMARY

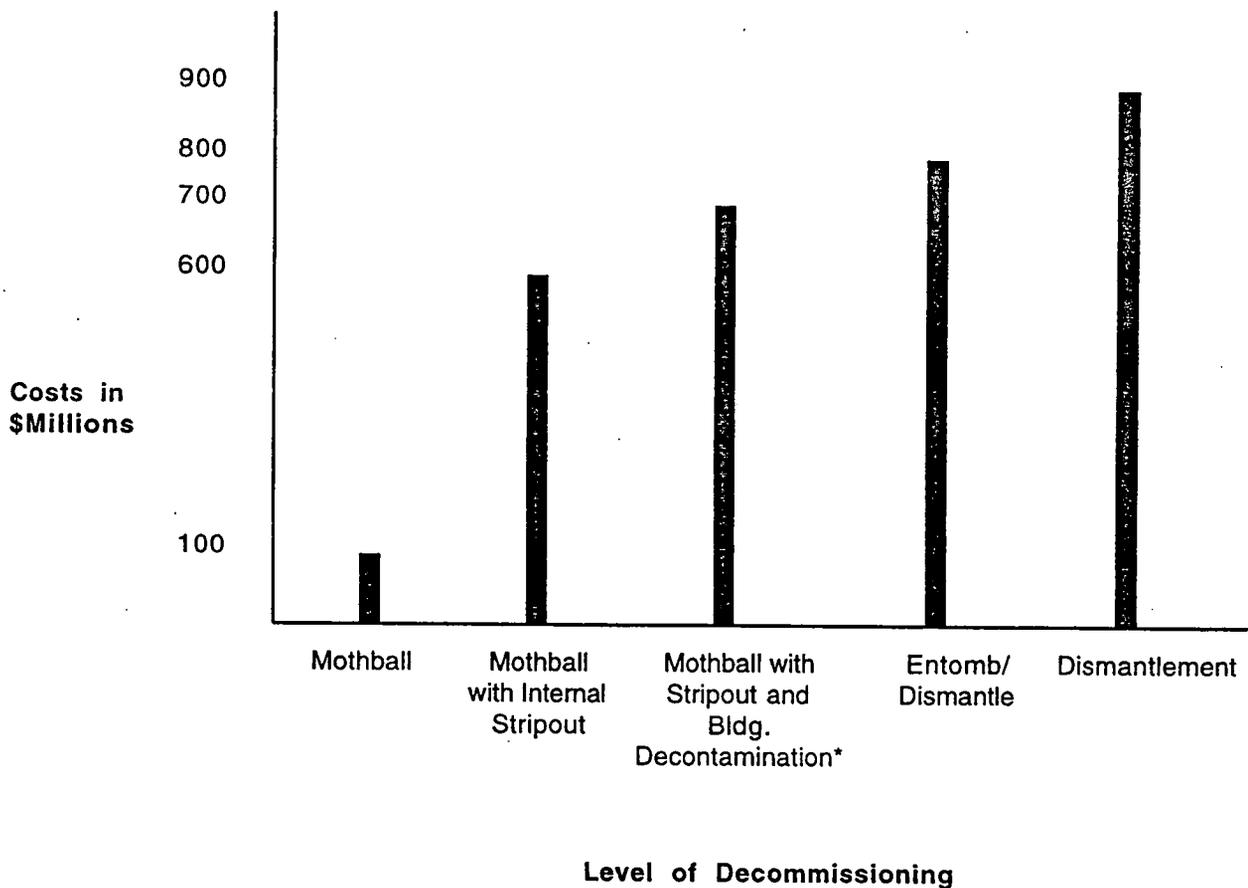
In evaluating the decommissioning options presented in Subsection 4.0, it is necessary to take into consideration the other ASAP task elements that apply to each alternative. Each of the decommissioning options must be evaluated with the applicable alternative, established Site release criteria, land use options, and funding profiles in order to determine which of these options best supports the end state being evaluated.

In reviewing the differences between the Entombment/Dismantlement option and the Dismantlement option strictly from a decommissioning standpoint, the Entombment/Dismantlement option is approximately \$100 million less in cost and generates approximately 20% less waste to be packaged and disposed of other than by entombment in the foundations.

From a decommissioning standpoint alone the Mothball option has the lowest near term cost, approximately \$680 million less than the Entombment/Dismantlement option, and has the least amount of immediate waste generation. However, because facilities cannot be left indefinitely in a deactivated configuration, future decontamination and demolition costs may need to be considered.

From a risk standpoint, worker safety is the least favorable for the Dismantlement option due to the additional industrial safety risk during demolition and excavation of foundations and structures. Worker safety during the Mothball option is the most favorable because it has the least amount of industrial safety risk. For the public, risk for the Dismantlement option is the most favorable due to the unrestricted release of the buildings upon completion of decommissioning. The Mothball option is the least favorable to the public, due to risk associated with material remaining in the buildings and due to the building structures remaining onsite for an indefinite period of time.

It is possible that a combination of the decommissioning options that best supports the safest, most cost-effective and timely stabilization and closure of the Site will be utilized. This may include mothballing some buildings for an intermediate period prior to demolition in order to reduce baseline operating costs. Dismantlement and/or entombment of other buildings can be accomplished in order to support waste disposal options and to provide greater flexibility for future land-use alternatives.



\*No major plutonium building can be totally decontaminated without demolishing the building. Due to spills, fires, etc., plutonium is trapped in joints, within the structure, and in floor drains. Gram level quantities of radioactive material will remain in place until demolition. These buildings could probably never be released for public use.

**Figure C-3 Relative Cost of Different Levels of Decommissioning**

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	LLW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
262	B62 DIESEL FUEL STORAGE B371	40	\$100,000	\$100,000	9/30/01	442	19	60	114	1	636
371	B371 PU RECOVERY BUILDING	2280	\$79,112,956	\$82,238,000	3/31/01	16,819	22	4,405	3,165	302	24,713
373	B373 WATER COOLING PROCESS	132	\$538,720	\$560,000	3/31/01	112	2	1	0	0	116
374	B374 WASTE TREATMENT PLANT	533	\$13,461,266	\$13,993,000	3/31/01	2,807	3	644	474	43	3,970
377	B377 AIR COMPRESSOR B371/374	30	\$48,100	\$50,000	3/31/01	12	2	0	0	0	15
378	B378 WASTE COLLECTION PUMP HOUSE	20	\$24,050	\$25,000	3/31/01	18	0	1	1	0	21
381	B381 FLUORINE STORAGE BLDG	20	\$24,050	\$25,000	3/31/01	90	2	0	0	0	91
383	B383 COOLING TOWER B 371	40	\$161,616	\$168,000	3/31/01	35	1	1	0	0	37
384	B384 COOLING TOWER B371	40	\$161,616	\$168,000	3/31/01	35	1	1	0	0	37
374A	B374A CARPENTER SHOP	20	\$24,050	\$25,000	N/A	11	0	0	0	0	11
427	B427 EMERGENCY GEN FOR B444	20	\$24,050	\$25,000	12/31/95	21	0	0	0	0	22
444	B444 MANUFACTURING BUILDING	1043	\$26,789,814	\$27,847,000	12/31/95	8,234	288	1,038	1,305	0	10,874
445	B445 CARBON STORAGE	30	\$67,340	\$70,000	12/31/95	122	3	0	0	0	125
447	B447 MANUFACTURING FACILITY	130	\$3,348,722	\$3,481,000	12/31/95	1,229	2	176	288	0	1,695
448	B448 STORAGE BLDG	30	\$67,340	\$70,000	12/31/95	61	0	22	5	0	89
449	B449 OIL & PAINT STORAGE	20	\$24,050	\$25,000	12/31/95	17	0	0	0	0	17
450	B450 FILTER PLENUM FOR B444 ZONE 1	22	\$76,960	\$80,000	12/31/95	14	0	2	3	0	19
451	B451 FILTER PLENUM FOR 447 ZONE 2	18	\$72,150	\$75,000	12/31/95	190	0	38	37	2	266
453	B453 OIL STORAGE	20	\$24,050	\$25,000	12/31/95	21	1	0	0	0	22
454	B454 COOLING TOWER FOR 444	18	\$63,492	\$68,000	12/31/95	14	2	1	0	0	17
455	B455 FILTER PLENUM FOR 444 ZONE 2	22	\$47,138	\$49,000	12/31/95	122	0	23	24	2	171
457	B457 COOLING TOWER FOR 447	10	\$38,480	\$40,000	12/31/95	7	1	1	0	0	8
427A	B427A DIESEL STORAGE FOR 427	10	\$40,000	\$40,000	12/31/95	19	2	0	0	0	21
444TA	B444TA SHOWERS LOCKERS	23	\$50,000	\$50,000	12/31/95	0	0	0	0	0	0
528	B528 PROCESS WASTE PIT B558	32	\$0	\$50,000	N/A	41	2	6	11	0	60
559	B559 PU ANALYTICAL LAB	1183	\$20,498,296	\$21,308,000	9/30/98	2,174	2	483	388	34	3,058
560	B560 COOLING TOWER FOR 559	17	\$2,919,670	\$3,035,000	9/30/98	14	2	1	0	0	17
561	B561 FILTER PLENUM B559 ZONE 1&2	77	\$481,000	\$500,000	9/30/98	412	0	74	75	5	567
562	B562 EMER GEN B 561	30	\$48,100	\$50,000	9/30/98	26	1	0	0	0	27
563	B563 COOLING TOWER B559	11	\$42,328	\$44,000	9/30/98	11	1	1	0	0	12
564	B564 ADMIN & CHEM B559	30	\$67,340	\$70,000	9/30/98	90	0	0	0	0	90
707	B707 PRODUCTION BUILDING	2584	\$82,009,538	\$85,249,000	9/30/01	11,848	15	2,835	2,130	199	17,126
708	B708 COMPRESSOR BLDG B707	30	\$48,100	\$50,000	9/30/01	482	9	0	0	0	492
709	B709 COOLING TOWER B707	78	\$320,346	\$333,000	9/30/01	11	1	1	0	0	12
711	B711 COOLING TOWER B707	13	\$50,886	\$53,000	9/30/01	67	2	1	0	0	70
718	B718 SERVICE BLDG FOR B711	20	\$24,050	\$25,000	9/30/01	34	1	0	0	0	35
731	B731 PROCESS WASTE PIT B 707	28	0	\$48,000	9/30/01	34	2	3	5	0	44
709A	B709A CT PUMP/GEN B709	28	\$49,290	\$45,000	9/30/01	203	8	28	54	0	285
711A	B711A EMER GEN B711	30	\$48,100	\$50,000	9/30/01	203	8	28	54	0	295
731A	B731A EMER PUMP B707	28	\$43,290	\$45,000	N/A	18	0	0	0	0	18
714	B714 HF STORAGE BLDG	20	\$24,050	\$25,000	9/30/95	14	0	0	0	0	14
715	B715 EMER GEN #1 B711/774	30	\$48,100	\$50,000	9/30/97	11	0	0	0	0	12
716	B716 EMER GEN #2 B711/774	30	\$48,100	\$50,000	9/30/97	11	0	0	0	0	12
717	B717 MAGNETIC GUAGE BLDG.	20	\$24,050	\$25,000	9/30/97	28	1	0	0	0	28
728	B728 WASTE PIT B771	15	0	\$20,000	N/A	7	0	1	2	0	10
771	B771 PU RECOVERY FACILITY	2150	\$60,695,466	\$63,093,000	9/30/97	7,214	2	1,734	2,420	217	11,588

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	LLW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
772	B772 FLUORINE STORAGE BLDG	20	\$24,050	\$25,000	9/30/95	27	0	2	2	0	30
775	B775 SEWAGE LIFT STATION	20	0	\$30,000	N/A	7	0	0	0	0	7
774	B774 LIQUID WASTE TREAT PLANT	1119	\$20,948,512	\$21,776,000	N/A	1,630	0	214	124	6	1,974
714A	B714A HE STORAGE BLDG	20	\$24,050	\$25,000	9/30/95	14	0	0	0	0	14
714B	B714B EMER BREATHING AIR B771	20	\$24,050	\$25,000	9/30/97	14	0	0	0	0	14
715A	B715A EMER GEN B771	30	\$48,100	\$50,000	9/30/97	28	0	0	0	0	28
771C	B771C NUCLEAR WASTE PACKAGING	27	\$91,390	\$95,000	9/30/97	307	13	43	82	0	445
772A	B772A ACID STORAGE	20	\$24,050	\$25,000	9/30/95	28	1	0	0	0	28
701	B701 CHEMISTRY RESEARCH	150	\$481,000	\$500,000	N/A	34	0	2	2	0	39
702	B702 CT PUMPHOUSE FOR B712	49	\$81,770	\$85,000	N/A	34	1	0	0	0	35
703	B703 CT PUMPHOUSE FOR B713	48	\$81,770	\$85,000	N/A	45	1	0	0	0	46
710	B710 STEAM VALVE HOUSE	26	\$43,290	\$45,000	9/30/01	54	2	27	51	0	133
712	B712 CT FOR B776/777/778A	120	\$487,734	\$507,000	9/30/97	103	2	1	0	0	106
713	B713 CT FOR B776/777/778A	120	\$487,734	\$507,000	9/30/97	103	2	1	0	0	106
730	B730 PROC WASTE PIT B776	49	0	\$85,000	N/A	47	2	8	16	0	74
776	B776 MANUFACTURING BUILDING	2185	\$106,595,372	\$110,806,000	9/30/97	9,563	11	3,477	586	158	13,784
777	B777 ASSEMBLY BUILDING	2004	\$71,534,320	\$74,360,000	9/30/97	4,810	5	1,207	762	77	6,861
781	B781 COMPRESSOR B777	30	\$48,100	\$50,000	9/30/97	27	1	2	5	0	34
727	B727 EMER GEN B782	30	\$48,100	\$50,000	9/30/96	26	1	0	0	0	27
729	B729 FILTER PLENUM B779 (ZONE 1)	40	\$248,196	\$258,000	9/30/96	174	0	34	35	2	246
779	B779 PU DEVELOPMENT BUILDING	750	\$17,825,510	\$18,529,636	9/30/96	4,421	15	1,323	213	11	5,982
782	B782 FILTER PLENUM B779 ZONE 2	40	\$162,087	\$168,500	9/30/96	380	1	80	81	6	549
783	B783 CT PUMP HOUSE B779	20	\$24,050	\$25,000	9/30/96	18	0	0	0	0	18
784	B784 CT STANDBY B779	3	\$70,226	\$73,000	9/30/96	4	1	1	0	0	5
785	B785 CT PROCESS WATER B779	17	\$13,468	\$14,000	9/30/96	14	1	1	0	0	15
786	B786 CT WEST CHILLER B779	186	\$65,416	\$68,000	9/30/96	158	3	1	0	0	162
787	B787 CT EAST CHILLER B779	186	\$65,416	\$68,000	9/30/96	141	3	1	0	0	145
827	B827 EMER GEN B865/875/883/886	30	\$48,100	\$50,000	9/30/96	15	0	0	0	0	15
863	B863 ELEC TRANSFORMERS B865	30	\$48,100	\$50,000	12/31/95	12	0	0	0	0	12
865	B865 CASTING FACILITY	695	\$9,432,410	\$9,805,000	12/31/95	2,034	0	783	1,288	0	4,086
866	B866 WASTE TRANSFER B865	26	0	\$45,000	N/A	54	0	2	7	0	63
867	B867 FILTER PLENUM B865 ZONE 1	40	\$248,196	\$258,000	12/31/95	18	0	6	5	0	29
868	B868 FILTER PLENUM B865 ZONE 2	14	\$55,798	\$58,000	12/31/95	18	0	6	5	0	29
879	B879 FILTER PLENUM B869 ZONE 1	52	\$322,270	\$335,000	9/30/96	45	0	15	13	0	73
883	B883 POLL & FORM BLDG.	695	\$13,012,012	\$13,526,000	9/30/96	801	0	1,259	1,685	0	3,745
865A	B865A COOLING TOWER B865	19	\$75,998	\$79,000	12/31/95	18	1	1	0	0	19
883C	B883C COOLING TOWER B883	19	\$75,988	\$79,000	9/30/96	18	1	1	0	0	19
881	B881 MANUFACTURING GENERAL	1390	\$42,256,912	\$43,926,000	9/30/96	14,398	91	646	774	60	15,970
887	B887 SEW LIFT/WASTE TANK	200	\$862,000	\$1,000,000	9/30/96	76	1	4	4	0	85
881G	B881G COOLING TOWER B881	19	\$75,998	\$79,000	9/30/96	18	1	1	0	0	19
881F	B881F FILTER PLENUM B881 ZONE 1	120	\$749,398	\$779,000	9/30/96	18	0	6	5	0	29
881G	B881G EMER GEN B881	30	\$48,100	\$50,000	9/30/96	75	2	0	0	0	77
828	B828 PROCESS WASTE PIT B886	26	\$43,290	\$45,000	9/30/95	15	1	2	4	0	21
875	B875 FILTER PLENUM B886 ZONE 1	58	\$345,166	\$358,800	9/30/96	49	0	17	15	0	80
880	B880 STORAGE BUILDING	22	\$48,100	\$50,000	9/30/95	54	2	0	0	0	58
886	B886 NUCLEAR SAFETY BLDG	195	\$6,310,718	\$8,639,000	9/30/96	621	4	28	34	2	689

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	ILW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
886TA	B886TA ADMINISTRATION B886	31	\$70,000	\$70,000	9/30/96	0	0	0	0	0	0
884	B884 SHIPPING CONTAINER STORAGE	19	\$24,950	\$25,000	3/31/96	119	2	6	7	1	135
885	B885 FILTER PLENUM B885/897/899	80	\$63,492	\$66,000	3/31/96	159	0	31	32	2	225
889	B889 ENER GEN B891 W/TANK	30	\$56,758	\$59,000	3/31/96	18	0	0	0	0	18
891	B891 PRODUCT WAREHOUSE	458	\$3,278,496	\$3,408,000	3/31/96	2,502	18	118	142	10	2,780
896	B896 STORAGE VAULT	93	\$150,072	\$156,000	3/31/96	397	1	109	80	8	594
897	B897 STORAGE VAULT	93	\$150,072	\$156,000	3/31/96	374	1	103	77	8	560
898	B898 STORAGE VAULT	93	\$150,072	\$156,000	3/31/96	145	0	38	28	2	214
899	B899 STORAGE VAULT	93	\$150,072	\$156,000	3/31/96	247	0	66	49	5	368
111	B111 ADMIN. (GENERAL STAFF)	458	\$3,799,900	\$3,950,000	9/30/97	1,528	2	0	0	0	1,530
112	B112 CAFETERIA & TELECENTER	63	\$192,400	\$200,000	9/30/02	514	1	0	0	0	515
113	B113 GUARD POST (OFFICES)	15	\$48,100	\$50,000	3/31/97	24	0	0	0	0	24
114	B114 CAR POOL SHELTER	10	\$15,000	\$15,000	3/31/96	0	0	0	0	0	0
115	B115 DOE ADMIN/EOC	110	\$360,750	\$375,000	9/30/01	863	0	0	0	0	863
116	B116 DOE ADMIN	110	\$360,750	\$375,000	9/30/01	780	0	0	0	0	780
119	B119 PLANT SECURITY FACILITY	70	\$230,880	\$240,000	9/30/01	283	0	0	0	0	283
120	B120 WEST ACCESS GUARD POST	15	\$48,100	\$50,000	9/30/01	34	0	0	0	0	34
121	B121 PLANT PROTECTION CENTER	50	\$153,920	\$160,000	3/31/01	581	1	0	0	0	582
122	B122 MEDICAL CENTER	63	\$192,400	\$200,000	3/31/97	576	7	2	6	0	591
123	B123 HEALTH PHYSICS	130	\$413,660	\$430,000	9/30/97	1,058	7	5	18	0	1,088
124	B124 WASTE TREATMENT PLANT	81	\$278,980	\$290,000	9/30/01	760	11	0	1	0	771
125	B125 STANDARDS LABORATORY	81	\$278,980	\$290,000	9/30/99	515	11	1	1	0	528
126	B126 SOURCE STORAGE BUILDING	20	\$24,050	\$25,000	9/30/99	30	2	2	2	0	33
127	B127 ENER GEN BLDG 121 & 115	30	\$48,100	\$50,000	3/31/01	34	1	0	0	0	34
128	B128 VEHICLE SHELTER	15	\$25,000	\$25,000	N/A	98	0	0	0	0	98
129	B129 RAW WATER STRAINER	20	\$24,050	\$25,000	9/30/01	1,317	1	0	0	0	1,317
130	B130 ENGINEERING STORAGE BLDG.	550	\$1,803,750	\$1,875,000	9/30/02	2,539	0	0	0	0	2,539
131	B131 DOE OFFICE BUILDING	170	\$538,720	\$560,000	9/30/02	1,073	0	0	0	0	1,073
132	B132 ELECTRICAL SUBSTATION #9	25	\$40,000	\$40,000	9/30/02	12	0	0	0	0	13
180	B180 METEOROLOGY DATA COLLECT.	10	\$15,000	\$15,000	N/A	2	0	0	0	0	2
181	B181 METEOROLOGY TOWER WC	10	\$15,000	\$15,000	9/30/01	2	0	0	0	0	2
201	B201 RAILROAD	180	\$1,000,000	\$1,000,000	N/A	0	0	0	0	0	0
202	B202 ROADS	400	0	\$5,000,000	N/A	0	0	0	0	0	0
203	B203 BUFFER CATTLE ACCESS	10	\$15,000	\$15,000	N/A	14	0	0	0	0	14
204	B204 WALKWAYS	180	0	\$2,000,000	N/A	2,295	0	0	0	0	2,295
205	B205 PARKING AREAS & ACCESS RDS	400	0	\$5,000,000	N/A	0	0	0	0	0	0
208	B208 DOMESTIC WATER SYSTEM	400	0	\$8,000,000	N/A	765	0	0	0	0	765
207	B207 INDUSTRIAL WASTE STORAGE	400	0	\$10,000,000	N/A	292	13	0	0	0	305
208	B208 SANITARY SEWER SYSTEM	300	0	\$15,000,000	N/A	1,148	0	0	0	0	1,148
209	B209 STORM DRAIN SYSTEM	300	0	\$15,000,000	N/A	1,148	0	0	0	0	1,148
210	B210 GAS DISTRIBUTION SYSTEM	180	\$5,000,000	\$5,000,000	N/A	765	0	0	0	0	765
211	B211 STEAM DISTRIBUTION SYSTEM	180	\$5,000,000	\$5,000,000	N/A	0	0	153	0	0	153
212	B212 ELEC DIST. SYS.	180	\$5,000,000	\$5,000,000	N/A	0	99	99	0	0	199
213	B213 ALARMS & COMM. SYS.	180	0	\$5,000,000	N/A	0	99	99	0	0	199
214	B214 FENCE & STREET LIGHTING	180	\$5,000,000	\$5,000,000	N/A	0	99	99	0	0	199
216	B216 RAW WATER SUP. & PUMP	180	\$5,000,000	\$5,000,000	9/30/01	0	0	0	0	0	0

TABLE C-2  
 ENTOMB/DISMANTLEMENT  
 AND  
 DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	LLW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
218	B218 NITRIC ACID FARM	33	\$50,000	\$50,000	N/A	46	2	0	0	0	48
219	B219 SANITARY LANDFILL	80	\$500,000	\$500,000	3/31/98	0	0	0	0	0	0
220	B220 TELE & COMM SYSTEM	180	0	\$5,000,000	8/30/01	0	89	88	0	0	189
221	B221 STOR TANK CENT.FUEL #6	100	\$481,000	\$500,000	9/30/98	559	24	0	0	0	583
222	B222 DATA LINES	180	0	\$5,000,000	9/30/01	0	89	89	0	0	189
223	B223 NITROGEN SUPPLY FARM	80	\$288,600	\$300,000	3/31/01	90	2	0	0	0	92
224	B224 CENTRAL FUEL STORAGE TANK	100	\$481,000	\$500,000	9/30/96	955	41	0	0	0	996
226	B226 TANK NAEL NEAR B910	20	\$25,000	\$25,000	N/A	19	2	0	0	0	21
227	B227 TANK SULF ACID NEAR B910	20	\$25,000	\$25,000	N/A	12	0	0	0	0	12
231	B231 PROCESS WASTE TANK PUMP	20	\$25,000	\$25,000	N/A	18	0	0	0	0	19
240	B240 STEAM CONDENSATE TANK	53	\$180,000	\$190,000	9/30/01	282	12	0	0	0	295
260	B260 PERIMETER SECURITY ZONE	180	\$2,500,000	\$2,500,000	N/A	77	0	0	0	0	77
302	B302 PISTOL RANGE	20	\$25,000	\$25,000	9/30/97	2	1	0	0	0	2
303	B303 RIFLE RANGE	90	\$1,000,000	\$1,000,000	9/30/97	2	1	0	0	0	2
304	B304 FIRE CONTROL CROSSING	3	\$15,000	\$15,000	N/A	1	0	0	0	0	1
306	B306 WATER SAMP. & MEASURING	20	\$25,000	\$25,000	9/30/00	2	0	0	0	0	2
307	B307 PISTOL RANGE	20	\$25,000	\$25,000	9/30/10	2	1	0	0	0	2
331	B331 GARAGE AND FIRE STATION	160	\$769,600	\$800,000	9/30/01	1,458	24	0	0	0	1,483
333	B333 PAINT SHOP & SAND BLAST	22	\$57,720	\$60,000	9/30/99	205	4	0	0	0	209
334	B334 GENERAL MAINTENANCE	180	\$1,443,000	\$1,500,000	9/30/99	1,824	37	0	0	0	1,860
335	B335 FIRE TRAINING BUILDING	20	\$48,100	\$50,000	3/31/96	84	2	0	0	0	86
367	B367 STORAGE SHED	30	\$86,200	\$100,000	N/A	14	0	0	0	0	14
372	B372 GUARD POST FOR PORTAL #2	15	\$48,100	\$50,000	N/A	32	0	0	0	0	32
375	B375 GUARD TOWER T-4	15	\$48,100	\$50,000	N/A	21	0	0	0	0	21
376	B376 ADMIN/TECH SPT B371	20	\$24,050	\$25,000	N/A	90	0	0	0	0	90
428	B428 WASTE COLL. TANK AND PUMP	26	\$40,000	\$40,000	N/A	8	0	0	0	0	8
429	B429 PROCESS WASTE PIT B441	20	0	\$20,000	N/A	41	2	6	11	0	60
439	B439 MAINTENANCE SHOP	40	\$134,680	\$140,000	12/31/95	190	2	0	2	0	195
440	B440 MODIFICATION CENTER	180	\$962,000	\$1,000,000	N/A	621	21	0	2	0	645
441	B441 PRODUCTION SUPPORT ADMIN	110	\$360,750	\$375,000	9/30/97	895	1	0	0	0	898
442	B442 FILTER TEST LAB	20	\$24,050	\$25,000	9/30/02	480	5	2	5	0	492
443	B443 HEATING PLANT	180	\$2,405,000	\$2,500,000	9/30/96	20	11	0	0	0	560
446	B446 GUARD POST	15	\$48,100	\$50,000	6/30/96	20	0	0	0	0	20
452	B452 ENGINEERING OFFICE	30	\$105,820	\$110,000	12/31/96	170	0	0	0	0	170
460	B460 MANUFACTURING/DOE OFFICE	695	\$35,277,502	\$36,671,000	N/A	14,288	193	0	0	0	14,481
461	B461 GUARD POST	15	\$48,100	\$50,000	6/30/96	12	0	0	0	0	12
462	B462 COOLING TOWER B460	24	\$89,086	\$103,000	N/A	308	6	0	0	0	314
515	B515 ELECT. SUBSTA. #5	25	\$40,000	\$40,000		12	0	0	1	0	13
516	B516 ELECT. SUBSTA. #6	25	\$40,000	\$40,000		12	0	0	0	0	13
517	B517 ELECT. SUBSTA. #7	25	\$40,000	\$40,000		12	0	0	0	0	13
518	B518 ELECT. SUBSTA. #8	25	\$40,000	\$40,000		12	0	0	0	0	13
519	B519 ALARMS SYSTEM STORAGE	20	\$24,050	\$25,000		68	2	0	0	0	70
520	B520 SWITCH GEAR BUILDING	20	\$24,050	\$25,000		68	2	0	0	0	70
549	B549 CONTRACTOR STORAGE	20	\$24,050	\$25,000		60	0	0	0	0	60
550	B550 GUARD TOWER T-3	15	\$48,100	\$50,000		21	0	0	0	0	21
551	B551 GEN. SUPPLY WAREHOUSE	140	\$962,000	\$1,000,000		1,803	37	0	0	0	1,841

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	LLW WASTE M3	LI-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
552	B552 GAS STORAGE	130	\$153,920	\$160,000		112	3	0	0	0	115
553	B553 WELDING SHOP	20	\$24,050	\$25,000		41	1	0	0	0	42
554	B554 STORAGE BUILDING	20	\$24,050	\$25,000		80	2	0	0	0	82
555	B555 ELECT. SUBSTA #2	25	\$40,000	\$40,000		12	0	0	0	0	13
556	B556 METAL CUTTING BUILDING	20	\$24,050	\$25,000		44	1	0	0	0	45
557	B557 GUARD POST	20	\$24,050	\$25,000		18	0	0	0	0	18
558	B558 ELECT. SUBSTA. #4	25	\$40,000	\$40,000		12	0	0	0	0	13
566	B566 PROTECTIVE CLOTHING DECON	150	\$1,154,400	\$1,200,000		428	5	24	27	4	489
569	B569 CRATE COUNTER FACILITY	53	\$187,590	\$195,000	3/31/03	259	3	14	15	2	294
570	B570 FILTER PLENUM FOR B569	20	\$19,240	\$20,000	3/31/03	47	0	9	10	1	67
575	B575 POWER STATION	52	\$86,580	\$90,000		12	0	0	0	0	13
661	B661 ELECTRICAL SUBSTA. #1	25	\$40,000	\$40,000		12	0	0	0	0	13
662	B662 PLANT POWER SHOP	31	\$71,188	\$74,000	9/30/97	93	2	0	0	0	95
663	B663 CONTRACTOR STORAGE	31	\$71,188	\$74,000	9/30/96	138	3	0	0	0	141
664	B664 WASTE STORAGE/SHIPPING	150	\$673,400	\$700,000	N/A	508	7	28	32	5	580
666	B666 TSCA STORAGE BUILDING	20	\$24,050	\$25,000	N/A	47	1	0	0	0	48
667	B667 CONTRACTOR STORAGE	20	\$24,050	\$25,000	N/A	102	2	0	0	0	104
668	B668 DRUM CERTIFICATION BLDG.	20	\$24,050	\$25,000	N/A	20	1	0	0	0	21
675	B675 ELECT. SUBSTA. #3	25	\$40,000	\$40,000	N/A	12	0	0	0	0	13
705	B705 COATINGS LAB.	140	\$982,000	\$1,000,000	9/30/95	276	4	1	2	0	283
706	B706 LIBRARY	23	\$92,352	\$96,000	9/30/88	222	0	0	0	0	222
732	B732 LAUNDRY WASTE PIT	20	\$0	\$25,000	9/30/01	52	1	2	0	0	54
750	B750 ENGINEERING OFFICES	220	\$1,443,000	\$1,500,000	9/30/00	1,844	2	0	0	0	1,847
761	B761 GUARD TOWER	20	\$24,050	\$25,000	9/30/98	21	0	0	0	0	21
762	B762 GUARD POST PORTAL #1	15	\$48,100	\$50,000	9/30/99	22	0	0	0	0	22
763	B763 SOUTH BREEZEWAY	20	\$24,050	\$25,000	9/30/97	187	0	0	0	0	187
764	B764 PIDAS DATA COLLECTION	20	\$24,050	\$25,000	3/31/01	99	0	0	0	0	99
785	B785 SECONDARY ALARM CTR.	20	\$24,050	\$25,000	3/31/01	58	1	4	4	2	68
770	B770 CARP. SHOP/DRUM STORAGE	20	\$24,050	\$25,000	9/30/96	116	0	2	3	0	121
773	B773 GUARD POST	15	\$48,100	\$50,000	9/30/97	11	0	0	0	0	11
778	B778 SERVICE BUILDING	140	\$529,100	\$550,000	9/30/01	672	11	41	48	8	781
780	B780 FLAMMABLE STORAGE	20	\$24,050	\$25,000	3/31/96	34	1	0	0	0	34
788	B788 CEMENTATION PROCESS BLDG	30	\$144,300	\$150,000	N/A	85	2	4	12	2	104
790	B790 RADIATION CALIBRATION LAB	53	\$192,400	\$200,000	9/30/02	390	5	1	5	0	400
792	B792 GUARD POST PORTAL #3	15	\$48,100	\$50,000	N/A	17	0	0	0	0	17
830	B830 ISOLATED POWER SUPPLY	20	\$24,050	\$25,000	9/30/95	8	0	0	0	0	8
850	B850 LOGISTICS OFFICE BLDG.	180	\$1,082,250	\$1,125,000	9/30/02	1,438	2	0	0	0	1,440
864	B864 GUARD POST B861/850	15	\$48,100	\$50,000	3/31/96	70	0	0	0	0	70
869	B869 GAS DISTRIBUTION HOUSE	20	\$24,050	\$25,000	9/30/10	29	1	0	0	0	30
882	B882 GAS STORAGE CYLINDER SHED	10	\$14,430	\$15,000	9/30/95	7	0	0	0	0	7
884	B884 WAREHOUSE WASTE STORAGE	18	\$96,200	\$100,000	N/A	120	2	6	7	1	135
885	B885 PAINT & OIL STORAGE	20	\$24,050	\$25,000	9/30/95	66	2	0	0	0	67
888	B888 GUARD POST B886	15	\$48,100	\$50,000	9/30/96	37	0	0	0	0	37
889	B889 EQUIPMENT DECON.	325	\$1,635,400	\$1,700,000	9/30/95	177	4	2	8	2	193
890	B890 PUMP HOUSE	26	\$43,290	\$45,000	9/30/96	52	1	0	0	0	53
891	B891 GROUNDWATER TREATMENT	28	\$43,290	\$45,000	9/30/03	112	2	6	7	0	128

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DI-SMANTLE COST	DI-SMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	EAZ WASTE M3	LLW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
900	B900 GUARD POST SECURITY OFFICES	15	\$48,100	\$50,000	DONE	N/A	0	0	0	0	0
901	B901 GUARD TOWER T-2	15	\$48,100	\$50,000	9/30/97	21	0	0	0	0	21
906	B906 CENTRAL WASTE STORAGE	100	\$769,600	\$800,000	NEAR END	116	0	0	0	0	116
910	B910 REVERSE OSMOSIS PLANT	47	\$257,816	\$268,000	N/A	499	4	27	33	2	565
920	B920 EAST ENTRANCE GUARD POST	15	\$48,100	\$50,000	9/30/01	34	0	0	0	0	34
928	B928 FIREWATER PUMP HOUSE	26	\$43,290	\$45,000	9/30/01	38	1	0	0	0	39
930	B930 EFFLUENT MONITOR STA. B990	10	\$15,000	\$15,000	9/30/00	2	0	0	0	0	2
931	B931 EFFLUENT MONITOR STA B995	10	\$15,000	\$15,000	9/30/00	2	0	0	0	0	2
933	B933 EFF MONITOR STA. IND/WALNUT	10	\$15,000	\$15,000	9/30/00	2	0	0	0	0	2
934	B934 EFF MONITOR STA. WONGCREEK	10	\$15,000	\$15,000	9/30/00	2	0	0	0	0	2
952	B952 GAS CYLINDER STORAGE	20	\$24,050	\$25,000	9/30/00	7	0	0	0	0	7
980	B980 CONTRACTOR STORAGE	20	\$24,050	\$25,000	9/30/00	217	5	0	0	0	222
984	B984 HAZARDOUS WASTE STORAGE	20	\$24,050	\$25,000	9/30/96	85	1	4	5	1	95
985	B985 CONTRACTOR STORAGE	20	\$24,050	\$25,000	9/30/01	88	2	0	0	0	90
987	B987 CONTRACTOR LOCKER ROOM	20	\$24,050	\$25,000	9/30/96	340	7	0	0	0	347
988	B988 CONTRACTOR WAREHOUSE	57	\$314,574	\$327,000	9/30/96	361	5	20	21	2	408
971	B971 SLUDGE DRYING BED B995	10	\$0	\$10,000	9/30/01	8	2	0	0	0	9
972	B972 SLUDGE DRYING BED B995	10	\$0	\$10,000	9/30/01	8	2	0	0	0	9
973	B973 SLUDGE DRYING BED B995	10	\$0	\$10,000	9/30/01	8	2	0	0	0	9
974	B974 SLUDGE DRYING BED B995	10	\$0	\$10,000	9/30/01	8	2	0	0	0	9
980	B980 CONTRACTOR STORAGE	70	\$384,800	\$400,000	9/30/96	413	5	24	26	0	468
987	B987 SECURITY STORAGE	20	\$24,050	\$25,000	9/30/99	14	0	0	0	0	14
988	B988 TERTIARY TREATMENT PUMP	20	\$24,050	\$25,000	9/30/01	8	0	0	0	0	8
990	B990 WASTE WATER TREATMENT	20	\$24,050	\$25,000	9/30/01	8	0	0	0	0	8
992	B992 GUARD POST B991	15	\$48,100	\$50,000	3/31/96	23	0	0	0	0	23
993	B993 STORAGE VAULT	20	\$24,050	\$25,000	9/30/99	78	2	3	4	0	87
994	B994 EFF MONITORING STATION	10	\$14,430	\$15,000	9/30/00	2	0	0	0	0	2
995	B995 SEWAGE TREATMENT FACILITY	60	\$1,154,400	\$1,200,000	9/30/01	39	0	2	2	0	44
1111A	B1111A ADMIN GEN STAFF	31	\$70,000	\$70,000	9/30/97	17	0	0	0	0	17
112TA	B112TA EMPLOYEE STORE/OFFICES3	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	17
112TB	B112TB ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	9
112TC	B112TC ADMIN SSC/DOE	23	\$48,188	\$48,188	9/30/96	0	0	0	0	0	0
115TA	B115TA ADMINISTRATION SSC/DOE	31	\$68,649	\$68,649	9/30/99	0	0	0	0	0	0
115TB	B115TB ADMIN DOE DUTY OFFICER	23	\$50,000	\$50,000	9/30/99	9	0	0	0	0	9
115TC	B115TC ADMIN DOE SS CONTRACTOR	31	\$70,000	\$70,000	9/30/99	17	0	0	0	0	17
117TA	B117TA ADMIN DOE	43	\$94,000	\$94,000	9/30/01	51	0	0	0	0	51
119TA	B119TA ADMIN STATE OF COL	31	\$70,000	\$70,000	9/30/01	17	0	0	0	0	17
119TB	B119TB ADMIN WACKENHUT	43	\$94,000	\$94,000	9/30/01	51	0	0	0	0	51
120TA	B120TA SECURITY BADGING TRAILER	23	\$50,000	\$50,000	9/30/96	17	0	0	0	0	17
121TA	B121TA ADMIN	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	17
122S	B122S SHREDDER SHED	10	\$25,000	\$25,000	9/30/97	5	1	0	0	0	6
128S	B128S HAZARDOUS WASTE STORAGE	10	\$25,000	\$25,000	9/30/97	5	1	0	0	0	6
124TA	B124TA ADMIN DOE	43	\$94,000	\$94,000	9/30/01	51	0	0	0	0	51
130C	B130C YARD MAINT CARGO CONT.	3	\$15,000	\$15,000	N/A	10	0	0	0	0	10
130TA	B130TA ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TB	B130TB ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	LLW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
130TC	B130TC ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TD	B130TD ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TE	B130TE ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TF	B130TF ADMIN	43	\$93,139	\$93,139	9/30/02	0	0	0	0	0	0
130TG	B130TG ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TH	B130TH ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TI	B130TI ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
130TJ	B130TJ ADMIN	43	\$94,000	\$94,000	9/30/02	51	0	0	0	0	51
131TA	B131TA ADMIN	31	\$70,000	\$70,000	9/30/02	17	0	0	0	0	17
215A	B215A WATER TOWER	35	\$72,150	\$75,000	9/30/01	280	0	0	0	0	280
215B	B215B WGTGR STORAGE DOMESTIC	35	\$72,150	\$75,000	9/30/99	280	0	0	0	0	280
215C	B215C DOMESTIC FIREWATER STOR.	35	\$72,150	\$75,000	9/30/99	280	0	0	0	0	280
215D	B215D EVAP. DISTILLATE STOR TANK	35	\$72,150	\$75,000	N/A	280	0	0	0	0	280
223A	B223A ERM STORAGE FACILITY	22	\$24,050	\$25,000	N/A	20	0	0	0	0	20
228A	B228A DRYING BEDS NEAR B910	3	\$0	\$5,000	N/A	10	0	1	0	0	11
228B	B228B DRYING BEDS NEAR B910	3	\$0	\$5,000	N/A	10	0	1	0	0	11
231A	B231A WASTE TANK 250K GAL	40	\$0	\$250,000	N/A	250	11	0	0	0	261
231B	B231B WASTE TANK 950K GAL	90	\$0	\$500,000	N/A	612	27	0	0	0	639
308A	B308A INCEPT TRENCH PUMP B207	90	\$0	\$400,000	N/A	18	1	0	0	0	19
308B	B308B WASTE STORAGE TANK	90	\$384,800	\$400,000	9/30/00	412	17	0	0	0	429
308C	B308C WASTE STORAGE TANK	90	\$384,800	\$400,000	9/30/00	412	17	0	0	0	429
331S	B331S STORAGE SHED	10	\$14,430	\$15,000	9/30/99	412	17	0	0	0	429
331C	B331C CARGO CONTAINER SHED	10	\$14,430	\$15,000	N/A	10	1	0	0	0	11
331TA	B331TA FIRE DEPARTMENT STORAGE	23	\$48,100	\$50,000	3/31/96	9	0	0	0	0	9
334TB	B334TB ADMIN	31	\$70,000	\$70,000	3/31/97	17	0	0	0	0	17
334TC	B334TC ADMIN	23	\$50,000	\$50,000	3/31/97	9	0	0	0	0	9
334TD	B334TD ADMIN	23	\$50,000	\$50,000	3/31/97	9	0	0	0	0	9
371TA	B371TA ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
371TC	B371TC ADMIN	31	\$70,000	\$70,000	9/30/98	17	0	0	0	0	17
371TD	B371TD ADMIN	31	\$70,000	\$70,000	9/30/98	17	0	0	0	0	17
371TE	B371TE REST ROOMS	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
371TF	B371TF ADMIN	31	\$70,000	\$70,000	9/30/98	17	0	0	0	0	17
371TG	B371TG ADMIN	31	\$70,000	\$70,000	9/30/98	17	0	0	0	0	17
371TH	B371TH ADMIN	31	\$70,000	\$70,000	9/30/98	17	0	0	0	0	17
371TJ	B371TJ RADIOGRAPHY TRAILER	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
371TK	B371TK ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
372A	B372A PAC PORTAL 2	60	\$103,896	\$108,000	3/31/01	13	0	0	0	0	13
376TA	B376TA ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
428TA	B428TA TOOL SHED (CALLED A OR B)	10	\$15,000	\$15,000	N/A	15	0	0	0	0	15
439TA	B439TA CONST COORDINATION	23	\$50,000	\$50,000	3/31/97	9	0	0	0	0	9
439TD	B439TD REMOTE ENGINEERING	23	\$50,000	\$50,000	3/31/97	9	0	0	0	0	9
441TA	B441TA CONST COORDINATION	31	\$70,000	\$70,000	9/30/97	17	0	0	0	0	17
442TA	B442TA CONST COORDINATION	23	\$50,000	\$50,000	9/30/02	9	0	0	0	0	9
447TA	B447TA JA JONES LOCKERS	23	\$50,000	\$50,000	12/31/95	9	0	0	0	0	9
452TA	B452TA ADMIN	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	9
452TB	B452TB HEALTH EFFS & RESEARCH	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	9

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDO #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3		HAZ WASTE M3		LL-MIXED WASTE M3		TRU WASTE M3		TOTAL WASTE M3
						WASTE M3	WASTE M3	WASTE M3	WASTE M3	WASTE M3	WASTE M3			
452TC	B452TC HEALTH EFFS & RESEARCH	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	0	0	0	9
452TD	B452TD HEALTH EFFS & RESEARCH	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	0	0	0	9
452TE	B452TE RESTROOMS	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	0	0	0	9
452TF	B452TF HEALTH EFFS & RESEARCH	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	0	0	0	9
452TG	B452TG RESPIRATOR FIT/TEST	23	\$50,000	\$50,000	12/31/96	9	0	0	0	0	0	0	0	9
551TA	B551TA ADMIN	31	\$70,000	\$70,000	3/31/97	17	0	0	0	0	0	0	0	17
556B	B556B CARP SHOP SHED	22	\$25,000	\$25,000	3/31/96	11	0	0	0	0	0	0	0	11
566A	B566A PROT. CLOTHING PLENUM	50	\$96,200	\$100,000	9/30/99	47	0	0	9	9	0	0	0	65
566B	B566B CARP SHOP CARGO SHED	22	\$25,000	\$25,000	3/31/96	11	0	0	0	0	0	0	0	11
684TA	B684TA ADMIN	31	\$70,000	\$70,000	N/A	17	0	0	0	0	0	0	0	17
690TA	B690TA ADMIN	43	\$94,000	\$94,000	9/30/96	51	0	0	0	0	0	0	0	51
690TB	B690TB ADMIN	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	0	0	0	17
690TC	B690TC ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TD	B690TD ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TE	B690TE ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TF	B690TF ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TG	B690TG ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TH	B690TH ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TJ	B690TJ ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TK	B690TK ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TL	B690TL ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
690TM	B690TM ADMIN	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	0	0	0	17
690TN	B690TN ADMIN	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	0	0	0	17
706TA	B706TA ADMIN	31	\$70,000	\$70,000	9/30/97	17	0	0	0	0	0	0	0	17
707TB	B707TB ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	0	0	0	9
707TS	B707TS OIL STORAGE SHED	23	\$50,000	\$50,000	9/30/95	9	0	0	0	0	0	0	0	9
712A	B712A NATURAL GAS BUILDING	3	\$15,000	\$15,000	9/30/97	20	1	1	0	0	0	0	0	21
713A	B713A VALVE PIT/TANK	3	\$15,000	\$15,000	N/A	20	1	1	0	0	0	0	0	21
750P	B750P PROPANE TANK FARM	15	\$23,000	\$23,000	NEAR END	20	1	1	0	0	0	0	0	21
750TA	B750TA ADMIN	23	\$50,000	\$50,000	9/30/97	9	0	0	0	0	0	0	0	9
750TB	B750TB ADMIN	23	\$50,000	\$50,000	9/30/97	9	0	0	0	0	0	0	0	9
750TC	B750TC ADMIN	23	\$50,000	\$50,000	9/30/97	9	0	0	0	0	0	0	0	9
750TD	B750TD ADMIN	23	\$50,000	\$50,000	12/31/95	9	0	0	0	0	0	0	0	9
750TE	B750TE RESTROOMS	23	\$50,000	\$50,000	NEAR END	9	0	0	0	0	0	0	0	9
750TF	B750TF LOCKER ROOM	23	\$50,000	\$50,000	NEAR END	9	0	0	0	0	0	0	0	9
750TG	B750TG BREAK ROOM	23	\$50,000	\$50,000	NEAR END	9	0	0	0	0	0	0	0	9
760TA	B760TA SHOWER ROOM	23	\$50,000	\$50,000	N/A	9	0	0	0	0	0	0	0	9
760TB	B760TB CARPOOL SHELTER	23	\$50,000	\$50,000	3/31/96	9	0	0	0	0	0	0	0	9
762A	B762A PAC PROTAL # 1	60	\$103,896	\$108,000	9/30/99	42	0	0	0	0	0	0	0	42
764TA	B764TA ADMIN	23	\$50,000	\$50,000	9/30/97	9	0	0	0	0	0	0	0	9
764TB	B764TB ADMIN	23	\$50,000	\$50,000	12/31/95	9	0	0	0	0	0	0	0	9
765A	B765A EMER PUMP/RADIO TOWER	22	\$25,000	\$25,000	3/31/01	20	0	0	0	0	0	0	0	20
771A	B771A ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	0	0	0	9
771B	B771B CARP SHOP	20	\$25,000	\$25,000	9/30/96	11	0	0	0	0	0	0	0	11
771TA	B771TA ADMIN	31	\$70,000	\$70,000	N/A	17	0	0	0	0	0	0	0	17
771TB	B771TB ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	0	0	0	9

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3	HAZ WASTE M3	LLW WASTE M3	LL-MIXED WASTE M3	TRU WASTE M3	TOTAL WASTE M3
771TC	B771TC SHOWER/LOCKER ROOM	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
771TD	B771TD ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
771TE	B771TE ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
771TF	B771TF ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
771TG	B771TG SHOWERS	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
771TH	B771TH ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
771TJ	B771TJ ADMIN	31	\$70,000	\$70,000	N/A	17	0	0	0	0	17
771TK	B771TK ADMIN	31	\$70,000	\$70,000	N/A	17	0	0	0	0	17
771TL	B771TL RESTROOMS	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
774A	B774A CONDENSATE TANK	40	\$125,000	\$125,000	N/A	73	4	0	0	0	77
774B	B774B CONDENSATE TANK	40	\$125,000	\$125,000	N/A	73	4	0	0	0	77
779TA	B779TA ADMIN	31	\$70,000	\$70,000	9/30/97	17	0	0	0	0	17
780A	B780A METAL STORAGE	3	\$25,000	\$25,000	3/31/96	2	0	0	0	0	2
780B	B780B GAS BOTTLE STORAGE	3	\$24,050	\$25,000	3/31/96	2	0	0	0	0	2
792A	B792A PAC PORTAL #3	60	\$108,000	\$108,000	N/A	11	0	0	0	0	11
881TA	B881TA ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
881TB	B881TB ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	9
883TA	B883TA ADMIN	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	17
883TB	B883TB ADMIN	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	17
883TC	B883TC RESTROOM	31	\$70,000	\$70,000	9/30/96	17	0	0	0	0	17
883TD	B883TD RESTROOM	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	9
883TE	B883TE ADMIN	23	\$50,000	\$50,000	9/30/96	9	0	0	0	0	9
886TB	B886TB ADMIN	31	\$70,000	\$70,000	9/30/00	17	0	0	0	0	17
886TC	B886TC ADMIN	31	\$70,000	\$70,000	9/30/00	17	0	0	0	0	17
888A	B888A ELECT. SUB STA	22	\$50,000	\$50,000	N/A	18	1	0	0	0	19
889TA	B889TA LOCKER ROOM	23	\$50,000	\$50,000	12/31/95	9	0	0	0	0	9
891TA	B891TA ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TB	B891TB ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TC	B891TC ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TD	B891TD ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TE	B891TE ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TF	B891TF ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TG	B891TG ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TH	B891TH ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TI	B891TI ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TJ	B891TJ ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TK	B891TK ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TL	B891TL ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TM	B891TM ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TN	B891TN ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TO	B891TO ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TP	B891TP ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TQ	B891TQ ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
891TR	B891TR ADMIN	23	\$50,000	\$50,000	9/30/98	9	0	0	0	0	9
893TA	B893TA ADMIN	43	\$94,000	\$94,000	9/30/98	51	0	0	0	0	51
893TB	B893TB ADMIN	43	\$94,000	\$94,000	9/30/98	51	0	0	0	0	51

TABLE C-2  
ENTOMB/DISMANTLEMENT  
AND  
DISMANTLEMENT OPTIONS

BLDG #	ACTIVITY DESCRIPTION	WORK DAYS	ENTOMB/DISMANTLE COST	DISMANTLEMENT COST	AVAIL DATE	SANITARY WASTE M3		HAZ WASTE M3		LL-MIXED WASTE M3		TRU WASTE M3		TOTAL WASTE M3	
						WASTE M3	WASTE M3	WASTE M3	WASTE M3	WASTE M3	WASTE M3	WASTE M3	WASTE M3		
900TA	B900TA SW TREAT SEMITRAILER	23	\$50,000	\$50,000	9/30/00	9	0	0	0	0	0	0	0	9	
900TB	B900TB SW TREAT SEMITRAILER	23	\$50,000	\$50,000	9/30/00	9	0	0	0	0	0	0	0	9	
900TC	B900TC SW TREAT SEMITRAILER	23	\$50,000	\$50,000	9/30/00	9	0	0	0	0	0	0	0	9	
900TD	B900TD ADMIN	23	\$50,000	\$50,000	N/A	9	0	0	0	0	0	0	0	9	
900TE	B900TE SW TREAT SEMITRAILER	23	\$50,000	\$50,000	9/30/00	9	0	0	0	0	0	0	0	9	
903A	B903A ER DECON PAD	40	\$250,000	\$250,000	9/30/99	18	1	0	0	0	0	0	0	19	
903D	B903D LIQUID DUMPING STA.	22	\$50,000	\$50,000	9/30/03	18	1	0	0	0	0	0	0	19	
903PAD	B903PAD CONTAMINATION BARRIER	185	\$500,000	\$500,000	9/30/99	1,967	126	0	0	0	0	0	0	2,093	
903T	B903T AIR SAMPLING	22	\$50,000	\$50,000	9/30/99	9	0	0	0	0	0	0	0	9	
903TA	B903TA LAB TRAILER	23	\$50,000	\$50,000	9/30/99	9	0	0	0	0	0	0	0	9	
904P	B904P PROPANE TANK FARM	15	\$23,000	\$23,000	NEAR END	9	0	0	0	0	0	0	0	9	
904TA	B904TA BREAK TRAILER	23	\$50,000	\$50,000	NEAR END	9	0	0	0	0	0	0	0	9	
905PAD	B905PAD FIELD OPERATIONS YARD	23	\$50,000	\$50,000	9/30/99	9	0	0	0	0	0	0	0	9	
952TA	B952TA BREAK TRAILER	23	\$50,000	\$50,000	N/A	9	0	0	0	0	0	0	0	9	
974TA	B974TA TREATMENT UNIT	23	\$50,000	\$50,000	9/30/01	9	0	0	0	0	0	0	0	9	
990A	B990A WASTE WATER TREATMENT	22	\$50,000	\$50,000	9/30/01	8	0	0	0	0	0	0	0	8	
993A	B993A BUNKER (lifting Position)	3	\$5,000	\$5,000	9/30/99	5	0	0	0	0	0	0	0	5	
964P	B964P PA DECON PAD	30	\$250,000	\$250,000	9/30/00	1,967	126	0	0	0	0	0	0	2,093	
750HAZ	B750HAZ STORAGE UNIT	20	\$0	\$75,000	N/A	5	0	0	0	0	0	0	0	5	
510CC	B510CC STORAGE UNIT	20	\$0	\$75,000	N/A	3	0	0	0	0	0	0	0	3	
904	B904 STORAGE UNIT	23	\$0	\$25,000	NEAR END	9	0	0	0	0	0	0	0	9	
T-200	BT-200 UNTREATED WATER STORAGE	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-201	BT-201 INFLUENT EQUAL TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-202	BT-202 INFLUENT EQUAL TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-203	BT-203 ION EXCHANGE TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-204	BT-204 CLEAN WATER TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-205	BT-205 TREATED GW TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-206	BT-206 TREATED GW TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
T-207	BT-207 TREATED GW TANK	15	\$24,050	\$25,000	9/30/03	214	9	0	0	0	0	0	0	223	
ENT 01	BTENT01 STORAGE TENT PAD B551	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 02	BTENT02 PONDCRETE TENT B750	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 03	BTENT03 PONDCRETE TENT B750	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 04	BTENT04 PONDCRETE TENT B750	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 05	BTENT05 PONDCRETE TENT B750	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 06	BTENT06 PONDCRETE TENT B750	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 07	BTENT07 STORAGE TENT PAD 902	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 08	BTENT08 STORAGE TENTPAD 904	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 09	BTENT09 PONDCRETE TENT PAD 904	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 10	BTENT10 PONDCRETE TENT PAD 904	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 11	BTENT11 PONDCRETE TENT PAD 904	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
ENT 12	BTENT12 PONDCRETE TENT	35	\$508,800	\$508,800	NEAR END	0	0	681	0	0	0	0	0	681	
			\$705,880,630	\$808,605,512		164,626	2,144	30,433	17,076	1,196				215,475	
														215,475	

Table C-3  
Containment/Deactivation Summary

Bldg. No.	Sq. Ft.	WBS	Cluster	Building Function	Estimated m <sup>3</sup> Waste for Deactivation			Deact Cost Est (\$K)	Available Date	Remarks
					Landfill	LLW	TRU			
111	44046	1.1.5.01.2.01	111	Office/Photo	70	0.2	0	\$259	9/30/97	classified document repository
112	9280	1.1.5.29.2.01	111	Office/Cafeteria	10	0.2	0	\$30	9/30/02	
113	400	1.1.5.01.2.06	SEC	Offices/Guard Post	Note 1	0.2	0	\$98	3/31/97	
115	17000	1.1.5.29.12.02	111	Office	30	0	0	N/A	9/30/01	Contains EOC; see Note 2
116	15000	1.1.5.01.2.10	111	Office	30	0.2	0	\$194	9/30/01	
119	11200	1.1.5.20.2.10	SEC	Security RPP/Fitness	10	0.2	0	\$22	9/30/01	
120	560	1.1.01.1.02	SEC	Guard Post West Access	Note 1	0.2	0	\$16	9/30/01	
121	10654	1.1.5.20.2.01	SEC	Office/Vault	10	0.2	0	\$33	3/31/01	
122	9120	1.1.5.29.2.03	125/441	Medical	20	0.2	0	\$94	3/31/97	
123	18580	1.1.5.02.2.03	125/441	Health Physics	30	0.2	0	\$178	9/30/97	Potential biohazard waste and rad waste
124	12310	1.1.5.24.2.01	NFR	Water Plant	Note 1	0.2	0	N/A	9/30/01	See Note 2
125	16440	1.1.5.02.2.05	125/441	Standards Lab	30	0.2	0	\$146	9/30/99	
126	450	1.1.5.02.2.06	125/441	Source Storage	Note 1	0.2	0	\$14	9/30/99	
127	500	1.1.5.20.2.02	125/441	Emergency Gen 121	Note 1	0.2	0	N/A	3/31/01	Emergency generator for EOC; see Note 2
128	2600	1.1.5.20.2.03	SEC	Vehicle Storage	10	0.2	0	\$16	N/A	
129	228	1.1.5.24.2.02	NFR	Water Plant	Note 1	0.2	0	\$16	9/30/01	See Note 2
130	81100	1.1.03.1.02	130/131	Office/warehouse	120	0	0	\$473	9/30/02	
131	22000	1.1.03.1.02	130/131	Office	40	0	0	\$278	9/30/02	
331	23540	1.1.5.06.2.01	331	Garage/Fire Station / RO	10	0.2	0	\$16	9/30/01	See Note 2
333	3060	1.1.5.05.2.01	300/500	Paint Shop	10	0.2	0	\$38	9/30/99	
334	42950	1.1.5.05.2.02	300/500	Gen Maint Shop	60	0.2	0	\$97	9/30/99	

Table C-3  
Containment/Deactivation Summary

Bldg. No.	Sq. Ft.	WBS	Cluster	Building Function	Estimated m <sup>3</sup> Waste for Deactivation				Deact Cost Est (\$K)	Available Date	Remarks
					Landfill	HAZ & TSCA	LLW	LLMW			
335	2142	1.1.5.06.2.05	300/500	Fire Training	10	0.2	0	0	\$16	3/31/96	
371	315002	1.1.5.02.3.02	371/374		80	0.4	700	12	\$6,886	3/31/01	Major building (includes ancillary buildings)
372	520	1.1.6.25.3.03	SEC	Guard Post Port 2	10	0.2	0	0	\$16	N/A	
374	42700	1.1.5.02.3.04	371/374		50	0.4	400	9	\$4,325	3/31/01	Major building (includes ancillary buildings)
375	338	1.1.6.25.3.05	SEC	Guard Tower	Note 1	0.2	0	0	\$16	N/A	
439	5140	1.1.5.08.2.01	444	Mod Cntr Machine Shop	10	0.2	0	0	\$27	12/31/95	Rad contamination
440	41320	1.1.5.08.2.04	444	Mod Cntr/Waste Stor.	10	0.2	0	0	\$26	N/A	Mod center rad contamination
441	17790	1.1.5.02.2.07	125/441	Offices	30	0.2	0	0	\$98	9/30/97	
442	7480	1.1.5.09.2.03	224/452	Filter test lab / warehouse	10	0.2	0	0	\$41	9/30/02	test facility will be moved with all equipment to
443	18606	1.1.5.28.2.03	NFR	Utilities non PSC	10	0.2	0	0	N/A	9/30/01	Steam plant. See Note 2
444	161980	1.1.5.10.2.03	444		60	0.4	800	16	\$3,472	12/31/95	Major building (includes ancillary buildings)
446	320	1.1.5.20.2.04	SEC	Guard Post	Note 1	0.2	0	0	\$16	6/30/96	
447	23100	1.1.5.10.3.06	444		0	0.4	300	5	\$911	12/31/95	Major building (includes ancillary buildings)
452	1440	1.1.5.09.2.05	224/452	Office	Note 1	0.2	0	0	\$102	12/31/96	
460	212980	1.1.5.11.2.02	460		70	0.4	0	0	\$1,765	N/A	Major building (includes ancillary buildings)
461	200	1.1.5.20.2.05	SEC	Guard Post	Note 1	0.2	0	0	\$16	6/30/96	
549	1920	1.1.5.05.2.06	300/500	RCT shop/offices Storage/JA Jones	Note 1	0.2	0	0	\$20		
550	338	1.1.6.25.3.07	SEC	Guard Tower	Note 1	0.2	0	0	\$14		
551	44140	1.1.6.01.3.05	300/500	Gen Warehouse	110	0.2	0	0	\$57		Rad materials; rad contam.
552	4170	1.1.5.05.2.09	300/500	Bottled gas storage	Note 1	0.2	0	0	\$14		
553	1280	1.1.5.05.2.10	300/500	Welding shop	Note 1	0.2	0	0	\$14		

Table C-3  
Containment/Deactivation Summary

Bldg. No.	Sq. Ft.	WBS	Cluster	Building Function	Estimated m <sup>3</sup> Waste for Deactivation			Deact Cost Est (\$K)	Available Date	Remarks
					Landfill	HAZ & TSCA	LLW			
554	1180	1.1.5.05.2.11	300/500	Storage & Shipping	Note 1	0.2	0	0	\$14	
557	310	1.1.6.25.3.08	SEC	Guard Post	Note 1	0.2	0	0	\$16	
559	32890	1.1.6.04.3.01	559		50	0.4	500	10	\$3,472	Major building (includes ancillary buildings)
564	3000	1.1.6.04.3.06	559	Offices	10	0.2	0	0	\$50	9/30/98
566	13700	1.1.6.05.3.01	566	Laundry	10	0.2	0	0	\$16	
569	7500	1.1.6.06.3.01	569	Counter/Waste Storage	Note 1	0.2	0	0	\$22	3/31/03
570	864	1.1.6.06.3.02	569	Filter	Note 1	0.2	0	0	\$14	3/31/03
664	17393	1.1.5.12.2.01	664	Waste Storage RTR/Shipping	10	0.2	0	0	\$40	N/A
701	5180	1.1.6.12.3.01	776	Waste Mgmt R&D	30	0.2	0	0	\$55	N/A
705	4186	1.1.6.08.3.01	750	Coating Lab	10	0.2	0	0	\$52	9/30/95
706	4000	1.1.6.08.3.02	750	Library	10	0.2	0	0	\$18	9/30/98
707	197770	1.1.6.01.3.01	707		80	0.4	800	16	\$6,886	Major building (includes ancillary buildings)
750	57170	1.1.6.08.3.08	750	Offices/Cafeteria	100	0.2	0	0	\$386	9/30/00
762	368	1.1.6.25.3.10	SEC	Guard Post Port 1	Note 1	0.2	0	0	\$16	9/30/99
763	3160	1.1.6.08.3.13	750	Breezeway	Note 1	0.2	0	0	\$1	9/30/97
764	960	1.1.6.25.3.12	SEC	PIDAS Data Collection	Note 1	0.2	0	0	\$14	3/31/01
765	960	1.1.6.25.3.13	SEC	Secondary Alarm Cntr	Note 1	0.2	0	0	\$14	3/31/01
770	3120	1.1.6.11.3.03	771/774	Pipe shop / storage / office	10	0.2	0	0	\$16	9/30/96
771	151100	1.1.6.10.3.06	771/774		70	0.4	1100	20	\$5,886	Major building (includes ancillary buildings)
773	190	1.1.6.25.3.15	SEC	Guard Post	Note 1	0.2	0	0	\$16	9/30/97
774	25060	1.1.6.10.3.13	771/774		50	0.4	400	9	\$3,472	Major building (includes ancillary buildings)

Table C-3  
Containment/Deactivation Summary

Bldg. No.	Sq. Ft.	WBS	Cluster	Building Function	Estimated m <sup>3</sup> Waste for Deactivation			Deact Cost Est (\$K)	Available Date	Remarks		
					Landfill	TSCA	HAZ & TSCA					
776	156200	1.1.6.12.3.06	776		80	0.4	1100	24	10	\$5,179	9/30/97	Major building (includes ancillary buildings)
777	74920	1.1.6.12.3.07	777		50	0.4	800	10	8	\$5,179	9/30/97	Major building (includes ancillary buildings)
778	31200	1.1.6.13.3.01	778	Maintenance / office / laundry	40	0.2	0	0	0	\$24	9/30/01	
779	64790	1.1.6.14.3.3	779		60	0.4	400	8	6	\$5,179	9/30/96	Major building (includes ancillary buildings)
788	1500	1.1.6.01.3.06	207	Cementation Process	20	0.2	0	0	0	\$18	N/A	
790	6000	1.1.6.15.3.01	790	Radiation Calibration Lab	10	0.2	0	0	0	\$22	9/30/02	
792	288	1.1.6.25.3.16	SEC	Guard Post Port 3	Note 1	0.2	0	0	0	\$16	N/A	
850	37000	1.1.5.15.2.01	850	Office	60	0.2	0	0	0	\$391	9/30/02	
864	1160	1.1.5.20.2.06	SEC	Guard Post	Note 1	0.2	0	0	0	\$18	3/31/96	
865	37080	1.1.6.18.3.03	865		60	0.4	400	8	0	\$1,765	12/31/95	Major building (includes ancillary buildings)
881	245200	1.1.6.17.3.01	881		80	0.4	100	1	0	\$3,472	9/30/96	Major building (includes ancillary buildings)
883	76500	1.1.6.18.3.08	883		60	0.4	100	2	0	\$1,765	9/30/96	Major building (includes ancillary buildings)
885	10360	1.1.6.19.3.05	885		60	0.4	100	2	0	\$1,765	9/30/96	Major building (includes ancillary buildings)
888	624	1.1.6.25.3.18	SEC	Guard Post	Note 1	0.2	0	0	0	\$16	9/30/96	
889	5660	1.1.6.16.3.12	884/889	Equip Decon Facility	10	0.2	0	0	0	\$14	9/30/95	
891	3000	1.1.5.23.2.01	H2O GND	Ground Water Treat Facility	10	0.2	0	0	0	\$30	9/30/03	See Note 2
901	338	1.1.6.25.3.19	SEC	Guard Tower	Note 1	0.2	0	0	0	\$16	9/30/97	
910	9100	1.1.6.20.3.06	910	Rev osmosis evap bldg.	Note 1	0.2	0	0	0	\$16	N/A	
920	560	1.1.01.1.02	SEC	Guard Post East Access	Note 1	0.2	0	0	0	\$16	9/30/01	
928	560		NFR	Fire pump house	Note 1	0.2	0	0	0	\$16	9/30/01	See Note 2
974		1.1.5.27.2.06	NFR	Sludge dryer	Note 1	0.2	0	0	0	\$30	9/30/01	See Note 2

Table C-3  
Containment/Deactivation Summary

Bldg. No.	Sq. Ft.	WBS	Cluster	Building Function	Estimated m <sup>3</sup> Waste for Deactivation			Deact Cost Est (\$K)	Available Date	Remarks		
					Landfill	HAZ & TSCA	LLW					
990	100	1.1.5.27.2.09	NFRSEW	Pre aeration bldg.	Note 1	0.2	0	0	0	\$16	9/30/01	See Note 2
991	37880	1.1.6.25.3.04	991		70	0.4	0	0	0	\$911	3/31/96	Major building (includes ancillary buildings)
992	370	1.1.6.25.3.20	SEC	Guard Post	Note 1	0.2	0	0	0	\$16	3/31/96	
995	600	1.1.5.27.2.11	NFR	Sewage treatment facility	10	0.2	0	0	0	\$30	9/30/01	See Note 2
372A	1800	1.1.6.25.3.04	SEC	Guard Post PACs 2	Note 1	0.2	0	0	0	\$18	3/31/01	
762A	3200	1.1.6.25.3.11	SEC	Guard Post PACs 1	Note 1	0.2	0	0	0	\$18	9/30/99	
792A	1800	1.1.6.25.3.17	SEC	Guard Post PACs 3	Note 1	0.2	0	0	0	\$18	N/A	
91				TOTALS	2100	21	8100	149	74	\$67,320		
NOTE 1: The waste generated from these buildings will be minimal.												
Total waste generated from them is expected to be approx. 30 cu meters, which has been added to the total.												
NOTE 2: These buildings will not be deactivated under the Containment option.												

## MODEL C-1 DESCRIPTION

This model describes the scope, schedule and costs for decontaminating, dismantling and demolishing Building 779. This same model was used to estimate costs and schedules for the other major plutonium buildings. The model does not include deactivation activities which would precede the activities in the model. Deactivation activities, cost and schedules are contained in Model C-2 which follows.

Model C-1 contains the following:

- a) An intermediate level schedule depicting the major engineering, dismantlement, decontamination and demolition activities for this type of building - ITEM 1.
- b) A description of the scope covered by these major activities - ITEM 2.
- c) A sample WBS dictionary showing the scope and cost estimate for one of the Process Equipment Areas - ITEM 3.
- d) Summary Cost Estimate Sheet - ITEM 4.
- e) Equipment Requirements - ITEM 5.



Activity ID	Activity Description	Early Start	Early Finish	Duration	Total Float
B7790A5112	Wk Area 12, Rm 253,230-233 Process Equip Removal	06JUN98	22JUN98	10	0
B7790A5122	Wk Area 22, Rm 170,171,172,173 Process Equip Rml	23JUN98	07JUL98	10	0
B7790A5110	Wk Area 10, Rms 221-221c,223,225,273-275 Eq Rml	08JUL98	06AUG98	20	0
B7790A5111	Wk Area 11, Rms 271,272 Process Equip Removal	10AUG98	09SEP98	20	0
B7790A5120	Wk Area 20, Rm 201-201b,202-214 Process Equip Rml	10SEP98	09OCT98	20	0
B7790A5121	Wk Area 21, Rm 113,114,115,116,117 Proc Eqp Rml	12OCT98	25NOV98	30	0
B7790A5127	Wk Area 27, Rm 152, 154 Process Equip Rml	19MAR97	21AUG97	100	0
B7790A5101	Wk Area 1, Rm 150 Process Equip. Removal B779	25AUG97	24SEP97	20	0
B7790A5104	Wk Area 4, Rms 180,160a,168 Process Equip Rml	25SEP97	06MAY98	140	0
B7790A5102	Wk Area 2, Rm 153,153a,153b Process Equip. Reml.	07MAY98	06JUN98	20	0
B7790A5103	Wk Area 3, Rms 155,157 Process Equip Removal	08JUN98	26OCT98	90	0
B7790A5126	Wk Area 26, Rm 148-149,151,161-167a Equip Rml	27OCT98	25NOV98	20	0
B7790A5109	Wk Area 9, Rm 139 Process Equip Removal	19MAR97	17APR97	20	10
B7790A5108	Wk Area 8, Rm 131, Process Equip Removal	18APR97	19JUN97	40	10
B7790A5107	Wk Area 7, Rm 133, Process Equip Removal	20JUN97	24SEP97	60	10
B7790A5106	Wk Area 6, Rm 137 Process Equip Removal	25SEP97	25NOV97	40	10
B7790A5105	Wk Area 5, Rm 140,140d,140b,141,141d,141b Eq Rem	26NOV97	30DEC97	20	10
B7790A5124	Wk Area24, Rm 001,121,121a,121b,122,123,126,127	31DEC97	30JAN98	20	10
B7790A5115	Wk Area 15, Rm 270 Process Equip Removal	02FEB98	02APR98	40	10
B7790A5114	Wk Area 14, Rm 217 Process Equip Removal	06APR98	05JUN98	40	10
B7790A5123	Wk Area 23, Rm 110-111,118,119,120,124,126	08JUN98	07JUL98	20	10
B7790A5125	Wk Area 25, Rm 142 Equip Rml	08JUL98	10NOV98	80	10
B7790M0001	Internal Removals Complete		25NOV98	0	343
B7790A5201	Clear Area 1, 2nd Floor	02FEB99	06APR99	40	0
B7790A5202	Clear Area 2, 1st Floor & Basement	06APR99	22JUN99	50	0
B7790A5203	Clear Area 3, Annex	23JUN99	26OCT99	80	0
Demolition					
B7790H6000	Demolition	27OCT99	15MAR00	90*	0
B7790A6100	Roof Removal	27OCT99	29DEC99	40	0
B7790A6200	Structure	30DEC99	14FEB00	30	0
B7790A6300	Foundation	15FEB00	15MAR00	20	0
Project & Operations Management					
B7790R7000	Project & Operations Management	01OCT96	16MAR00	796*	1
Site Support Services					
B7790R8000	Site Support	01OCT96	16MAR00	796*	0
B7790M9998	FMilestone		20MAR00	0	0

## MODEL C-1 ITEM 2 - Scope of Major Activities

### *Description of the major activities in a Decommissioning Project*

#### WBS 1.1.1.1.1.1 Building 779 Planning

##### *Work Statement*

- Provide project management support in the planning area.
- Develop and maintain all necessary project specific plans such as:

Safety & Health Plan  
Configuration Management Plan  
Waste Management Plan  
Regulatory Compliance Plan  
Procurement Plan

QA Plan  
Surveillance and Maintenance Plan  
Systems Engineering Plan  
Public Information Plan  
Technology Development Plan

- Develop, implement, and maintain project procedures (Implementing Instructions) such as:

Technical Interchange Meetings  
Decommissioning Change control  
Operational Readiness Reviews  
Purchase Requisition Completion procedure  
Document preparation and Format Control  
Design Review and Table-Top Reviews  
Document Approval, Release, Distr. & Control  
Radiological Control  
Proj./Design Qual Audits and Corrective Actions

Document Control and Records Mgmt.  
Trade Study Preparation  
Performance Measurement System Manual  
Lessons Learned Problem Reporting  
Preparation of Implementation Instructions  
Correspondence Control  
Change Orders  
Writing Test Procedures  
Nonconformance Reporting and Corrective  
Action  
Training and Indoctrination  
Vendor Requests for Deviation and Waiver

Quality Assurance Records  
Receiving Inspection, Storage Area Certification  
Safeguarding and Accounting of SNM for  
Decommissioning

- Conduct all actions to obtain necessary permits.
- Conduct Special Studies specific to the project.

#### WBS 1.6.1.1.1.2 Building 779 Engineering

The work covers engineering tasks. These tasks are detailed at lower levels of the WBS. The next level of the WBS with scope definitions are as follows:

##### 1.6.1.1.2.1 Site Preparation Engineering

Includes all the technical aspects of the engineering site preparation work such as utility relocations, temporary services, mobilization, grading and seeding the site and asbestos removal. Utilization of all required engineering disciplines to include electrical, mechanical, and process. Deliverables include the complete construction package compliant with all necessary and sufficient requirements, and includes removal plans and specifications.

##### 1.6.1.1.2.2 Process Equipment Removal Engineering

Includes all the technical aspects of the engineering for internal equipment removal. This is all contaminated equipment and the related services to this equipment. Application of good engineering practices. Deliverables include the complete construction package compliant with all necessary and sufficient requirements, and includes removal plans and specifications. Includes Decontamination Engineering.

##### 1.6.1.1.2.3 Distributed Systems/Salvage Engineering

Includes the technical aspects of the engineering for the removal of the building utility systems required prior to building demolition. Deliverables include the complete construction package compliant with all necessary and sufficient requirements, and includes removal plans and specifications.

## MODEL C-1 ITEM 2 - Scope of Major Activities (Continued)

### 1.6.1.1.4 Demolition Engineering

Includes the technical aspects of the engineering for the demolition of the building. Deliverables include the complete construction package compliant with all necessary and sufficient requirements, and includes removal plans and specifications.

### WBS 1.6.1.1.2 Characterization

The work includes: characterization planning, facility walkdowns, determination of survey locations and number of survey/sample points, preparation of characterization packages, collection of survey data, analysis of samples (radiological and hazardous), preparation of Building 779 Characterization Report, routine health physics coverage, survey of material for unconditional release, final survey and preparation of a Final Survey Report. The next level of detail is as follows:

#### 1.6.1.2.1 Characterization Planning

#### 1.6.1.2.2 Characterization Implementation

#### 1.6.1.2.3 Operational Support and Final Survey

#### *WBS Element Deliverables*

- Preparation of Characterization Survey Packages for Building 779
- Analysis of characterization and final survey samples (radiological and hazardous)
- Characterization Report for Building 779
- Material Disposition Report for Building 779
- Radiological engineering input to decommissioning plans
- Health physics job coverage for Building 779 decommissioning
- Survey of materials for unconditional release or disposition as waste
- Survey of areas and components undergoing decontamination to assess effectiveness
- Final survey of facility areas, components, and piping abandoned in place
- Final Survey Report for Building 779

### WBS 1.6.1.1.3 Site Preparation

The work covers site preparation tasks. These tasks are detailed at lower levels of the WBS. The next level of the WBS with scope definitions is as follows:

#### 1.6.1.3.1 Mobilization

Includes the establishment of laydown, shipping, and shop areas; Personnel support and radiation monitoring

#### 1.6.1.3.2 Isolation of Building Services

Includes disconnecting of the building from all plant services such as electric, gas steam, telephone, alarms, water and sewer.

#### 1.6.1.3.3 Temporary Installation and removal of Services/Systems/Facilities.

Includes installation and removal of site office trailer, temporary showers, portable lighting and power system, heating, and compressed air systems.

#### 1.6.1.3.4 Asbestos Removal

Includes all efforts required for asbestos removal and the packaging and disposal of the asbestos waste.

#### 1.6.1.3.5 Backfill Seed & Grade

Includes all effort to backfill the excavation required to remove the foundation, effort to grade and seed the former site of the facility.

### WBS 1.6.1.1.4 Decontamination

## MODEL C-1 ITEM 2 - Scope of Major Activities (Continued)

Work includes utilization of the following procedures and work rules:

- W011000, W011001, W011002 Waste Packaging Procedure
- Size reduction Procedures
- Decontamination Procedures

Effort included in this element is as follows:

- Work Conditions:

Parts of walls, floors, ceilings are radiological contaminated. (In cracks, under paint, etc).  
Rooms may have some hazardous material residue  
Work will be preliminary paint removal, concrete scabbling, grit blasting, etc.  
RCRA units will have been previously closed

Decontamination of the rooms surfaces by removal of paint and removal of concrete where necessary to eliminate radioactive contamination from the room. Decontamination to include minor removal of contaminated pipe and duct that was left for convenience when the process equipment was removed.

10,000 sq. ft. of surface treatment, paint removal  
200 linear ft. of pipe and duct removal  
200 linear ft. of crack decontamination

Waste estimates:

36 cubic ft. LLW Waste (5 drums) paint chips/dust.  
120 cubic ft. LLW (1 crate) concrete chips/dust  
240 cubic ft. LLW (2 crates IDC 330 (combustibles)

Area of approximately: 2,200 sq. ft.

Duration: 35 days

### WBS 1.6.1.1.5 Dismantlement

This element summarizes all of the dismantlement efforts. At lower levels of the WBS it includes the physical work that is accomplished as part of this dismantlement effort. It involves the application of the craft skills to perform the work. Application of craft skills and expertise is 90% of the work. Floor supervision is also included along with field engineering and recording of as built information. Reporting progress is also included. Includes utilization of the following procedures and work rules:

- W011000, W011002 Waste Packaging Procedures
- Radiation Protection Manual
- Lead removal procedures
- Size reduction Procedures
- Decontamination Procedures
- Asbestos Removal Procedures

#### *Work Statement*

The work is accomplished in two phases: First the process equipment removal phase and then the distributed systems/salvage phase. Each of the phases are accomplished by geographical areas within the building. This is a summary WBS element to provide cost data for the dismantlement effort. The next level of the WBS is as follows:

- 1.5.1.5.1 Process Equipment Removal
- 1.5.1.5.2 Distributed System Removal/Salvage

#### WBS 1.6.1.1.5.1 Process Equipment Removal

This work will be done by geographical areas within the building. The specific areas as well as the exact work that will be accomplished in these areas are defined at the next level. The type of work is as follows:

- Removal of excess material and equipment (free release and LLW items)
- Decontamination and size reduction of EB's
- Size reduction & Waste packaging of GB Equipment

**MODEL C-1 ITEM 2 - Scope of Major Activities (Continued)**

- Removal and disposal of Process Support Equipment
- Decon & size reduction of tanks and BCMel Duct Work
- Tooling and machine removal
- Minor contamination fixing or removal (Spots outside of zone 1 on walls or floors)

d) The next level structure is as follows:

1.6.1.5.1.1	Work Area 1 Rooms 150
1.6.1.5.1.2	Work Area 2 Rooms 153, A, B,
1.6.1.5.1.3	Work Area 3 Rooms 155, 157
1.6.1.5.1.4	Work Area 4 Rooms 1160, 160A, 156
1.6.1.5.1.5	Work Area 5 Rooms 140,A,B,141,A,B,C
1.6.1.5.1.6	Work Area 6 Room 137.
1.6.1.5.1.7	Work Area 7 Room 133
1.6.1.5.1.8	Work Area 8 Room 131
1.6.1.5.1.9	Work Area 9 Room 139
1.6.1.5.1.10	Work Area 10 Rooms 223, 225
1.6.1.5.1.11	Work Area 11 Rooms 271, 272
1.6.1.5.1.12	Work Area 12 Room 235
1.6.1.5.1.13	Work Area 13 Rooms 234, 234A, 234B
1.6.1.5.1.14	Work Area 14 Room 217
1.6.1.5.1.15	Work Area 15 Room 270
1.6.1.5.1.16	Work Area 16 Room 228
1.6.1.5.1.17	Work Area 17 Rooms 222,222A
1.6.1.5.1.18	Work Area 18 Room, 220
1.6.1.5.1.19	Work Area 19 Room 218
1.6.1.5.1.20	Work Area 20 Room
1.6.1.5.1.21	Work Area 21 Rooms 113,114,115,116,117
1.6.1.5.1.22	Work Area 22 Rooms 170, 171,172,173
1.6.1.5.1.23	Work Area 23 Rooms 100- 111,118,119,120,123,125,132,138
1.6.1.5.1.24	Work Area 24 Rooms 01,121,121A,B,122, 123,124,127
1.6.1.5.1.25	Work Area 25 Room 142
1.6.1.5.1.26	Work Area 26 Rooms 146-149,151,161-167A
1.6.1.5.1.27	Work Area 27 Rooms 152, 154

## MODEL C-1 ITEM 2 - Scope of Major Activities (Continued)

### 1.6.1.1.5.2 Distributed System Removal

Effort included in this element is as follows:

- Work Conditions:

- Area is not expected to be radiological contaminated.
- Area may have some hazardous material residue
- RCRA units will have been closed
- Power for equipment will be temporary
- Area and pipes may have some asbestos
- Plant services will have been disconnected

- Removal, size reduction, disposal, or waste packaging of the following equipment.

- All Exposed electrical distribution cables, conduit, panels, fixtures, devices and trays.
- All non-load bearing partitions and walls and false ceilings constructed of wood, transite, wallboard.
- All HVAC ducts, outlets and hangers
- All fire protection systems
- All windows, glass and frames constructed of combustible material
- All combustible material and exposed metal in the area

- Waste estimates

- 10 items of excess equipment to PU&D (Electrical panels)
- 1,320 cubic ft. of scrap metal for salvage (33,000 lb.)
- 720 cubic ft. of electrical conductor for salvage (20,000 lb.)
- 1,000 cubic ft. to sanitary landfill

- Area of approximately: 19,600 sq. ft.

- Duration: 40 days

### 1.6.1.1.6 Demolition

#### *Work Statement*

The work covers demolition tasks. These tasks are detailed at lower levels of the WBS. The next level of the WBS with scope definitions is as follows:

#### 1.6.1.6.1 Roof

Includes the removal and disposition of all Roof top Equipment, Removal of the roofing material down to the primary roof barrier (concrete slab or steel sheet).

#### 1.6.1.6.2 Structure

Includes the rubbleizing of the walls and loading and transport to a sanitary land fill. Will include some separation of structural steel from the concrete rubble but only as necessary to facilitate loading, hauling and dumping.

#### 1.6.1.6.3 Foundation

Includes rubbleizing of the on grade floor, foundation, and 500 sq. ft. basement walls and floor. Loading and hauling to sanitary landfill and dumping is included. Includes some separation of structural steel from the concrete rubble but only as necessary to facilitate loading, hauling and dumping.

### 1.6.1.1.7 Project & Operations Management

Work is done at Lower Levels as described below

#### 1.6.1.1.7.1 Project Management

Includes all the work relating to the general management of the Decommissioning of Building 779, Project management review meetings, PMs meetings, presentations to higher management, Issuance of Project policy and the general administrative work of the Project Management Office (PMO). The work involves the participation of the PM and his

## MODEL C-1 ITEM 2 - Scope of Major Activities (Continued)

direct staff in the various meetings that must occur on a recurring scheduled basis. It involves the budgeting for and justification of the materials and equipment required for the accomplishment of the project. It covers the work of the PMO that is related to managing, planning, controlling and reporting the project.

### 1.6.1.1.7.2 Project Controls Documents/Reporting

The work includes all efforts to:

- Provide project management support in the areas of cost and schedule planning and control, development of management practices and procedures, and management information systems.
- Provide valid, timely, auditable performance measurement information.
- Collect project management planning and control data; develop, implement and maintain computerized cost, schedule and technical milestone data bases; and develop strategies to meet management information requirements.
- Prepare annual budgets for salaries, benefits and travel for all contractual services.
- Perform necessary funds control for all obligations needed to support the project
- Coordinate all funding of integrated contractors
- Reconcile obligations and reported costs
- Develop and submit all budget submissions for the project
- Prepare and coordinate all budget schedules
- Prepare and issue all Cost Performance Reports as required by the project management plan
- Coordinate, prepare and issue all project schedules

### 1.6.1.1.7.3 Admin/Budget/Document Control

Work includes all efforts for

- Budgeting System
  - Administrative Record
  - Configuration Management
  - Admin Correspondence
- c) A Sample WBS dictionary showing the scope and cost estimate for one of the Process Equipment Areas. Attachment 3
- d) Summary cost estimate sheet - Attachment 4

### 1.6.1.1.7.4 Field Coordination Reporting

Work includes all efforts required for:

- Construction Management
- Safety Assurance
- Field Coordination
- Field Changes
- Contract Administration

### 1.6.1.1.8 Support Services

Work includes all efforts required for:

- Building Operations/Maintenance Support
- Medical Services
- Training
- Procurement

## MODEL C-1 ITEM 2 - Scope of Major Activities (Continued)

- Technology Development
- Security & Environmental Protection
- Supplies and Small Tools
- Surveillance and Maintenance (when not provided by others)

This model was used as the Plutonium building decommissioning schedule and cost model for both the Dismantlement/entombment option and the unrestricted options. For the Dismantle/Entomb options the cost schedule for foundation removal and site restoration was removed from each building totals.

The approach considered for decommissioning the Site facilities under this option includes the following:

- For each facility, an evaluation will specify the scope and sequence of decommissioning activities (e.g., characterization, engineering, decontamination, equipment removal, structural dismantlement, excavation, grouting, waste sorting and packaging, final survey, etc.).
- For each facility, the labor, waste generation rates, cost, and schedule will be developed.
- A Site Decommissioning Program Plan (DPP), which includes risk assessments, will be the work authorization basis for conducting building decommissioning activities.
- As part of the DPP, decommissioning activities will be prioritized to develop the most feasible schedule and level resource requirements. The DPP will require updating to reflect actual project data.

**ITEM 3  
MODEL C-1**

1. PROJECT TITLE/SUBPROJECT TITLE Rocky Flats Plant D&D Project		2. DATE 01/09/96	3. IDENTIFICATION NO.
4. WBS ELEMENT CODE 1.6.1.5.1.04		5. WBS ELEMENT TITLE Work Area 04, Rooms 160,160A, 156 Process Equipment Removal B779	
6. INDEX LINE NO.	7. REVISION NO. AND AUTHORIZATION Rev 1		8. REVISION DATE

**9. ELEMENT TASK DESCRIPTION**

This element provides all of the effort that is required to accomplish the process equipment removal decommissioning work in the pyrochemical processing area & calorimeter area, rooms 160, 160A, 156 of building 779.

**a. cost content:** Contractor direct and indirect personnel costs, material costs, and subcontractor costs that are associated with the accomplishment of the decommissioning work in this area.

**b. Technical content:** Involves the physical direct work that is accomplished as part of this dismantlement effort. It involves the application of the craft skills to the work. Application of craft skills and expertise is 90 % of the work. Floor supervision is also included along with field engineering and recording of as built information. Reporting progress is also included. Includes utilization of the following procedures and work rules:

- o WO11000,WO11001, WO11002 Waste packaging Procedures.
- o Radiation Protection Manual
- o Lead removal Procedures
- o Size reduction Procedures
- o Decontamination Procedures
- o Asbestos Removal Procedures

**c. Work Statement:** Effort included in this element is as follows:

o Work Conditions:

- Equipment (GB's & ducts) is radiological contaminated. (PU). Total 60 holdup points.
- Room may have some hazardous material residue
- Equipment may have some asbestos
- Rooms currently contains RCRA units: Room 160,#90.43 mixedue storage: Rm160A #90.92 mixed residue storage: Rm 156 #90.41 residue storage

o Removal, size reduction, disposal, or waste packaging of the following equipment.

- GB's 857, 859, 860,862 ,863, 864, 865, 866, 867, 868, 870, 871, 872. 1369 cu ft
- 50 pieces equipment for salvage
- 100 items for salvage, 100 linear ft Contaminated duct
- 30 items inside gloveboxes 200 cu ft unreduced

o Waste estimates

- 50 items excess equipment to PU&D
- 360 cu ft scrap metal for salvage 12000 lb.
- 240 cu ft electrical conductor for salvage 8000 lb.
- 300 cu ft sanitary landfill.
- 10 cu ft Asbestos Waste
- 86 cu ft TRU Waste (12 drums)
- 3000 cu ft LLW (25 crates) IDC 480
- 46 cu ft Lead waste (6 drums)
- 600 cu. ft. LLW (5 crates) IDC 330
- 75 cu ft LLW (10 drums) IDC 341(gloves)

o Area of approximately : 2200 sq. ft

o Duration: 140

o Predecessor: 1.6.1.1.2.2 and 1.6.1.5.1.01

1/24/96:52 AM

**WBS Cost Buildup Summary**

Labor	Man-hours	Rate (\$/hr)	Cost
Crew 6 x 140	6720	80	\$537,600
RMRS 2x 140	2240	86	\$192,640
Subtotal Labor			\$730,240
Material & Services	Quantity	Rate (\$/day)	Cost
Truck	1 for 40 days	300	\$ 12,000
Subtotal Materials			\$ 12,000
<b>TOTAL WBS COST</b>			<b>\$742,240</b>

ITEM 4  
MODEL C-1

779 Cost Estimate summary		WBS estimate	Lowest level
WBS Element	ACTIVITY TITLE	Summary Element	WBS EST
1.6.1.1	Planning and Engineering	\$1,758,012	
1.6.1.1.1	Planning	\$1,033,376	
1.6.1.1.1	Plans (B779 Pre D&D planning)		\$151,380
1.6.1.1.2	Permits		\$516,000
1.6.1.1.3	Baseline documents		\$90,816
1.6.1.1.4	Special studies		\$275,200
1.6.1.1.2	Engineering	\$724,636	
1.6.1.1.2.1	Site Preparation Engineering		\$109,200
1.6.1.1.2.2	Process Equipment Removal Engineering		\$334,712
1.6.1.1.2.3	Distributed Systems removal/salvage Engineering		\$258,000
1.6.1.1.2.4	Demolition Engineering		\$28,724
	Begin D&D Operations		
1.6.1.2	Characterization	\$1,969,950	
1.6.1.2.1	Characterization Planning		\$58,250
1.6.1.2.2	Characterization Implementation		\$561,080
1.6.1.2.3	Operations Support and Final Survey		\$1,350,620
1.6.1.3	Site Preparation	\$337,144	
1.6.1.3.1	Mobilization		\$0
1.6.1.3.2	Isolate Building From services		\$323,040
1.6.1.3.3	Install & Remove Temporary Services		\$0
1.6.1.3.4	Asbestos Removal		\$0
1.6.1.3.5	Backfill, Seed & Grade		\$14,104
1.6.1.4	Decontamination	\$406,200	
1.6.1.4.1	Decon Area 1		\$135,400
1.6.1.4.2	Decon Area 2		\$189,560
1.6.1.4.3	Decon Area 3		\$81,240
1.6.1.5	Dismantlement	\$7,590,700	
1.6.1.5.1	Process Equipment Removal	\$6,217,860	
1.6.1.5.1.16	Clear Area 16, RM 228		\$343,520
1.6.1.5.1.13	Clear Area 13, RM 234		\$104,920
1.6.1.5.1.17	Clear Area 17, RM 222		\$632,320
1.6.1.5.1.18	Clear Area 18, RM 220		\$211,640
1.6.1.5.1.19	Clear Area 19, RM 218		\$159,480
1.6.1.5.1.12	Clear Area 12, RMS 235,230-233		\$52,760
1.6.1.5.1.22	Clear Area 22, RMS 170,172,172,173		\$52,760
1.6.1.5.1.10	Clear Area 10, RMS 221,A,B,223,225,273-277		\$104,920
1.6.1.5.1.11	Clear Area 11, RMS 271,272		\$104,920
1.6.1.5.1.20	Clear Area 20, RMS 201,A,B,202-204		\$104,920
1.6.1.5.1.21	Clear Area 21, RMS 113-117		\$159,480
1.6.1.5.1.27	Clear Area 27, RMS 152,154		\$536,600
1.6.1.5.1.01	Clear Area 1, RM 150		\$104,920
1.6.1.5.1.04	Clear Area 4, RMS 160,A,156		\$742,240
1.6.1.5.1.02	Clear Area 2, RMS 153,A,B		\$104,920
1.6.1.5.1.03	Clear Area 3, RMS 155,157		\$581,440
1.6.1.5.1.26	Clear Area 26, RM146-149,151,161-167A		\$106,820
1.6.1.5.1.25	Clear Area 25, RM 142		\$423,280
1.6.1.5.1.09	Clear Area 9, RM 139		\$104,920
1.6.1.5.1.08	Clear Area 8, RM 131		\$211,640

ITEM 4  
MODEL C-1

779 Cost Estimate summary		WBS estimate	Lowest level
WBS Element	ACTIVITY TITLE	Summary Element	WBS EST
1.6.1.5.1.07	Clear Area 7, RM 133		\$318,980
1.6.1.5.1.06	Clear Area 6, RM 137		\$211,640
1.6.1.5.1.05	Clear Area 5, RMS 140,A,B,141,A,B,C		\$105,820
1.6.1.5.1.24	Clear Area 24, RMS 001,121,A,B,122,3,126,7		\$105,820
1.6.1.5.1.15	Clear Area 15, RM 270		\$211,640
1.6.1.5.1.14	Clear Area 14, RM 217		\$211,640
1.6.1.5.1.23	Clear Area 23, RMS 100-111,118,119		\$104,920
1.6.1.5.2	Distributed Systems Removal/Salvage	\$1,372,840	
1.6.1.5.2.1	Clear area 1 2nd Floor B779		\$323,040
1.6.1.5.2.2	Clear area 2 1st Floor B779		\$408,800
1.6.1.5.2.3	Clear area 3 Annex B779		\$646,000
1.6.1.6	Building Demolition	\$767,840	
1.6.1.6.1	Roof Removal		\$323,040
1.6.1.6.2	Structure Removal		\$273,280
1.6.1.6.3	Foundation Removal		\$171,520
1.6.1.7	Project and Operations Management	\$3,612,000	
1.6.1.7.1	Project Management (three years, 16 MYs)		\$2,064,000
1.6.1.7.2	Project Control Documents		\$516,000
1.6.1.7.3	Administrsation/Budget/Document Control		\$516,000
1.6.1.7.4	Field Coordination/Reporting		\$516,000
1.6.1.8	Support Services	\$2,088,200	
1.6.1.8.1	Building Support		\$344,000
1.6.1.8.2	Medical		\$84,000
1.6.1.8.3	Training		\$825,600
1.6.1.8.4	Procurement		\$0
1.6.1.8.5	Technology Development		\$0
1.6.1.8.6	Security & Environment		\$516,000
1.6.1.8.7	Supplies & Small Tools		\$318,600
1.6.1.8.8	Surveillance & Maintenance		\$0
1.6.1	Sub total	\$18,530,046	\$18,530,046

## MODEL C-1 ITEM 5 - Equipment Requirements

### Specialized Decommissioning Equipment

In addition to the use of a large number of standard decommissioning and dismantlement tools, materials, equipment, and services, some specialized equipment is typically required for decommissioning activities. This specialized equipment is described in the following sections:

- High Efficiency Particulate Air (HEPA)-Filtered Ventilation Systems

Decontamination operations and the disassembly/segmentation of radioactively contaminated items will require the application of contamination control devices and methods.

Existing facility 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 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.

- Abrasive Decontamination Equipment

Surface decontamination operations are a major part of the overall decommissioning effort. Aggressive decontamination methods are generally 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. The following decontamination equipment is recommended on the basis of efficiency, production rates, and contamination control. Depending on the specific application, equipment may require modification to assure that contamination control is fully implemented. The use of decontamination liquids should be strictly controlled to minimize the volume of liquids requiring processing. Used decontamination liquids generated in areas that are contaminated with fissile material will be collected and stored in criticality-safe containers.

- 1) **Blastrac Machine**—The Blastrac machine is an all-purpose cleaning tool for concrete floors. It can efficiently remove materials such as paint, dirt, grime, and embedded chemical contaminants. The delivery system consists of an enclosed centrifugal blast wheel in the cleaning head. As the wheel spins, metallic abrasive shot are fed into the center and hurled from its blades to blast the floor surface. The abrasive media and contaminants rebound into a separation system which removes the contaminants to an attached dust collector and automatically recycles the abrasive media for re-use. The travel speed of the unit and the shot size both may be adjusted, depending on the required depth of removal. The slower the machine travels, the deeper the etch it creates. Since the shot and dust are collected, a radiological survey of the surface being decontaminated may be performed immediately. Any residual metal shot remaining on the floor should be collected quickly with a magnetic broom.
- 2) **Vacu-blast Machine**—The Vacu-blast machine uses compressed air to convey abrasive media from a pressure generator via an adjustable feed valve through a hose and blast nozzle to discharge against the surface of the item being cleaned. The media is concurrently vacuum-recovered at the point of impact. Air then conveys the media, dust, and debris to the reclaimer where it is air-washed and the media is returned to the system for recycling. The dust and debris particles are drawn to a secondary cyclone separator and deposited in a collection cylinder. The depth of abrasion is controlled both by adjusting the shot size and travel speed of the unit. This equipment can be used on vertical surfaces.
- 3) **Scabbling**—Scabbling, as a decontamination technique for concrete surfaces, has a long history of success. It was used extensively in the Three Mile Island accident recovery program. This technique utilizes tools having 1-, 3-, or 7-bit piston heads, equipped with multipoint tungsten carbide bits. The pneumatically operated tool drives the bits against the concrete surface, which causes the surface to abrade. The pistons for the larger units are mounted in a wheeled chassis to accommodate extensive and unimpeded surfaces. A hand-held unit can be

## MODEL C-1 ITEM 5 - Equipment Requirements (Continued)

utilized for edging near wall surfaces and other obstructions. Scabbing also has limited application on vertical surfaces.

- 4) **Abrasive Decontamination of Piping Internals**—For abrasive honing of pipe interior surfaces, a roto-rooter device, such as the Flex-hone honing machine, is used in rotationally driving a honing device, which utilizes a choice of abrasive materials and grit sizes and is moved through the pipe to be cleaned. The abraded material can be simultaneously or post-operationally flushed.
- 5) **High Pressure Water**—Internal pipe surfaces are cleaned by a combination of aggressive abrasion and high-pressure water flushing. Washing and flushing operations are performed with a hydroblaster which delivers up to 10,000 psi water through nozzles specially designed to move themselves through the pipe by virtue of their water jet direction. Nozzle design choice includes rotational capability.
- 6) **Ultra High Pressure Water**—Ultra-high pressure (UHP) water can be used to scarify concrete and to remove oxidization, paint, and waxes from contaminated surfaces. Water is applied to the contaminated surface with a hand-held lance. The operating pressures can be varied from 10,000 to 50,000 psi. Removal rates depend on the standoff distance from the surface being cleaned, the physical properties of the contaminated material, the roughness of the surface, and the rate of movement. This technique requires the collection and treatment of contaminated water.
- 7) **Water Treatment Support Equipment**—Water treatment is required to minimize the accumulation of contaminated liquids from decommissioning tasks. Particulate filtration is accomplished with cartridge-matrix multiple filter units, sized to provide water of sufficient quality to permit its reuse in subsequent decontamination tasks. Additional water treatment can also be provided by the use of appropriately sized ion exchange resin columns.
- 8) **CO<sub>2</sub> High Velocity Blasting**—This process delivers a variable, high-velocity stream of solid CO<sub>2</sub> pellets to clean or strip a substrate. By adjusting the pellet parameters (size, hardness, velocity and quantity) it is possible to clean a wide spectrum of surfaces ranging from plastic films to steel. Upon impact these pellets sublime and thus disappear as they return to their natural state in the atmosphere, while the contaminant falls from the cleaned surface.
- 9) **Crystalline Ice Blasting**—This technology uses low pressure air and ice chips to remove loose and fixed contamination by the process of impaction, and crack formation/propagation. The process generates approximately 10-15 gallons of water per hour which must be collected and processed.

### • Sectioning Equipment

- 1) **Plasma Arc Cutting**—Segmentation of large metal pieces, including process equipment, can be accomplished with plasma arc cutting equipment.
- 2) **Mechanical Cutting Equipment**—If modification or removal is required, it can be efficiently accomplished by utilizing powered equipment. The following specialized equipment is often used:
  - Power tear-off machine
  - Power-bladed covering removal (e.g., tile, roofing, tar paper)
  - Sectioning saw

### • Volume Reduction Equipment

Volume reduction of radioactive waste is a major part of the economics of decommissioning projects. Three volume reduction methods for solid radioactive waste are briefly described below.

- 1) **Shredder**—This equipment will shred an appreciable percentage of the contaminated materials associated with the decommissioning project. The following are typical shreddable materials: electrical conduit, small-diameter piping, desks, chairs, benches, stud-and-plaster walls, sheet metal, and masonry block.
- 2) **Compactor**—This equipment, which can be a subassembly to the shredder, compacts waste into boxes, obtaining volume reduction factors of up to 10:1, depending on material.
- 3) **Baler**—This equipment compacts waste at a reduction ratio up to 17:1, depending on material, and produces a baled waste form. This is typically used for clothing, paper, filters, and other soft compatible materials.

## MODEL C-1 ITEM 5 - Equipment Requirements (Continued)

### • Contamination Control Equipment

Good radiological control practices require the containment of loose contamination. During decommissioning, certain work evolutions will require the segmentation of components, the demolition of concrete, and the opening of process systems, which may disturb residual contamination. Typical contamination control measures, including containment envelopes, surface fixatives, and localized ventilation, are described below.

- 1) **Tents**—Containment tents are effective for controlling the spread of airborne and surface contamination with larger work pieces and equipment. The enclosures are usually fabricated from reinforced plastic fabric attached to externally framed aluminum pipes and scaffolding clamps or to structural framework. Personnel and equipment entrances are controlled with self-latching fabrics or zippers. Clear plastic panels can be added for surveillance purposes or to reduce the need for internal lighting. These enclosures are maintained under negative pressure. Standard practice is to evacuate the enclosure through HEPA filters, using either the building's ventilation system or an appropriately sized auxiliary system.
- 2) **Glove Bags**—Glove bags can be selected from vendor catalogues or fabricated at the jobsite from Herculite or similar materials. These bags can be equipped with glove ports and sleeves for HEPA-filtered ventilation and for pouch transfer. A variation of the glove bag, plastic sleeving, or tubing can be used for segmenting contaminated piping. Immediately after segmentation, the sleeving is extended over the cut surfaces and sealed. The bags may also be equipped to utilize drains and other external devices or functions. Their use has consistently proven to be both cost effective and in accordance with ALARA principles. Their utilization establishes a contamination control barrier between the worker and the work environment, as well as limiting that environment to a minimum volume. The manufacturers of these products provide detailed instructions for their use. In addition, their proper utilization will be ensured through training programs and procedures.
- 3) **Surface Fixatives**—It is sometimes prudent to protect clean work area surfaces before radiological work is initiated, or to fix otherwise transferable contamination on surfaces to be handled. A good quality fixative on porous surfaces is helpful in contamination control. Wrapping items with plastic sheeting and applying strippable coatings are additional means of adequate surface protection which may be utilized.

*Deactivation Objectives*

The objectives of deactivation are:

- Reduce the building's baseline operating costs to those necessary to maintain adequate radiation and environmental monitoring, security requirements, and maintenance consistent with the deactivated state.
- Assist in the removal of Special Nuclear Material (SNM), classified documents, Idle Equipment and the closure of RCRA units.
- Reduce the risk associated with the equipment and systems associated with Building 779.
- Maintain personnel exposure As Low As Reasonably Achievable (ALARA).
- Reduce associated nuclear and security system classification to the lowest level achievable.
- Prepare the building for (D&D). For the purpose of this plan it is assumed that the D&D of the building will not follow Deactivation directly. A two year minimum delay after deactivation is assumed before D&D will begin.
- To perform work in a safe and environmentally sound manner by complying with applicable laws and regulations.

*Building History*

Building 779 was originally constructed in 1965 with additions added on in 1968 and 1973 for a total square footage of 67,710 sq. ft of which approximately 54,000 sq. ft is included in the Material Access Area (MAA). There is a total of 81 gloveboxes located within the building. There were thirty-nine processes conducted in the building throughout its history. The primary function of the facility was one of research and development. The facility was devoted to many phases of research with a variety of materials, primarily plutonium, but also uranium, beryllium, tantalum, and other exotic materials. Groups housed in the building include those concerned with plutonium chemistry, physical metallurgy, product integrity and surveillance, joining, coatings, and machining. Typical research projects include the investigation of gas-metal interface reactions, thermodynamic measurements on plutonium, electron microscope investigations of metal structure, and the development of sophisticated joining techniques.

*Deactivation Process*

It is anticipated that the deactivation of Building 779 will include the isolation of unnecessary support equipment and systems, isolate Zone I glovebox ventilation, remove the gloveboxes from service, and provide an initial decontamination of equipment and areas. What systems (i.e., Zone II ventilation and building fire detection/suppression system) are to be maintained and what level of surveillance activities will be performed after deactivation activities are completed will depend on the outcome of the Final Safety Analysis.

Building 779 has been divided into 6 work areas, for the purpose of deactivation. The 6 areas are as follows:

Area 1-Second floor Rooms 215, 216, 217, 218, 219, 220, 221 (a, b, & c), 222, 222a, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 234a, 235, 273, 274, 275, & 277

Area 2-First and second floors Rooms 123,124,125, 128, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140 (a&b), 141 (a, b, & c) 171, 172, 173, 270, 271, and 272.

Area 3-First floor Rooms 146, 147, 149, 150, 151, 152, 153 (a&B), 154, 155, 156,157, 158, 159, 160, 160a, 161, 163, 165, 167, & 167a

Area 4-Rooms 001, 121, 121a, 122, 123, and cold areas of the building.

Area 5-Rooms 126, 127, and 142

Area 6-Outside support Buildings

*Deactivation Scope*

The following describes the deactivation scope for the systems associated with Building 779, (some of these activities may not be required if D&D immediately follows deactivation):

*Glovebox Deactivation Scope*

- Special Nuclear Material (SNM) and classified tooling/equipment/documentation shall be removed.

## MODEL C-2 ITEM 1 - Narrative (Continued)

- Combustibles removed.
- Process lines blanked, shrink wrapped, sealed or capped off.
- Idle equipment drained and chemicals removed.
- Nuclear Material Safety Limits (NMSL's) shall be removed or replaced with "Exempt Fissile Material Only" limits. (Deactivated and removed from the criticality manual per procedure)
- Reusable equipment and tooling in the glovebox shall be removed unless .
- Electrical connections shall be isolated at the power source and disconnected at the glovebox and sealed using approved sealant or tape and marked appropriately.
- Piping to glovebox will be drained, disconnected at the glovebox and sealed using approved sealant and marked appropriately, if required, in accordance with applicable State and Federal regulations.
- Glove ports will be capped and blanked off.
- An initial decontaminate will be performed inside of the gloveboxes and fixative applied, as necessary.

The Glovebox Overheat Detection system, will be de-energized and their alarms, as well as associated computer programming. The detectors should be left in the gloveboxes to minimize the number of system breaches during the deactivation process.

The gloveboxes in Building 779 will be disconnected from the ventilation exhaust/supply headers and a passive filter system will be installed. The Zone I fans will be blanked off. The photohelics/magnahelics will be isolated from the supply air automatic control valves and de-energized. Fissile materials in the glovebox exhaust systems, including ducts, difficult to access areas, and plenums, will be adequately evaluated.

The inerting system for Building 779 will be deactivated and isolated once the combustible material and SNM has been removed. The inerting systems then will be removed as close as possible to their source. The oxygen analyzers will be removed from service in conjunction with this activity.

The need for Selective Alpha Air Monitors (SAAMs) in Building 779 will be reviewed by the appropriate organizations and will be removed as needed. Surveillance and maintenance activities may be modified pending the outcome of the review. SAAM locations will be evaluated again upon completion of deactivation activities, and if required, specific SAAMs will remain in service otherwise the system will be de-energized.

The Health Physics Vacuum System heads located throughout Building 779 above the gloveboxes will be removed and the vacuum line capped as the removal of gloveboxes dictates. The system will be de-energized at the end of deactivation activities.

The Criticality Alarm system will be removed when the gram quantity of radioactive material is reduced below the perceivable risk limit for a criticality to exist within the building. If the gram quantity can not be reduced to acceptable levels without major removal of equipment the system will be left in place. As needed the Authorization Basis shall be modified so that surveillance and maintenance activities may be reduced.

The LS/DW system will remain in place but shall be de-energized and surveillance/maintenance activities will be discontinued.

The fire detection/suppression system in Building 779 will remain in service. However the fire detection and suppression systems for the gloveboxes will be deactivated when combustible material has been removed. The fire detection/ suppression system will remain in service but the Authorization Basis shall be modified so that surveillance and maintenance activities may be reduced.

The emergency power system will remain in service but the Authorization Basis shall be modified so that the system is not considered a Vital Safety System, therefore, surveillance and maintenance activities may be reduced.

## MODEL C-2 ITEM 1 - Narrative (Continued)

### *Miscellaneous System/Components Deactivation Scope*

- Closure of Idle Equipment in accordance with the regulations set forth by the Idle Equipment program.
- Piping in Building 779 for systems not left in service will be drained in accordance with applicable regulations. Piping lines should be cut and capped and vents installed as necessary to prevent pressurization.
- Electrical services not needed for alarms, surveillance, and maintenance activities will be physically isolated from the power source.
- Radiologically controlled areas will be decontaminated and released or the contamination levels reduced or contained in accordance with Radiological Operations Engineering direction. Doors will be tabbed sealed to limit access to completed rooms.
- Unattached hazardous materials (including gas cylinders) will be removed from facilities and disposed of in accordance with applicable regulations.
- Hazardous and radioactive material which is attached/contained and will not be removed, will be located, identified, quantified, and recorded as part of the deactivation file.
- Spare parts, tools, and supplies will be removed if feasible. If they can be radiologically free released equipment may be excessed off the SITE or reused on plantsite.
- Classified documents and tooling will be removed.
- Debris/combustibles will be removed.
- Furniture will be removed and excessed or used on plantsite if it can be radiologically free released.
- Final radiological status surveys will be available on file, to include, but not limited to, rooms, process equipment, gloveboxes, and drains.
- Non-Conformance Reports and Work Control Forms requesting modifications or repairs to Building 779 reviewed and canceled as appropriate.
- As necessary conduit and/or process lines should be removed as close as possible to their sources and from the gloveboxes.
- Fire walls and doors will be maintained.
- Systems requiring lock out/tag out (LO/TO) shall be handled in accordance with current LO/TO procedures. Conversely, equipment/systems currently under control of LO/TO will be reviewed for their need to continue within the system if hazard has been removed.
- Building temperature will be maintained at a minimum to prevent freezing of systems.
- Capital equipment will be inventoried and list submitted to Property Utilization and Disposal.

### *Deactivation Cost*

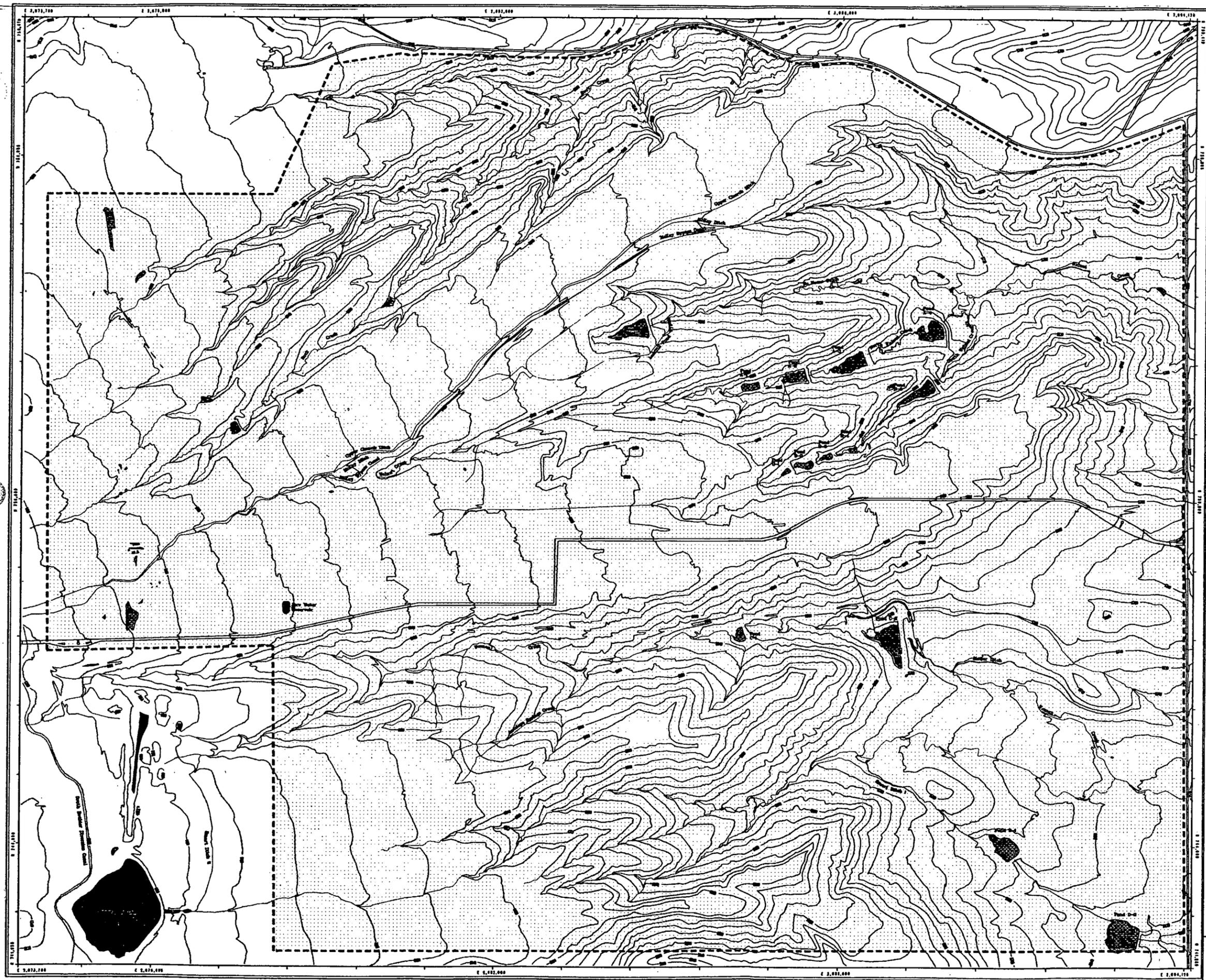
The estimated cost of the deactivation activities in Building 779 is \$10 million. This cost estimate is based on a bottoms-up estimate technique using Site historical data obtained during management under EG&G Rocky Flats Inc. These activities are estimated to take two years to complete, see attached Building 779 containment Model C-2.

The other Site buildings which will not be placed into a containment configuration will be characterized, and decontaminated (if necessary). Utilities will be deactivated and isolated, excess materials removed, and structures demolished or relocated offsite for reuse. This process will be conducted as described in Subsection 4.1 above.









# Alternative 1 Unrestricted Proposed Land Use

## Explanation of Future Conditions

□ Open Space - Unrestricted  
(6220 Acres)

**NOTE:**  
Further data on each area is contained  
in "Rocky Flats Conceptual Vision - A  
Focus For Action"

## Standard Map Features

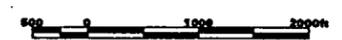
- Lakes and ponds
- Streams, ditches, or other drainage features
- Contours (20' Intervals)
- - - Rocky Flats boundary
- Paved roads

**DATA SOURCE:**  
Buildings, roads, and fences provided by  
Rockwell Eng.  
EPA's Rocky Flats, Inc. - 1991.  
Hydrology provided by  
USGS - (date unknown)

Figure D-1



Scale = 1 : 19640  
1 inch represents approximately 1636.66 feet



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

