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EG&G
MOUND APPLIED TECHNOLOGIES

SW/R TRITIUM COMPLEX D&D PRE-CONCEPTUAL ENGINEERING STUDY

and

ADDENDUM
Impact of Raising the Off-Site Release Limit to 10,000 Ci/yr

Revision: 0
Issued: October 31, 1996

MOUND
is operated for the
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EXECUTIVE SUMMARY

ES-1.0 ENGINEERING STUDY OBJECTIVES

The primary objective of the pre-conceptual engineering study is to evaluate the methods and estimated costs of decontaminating and decommissioning the Semi-Works and Research (SW/R) Tritium Complex to comply with Federal, State, and local guidance. Additionally, the design shall ensure that the cleanup activities are performed safely and cost-effectively with a total plant release of less than 1,000 Ci of tritium per year.

ES-2.0 PROJECT SCOPE

The project scope is to produce an engineering study and associated cost estimate at a conceptual level of detail that separately examines several disposition alternatives for SW/R Tritium Complex. The feasibility, and short-term and long-term benefits (with regard to cost and risk to personnel and the environment) of each alternative will be investigated.

ES-3.0 DESIGN BASIS

The Design Basis Document defines the criteria for design and estimating activities associated with the Decontamination and Decommissioning (D&D) of the SW/R Tritium Complex, as well as the envelope of regulations within which the D&D activities will be conducted. Criteria for release, restoration, and waste acceptance are established in the design basis. The release criteria for tritium, asbestos, and hazardous materials are defined. The basis for defining the restoration criteria for each SW/R Tritium Complex decommissioning alternative is provided. Waste acceptance criteria consider where the waste from the D&D activities will be disposed of and in what approved waste packages.

Detailed information concerning the design basis is in *T-Building and SW/R Tritium Complex Design Basis Document, Revision 1*, located in Appendix C of this study.

ES-4.0 ALTERNATIVE EVALUATION

ES-4.1 D&D for Unrestricted Use

The primary locations of extensive contamination within the SW/R Tritium Complex are inside the glovebox associated equipment and process lines. The major consideration that must be addressed for D&D planning is the degree of complexity due to either the system and equipment configuration within the gloveboxes or the levels of contamination. Additionally, the level of effort required to remove a fumehood was assumed to be equal to that required to remove a glovebox. Therefore, for this conceptual study, the removal method and associated effort for the gloveboxes and fumehoods was defined for three levels - Low, Medium, and High depending on the complexity and level of the contamination. A description of the defined removal method and labor effort for each of these levels is provided in Appendix D.

In general, glovebox equipment will be removed and immediately packaged within a tented enclosure. Miscellaneous room equipment will also be removed and immediately packaged. Heating, Ventilation, and Air Conditioning ductwork from contaminated rooms/areas is considered contaminated and will be removed.

D&D activities have been planned to address primarily tritium contamination, since tritium is the only radionuclide that will be present in appreciable quantities. Some areas of the building are known to contain alpha-, beta-, and gamma-emitting radionuclides, and similarly, small amounts of hazardous chemicals may be present. Planned personnel protection methods for tritium used in the cost estimate associated with this study are conservative enough to address all anticipated hazards.

ES-4.2 Other Alternatives

Other D&D alternatives which were technically considered but not initially selected include No Action, Decay in Place, Delayed D&D, In Situ Disposal, and others as appropriate to each individual project.

ES-4.2.1 No Action

Although always an alternative to any proposed action, it is obvious that a no-action option is not viable or acceptable for any stakeholder. Therefore, this option is not considered further.

ES-4.2.2 Decay in Place

Decay in place is a D&D alternative for facilities contaminated with radioactive isotopes of relatively short half-lives. The concept is to delay the final disposition of the facility until after the natural decay of the radiological contamination has reduced the quantity of contaminant to unrestricted release levels. The SW/R Tritium Complex is a candidate for this alternative because its primary contaminant is tritium, which has a 12.3-year half-life.

Once tritium operations are completed in the SW/R Tritium Complex, accountable tritium inventory will be shipped to a receiver site. The residual tritium quantities in the majority of the process and support equipment would require more than 250 years of natural radioactive decay to achieve unrestricted release levels (1,000 dpm/100 cm^2 per the Design Basis Document).

High-level waste repositories have set a precedent of 100 years (40 Code of Federal Regulations 191) as the maximum length of time that anyone can assume that institutional controls will be maintained by the government. SW/R Tritium Complex will require some initial D&D to lower the residual contamination levels to those which will decay to unrestricted release levels within 100 years. Current scientific evidence indicates that the SW/R Tritium Complex buildings will not remain intact for the 100-year duration of institutional control without an extensive maintenance program. In addition, the lack of integrity of the SW/R Building has led to contamination of soil beneath its footprint. The excavation depth has been estimated to range from 0 to 20 feet. Removal and replacement of this soil would be difficult if the building were to remain intact. Due to these considerations, the Decay in Place option is not considered an acceptable option since costs to maintain the building integrity for 100 years and remediate soil beneath the building would be prohibitive.

ES-4.2.3 Delayed D&D

Delayed D&D is different from the Decay in Place option in that, because of funding, resource availability, priority, or other constraints, initiation of D&D is delayed. Essentially, Delayed D&D is defined as D&D for unrestricted use with an undefined delay period prior to the commencement of D&D activities.

Although delayed D&D may be an unwanted but realistic occurrence at Mound, the impact of this option is higher surveillance and maintenance costs due to the delay

period and a resulting increase in the total project cost. An additional impact during this delay period is the potential loss of experienced SW/R Tritium Complex operations personnel who may become committed to other projects or leave the site. This loss of "corporate" experience would increase cost, schedule, and the potential for personnel exposures and tritium release. Finally, as time goes on, regulations and requirements generally become increasingly restrictive, creating additional project costs and lengthening the schedule.

ES-4.2.4 In Situ Disposal

In situ disposal is a technically viable and cost-beneficial option but may not be acceptable to some stakeholders. Several variations of this option exist, from entombment to disposal of only suspect waste (both hazardous and radioactive) to long-term storage or disposal of higher level waste (e.g., transuranic waste).

Entombment is a method in which radioactive contaminants are encased in a structurally long-lived material, such as concrete. The entombed structure is appropriately maintained, and continued surveillance is performed until the radioactivity decays to a level permitting unrestricted release of the property. Based on process knowledge, this would require approximately 250 years for tritium in the SW/R Tritium Complex to decay to currently established unrestricted release levels.

Several variations of entombment exist, from partial entombment of areas with higher levels of contamination to complete entombment of the building. Other variations include purging equipment for several years to reduce contamination and/or removing highly contaminated equipment prior to entombment.

A variation of in situ disposal is actually an entombment, except that waste from other D&D and clean-up projects could be consolidated and compacted in the SW/R Tritium Complex prior to final entombment of the contents in the facility.

Several concerns with in situ disposal include building integrity, non-tritium contamination, and contaminated soil beneath the footprint. The lack of integrity of the SW/R Building lends itself to the option of collapsing the building and encasing the entire contents with concrete (or similar material). Long-lived non-tritium contamination may have to be removed prior to collapsing the building. Lastly, as

previously discussed, it may be difficult to remediate soil beneath the footprint without demolition of the building.

ES-4.2.5 D&D for Restricted Re-use

This option would assume that a re-use for the SW/R Tritium Complex by the United States Department of Energy (DOE) or a commercial operation dealing with radioactive materials exists or would exist in the future. The facility would only then require D&D to eliminate significant hazards for the new user. This reduces the initial D&D cost but may not relieve the DOE of the liability for the eventual D&D of the building for unrestricted release. If this is the case, the total D&D project cost to D&D would be much higher than the immediate D&D case. However, since a new user has not yet been identified, this option is not being considered at this time.

ES-5.0 SCHEDULE

Appendix E contains the proposed schedule for Immediate D&D for Unrestricted Use. The schedule was developed following a segmented approach. The segments (i.e., preliminary engineering, detailed engineering, training, readiness assessment, environmental compliance during physical D&D activities, physical D&D activities, and inspection and verification) were assumed to have minimal overlap. Specifically, all physical D&D activities would begin after completion of all engineering and readiness assessment activities. Section ES-5.2 discusses other approaches and their impacts on the project schedule.

The engineering completed prior to physical D&D (preliminary engineering, detailed engineering, training, readiness assessment) is expected to span 1.5 years.

The following criteria were taken into consideration during the development of the schedule concerning physical D&D activities (excluding demolition):

- The maximum allowable tritium release of 1,000 curies/year from all activities.
- The probability of an accidental release (of 100 curies of tritium) from a tent during glovebox removal operations is one event per year per D&D crew.
- The current historical trend for Mound tritium facilities is releases of 600 to 800 curies per year.

- A potential for hold-up emissions to be as high as 500 curies per year even after operations have ceased.

Consideration of the above criteria resulted in limiting glovebox removal activities to one crew at a time. Note, however, that other activities such as area decontamination can have additional crews working in conjunction with the glovebox removal crew. Based on using hours estimated for glovebox removal operations and a typical crew size of six, physical D&D activities are expected to take 8 years.

Building demolition is expected to take 6 months.

Soils remediation is expected to take approximately 2 years. The excavation depth under the footprint of the SW/R Tritium Complex will vary from 0 to 20 feet. This is based on two crews excavating enough soil to fill 10 boxes per working day each. Excavation is expected to last 9 months per year.

ES-5.1 Phased Approach Evaluation

SW-Building was constructed in 13 discrete phases between 1950 and 1976. MD-22153, *Mound Site Radionuclides by Location*, provides a detailed account of the dates of construction for the different phases. These multiple construction phases, coupled with the few ongoing SW/R Tritium Complex operations, create a number of logistic roadblocks which must be considered if D&D activities are to be initiated early. The roadblocks are discussed in Section 7.1 of this study.

The ongoing operations noted in Section 7.1 are not regionally located but rather are scattered throughout the SW/R Tritium Complex which makes it difficult to initiate D&D early in many unused areas of the buildings. Some removal of gloveboxes and miscellaneous equipment in the unused areas could begin early, however, there are risks of interrupting the ongoing operations. Service piping, such as steam and chilled water, as well as Effluent Recovery System (ERS) lines which serve ongoing operations, are located throughout the unused areas of the buildings. The added risks to operations are manageable; however, cost and activity durations may increase due to additional coordination requirements and limitations on activity types and magnitudes.

Ongoing tritium operations (excluding ERS operation) within the SW/R Tritium Complex are expected to be completed by September 30, 1997. Additionally, in the absence of ongoing operations, this study assumes that only one "tented" D&D activity may occur at any given time to remain in compliance with the restrictive tritium emissions limit of 1,000 Ci/yr. Because the ongoing operations generate 600 to 800 Ci/yr of tritium emissions, it is probable that none of the "tented" D&D activities will be able to be initiated prior to ceasing operations. Only D&D activities with extremely low potential for release will be able to occur.

D&D activities can be initiated early in any of four areas discussed in Section 7.1 without a significant amount of additional coordination efforts to prevent impacts to operations. If early D&D can be initiated, the impact to ongoing operations and the increase in D&D cost will be minimal while potential benefits to the overall D&D project schedule could be significant.

ES-5.2 Program Schedule Impact Assessment

The D&D project for the SW/R Tritium Complex can and should be initiated early to meet the DOE's goal to release the site as soon as possible. To initiate the project early, several constraints must be satisfied. These constraints are discussed in Section 8.

Specific activities that can be initiated early include:

- Characterization and Assessment
- Environmental Safety and Health , Quality Assurance , and Waste Management Documentation
- Engineering
- Project Plan
- Decommissioning Plan
- Preparation of Low-Potential and Select Work Packages

- Field Preparations
- Readiness Checklists for the Low-Potential and Select Work Packages
- Removal of Low-Potential Equipment and Services

As previously discussed, there are several areas within the SW/R Tritium Complex which lend themselves well to early initiation of D&D activities. To facilitate this early D&D, the preparatory activities such as Detailed Engineering (work packages) and completion of the Readiness Checklists should be accomplished in an area-specific manner, rather than in total. By phasing the engineering and planning steps in the same manner as the field work is phased, resources may be utilized more efficiently and the total project duration will be lessened.

Security and classification concerns exist with respect to certain rooms in SW and R buildings. The people working on the removal and packaging of equipment, waste characterization, radiological and industrial hygiene surveys, etc. will need to have the proper clearances. Classified documents will be generated in the planning and documentation of some of the D&D activities. In addition, the gloveboxes and some other items in these rooms may have to be buried as classified waste. For further information, see the classified appendix.

ES-6.0 COST

Volume II contains the results and basis of the cost estimate. The cost associated with the Immediate D&D for Unrestricted Use alternative is $150.6 million and includes 40 percent contingency.

ES-7.0 IMPACT OF TRITIUM INVENTORY ON FACILITY CLASSIFICATION

When "Safe Shutdown" is complete and all accountable tritium has been removed from the SW/R Tritium Complex, this facility will still be classified as a "Nuclear Facility" (refer to DOE-STD-1027-92 for the Nuclear Facility classification establishing a 1,000 curies of releasable tritium inventory threshold) because of the tritium holdup and contamination in the process piping and equipment.

The 75 grams of tritium in the SW/R Tritium Complex would classify it as a Hazard Category II Nuclear Facility at the start of D&D. It is unlikely that the SW/R Tritium

Complex can be classified as a Radiological Facility (< 1,000 Ci of tritium) until all the process systems and gloveboxes have been removed.

ES-8.0 RECOMMENDATIONS

ES-8.1 Recommended Alternative

The conclusion of this study is that the only viable disposition alternative for the SW/R Tritium Complex is immediate D&D for unrestricted use. This will necessitate the complete demolition of SW-Building, excavation of contaminated soil, and removal of the tritium-contaminated equipment in the R-Building portion of the complex.

ES-8.2 Additional Recommendations

Initiation of D&D activities as early as possible is highly recommended. This will provide a beneficial impact to the overall D&D project schedule. The T-Building D&D Project is directly dependent upon the completion of the SW/R Tritium Complex D&D Project because of the need to maintain the TERF. The required D&D activities in the SW/R Tritium Complex are extensive and much can be accomplished without significantly affecting ongoing tritium operations. Moreover, operations are not planned to continue beyond Fiscal Year 1997 which leaves very little opportunity for the programs to overlap.

Determine the impact of various tritium release quantities per year using risk analyses. Higher release limits would allow more flexibility for D&D, use of additional waste volume reduction processes, lower schedule interruption risk, and a more timely completion of cleanup of the project and other tritium D&D projects.

A final element for consideration under this study deals with the potential redefinition of the project boundaries for the SW/R Tritium Complex and the R-Building D&D projects. Currently, the equipment and materials within 26 R-Building rooms were used for tritium processes and are, therefore, included within the SW/R Tritium Complex D&D project. Structural demolition of these rooms is within the scope of the R-Building D&D project. It is recommended that this delineation of responsibility remain as it is currently defined for the following reasons:

1) Operation of the ERS and/or Tritium Emissions Reduction Facility systems is essential to the equipment removal activities within these areas. Because these

systems are not required to support D&D in the remainder of R-Building, it is logical to address the removal of the tritium contaminated equipment with SW-Building.

2) The crawlspace above the rooms between Corridors 2 and 3 in R-Building is shared. Structural demolition of the tritium processing rooms west of Corridor 5 would leave this crawlspace open to the outside. Separate demolition efforts would be much more difficult and costly than a simultaneous approach. Additionally, though the east wall of Corridor 2 is a firewall, there are numerous penetrations from service installations and ductwork which effectively connect the two sides.

Ideally, if the SW/R Tritium Complex and R-Building D&D projects progress in parallel, structural demolition of both buildings may occur concurrently. If this indeed is the case, there may be an opportunity to combine the latter phases of the two projects which would result in a cost savings through economy of scale. The current approach, however, seems prudent at this time for this study.

Volume 1

VOLUME I

SW/R TRITIUM COMPLEX D&D PRE-CONCEPTUAL ENGINEERING STUDY

(Rev. 0)

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VOLUME I
TABLE OF CONTENTS

PAGE

1.0 Introduction 1
- 1.1 Mound Site 1
- 1.2 SW/R Tritium Complex 1
  - 1.2.1 Facility Overview 1
  - 1.2.2 Facility Structure 4

2.0 Engineering Study Objectives 9

3.0 Project Scope 9
- 3.1 Immediate D&D for Unrestricted Use 9
  - 3.1.1 Preparation Activities 9
  - 3.1.2 Removal Activities 9
  - 3.1.3 Decontamination Activities 9
  - 3.1.4 Restoration Activities 10
- 3.2 Other Alternatives 10

4.0 Design Basis 10

5.0 Work Breakdown Structure 10

6.0 Technical Approach 11
- 6.1 D&D for Unrestricted Use 11
  - 6.1.1 General D&D Sequence 12
  - 6.1.2 Area Descriptions 13
  - 6.1.3 Interior Wall Removal 19
  - 6.1.4 Utility Removal 20
  - 6.1.5 Interior Decontamination 20
  - 6.1.6 HVAC Ductwork Removal 20
  - 6.1.7 Building 58 20
  - 6.1.8 Roofing Removal 21
  - 6.1.9 Building Demolition 21
  - 6.1.10 Stacks 21
  - 6.1.11 Slab Demolition 22
  - 6.1.12 Soil Excavation 22
  - 6.1.13 Waste Disposal 22
  - 6.1.14 Verification of Release Criteria 23
  - 6.1.15 Site Restoration 23

6.2 Other Alternatives 23
6.2.1 No Action 23
6.2.2 Decay in Place 23
6.2.3 Delayed D&D 24
6.2.4 In Situ Disposal 25
6.2.5 D&D for Restricted Re-use 26
6.3 Applicability of Innovative Technologies and Approaches 26
6.3.1 Emerging Technologies 26
6.3.2 Innovative Technologies 27
6.3.3 Innovative Applications 27
6.3.4 Conclusions 27
6.3.5 Recommendations 27

7.0 Schedule and Cost 28
7.1 Phased Approach Evaluation 29
7.2 Cost 31

8.0 Program Schedule Impact Assessment 31
8.1 Budget 31
8.2 Resources 31
8.3 Operations 32
8.4 Safe Shutdown 32
8.5 Environmental 32
8.6 Approvals 32
8.7 Documentation 32
8.8 Specific Activities 32

9.0 Resource Utilization 33
9.1 Assumed Resource Utilization Approach 34

10.0 Waste Management 34
10.1 Waste Minimization 35
10.2 Waste Disposal Acceptance and Packaging Criteria 36
10.3 Tritium-Containing Waste 36
10.4 Nonradioactive Waste 38
10.5 Hazardous Waste 38
10.6 Mixed Waste 38
10.7 Transuranic Waste 39

11.0 Environmental Safety and Health 39
11.1 Facility Classification 39
11.2 Safety and Health 40
11.3 Environmental Compliance 42
11.4 Risk Assessment 42

12.0 Recommendations 44
12.1 Recommended Alternative 44
12.2 Additional Recommendations 45

APPENDICES

A Acronyms
B References
C Design Basis Document
D 1,000-Curie Release Limit Labor Standards
E Schedule
F SW/R Tritium Complex Floor Plans

FIGURES **PAGE**

1.1-1 The Mound Site 2
1.2-1 SW/R Complex - First Floor 7
1.2-2 SW/R Complex - Second Floor 8

TABLES

1.2-1 Additions to SW Complex 3

6.1-1 Expected LLW 22
6.1-2 Expected Non-Contaminated Waste 23

11.2-1 Safety and Health 41
11.3-1 Environmental Compliance 42
11.4-1 SW/R Tritium Complex D&D Hazards 43

1.0 INTRODUCTION

1.1 Mound Site

The Mound Plant (see Figure 1.1-1) has supported the nation's nuclear weapons program for more than 45 years. As a result of the downsizing and reconfiguration of the United States Department of Energy's (DOE's) nuclear weapons complex, Defense Program activities at Mound have ceased.

In support of the DOE program, Mound had constructed 130 administrative, production, storage, laboratory, and service buildings on 306 acres located in the suburban Dayton, Ohio, area.

The DOE's vision is to "... make Mound real property, equipment, and facilities available for development as a commercial industrial site as safely, economically, and timely as possible." This will include management and execution of the stockpile directive schedules, site remediation, and transition of the facilities for future use through economic development.

Though the weapons-related mission has concluded, Mound will continue to support non-weapons-related work. This work consists of continued support for the Radioisotope Thermoelectric Generator program and the DOE Office of Environmental Restoration and Waste Management (EM), which includes the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and Decontamination and Decommissioning (D&D) programs.

1.2 SW/R Tritium Complex

1.2.1 Facility Overview

SW-Building (43,066 ft.^{2}) is a two-story building used primarily for handling tritium (see figures 1.2-1 and 1.2-2). Originally constructed in 1950, the SW-Building has undergone 13 major additions. The SW-Building, along with Building 58 (6,610 ft.^{2}) and one corridor of rooms which houses tritium operations in the adjacent R-Building (55,003 ft.^{2}) form the Semi-Works and Research (SW/R) Tritium Complex. Radionuclides other than tritium which may be present within the SW/R Tritium Complex include, but are not limited to, isotopes of uranium, plutonium, americium, protactinium, radium, radon, and actinium.

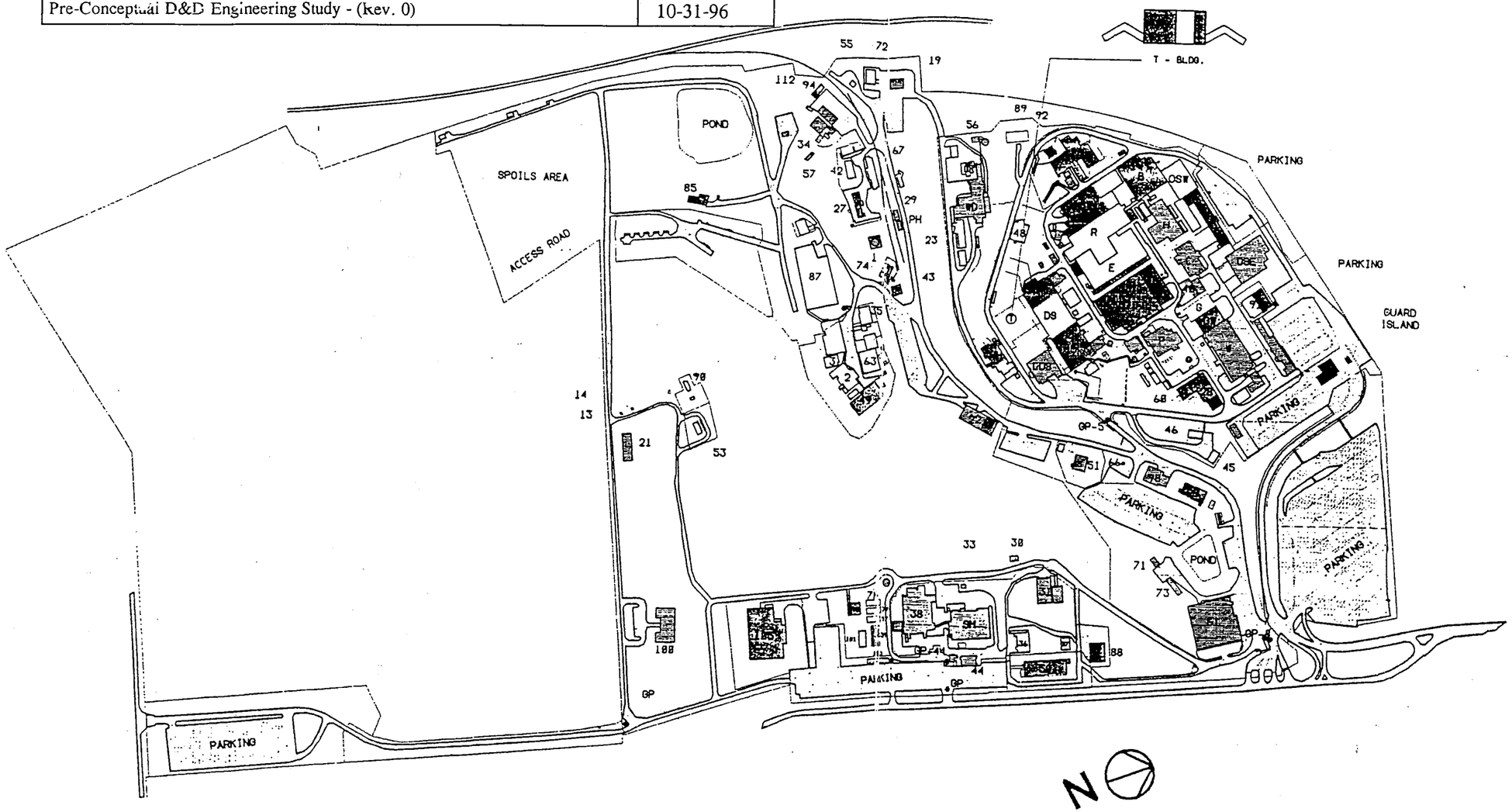

Figure 1.1-1 - The Mound Site

See Appendix F

Figure 1.2-1 - SW/R Complex - First Floor

See Appendix F

Figure 1.2-2 - SW/R Complex - Second Floor

1.2.2 Facility Structure

The SW Building, as originally built, consisted of a 140-foot by 60-foot high bay, steel-framed building. The metal roof deck is supported by purlins spanning between roof trusses on the numbered column lines. These trusses are cross-braced only at the center and at each end of the building. In later additions, a second floor level concrete slab was added. The original building relies on its 12-inch masonry block and brick exterior walls to act as shear walls in transferring lateral loads to the ground. The metal roof deck, as well as the second floor slab, acts as a diaphragm in transferring loads to the shear walls. Column base plate connections, as constructed, will transfer some column bending to the foundations.

Table 1.2-1 contains a description of the additions to the SW Complex.

Table 1.2-1. Additions to SW Complex

Addition	Year	Description
Hot Gas Facility	1957	It is a high bay, steel framed building. Its framing system consists of new columns, located 8 inches outside the existing R-Building wall, which support beams running across and framing into the existing SW Building columns. The purlin and steel roof deck system is supported by these beams. The south and east exterior 12-inch masonry and brick walls of this addition are built directly on top of the exterior walls of the SW and R Building, respectively. No west wall addition was required. The north wall is a full height masonry and brick wall on both the one-story and high bay areas of the building.
Ceramics Facility	1958	The Ceramics Facility addition added the second floor concrete slab to the northeast quadrant of the original SW Complex. To do this, the bridge crane support beams were moved from an elevation close to the roof, down to where they could be used to support the open web joist girders spanning perpendicular to them. These joists, in turn, support 3-1/2 inches of concrete on steel tex floor lath.
Disassembly and Surveillance	1960	The Disassembly and Surveillance addition, like the Ceramics Facility, added a second concrete slab to the original SW Complex, this one located in the southeast quadrant. Here also, the bridge crane support beams were moved down and used to support the second floor open-web bar joists. These joists span perpendicular to the bridge rails and support a 3-1/2-inch-thick concrete slab on steel tex floor lath.
1-C Second Floor Addition	1960	A second floor slab was added to the southwest quadrant of the SW Complex. This second floor level consists of a 3-1/2-inch concrete slab supported by open-web bar joists which were carried by bridge crane support beams, lowered down, and reconnected to the existing columns.

Addition	Year	Description
1-C Mechanical Equipment Room Addition	1960	The one-story Mechanical Equipment Room Addition is located adjacent to the west wall of the SW Complex. Load-bearing walls on three sides are constructed of 12-inch-thick masonry block and brick veneer. The roof is a 3-1/2-inch-thick concrete slab supported by open-web bar joists which bear on the masonry walls.
Change House	1961	The one-story, 12-foot high Change House addition was built around the northwest corner of the original SW Complex. Exterior walls are 8-inch-thick concrete block with 4-inch-thick brick veneer. These walls are anchored to the existing SW Complex walls with bolted angles. The steel roof framing of the Change House, which supports a 3-1/2-inch-thick concrete slab, is also bolted to existing SW columns. The north end of the addition is not connected to the SW Building.
North Second Floor Addition	1961	The second floor level concrete slab in the northwest quadrant of the original SW Building was added with this addition. This 4-inch-thick slab is supported by a metal deck on steel beams. As in the other areas of the original SW Building, bridge crane rail support beams were lowered and reconnected to the building columns. These rails were then used to support the second floor slab steel framing. The second floor level inside the original SW Complex was completed with this addition. These alterations also included the construction of the "Cave" Area. This 16-foot by 8-foot high level gamma laboratory was constructed with minimum 2-foot thick reinforced concrete walls. It extends from the first floor level through the second floor level, but is isolated from the second level concrete slab by 1/2-inch-thick expansion joints.
North Two-story Support Building	1961	The two-story support building addition consists of a first floor extension of SW Complex operations and a second floor mechanical room. It is located between the Change House and an existing mechanical room, along the west wall of the SW Building. The second floor and roof concrete slabs are supported by steel framing which span the building and frame into existing columns. The exterior walls are constructed of 8-inch-thick masonry block and 4-inch-thick brick, which are connected to the original SW Building walls with bolted angles.
Nuclear Component Development and Pre-Production Facility	1965	The two-story Nuclear Component Development and Pre-Production Facility (NCDPF) addition is located adjacent to the north side of the original SW Complex. It is separated from the SW Complex by a 1/2-inch-thick expansion joint and has an independent steel framing system. Its second level, 5-inch-thick reinforced concrete floor slab is supported by open-web bar joists, while steel beams support the concrete roof slab. Exterior walls are 8-inch-thick masonry block and 4-inch-thick brick. A reinforced concrete vault structure is located along the east wall of the facility. An equipment penthouse is located on the building roof slab. This penthouse is constructed with rolled steel shapes supporting aluminum panel walls. A 27-foot wide, two-story tall removable aluminum panel is also located at the north end of the west wall of the addition.

Table 1.2-1. Additions to SW Complex (continued)

Addition	Year	Description
Addition to SW-9 (SW-10)	1967	This single-story addition north of SW-9 consists of a wall and roof between the R and NCDPF outside walls.
Test Chamber Addition	1969	The Test Chamber addition is located adjacent to the west side of the SW Complex. It is constructed of 8-inch-thick concrete walls with brick veneer. The concrete walls are connected to the original SW Building masonry walls with 1/2-inch diameter expansion bolts. Lateral movements between the addition and the SW Complex will be limited by the strength of these expansion bolts. The roof consists of a concrete slab with an equipment hatch.
Mechanical Equipment Room Addition	1969	A mechanical equipment room was added above the existing mechanical equipment room, located adjacent to the west wall of the SW Complex. The structural system of this addition is steel framing, with 4-inch-thick masonry block and 4-inch-thick brick veneer walls on the south and west wall, and insulated metal siding on the east wall. The north wall is existing. The north end of the west wall is anchored to the existing Change House wall with 1/2-inch diameter expansion bolts, although neither masonry block wall appears to be anchored to the existing masonry block walls below. The steel framing of this addition support metal roof decking.
Cooling Tower and Chiller	1972	The Cooling Tower and Chiller addition is located adjacent to the north end of the west wall of the original SW Complex. This addition is built over the top of the existing Change House and in between the Equipment Room and NCDPF. The existing Change House roof was left in place and the new floor built approximately three feet above. Exterior walls for the addition were required on the west and south sides, with the existing masonry walls used on the north and east sides. These required walls are 12-inch-thick masonry and brick and are anchored to the walls below the steel reinforcement. The second level floor framing is steel beams with metal decking and 4 inches of concrete.
High Efficiency Filtration System (Building 58)	1973	The High Efficiency Filtration System (HEFS) addition is located directly north of the NCDPF facility. It consists of a Filter House floor, supported by a steel column framing system located approximately 34 feet above ground level, with a crawl space and substation area beneath. A 7-foot crawl space is located directly under the filter house floor, and is enclosed by insulated metal siding. The area below this crawl space and the substation floor is open to ground level. The roof itself consists of metal decking and built-up roofing. The exterior walls between the filter house floor and the roof are 8-inch-thick concrete block and 4-inch-thick brick.

Table 1.2-1. Additions to SW Complex (continued)

Addition	Year	Description
Impact Test Facility	1975	The two-story Impact Test Facility, which is a addition to the original SW Complex, is located adjacent to the west wall at the south end of the building. This addition is constructed of steel framing, which is entirely encased int he exterior masonry walls. These 12-inch masonry block and brick walls are well reinforced, both vertically and horizontally. The 4-inch-thick reinforced concrete second floor and rood slabs are supported by steel beams framing between columns.
Thorium Facility	1976	The 26-foot by 8-foot Thorium Facility addition is located adjacent to the west wall of the Change House addition. It is a one-story addition approximately 23 feet high, constructed of 8-inch-thick reinforced concrete walls with brick veneer. The Thorium Facility is abutted against the Change House addition, however, their framing systems are independent of one another. The roof consists of a 10-inch-thick concrete slab with four roof hatches. This addition houses vertical tanks. This facility has never been used.
Aqueous Tritiated Waste Facility	1979	The one-story Aqueous Tritiated Waste Facility addition is located adjacent to the north side of the NCDPF, below the HEFS addition. This addition consists of 12-inch-thick concrete block and brick veneer walls which surround four existing columns, but are not connected to them. These exterior walls are separated from the NCDPF by expansion joints, and are also reinforced both vertically and horizontally.

2.0 ENGINEERING STUDY OBJECTIVES

The primary objective of the pre-conceptual engineering study is to evaluate the methods and estimated costs of decontaminating and decommissioning the selected areas to comply with Federal, State, and local guidance. Additionally, the design shall ensure that the cleanup activities are performed safely and cost-effectively.

3.0 PROJECT SCOPE

The project scope is to produce an engineering study and associated cost estimate at a conceptual level of detail that separately examines several disposition alternatives for the SW/R Tritium Complex.

The feasibility, the short-term and long-term benefits (with regard to cost and risk to personnel and the environment) of each alternative will be investigated. This engineering study and its associated cost estimate involve reviewing schedules for physical work being done in SW/R Tritium Complex, reviewing completed check sheets for assessing D&D cleanup requirements in each room within the SW/R Tritium Complex, evaluating various cleanup methods for the SW/R Tritium Complex using the check sheets, and completing the engineering study and associated cost estimate.

3.1 Immediate D&D for Unrestricted Use

Immediate D&D for unrestricted use is the first alternative for dispositioning the SW/R Tritium Complex. The engineering study establishes the D&D activities that will be performed in such a manner as to protect the workers, the public, and the environment.

3.1.1 Preparation Activities

Preparation activities include work force mobilization; site preparation; and purging of gloveboxes, piping, and equipment prior to removal.

3.1.2 Removal Activities

Removal activities include removal of radioactive and hazardous chemical contaminated systems and equipment, and removal of contaminated soils, utility lines, etc. from below the building. Removal activities also include demolition of the structure as well.

3.1.3 Decontamination Activities

Decontamination activities include building decontamination of highly contaminated areas for both radiological and hazardous contamination prior to demolition.

3.1.4 Restoration Activities

Minimal restoration activities will be completed after removal and decontamination activities in the SW/R Tritium Complex. They may include regrading and restoration of areas where removal of certain services or structures was needed.

3.2 Other Alternatives

Other D&D alternatives that were technically considered but not initially recommended include No Action, Decay in Place, Delayed D&D, In Situ Disposal, and others as appropriate to each individual project.

4.0 DESIGN BASIS

The Design Basis Document defines the criteria for design and estimating activities associated with the D&D of the SW/R Tritium Complex, as well as the envelope of regulations within which the D&D activities will be conducted. Criteria for release, restoration, and waste acceptance are established in the design basis. The release criteria for tritium, asbestos, and hazardous materials are defined. The basis for defining the restoration criteria for the SW/R Tritium Complex is provided. Waste acceptance criteria consider where the waste from the D&D activities will be disposed of and in what approved waste packages.

Detailed information concerning the design basis is in *T-Building and SW/R Tritium Complex Design Basis Document, Revision 1*, (Reference 4-1) located in Appendix C of this study.

5.0 WORK BREAKDOWN STRUCTURE

The detailed Work Breakdown Structure (WBS) is in Volume II, Cost Estimate, of this document. The following is a description of typical elements of the WBS.

Project Management includes project plans, scheduling, cost estimating, procurement support, technical writing, change control, cost/schedule project reporting, funds management, training, Architect/Engineering coordination, and the responsibility for controlling the subcontractor's portion of the work.

Engineering includes the Conceptual Engineering; Work Packages (Title II), Technical Specifications (Title I); Safety Assessment; Environmental Compliance; Readiness Checklists; Detailed Work Procedures (Title II); Facility Release Survey Plans; and Final Report.

Conceptual Engineering is the study of options for managing the project and its cost. The work package (Title I, preliminary design) establishes the project's work scope, schedule, and budget in sufficient detail to allow for planning and budgeting. The

work package Title II, detailed design (sometimes referred to as "definitive" design), is the complete design of the work to be done. It includes preparation of all final drawings, specifications, estimates, contract documents, and detailed work procedures. Safety Assessments, in the form of Safety Analysis Reports and Health and Safety Plans, are used to maintain worker, public, and environmental safety. Environmental compliance is assured by following the CERCLA process (Reference 5-1). The Readiness Assessment process will be completed and satisfied before D&D work begins. The facility release survey plans define the cleanup criteria and how they are checked after D&D. A survey is performed to determine and document the amount, location, and type of contaminant present in all areas within the scope of the project in a manner which demonstrates that the decommissioning release criteria have been achieved.

Site Services includes environmental monitoring, procurement, safeguards and security, utilities, computer maintenance, and sampling and analysis.

SW/R Tritium Complex D&D Activities includes preparations, glovebox removal, miscellaneous equipment removal, service removal/crawlspace cleanout, area decontamination, and building demolition. Preparations for the D&D activities include work force mobilization, site preparation, and glovebox piping and equipment purging prior to removal.

Waste Disposal activities include establishing waste streams, activities to handle materials and equipment on site, writing procedures in conformance with receiver sites, and transport to a burial site.

An Independent Verification Contractor (IVC) performs a process of verification for all EM projects. The IVC is contracted by EM, surveys the area, and reports their findings directly to EM.

6.0 TECHNICAL APPROACH

6.1 D&D for Unrestricted Use

Due to its age and history of nuclear activities, decontamination with the intent to release and re-use SW-Building is not practical. The only feasible approach to achieve unrestricted release of the SW-Building involves a methodical dismantlement of the entire building.

The primary locations of contamination within SW/R Tritium Complex are the inside of the glovebox-associated equipment and process lines. The major consideration that must be addressed for D&D planning is the degree of complexity due to either the

system configuration within the gloveboxes or the levels of contamination. Additionally, the level of effort required to remove a fumehood was assumed to be equal to that required to remove a glovebox. Therefore, for this conceptual study, the removal method and associated effort for the gloveboxes and fumehoods was defined for three levels of effort - Low, Medium, and High depending on complexity and level of contamination. A description of the defined removal method and labor effort for each of these levels is provided in Appendix D.

In general, glovebox equipment and gloveboxes will be removed and immediately packaged within a tented enclosure. Miscellaneous room equipment will also be removed and immediately packaged. Process piping associated with the Effluent Recovery System (ERS) is located throughout the building and is considered contaminated and will be removed.

D&D activities have been planned to address primarily tritium contamination, since tritium is the most widespread radionuclide present in appreciable quantities. Some areas of the building are known to contain alpha, beta, and gamma-emitting radionuclides, and similarly, small amounts of hazardous chemicals may be present. Planned personnel protection methods for tritium and other radionuclides used in the cost estimate associated with this study are conservative enough to address all anticipated hazards.

6.1.1 General D&D Sequence

In general, each room will undergo the following sequence of activities:

Preparations

Primarily, preparations will involve establishing radiological control barriers and monitoring and staging waste containers. Highly contaminated rooms may require construction of airlocks or tents.

Glovebox Removal

Approximately 40 rooms contain 310 gloveboxes and/or fumehoods used to process tritium. All process equipment contained within the gloveboxes will be removed and packaged in metal containers to prevent offgassing of tritium. The gloveboxes themselves will also be packaged so as to prevent offgassing.

Filled waste containers are to be transferred from SW-Building at the dock located at the north end of the building. Waste containers filled within rooms along Corridor 2 of R-Building will be transferred from the south end of Corridor 2. The dock on the north end of the building may be used as a staging area for both filled containers as well as empty containers.

Miscellaneous Equipment Removal

Some rooms within the building are considered free from contamination at present. The equipment in these rooms is to be surveyed and certified clean prior to removal. Most of the equipment will consist of lab benches, cabinets, and similar furniture that remains following Safe Shutdown which can be excessed.

Equipment removed from rooms which are within radiological control areas or radiological buffer areas is to be packaged for disposal as either Low-Level Waste (LLW) or Transuranic (TRU) waste.

Service Removal/Crawlspace Cleanout

Building services provided in rooms and overhead crawlspaces will be removed. The majority of services are utility lines which consist of water, He, Ar, N, compressed air, breathing air, and HVAC ductwork.

Area Decontamination

Following removal of the services in the rooms, any floor coverings which are present will be removed. This study assumes that 80 percent of the total floor area of SW-Building is covered with asbestos containing material. Appropriate asbestos controls will be required during removal operations.

The concrete room floor is then to be checked for contamination. If necessary, the concrete pad will be scabbled until the levels of contamination are low enough to allow open air demolition.

After the floor has been decontaminated, it should be covered with paper to prevent recontamination. The ceiling is then to be removed and packaged by sectioning and lowering it in manageable pieces.

Following removal of the ceiling, the room should be completely empty and open to the second floor/roof. At this point, the walls should be checked for significant contamination and any hot spots should be decontaminated. This study assumes that each of the rooms which are designated as hot rooms will receive a wet rag wipedown and a coat of paint.

6.1.2 Area Descriptions

For estimating purposes, the floors of SW-Building have been divided into seven areas. This division is illustrated on Figures 1.2-1 and 1.2-2 and further discussed in this section. Within a building area description, the rooms are grouped into three categories:

1) Rooms requiring a D&D approach similar to the general D&D sequence provided in Section 6.1.1

2) Rooms requiring a D&D approach with specific considerations

3) Rooms requiring minimal D&D before demolition (i.e., corridors, offices, change rooms)

For the purpose of this study, these designations have been made on the basis of historical information, and includes MD-22153, Issue 1, *Mound Site Radionuclides by Location* (Reference 6-1).

6.1.2.1 SW/R Tritium Complex Area A (WBS Element 3.4.1)

1) Rooms within Area A which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

SW-20	SW-20E	SW- 128A
SW-20A	SW-21	SW-140
SW-20B	SW-21A	SW-142
SW-20C	SW-22	
SW-20D		

2) Rooms within Area A with specific D&D considerations are as follows:

SW-128	SW-132	SW-136
SW-129	SW-133	SW-137
SW-130	SW-134	SW-138
SW-130A	SW-135	New Cave

These rooms are part of an ongoing D&D effort and are assumed to be empty and free from contamination at the onset of this study. However, this study includes these rooms as part of the SW-Building demolition and subsequent excavation.

3) The remaining rooms within Area A are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

SW-23	SW-Corr 107	SW-131
SW-104	SW-108	SW- 139
SW-106	SW-112	SW-Corr 22A

6.1.2.2 SW/R Tritium Complex Area B (WBS Element 3.4.2)

1) Rooms within Area B which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

SW-9	SW-148	SW-152
SW-125	SW-149	SW-153C
SW-146	SW-149A	
SW-147	SW-149B	
SW-147A	SW-150	

2) Rooms within Area B with specific D&D considerations are as follows:

None
identified

3) The remaining rooms within Area B are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

SW-10	SW-118	SW-153B
SW-10A	SW-122	SW-Corr 154
SW-109	SW-Corr 124	SW-155
SW-110	SW-127	SW-Corr 156
SW-111	SW-143	SW-Corr 157
SW-113	SW-144	SW-Corr 157A
SW-114	SW-151	SW-Corr 157B
SW-115	SW-153	
SW-117	SW-153A	

6.1.2.3 SW/R Tritium Complex Area C (WBS Element 3.4.3)

1) Rooms within Area C which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

SW-2	SW-15	SW-17
SW-11	SW-16	SW-18
SW-13	SW-16A	SW-19
SW-14B	SW-16B	

2) Rooms within Area C with specific D&D considerations are as follows:

SW-8 Old Cave

SW-8 is a two-story room which is extensively equipped with gloveboxes, fumehoods, and other equipment on the ground level and at elevated areas throughout the room. These elevated work areas are accessed from catwalks which will make removal operations difficult because of the need for special lifting equipment and the risk of falls. Another clean-up concern will be removing the tritium-contaminated water from beneath the room, which will require extensive excavation.

From 1951 to 1953 a Radium-Actinium separation process was performed in what is now SW-19. The process equipment, known as the "Old Cave," became heavily contaminated and was collapsed and then entombed under several feet of concrete for radioactive protection purposes. The removal of this highly contaminated concrete mass will be a significant D&D effort. This study assumes that a temporary structure, exterior to the south side of SW-19, will be constructed to support the D&D operation. This structure will provide enclosed access for heavy equipment to facilitate removal of the concrete mass. A diamond wire saw will be used to section the concrete prior to removal and packaging.

3) The remaining rooms within Area C are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

SW-2A	SW-5	
SW-3A	SW-6	SW-Corr 14
SW-Corr 3	SW-6A	

SW-4 SW-7

6.1.2.4 SW/R Tritium Complex Area D (WBS Element 3.4.4)

Area D is comprised of the rooms within R-Building which are part of the SW/R Tritium Complex.

1) Rooms within Area D which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

R-105	R-112	R-128
R-106	R-113	R-130
R-108	R-114	R-134
R-110	R-127	R-120, R-137

2) Rooms within Area D with specific D&D considerations are as follows:

None
Identified

3) The remaining rooms within Area D are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

R-Corr 1	R-111	R-129
R-Corr 2A	R-114A	R-129A
R-Corr 2B	R-116	R-193
R-Corr 2	R-116A	R-194
R-104	R-117	R-195
R-106A	R-118	
R-106B	R-123	

6.1.2.5 SW/R Tritium Complex Area E (WBS Element 3.4.5)

1) Rooms within Area E which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

SW-200	SW-210B	SW-218
SW-209	SW-211	SW-219
SW-210	SW-211A	

SW-210A SW-217

2) Rooms within Area E with specific D&D considerations are as follows:

SW-213 SW-214 SW-215

Rooms SW-213, 214, and 215 house the filter bank which serves both the old (SW-19) and new cave areas. Therefore, these rooms are expected to be contaminated with a number of alpha and beta/gamma-emitting radionuclides. The filter bank must remain in operation until D&D activities requiring filtered exhaust have been completed in the two cave areas. At that time, the filters will be removed and packaged, the filter frames will be size reduced and packaged, and the area will be decontaminated.

3) The remaining rooms within Area E are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

SW-Corr 201A	SW-242	SW-212
SW-243	SW-Corr 202	SW-Corr 220

6.1.2.6 SW/R Tritium Complex Area F (WBS Element 3.4.6)

1) Rooms within Area F which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

SW-231	SW-238
SW-234	SW-240

2) Rooms within Area F with specific D&D considerations are as follows:

None
Identified

3) The remaining rooms within Area F are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

SW-Corr 225	SW-229D	SW-Corr 236
SW-226	SW-230	SW-237
SW-227	SW-232A	SW-239
SW-228	SW-232B	SW-241
SW-229A	SW-Corr 232	SW-250
SW-229B	SW-233	
SW-229C	SW-Corr 235	

6.1.2.7 SW/R Tritium Complex Area G (WBS Element 3.4.7)

1) Rooms within Area G which will be addressed as described in Section 6.1.1, General D&D Sequence, are as follows:

SW-205 SW-208

2) Rooms within Area G with specific D&D considerations are as follows:

None
Identified

3) The remaining rooms within Area G are assumed to be free from contamination and require minimal effort to prepare for demolition of the SW-Building. These are:

SW-Corr 201	SW-202C	SW-202G
SW-Corr 202	SW-202D	SW-Corr 204
SW-202A	SW-202E	SW-206
SW-202B	SW-202F	

6.1.3 Interior Wall Removal (WBS Element 3.4.8)

Although SW-Building was constructed in multiple phases, the construction type is mostly steel framing. Therefore, most of the interior walls are not load bearing and may be removed without compromising the external building containment. Most of the internal walls within SW-Building are constructed of either plaster lath over wood framing or concrete block. Following the completion of the above described D&D activities, all electrical power to SW-Building is to be disconnected. Auxiliary lighting

will be provided by a dedicated, external power supply. Subsequently, the internal walls will be removed. In general, the areas of highest contamination within the building will have already been cleaned up and most of the wall removal operations can be accomplished with localized contamination control measures. Examples of these measures are covering the floor with paper and painting wall surfaces. If necessary, tented enclosures can be constructed and connected to the existing building exhaust.

6.1.4 Utility Removal (WBS Element 3.4.9)

Most of the contaminated utilities will be removed as the D&D progresses within the individual rooms. This element addresses removal of any utilities which remain, as well as any exterior above or below grade utilities.

6.1.5 Interior Decontamination (WBS Element 3.4.10)

Following removal of the interior walls, ceilings, and utilities, the building structure will be completely empty except for structural columns, roof supports, and portions of the HVAC ductwork which should still remain in operation. This study assumes that none of the remaining structural material will be suitable for unrestricted release. Therefore, any final decontamination efforts necessary to allow demolition should be accomplished at this time. This study assumes that the second floor and roof support structures will receive a wet rag wipedown.

A total of one B-25 LLW container is expected to be generated from rags, Personal Protective Equipment (PPE), and other miscellaneous D&D waste.

6.1.6 HVAC Ductwork Removal (WBS Element 3.4.11)

HVAC ducting in the most highly contaminated areas of the building should be removed in installments as the areas which they serve are decontaminated. The main headers of the system should remain in operation until the contents of the building have been removed and the interior surfaces have been decontaminated. Following this, the remainder of the system is to be removed and packaged as LLW.

6.1.7 Building 58 (WBS Element 3.4.12)

Following removal of the HVAC exhaust ductwork up to the point where it enters Building 58, D&D activities will proceed as follows:

1) Remove HVAC supply ductwork located on the roof of SW-Building.

2) Remove any remaining miscellaneous service piping and equipment within Building 58.

3) Remove the filters from the most highly contaminated (first) bank. Cut and package the frame from the empty filter bank. Clean the floor and wall area on the upstream side of the second filter bank.

4) Remove the second and third banks of filters in a similar manner as the first.

5) Shut down the stack exhaust fans.

6) Remove HVAC exhaust ductwork located on the roof of SW-Building. Localized tents may be required for some of the exhaust ducting for contamination control.

7) Remove the final bank of filters.

8) Decontaminate the entire interior of the penthouse to levels which will allow open air demolition.

9) Demolish Building 58. Contaminated material is to be packaged as LLW. Large sections can be lifted to ground level with a crane for final size reduction. The "stilt" structure which supports the building should not be contaminated and is assumed to be recyclable material.

6.1.8 Roofing Removal (WBS Element 3.4.13)

Experience with previous D&D projects at Mound suggests that the exterior of the roof of SW-Building may have become contaminated due to faults in the HVAC ductwork on the roof or possibly due to stack emissions. Because of the uncertainty, this study assumes that the built-up portion of the roof will require packaging as LLW. Removal of the built-up portion will immediately precede demolition of the building. Therefore, prior to this removal operation, all D&D activities within the SW/R Tritium Complex and the penthouses will have been completed. Removal is to be accomplished by manually shoveling off the layers of roofing.

6.1.9 Building Demolition (WBS Element 3.4.14)

Demolition of the building will consist of removing the exterior walls, interior columns, roof support structure, and roof decking. A combination of heavy equipment and manual removal techniques are to be used to demolish the building.

6.1.10 Stacks (WBS Element 3.4.15)

Following the completion of decontamination efforts inside the Building 58 filter banks, the three metal stacks associated with SW-Building are to be dismantled.

6.1.11 Slab Demolition (WBS Element 3.4.16)

Some of the concrete floor slab should be free from contamination following the demolition of the building structure. However, contaminated floor drains may continue to harbor significant contamination. Additionally, underfloor drain lines are suspected to have leaked contamination into the surrounding soil. Selective removal of the clean areas of concrete should be accomplished prior to removal of the drains and associated contamination.

6.1.12 Soil Excavation (WBS Element 3.4.17)

As a continuation of the slab removal activity, the underfloor drains and contaminated soil are to be excavated and packaged as radioactive waste. Previous D&D efforts at Mound indicate that there is a possibility of encountering contamination levels in the drain lines which exceed the LLW criteria and will require packaging as TRU waste.

It is known that there is subgrade contamination under SW-8 because of tritiated water that was deposited in the storm drain. This area of the building may require excavation up to 20 feet deep. This estimated volume of soil that will require excavation has been calculated by assuming the following:

1) the area under SW-8 will require excavation to a depth of 15 feet
2) the soil within the remaining area of the building and within an additional 10 feet surrounding the building will require excavation to a depth of 5 feet

6.1.13 Waste Disposal (WBS Element 3.5)

Table 6.1-1 summarizes the estimated LLW container requirements and associated disposal volumes for the SW/R Tritium Complex D&D Project. Section 10 of this document discusses management of waste.

Table 6.1-1. Expected LLW

Waste Container Type	Quantity	Disposal Volume (ft^3)
B-25 LLW (4x4x6)	2,817	287,334
Seal Welded (3x3x6)	3,878	232,673
Seal Welded (3x3x3)	808	24,240
Sea/Land (8x8x20)	11	14,300

This study assumes that the Safe Shutdown Program will remove any bulk hazardous material which may be present throughout the SW/R Tritium Complex. However, it

is known that quantities of residual hazardous material will remain in the process equipment and require packaging as mixed waste. Two-hundred, seventy-nine ft^3 of mixed waste has been included in the estimate to account for this.

Table 6.1-2 summarizes the estimated non-contaminated waste which is expected to be generated.

Table 6.1-2. Expected Non-Contaminated Waste

Waste Form	Volume (ft^3)
Construction Debris	59,190
Concrete/Brick Rubble	212,494

A large quantity of excess material is also expected to be generated. Primarily, this will consist of numerous cabinets, workbenches, desks, and other furnishings which are assumed to be non-contaminated.

6.1.14 Verification of Release Criteria (WBS Element 3.6)

After removal of the SW-Building and stack structures, and excavation of any contaminated soil, a final verification survey will be conducted to ensure that the unrestricted site release criteria have been achieved.

6.1.15 Site Restoration (WBS Element 3.7)

Following the verification surveys and confirmation of site release, the site will be restored. This study assumes that the excavation will be backfilled with clean building material and borrow material to grade level and re-vegetated.

6.2 Other Alternatives

Other D&D alternatives which were technically considered but not initially selected include No Action, Decay in Place, Delayed D&D, In Situ Disposal, and others as appropriate to each individual project.

6.2.1 No Action

Although always an alternative to any proposed action, it is obvious that a " decay in place" no-action option is not viable or acceptable for any stakeholder. Therefore, this option is not considered further.

6.2.2 Decay in Place

Decay in Place is a D&D alternative for facilities contaminated with radioactive isotopes of relatively short half-lives. The concept is to delay the final disposition of

the facility until after the natural decay of the radiological contamination has reduced the quantity of contaminant to unrestricted release levels. SW-Building is a candidate for this alternative because its primary contaminant is tritium, which has a 12.3-year half-life.

Although considered a candidate for Decay in Place, this approach is not feasible for SW-Building for two main reasons.

1) High Surveillance and Maintenance costs during a 100-year decay period
2) Excavation below the building is required to properly clean-up facility

Once tritium operations are completed in the SW/R Tritium Complex, accountable tritium inventory would be shipped to a receiver site. The residual tritium quantities in the majority of the process and support equipment would require more than 250 years of natural radioactive decay to achieve unrestricted release levels (1,000 dpm/100 cm^2 per the Design Basis Document).

High-level waste repositories have set a precedent of 100 years (40 Code of Federal Regulations [CFR] 191) (Reference 6.2) for the maximum amount of time that institutional controls will be maintained by the government. The SW/R Tritium Complex requires a decay period greater than the 100-year limit or would require some initial D&D to lower the residual contamination levels to those which will decay to unrestricted release levels within 100 years. The initial D&D effort is required to remove tritium contamination above 282,000 dpm/100 cm^2; any contamination below this level will decay to less than 1,000 dpm/100 cm^2 within 100 years.

Due to the poor structural condition of the building, the cost required to maintain the SW-Building in a safe condition for the 100-year decay period would be prohibitive.

Another concern is the contamination which has seeped into the ground below SW-Building. The excavation depth has been estimated to range from 0 to 20 feet in some areas. Such extensive excavation of the majority of the building footprint would require that the building be removed prior to excavation activities.

6.2.3 Delayed D&D

Delayed D&D is different from the Decay in Place option in that, because of funding, resource availability, priority, or other constraints, initiation of D&D is delayed. In some cases (i.e., nuclear reactors) this is a preferred option that the Nuclear Regulatory Commission (NRC) calls SAFSTOR. In cases where the facility is immediately decontaminated and decommissioned, the NRC calls this approach DECON.

Although delayed D&D may be an unwanted but realistic occurrence at Mound, the impact of this option is higher surveillance and maintenance costs due to the delay period and a resulting increase in the total project cost. An additional impact during this delay period is the potential loss of experienced SW/R Tritium Complex operations personnel who may become committed to other projects or leave the site. This loss of "corporate" experience would increase cost, schedule, and the potential for personnel exposures and tritium release. Finally, as time goes on, regulations and requirements generally become increasingly restrictive, creating additional project costs and lengthening the schedule.

6.2.4 In Situ Disposal

In Situ Disposal is a technically viable and cost-beneficial option but may not be acceptable to some stakeholders. Several variations of this option exist, from entombment to disposal of only suspect waste (both hazardous and radioactive) to long-term storage or disposal of higher level waste (e.g., TRU waste).

Several concerns with in situ disposal include building integrity, non-tritium contamination, and contaminated soil beneath the footprint. The lack of integrity of the SW/R Building lends itself to the option of collapsing the building and encasing the entire contents with concrete (or similar material). Long-lived non-tritium contamination may have to be removed prior to collapsing the building. Lastly, as previously discussed, it may be difficult to remediate soil beneath the footprint without demolition of the building.

6.2.4.1 Entombment

Entombment (called ENTOMB by NRC) is a method in which radioactive contaminants are encased in a structurally long-lived material, such as concrete. The entombed structure is appropriately maintained, and continued surveillance is performed until the radioactivity decays to a level permitting unrestricted release of the property. Based on process knowledge, this would require approximately 250 years for tritium in the SW/R Tritium Complex to decay to currently established unrestricted release levels.

Several variations of entombment exist, from partial entombment of areas with higher levels of contamination to complete entombment of the building. Other variations include purging equipment for several years to reduce contamination and/or removing highly contaminated equipment prior to entombment.

6.2.4.2 Waste Repository

Creating a waste repository is a variation of in situ disposal which is actually an entombment, except that waste from other D&D and clean-up projects could be

consolidated and compacted in the SW/R Tritium Complex prior to final entombment of the contents in the facility. This approach would be similar to the approach being utilized at another DOE site in southern Ohio. At the Fernald Environmental Management Project, low levels of hazardous and radioactive waste above unrestricted release levels but below a predetermined regulatory level will be consolidated and disposed in the On-Site Disposal Facility (Reference 6-3).

6.2.5 D&D for Restricted Re-use

This option would assume that a re-use for the SW/R Tritium Complex by the DOE or a commercial operation dealing with radioactive materials exists or would exist in the future. The facility would only then require D&D to eliminate significant hazards for the new user. This reduces the initial D&D cost but may not relieve the DOE of the liability for the eventual D&D of the building for unrestricted release. If this is the case, the total D&D project cost to D&D would be much higher than the immediate D&D case. However, since a new user has not yet been identified, this option is not being considered at this time.

6.3 Applicability of Innovative Technologies and Approaches

The applicability of new, emerging, and innovative technologies and the creative application of existing technologies to the physical D&D activities of the SW/R Tritium Complex have been reviewed, and the results are summarized below. Of particular interest are areas where these technologies could reduce costs, shorten schedules, reduce waste, or improve worker safety, environmental protection, and productivity. Special emphasis is placed on reducing significant cost components, such as labor and waste disposal.

Generic classes of physical D&D activities where these technologies may apply include characterization, personnel protective equipment, working environment, monitoring, waste treatment/storage/disposal, decontamination, removal, and containment/ confinement/capture.

Although innovative approaches also apply to the planning, management, administration, control, and regulation of D&D activities, these areas are being addressed through application of the DOE's new approaches such as "Work Smart, Graded, Integrated, Stakeholder Involvement, and Performance Based" objectives (Reference 6-4).

6.3.1 Emerging Technologies

Emerging technologies (both on a national and international level) in the future may significantly change the currently acceptable standard methods to decontaminate and decommission a tritium facility. This is especially significant in light of several

Mound tritium D&D projects being planned, but also for application to other non-Mound tritium facilities. Emerging technology may become more applicable as time goes on and should be re-evaluated during preparation of the decommissioning plan and periodically throughout the D&D process of the SW/R Tritium Complex.

6.3.2 Innovative Technologies

Innovative technologies include for example, the application of computerization, utilization of state of the art instrumentation and equipment, use of microwave/high frequency/electrical/sonic/laser/thermal technology, new chemical compounds, microbiotics, and robotics.

6.3.3 Innovative Applications

Innovative applications are processes being utilized in other industries that can be applied to D&D. For example, the use of a medical bacteriological decontamination technique could apply to the decontamination of tritiated organic material.

Such areas as ventilation recycling, air flow reduction, concentration of tritiated water, PPE decontamination, and water misting tritium capture were reviewed and not considered feasible or cost effective.

6.3.4 Conclusions

In conclusion, there may be promising techniques that may apply to the D&D of the SW/R Tritium Complex. Although these techniques might not appear to be cost beneficial if applied only to the SW/R Tritium Complex, economy of scale may be reached when the total Mound D&D program is considered. In addition, several of these techniques may be worthy of pilot testing in the SW/R Tritium Complex prior to the initiation of the physical D&D activities.

6.3.5 Recommendations

After reviewing the SW/R Tritium Complex D&D project, the following options are recommended.

- Review the total Mound D&D program for application of new, creative, or existing technologies to see if a sitewide economy of scale can be achieved. Use of such processes and centralized facilities as "Super Compaction, Central Decontamination Facility, Metal Smelting, Central Waste Segregation and Packaging Facility" should be considered.

- Investigate the possibility of an on-site disposal area for suspect radioactive and mixed waste that cannot be adequately monitored for unrestricted release yet has

a very low potential for containing radioactive or hazardous material above release limits.

7.0 SCHEDULE AND COST

Appendix E contains the proposed schedule for Immediate D&D for Unrestricted Use. The schedule was developed following a segmented approach. The segments (i.e., preliminary engineering, detailed engineering, training, readiness assessment, environmental compliance during physical D&D activities, physical D&D activities, and inspection and verification) were assumed to have minimal overlap. Specifically, all physical D&D activities would begin after completion of all engineering and readiness assessment activities. Section 8 discusses other approaches and discusses their impacts on the project schedule.

The engineering completed prior to physical D&D (preliminary engineering, detailed engineering, training, readiness assessment) is expected to span 1.5 years.

The following criteria were taken into consideration during the development of the schedule concerning physical D&D activities (excluding demolition):

- The maximum allowable tritium release of 1,000 curies/year from all activities.
- The probability of an accidental release (of 100 curies of tritium) from a tent during glovebox removal operations is one event per year.
- The current historical trend for Mound tritium facilities is releases of 600 to 800 curies per year per D&D team.
- A potential for hold-up emissions to be as high as 500 curies per year even after operations have ceased.

Consideration of the above criteria resulted in limiting glovebox removal activities to one crew at a time. Note, however, that other activities such as area decontamination can have additional crews working in conjunction with the glovebox removal crew. Based on using hours estimated for glovebox removal operations and a typical crew of six, physical D&D activities are expected to take 8 years.

Building demolition is expected to take 6 months.

Soils remediation is expected to take approximately 2 years. The excavation depth under the footprint of the SW/R Tritium Complex will vary from 0 to 20 feet. This is based on two crews excavating enough soil to fill 10 boxes each per working day. Excavation is expected to last 9 months per year.

7.1 Phased Approach Evaluation

SW-Building was constructed in 13 discrete phases between 1950 and 1976. MD-22153, *Mound Site Radionuclides by Location*, provides a detailed account of the dates of construction for the different phases. These multiple construction phases, coupled with the few ongoing SW/R Tritium Complex operations, create a number of logistic roadblocks which must be considered if D&D activities are to be initiated early. Roadblocks to consider are:

- Building 58 and the SW-Building penthouse are integral to the HVAC system and must remain in operation as long as the areas which they support require filtered exhaust.

- The ERS system in SW-8 may be required to support the majority of the glovebox and equipment removal operations throughout the SW/R Tritium Complex. (Under the 1,000 Ci/yr alternative, if TERF is used, it would be possible to phase out the ERS early in the project).

- SW-149A/B (tritiated water packaging), SW-230 (building utilities), and SW-242 (chilled water system) are necessary ERS support areas.

- The ongoing SW-Cave D&D project consists of SW rooms 128, 129, 130, 130A, 132, 133, 134, 135, 136, 137, 138, and the SW-Cave. Expected completion of the field work for this project is September 30, 1998, at which time the SW/R Tritium Complex D&D project will be responsible for any remaining structural demolition.

- SW rooms 23, 212, 213, 214, and 215 provide the HVAC supply and exhaust for the SW-Cave area. Therefore, D&D activities in these rooms cannot be initiated until completion of the SW-Cave D&D project.

- SW-150 has an ongoing tritium operation. The projected date for completion is April 1997. SW-231 is an equipment room which supports SW-150.

- SW-9 has an ongoing tritium operation. Based on the Request for Proposal (RFP) which the DOE has prepared for the operation of the Mound site, the expected completion is September 30, 1997.

- SW-208 and SW-219 have an ongoing tritium operation. Based on the DOE RFP for Mound operations, the expected completion is September 30, 1997. SW rooms 11, 205, and 234, and R-Building rooms 108 and 110 are necessary support areas for this operation.

- SW-229A/B is a counting room which supports tritium operations. This capability must be maintained but does not necessarily need to be located where it currently is.

- Access to the second floor of SW-Building is severely limited with regard to movement of equipment and/or waste containers. A small service elevator is located in the northeastern portion of the building but its load limit is low and its working condition is questionable.

- Emissions from ongoing tritium operations at Mound are approximately 600 to 800 curies per year.

The ongoing operations noted above are not regionally located but rather are scattered throughout the SW/R Tritium Complex which makes it difficult to initiate D&D early in many unused areas of the buildings. Some removal of gloveboxes and miscellaneous equipment in the unused areas could begin early, however, there are risks of interrupting the ongoing operations. Service piping, such as steam and chilled water, as well as ERS lines which serve ongoing operations, are located throughout the unused areas of the buildings. The added risks to operations are manageable; however, cost and activity durations may increase due to additional coordination requirements and limitations on activity types and magnitudes.

Ongoing tritium operations (excluding ERS operation) within the SW/R Tritium Complex are expected to be completed by September 30, 1997. Additionally, in the absence of ongoing operations, this study assumes that only one "tented" D&D activity may occur at any given time to remain in compliance with the restrictive tritium emissions limit of 1,000 Ci/yr. Because the ongoing operations generate 600 to 800 Ci/yr of tritium emissions, it is probable that none of the "tented" D&D activities will be able to be initiated prior to ceasing operations. Only D&D activities with extremely low potential for release will be able to occur.

Several areas of the SW/R Tritium Complex are physically located such that early D&D could be initiated with minimal impact to ongoing operations. The most likely area is Area D which includes the tritium complex rooms within R-Building. Low potential (for release) D&D activities can be initiated in these rooms (with the exception of R-108 and R-110) at any time. Likewise, following the completion of the tritium operation in SW-150, Areas B and F will be largely unused and will be available for D&D activities to begin.

Early D&D offers a significant advantage in SW-19 which presents a major D&D challenge. Cleanup activities here will likely consume a tremendous amount of

resources and create the potential to significantly extend the project schedule. Early initiation of this work may prevent later impacts on the critical path. Additionally, since tritium is not the major radionuclide of concern in SW-19, early initiation of D&D activities should not affect the tritium emissions limit.

D&D activities can be initiated early in any of the four areas noted above without a significant amount of additional coordination efforts to prevent impacts to operations. If early D&D can be initiated, the impact to ongoing operations and the increase in D&D cost will be minimal while potential benefits to the overall D&D project schedule could be significant.

7.2 COST

Volume II contains the results and basis of the cost estimate. The cost associated with the Immediate D&D for Unrestricted Use alternative is $149 million and includes 40 percent contingency.

8.0 PROGRAM SCHEDULE IMPACT ASSESSMENT

The D&D project for the SW/R Tritium Complex can and should be initiated early to meet the DOE's goal to release the site as soon as possible. To initiate the project early, several constraints must be satisfied.

8.1 Budget

Funding needs to be made available earlier than planned to accelerate both Safe Shutdown and D&D activities in those areas to be initiated early.

8.2 Resources

Priority should be placed on providing a dedicated work force for the project. Planning activities could be supplemented with subcontractor support, but initial field physical activities would require the use of a primarily Mound work force (because of security considerations). Later in the D&D process, subcontract support for field activities could be utilized as security requirements lessen.

Security and classification concerns exist with respect to certain rooms in SW and R buildings. The people working on the removal and packaging of equipment, waste characterization, radiological and industrial hygiene surveys, etc. will need to have the proper clearances. Classified documents will be generated in the planning and documentation of some of the D&D activities. In addition, the gloveboxes and some other items in these rooms may have to be buried as classified waste. For further information, see the classified appendix.

8.3 Operations

Impacts to the ongoing tritium processing operations must be minimized until their operations are completed. This will require close coordination of all activities within the SW/R Tritium Complex (Operations, Operations Support, Safe Shutdown, Maintenance, and D&D).

8.4 Safe Shutdown

To make key areas available earlier than planned, funding will have to be provided to safe shutdown earlier for these areas. The safe shutdown schedule would then be closely coordinated with the accelerated D&D schedule.

8.5 Environmental

Under the 1,000 Ci/year airborne tritium emissions criterion, only low potential (for tritium release) D&D operations will be scheduled until processing operations cease and the actual tritium release level decreases from the current 600 to 800 curies per year.

8.6 Approvals

To proceed, the appropriate DOE and regulatory approvals must be reached early, and other stakeholders informed of the planned removal actions. The project approval process may be accelerated by dividing the SW/R Tritium Complex D&D project into subprojects (similar to removal actions) to facilitate approval. These subprojects would most likely be assessment and remediation of low-, medium-, and high-potential areas. These categories could be further broken down into groups of rooms within the SW/R Tritium Complex - similar to the groupings described in Section 6.0.

8.7 Documentation

Applying the graded approach to requirements, the subproject documents would be more succinct, less complex, and would lend themselves to more timely review and approval.

8.8 Specific Activities

Specific activities that can be initiated early include:

- Characterization and Assessment
- Environmental Safety and Health (ES&H), Quality Assurance, and Waste Management Documentation
- Engineering

- Project Plan
- Decommissioning Plan
- Preparation of Low-Potential and Select Work Packages
- Field Preparations
- Readiness Checklists for the Low-Potential and Select Work Packages
- Removal of Low-Potential Equipment and Services

As discussed in Section 7.1 of this study, there are several areas within the SW/R Tritium Complex which lend themselves well to early initiation of D&D activities. To facilitate this early D&D, the preparatory activities such as Detailed Engineering (work packages) and completion of the Readiness Checklists should be accomplished in an area-specific manner, rather than in total. By phasing the engineering and planning steps in the same manner as the field work is phased, resources may be utilized more efficiently and the total project duration will be lessened.

9.0 RESOURCE UTILIZATION

Resource utilization is a key to the success of any project. To optimize resources, several parameters need to be considered:

- Internal work force versus subcontract - mixture of types of personnel, jurisdictional concerns, potential work stoppages, wage rates (e.g., Davis-Bacon Act versus Service Contract Act), etc.
- Contractual Agreements and Commitments
- Liabilities
- Typical Work Crew Composition
- Internal Constraints includes types of permits required, number and levels required, depth of procedures, special review committees, number of dry runs required, prejob conferences, meetings, overseers, special requirements, special procedures, approvals, etc., and the appropriateness and timeliness of these constraints

- Precedents Set includes unwritten work rules (e.g., breaks at a certain time, two-person rule, not my area, etc.)
- Stakeholder Expectations
- Political Influence
- Availability of Work Force - includes pool and competition for resources
- Training and Certification
- Experience - includes both general and specific experience required
- Suitability - for the type of work
- Productivity
- Stability of Funding
- Continuity of Operations
- Project Size, Complexity, and Duration
- Project Scope Uncertainty
- Security and Access Requirements
- Weekly Work Schedule - including 8- versus 10-hour shifts, multi-shifts, 4- to 7-day work week, availability and feasibility of overtime
- Weather and Other Environmental Constraints

9.1 Assumed Resource Utilization Approach

Based on discussions with the DOE and EG&G Mound Applied Technologies personnel, and the assumptions included in the July 23, 1996, Integrated Comprehensive Plan (Reference 9-1), this estimate utilizes the existing Mound work force for work in any classified areas and for the initial cleanup. This approach would fully utilize the Mound work force on this and other planned D&D projects. The remaining cleanup and demolition work would be performed on a fixed-price contract awarded to commercial contractors. This approach would best support the DOE's

goals, meet stakeholders' interests, and allow the cleanup of the SW/R Tritium Complex and the Mound site to proceed on a timely and cost beneficial basis.

10.0 WASTE MANAGEMENT

All D&D projects will generate waste that must be disposed. The requirements for acceptance of waste, called Waste Acceptance Criteria (WAC), and the associated packaging requirements for each of the disposal options are defined for Mound's generated waste. Detailed WAC, including certification and packaging requirements, are contained in the Mound Technical Manual MD-81070, *Mound Plant Waste Certification Manual* (Reference 10-2); Technical Manual MD-10332, *D&D Decontamination Procedures* (Reference 10-3); Technical Manual MD-10167, *D&D Operations Procedures* (Reference 10-4).

LLW requirements are identified in NVO-325, *Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements* (Reference 10-5). Envirocare does not have a formal WAC. Mound uses the Envirocare license as guidance for packaging and shipping waste.

TRU waste requirements are identified in WIPP-120, *Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (Reference 10-6), and in Technical Manual MD-70205, *TRU Waste Management* (Reference 10-7); Technical Manual MD-10203, *Mound WIPP Certification Program for Newly Generated Contact Handled (CH) Transuranic Waste* (Reference 10-8); Technical Manual MD-10332, *D&D Decontamination Procedures*; and Technical Manual MD-10167, *D&D Operations Procedures*.

10.1 Waste Minimization

Waste management begins with waste minimization. Work performed shall be conducted in such a manner as to keep the amount of waste generated as low as realistically possible. In general, the following work practices shall be observed.

- Take into the radiation control area only those materials absolutely required to perform the task.
- Minimize the use of consumable objects such as wrapping plastic, bags, rags, and paper. Use only the amount needed for the job; conserve and re-use whenever possible.
- When possible, wrap equipment and tools in a protective material (plastic sheeting, etc.) to prevent the equipment from becoming contaminated.

- Unpack equipment and tools in a clean area to avoid bringing excess clean material into the contamination area.
- Whenever possible, use tools and equipment identified for radiological work.
- Segregate radioactive waste in the receptacles identified for radioactive waste, not in receptacles intended for non-radioactive material.
- Do not throw non-radioactive waste, or radioactive waste that may be re-used, into radioactive waste containers.
- Segregate compactable material from non-compactable material.
- Place tools in the proper storage location after use.
- Store supplies neatly and out of the contamination area until ready to use.
- Dispose of waste and used protective clothing in proper receptacles.
- Perform daily housekeeping.
- Do not knowingly mix hazardous materials with radioactively contaminated materials.
- Observe the waste packaging procedures identified in MD-81070, *Mound Plant Waste Acceptance Criteria* (Reference 10-1).
- Minimize the use of liquids and activities that will generate potentially contaminated liquid.
- Use the engineered controls to minimize the spread of contamination.
- Observe waste minimization methods whenever possible, provided that they do not compromise the overall safety or potential environmental impact of this project.

10.2 Waste Disposal Acceptance and Packaging Criteria

MD-81070 and MD-10713, User's Handbook: Waste Accountability, Shipping and Packaging (WASP) also provides guidelines to generators of radioactive waste. There is guidance on how to properly identify, characterize, analyze, package, and document radioactive waste streams. To ensure that all applicable Federal and State regulations

are followed, MD-81070 should be followed prior to treatment, storage, transportation, and disposal. WAC for all waste expected to be generated by this project are described in MD-81070.

All radioactive wastes will be disposed of at an approved disposal site in accordance with their WAC and disposal requirements. Radioactive waste includes soil, construction and subsurface debris, and sediment contaminated with radioactive material along with gloveboxes, clothing, piping, equipment, etc. All non-hazardous solid waste, as defined by the Resource Conservation and Recovery Act (RCRA), will be disposed of in accordance with Mound Plant solid waste procedures. Mixed waste is combined radioactive waste and hazardous waste, and will be disposed of at Envirocare.

10.3 Tritium-Containing Waste

For this engineering study it was assumed that all tritium-containing waste will be placed in one of the Mound standard containers as described in MD-10173. No allowance was made for any special handling of T_2 waste containers to the Nevada Test Site that contain > 1,000 Ci. For waste suspected to outgas, the steel waste container will be placed in the tent and, when filled, welded while in the tent to reduce emissions during packaging. All welds must be dye penetrant tested and sniffed for leaks.

Any waste container that is outgassing must be put into one of the standard Mound steel boxes and welded shut, with the appropriate test performed on the weld.

All process piping and process equipment that has been exposed to tritium should be considered outgassing waste and should be placed into one of the standard steel boxes and welded shut. Waste will be bagged out of gloveboxes rather than passed out through pass boxes.

Other containers than those listed in MD-10173 may become useful for this project. However, there should be considerable waste that is only suspect or very lightly contaminated. This suspect waste should be placed into the largest container practicable. Since no outgassing is expected, this type of waste is disposable in larger boxes or Sealand containers.

The WASP computer system will be used for this project. It provides a system of control for the containers, metal drums, liners, and boxes that are available for use in containing radioactive waste. The WASP system will also provide a system of control and data storage for the drums and boxes that have been filled with nuclear waste. The system will provide a listing of empty containers and filled units. All shipping data required by the Nevada burial site will be generated and transmitted to the site via

Personal Computer mode. Technical WASP Manual, MD-10713, describes processes and forms necessary for packaging and shipping nuclear waste.

Envirocare can accept tritium-containing waste if it has on average less than 20,000 pCi/g. Because all process equipment and process lines are considered to have contamination greater than this Envirocare limit, all such wastes are estimated to be disposed of at the Nevada Test Site.

Because Envirocare has a requirement that any waste product disposed of must be less than 8 inches high, they must size reduce cemented waste drums. There is an additional fee of $65 per hour for this service (approximately $27 per drum).

Mound's Waste Management Group is looking at other ways of processing beta-water. If the water can be absorbed into other media that will hold the water and allow Envirocare to dump the waste form into the disposal pit and compact it there, great savings on disposal will be realized. Not only will the $65 per hour surcharge be saved, they will charge at the soil rate (Fiscal Year 1997 [FY97] $8.86 per ft.^{3}) instead of the debris rate (FY97 $18.91 per ft.^{3}).

10.4 Nonradioactive Waste

MD-81070, *Mound Plant Waste Acceptance Criteria*, provides guidelines to individuals who generate nonradioactive waste to properly identify, characterize, analyze, package, and document nonradioactive waste streams, ensuring that all applicable Federal and State regulations are followed prior to treatment, storage, transportation, and disposal.

Radiation Protection must certify whether waste containers from controlled areas meet the free release criteria of DOE Order 5400.5.

10.5 Hazardous Waste

Hazardous waste generated during this project will be handled according to MD-81070. The Hazardous Waste Management group has the responsibility for managing hazardous waste at Mound and is the focal point for contact with treatment and disposal sites.

10.6 Mixed Waste

Mixed waste contains both radioactive and hazardous waste components, as defined by the Atomic Energy Act and RCRA, respectively. MD-81070 provides guidelines to properly identify, characterize, analyze, package, and document mixed waste. MD-81070 will be followed during this project.

10.7 Transuranic Waste

If any TRU waste is generated, MD-81070 and MD-10173 will be followed.

11.0 ENVIRONMENTAL SAFETY AND HEALTH

This section describes the organization and management of the ES&H Program in support of D&D of the SW/R Tritium Complex. The program requirements are defined by the regulations, codes, and standards that direct that the safety and health of the public, environment, and worker be maintained through all phases of the D&D process. For each section where standards and DOE Orders are identified, the document that provides the greater protection will be used to select the governing requirement. This section discusses the documents establishing requirements for ES&H and not implementation documents.

A discussion of the hazard categorization is presented to delineate what documents are applicable. The present individual regulations, codes, and standards are identified in the separate subsections for worker, public, and environmental protection, and the SW/R Tritium Complex D&D implementation strategies to achieve these are then discussed. An Environmental Compliance section is developed for D&D activities to identify the governing requirements. The section then concludes by incorporating a qualitative risk assessment for those hazards encountered in the SW/R Tritium Complex D&D.

11.1 Facility Classification

As part of a DOE EM activity, the SW/R Tritium Complex and associated D&D operations must be subjected to a series of evaluations for the hazards present. DOE EM-STD-5502-94, Hazard Baseline Determination (Reference 11-1), provides the first step in facility classification. The next evaluation of the facility is based on radiological inventory as directed by DOE STD-1027-92 (Reference 11-2), Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis (Reference 11-1). The Nuclear Facility Requirements for Nuclear Safety as presented in DOE Order 5480.23, Nuclear Safety Analysis Reports (Reference 11-3), is then deemed applicable for the facility. While this document presents a general description of facility classification, the appropriate document (i.e., a Safety Analysis or a SAR) should be reviewed for a more complete discussion.

When "Safe Shutdown" is complete and all accountable tritium has been removed from the SW/R Tritium Complex, this facility will still be classified as a "Nuclear Facility" (refer to DOE-STD-1027-92 for the Nuclear Facility classification establishing a 1,000 curies of releasable tritium inventory threshold) because of the tritium holdup and contamination in the process piping and equipment. This tritium holdup is well known

within the tritium processing community. Tritium holdup is normally in two forms, condensable compounds (commonly tritiated ammonia and tritiated water) and tritium gas not released from process equipment such as uranium beds (U-beds), molecular sieve traps, and carbon traps after this equipment has gone through the normal process of regeneration and/or tritium removal.

Extensive discussions about tritium holdup can be found in the Mound document MLM-ML-85-49-004, "Investigation of Tritium Inventory Differences at Mound" (Reference 11-4). Through the use of this document, current knowledge of tritium processing, and interviews with Mound tritium processing personnel, it is estimated that about 75 grams of tritium will remain in the SW/R Tritium Complex after the accountable tritium has been removed. The majority of this will be in U-beds, molecular sieve traps, and carbon traps. The average U-bed will contain about 1g of tritium. The average molecular sieve trap will contain about 4 grams per kilogram of molecular sieve. The average tritium process line carbon trap will contain about 0.5 grams of tritium.

The 75 grams of tritium in the SW/R Tritium Complex would classify it as a Hazard Category II Nuclear Facility at the start of D&D. It is unlikely that the SW/R Tritium complex can be classified as a Radiological Facility (<1,000 Ci of tritium) until all the process systems and gloveboxes have been removed.

11.2 Safety and Health

Worker Safety and Health is addressed by the implementation of a variety of regulations, codes, and standards as directed by DOE EM. The role of these requirements is to provide a safe work environment in a variety of functional areas for the D&D activities. The functional areas and governing requirements are summarized in Table 11.2-1. Discussion of the specific sections in the regulations and codes (e.g., 29 CFR 1926.350 for Welding and Cutting) for the SW/R Tritium Complex D&D operations are outside the scope of this document and will be developed in more detail as part of the Work Plan and/or Health and Safety Plan in the Detailed Engineering phase for the project. DOE Order 5480.4 (Reference 11-5) presents the mandatory, statutory, and policy requirements and non-mandatory standards for this project. If D&D of the SW/R Tritium Complex is conducted under CERCLA, then the Applicable or Relevant and Appropriate Regulations process is applicable to these mandatory, statutory, and policy requirements and non-mandatory standards for this project. Therefore, only substantive requirements need to be met.

Table 11.2-1. Safety and Health

Functional Area	Regulations, Standards, and DOE Orders	Impact
Nuclear Safety	EM-STD-5502-94	Establishes Facility Hazard Classification needs
	DOE Order 5480.23	Establishes Nuclear Safety Analysis Report
Fire Protection	NFPA (Reference 11-6)	Establishes safe operating conditions through the program development and controls for fire sources
	29 CFR 1926 (Reference 11-7)	
Radiation Protection	10 CFR 835 (Reference 11-8	Establishes occupational radiation protection for exposure limits, dosimetry, ALARA implementation and radiological procedures/permits
	DOE Order 441.1 (Reference 11-9)	
	DOE Order 5480.11 (Reference 11-10)	
	DOE RadCon Manual (Reference 11-10)	
Industrial Hygiene and Safety	10 CFR 1910 (Reference 11-11)	Establishes worker hazardous operations requirements (including, but not limited to, PPE, confined space entry and lockout/tagout), hazard communication requirements, and use of protective equipment (other than PPE)
	10 CFR 1926 (Reference 11-7)	
	DOE Order 231.1 (Reference 11-12)	
	DOE O 440.1 (Reference 11-13)	
Training	10 CFR 835 (Reference 11-8)	Establishes training requirements for D&D project workers
	29 CFR 1910 (Reference 11-11)	
Life Safety	NFPA 101 (Reference 11-6)	Establishes Life Safety Codes
Occupational Medical Services	29 CFR 1910(Reference 11-11)	Establishes the requirements for medical services, first aid, and record keeping
Transportation Safety	10 CFR 71 (nuclear) (Reference 11-14)	Establishes requirements of waste materials for packaging, shipment, and disposal
	49 CFR 170-179 (DOT hazardous) (Reference 11-15)	
	DOE Order 460.1 (Reference 11-16)	

11.3 Environmental Compliance

An environmental compliance strategy for the SW/R Tritium Complex D&D will seek to establish that all releases of contaminants from the site are at levels in compliance with the applicable regulations and that any residual contaminants meet site release criteria. Changes in SW/R Tritium Complex operations (i.e., D&D activities) may require modification of existing permits to include Best Available Technology to control releases. Water quality standards for release to groundwater and surface are not included, as D&D activities should not impact these. Air monitoring is included for the D&D for Unrestricted Use alternative. No biological hazards for this D&D activity are considered viable. The recognition and development of the potential hazards for D&D are presented in Section 11.4. The release criteria to the environment are presented in Table 11.3-1.

Table 11.3-1. Environmental Compliance

Release Mechanism	Regulations, Standards, and DOE Orders	Implementation
Air (six criteria pollutants including particulates)	40 CFR 50 (Reference 11-17) Ohio Administrative Code (OAC) 3745 (Reference 11-18)	Ensure that airborne releases to the environment are within permissible limits
Air (radiological)	40 CFR 61 (NESHAPS) (Reference 11-14) DOE Order 5400.5 (Reference 11-20)	Ensure that airborne radiological releases to the environment are within permissible limits
Groundwater	40 CFR 141 (Drinking Water regulations) (Reference 11-21) DOE Order 5400.5 (Reference 11-20) OAC 3745 (Reference 11-18)	Determine whether groundwater releases occur and that any possible releases are below acceptable criteria
Waste Materials (Containerized and Free Release)	40 CFR 61 (Asbestos) 49 CFR 171 through 179 DOE Order 5420.2A (LLW) NTS Acceptance Criteria (Reference 11-22) OAC 3745	Ensure that materials are packaged, transported, and disposed of properly

11.4 Risk Assessment

The risks presented by the decommissioning project are (1) the immediate consequences of an accident and inadvertent release of materials, and (2) the potential impact on the public, environment, and the worker. These risks can be qualitatively assessed for the decommissioning process to identify the potential hazards prior to starting D&D and aid in developing D&D procedures for the life of the D&D project.

For the D&D project the risks can be divided into the following three hazard categories:

1) Radiological exposure/release
2) Toxic/hazardous material release/exposure
3) Industrial safety hazards resulting in an undesirable consequence

As a product of the risk assessment, Table 11.4-1 presents the SW/R Tritium Complex D&D hazards and their causes, consequence (effect), and measures to prevent or mitigate the hazard. Hazards presented in this table are those having a consequence on the worker, public, and/or environment. For the D&D activities considered in this study, releases to surface water and groundwater are not considered credible and capture systems will be used for air exhaust systems. Prior to removal of contaminated process equipment from the SW/R Tritium Complex, the contamination will be containerized. Prior to building demolition, extremely contaminated areas/rooms will be decontaminated. D&D procedures are an example of administrative controls when identified as preventive/mitigative measures. The use of containments and emission controls are examples of engineering controls.

Table 11.4-1. SW/R Tritium Complex D&D Hazards

Hazard	Cause	Major Effect	Preventive/Mitigative Measures
Radiological release	Leak from process equipment or glove box	Potential worker internal exposure	D&D Procedures Construction of containment PPE TERF/ERS Monitoring system Administrative control stop operations
		Potential worker external exposure	D&D Procedures Construction of containment PPE Monitoring system
		Potential release to environment	D&D Procedures Construction of containment TERF Monitoring system
Asbestos	Release from equipment removal	Potential worker internal exposure	D&D Procedures Construction of containment PPE Airborne monitoring system HEPA filtration for exhaust

Table 11.4-1. SW/R Tritium Complex D&D Hazards (Continued)

Hazard	Cause	Major Effect	Preventive/Mitigative Measures
		Potential worker external exposure	D&D Procedures PPE Airborne monitoring system
Toxicological/hazardous material release	Release from Process Equipment	Potential worker internal exposure	D&D Procedures Construction of containment PPE
		Potential worker internal exposure	D&D Procedures Construction of containment PPE
		Potential release to environment	Construction of containment Airborne monitoring system Administrative control stop operations
Industrial (moving parts)	Exposed equipment	Potential worker injury	Preplan review and monitoring of work environs D&D Procedures Engineering controls
Industrial (cutting torch, welders, etc.)	Faulty Equipment or Operator Misuse	Potential worker injury	Preplan review and monitoring of work environs D&D Procedures PPE (as required)
Industrial (noise)	Loud Equipment	Potential worker injury	Preplan review and monitoring of work environs D&D procedures PPE (as required)

12.0 RECOMMENDATIONS

12.1 Recommended Alternative

The conclusion of this study is that the only viable disposition alternative for the SW/R Tritium Complex is immediate D&D for unrestricted use. This will necessitate the complete demolition of SW-Building, excavation of contaminated soil, and removal of the tritium-contaminated equipment in the R-Building portion of the complex.

The other alternatives that were examined but considered infeasible are:

- No Action - Not viable due to the potential for uncontrolled releases of radioactivity resulting from abandonment of the facility.

- Decay in Place - Unacceptable alternative due to the high cost of institutional controls during the decay period and the risk of tritium migration through the ground which is known to be contaminated beneath SW-Building. Additionally, other radionuclides with half-lives much greater than that of tritium are present which significantly increases the cost of the initial D&D phase.

- Delayed D&D - This alternative has been discarded due to the high cost of surveillance and maintenance for the aged SW-Building and the risk of losing the availability of knowledgeable facility personnel.

- Entombment - This alternative is not acceptable to the stakeholders. It is desired that the property be made available for unrestricted re-use. This alternative is also not viable for the same reasons as the Decay in Place alternative.

- Waste Repository - This alternative is unacceptable for the same reasons as the Decay in Place alternative.

- D&D for Restricted Re-use - For this alternative to be considered, a new user of the facility would have to be identified. This is not the case at this time. Additionally, this alternative would not relieve the DOE of the liability for the eventual D&D for unrestricted re-use which would ultimately result in a much higher cost.

12.2 Additional Recommendations

Initiation of D&D activities as early as possible is highly recommended. This will provide a beneficial impact to the overall D&D project schedule. The T-Building D&D Project is directly dependent upon the completion of the SW/R Tritium Complex D&D Project because of the need to maintain the TERF. The required D&D activities in the SW/R Tritium Complex are extensive and much can be accomplished without significantly affecting ongoing tritium operations. Moreover, the operations are not planned to continue beyond FY97 which leaves very little opportunity for the programs to overlap.

Determine the impact of various tritium release quantities per year using risk analyses. Higher release limits would allow more flexibility for D&D, use of additional waste volume reduction processes, lower schedule interruption risk, and a more timely completion of cleanup of the project and other tritium D&D projects.

A final element for consideration under this study deals with the potential redefinition of the project boundaries for the SW/R Tritium Complex and the R-Building D&D projects. Currently, the equipment and materials within the following R-Building rooms are included in the scope of the SW/R Tritium Complex D&D project:

R-104	R-105	R-106
R-106A	R-108	R-110
R-112	R-113	R-114
R-114A	R-116	R-116A
R-117	R-118	R-120
R-123	R-123A	R-128
R-129	R-130	R-131
R-134	R-137	R-193
R-194	R-195	Corridor 2
Corridor 2A		

Structural demolition of these rooms is within the scope of the R-Building D&D project. It is recommended that this delineation of responsibility remain as it is currently defined for the following reasons:

1) Operation of the ERS and/or Tritium Emissions Reduction Facility systems is essential to the equipment removal activities within these areas. Because these systems are not required to support D&D in the remainder of R-Building, it is logical to address the removal of the tritium contaminated equipment with SW-Building.

2) The crawlspace above the rooms between Corridors 2 and 3 in R-Building is shared. Structural demolition of the tritium processing rooms west of Corridor 5 would leave this crawlspace open to the outside. Separate demolition efforts would be much more difficult and costly than a simultaneous approach. Additionally, though the east wall of Corridor 2 is a firewall, there are numerous penetrations from service installations and ductwork which effectively connect the two sides.

Ideally, if the SW/R Tritium Complex and R-Building D&D projects progress in parallel, structural demolition of both buildings may occur concurrently. If this indeed is the case, there may be an opportunity to combine the latter phases of the two projects which would result in a cost savings through economy of scale. The current approach, however, seems prudent at this time.

A

VOLUME I
APPENDIX A
ACRONYMS

Appendix A
Acronyms

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Ci	Curie
cm	centimeter
D&D	Decontamination and Decommissioning
DOE	United States Department of Energy
dpm	disintegrations per minute
EM	DOE Office of Environmental Restoration and Waste Management
ERS	Effluent Recovery System
ES&H	Environmental Safety and Health
ft	feet
FY	Fiscal Year
g	gram
HVAC	Heating, Ventilation, and Air Conditioning
IVC	Independent Verification Contractor
LLW	Low-Level Waste
NRC	Nuclear Regulatory Commission
pCi	picoCuries
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
SW/R	Semi-Works and Research
TRU	Transuranic
WAC	Waste Acceptance Criteria
WASP	Waste Accountability, Shipping and Packaging
WBS	Work Breakdown Structure
yr	year

VOLUME I
APPENDIX A
ACRONYMS

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CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
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cm	centimeter
D&D	Decontamination and Decommissioning
DOE	United States Department of Energy
dpm	disintegrations per minute
EM	DOE Office of Environmental Restoration and Waste Management
ERS	Effluent Recovery System
ES&H	Environmental Safety and Health
ft	feet
FY	Fiscal Year
g	gram
HVAC	Heating, Ventilation, and Air Conditioning
IVC	Independent Verification Contractor
LLW	Low-Level Waste
NRC	Nuclear Regulatory Commission
pCi	picoCuries
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
SW/R	Semi-Works and Research
TRU	Transuranic
WAC	Waste Acceptance Criteria
WASP	Waste Accountability, Shipping and Packaging
WBS	Work Breakdown Structure
yr	year

B

VOLUME I
APPENDIX B
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C

VOLUME I
APPENDIX C
DESIGN BASIS DOCUMENT

T-Building, SW/R Tritium Complex and R-Building D&D Pre-Conceptual Engineering Studies

DESIGN BASIS DOCUMENT

October 31, 1996
Revision 1

EG&G Mound Applied Technologies
P.O. Box 3000
Miamisburg, OH 45343-3000

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Document Purpose	1
1.2 Mound	1
1.3 T-Building	1
1.4 SW/R Tritium Complex	2
1.5 R-Building	3
2.0 TASK SCOPE	3
2.1 T-Building	3
2.1.1 Alternative 1 - D&D for Unrestricted Use	3
2.1.2 Alternative 2 - Decay in Place	3
2.1.3 Other Alternatives	4
2.1.4 Surveillance and Maintenance	4
2.1.5 Impact of Building Hazard Classification	4
2.2 SW/R Tritium Complex	5
2.2.1 Alternative 1 - D&D for Unrestricted Use	5
2.2.2 Other Alternatives	5
2.2.3 Surveillance and Maintenance	5
2.2.4 Impact of Building Hazard Classification	6
2.3 R-Building	6
2.3.1 Alternative 1 - Immediate D&D for Demolition	6
2.3.2 Decontamination to Minimize S&M	6
2.3.3 Other Alternatives	6
2.3.4 Surveillance and Maintenance	7
3.0 ASSUMPTIONS AND BASIS OF ESTIMATE	7
3.1 General	7
3.2 T-Building	10
3.3 SW/R Tritium Complex	10
3.4 R-Building	10
4.0 REGULATIONS AND REQUIREMENTS	11
4.1 Federal	11
4.2 State of Ohio	14
4.3 Mound	14
4.4 Mound System Manuals	16
4.5 Other	16

TABLE OF CONTENTS

		Page
5.0	RELEASE CRITERIA	16
5.1	Radiological Release Criteria	16
5.2	Asbestos Release Criteria	18
5.3	Hazardous Materials Release Criteria	18
6.0	RESTORATION CRITERIA	22
6.1	T-Building	22
6.2	SW/R Tritium Complex	22
6.3	R-Building	22
7.0	WASTE ACCEPTANCE CRITERIA	22
7.1	Non-Radioactive Waste	22
7.2	Mixed Waste	22
7.3	Low-Level Radioactive Waste	23
7.4	Contact Handled-Transuranic Waste	23
8.0	REFERENCES	23

APPENDICES

A Acronyms

LIST OF TABLES

5-1	Allowable Total Residual Surface Activity (dpm/100 cm^2)	17
5-2	Toxicity Characteristic Constituents and Regulatory Levels	21

1.0 INTRODUCTION

1.1 Document Purpose

This Design Basis Document defines the criteria for design activities associated with Decontamination and Decommissioning (D&D) of the T-Building, SW/R Tritium Complex, and R-Building. The envelope of regulations within which the D&D activities will be conducted is delineated as well.

1.2 Mound

Mound is located on a 306-acre site in southern Montgomery County in southwestern Ohio, within the southern boundary of the Miamisburg city limits. The site is 16 km (10 mi) southwest of Dayton, Ohio, and 50 km (31 mi) north-northeast of Cincinnati, Ohio.

Mound is topographically characterized by two high areas divided by a minor northeast to southwest trending valley that drains to the river. Most of the buildings are located on the northwest high area known as the Main Hill. A few buildings lie on the southeast high area known as the SM/PP Hill. The remainder of the buildings are located on the valley slopes or otherwise interspersed throughout the remaining northern portion of the site.

The main mission of Mound was to manufacture both non-nuclear and nuclear weapon components for nuclear weapons that were assembled at another United States Department of Energy (DOE) site. Currently, ongoing activities at the site are Defense Programs, Nuclear Energy, Facility Disposition, Safe Shutdown, Environmental Restoration (including D&D), and Waste Management. In addition, the Miamisburg Mound Community Improvement Corporation is involved in redevelopment of the site for commercial purposes.

1.3 T-Building

T-Building (172,963 ft^2) is a heavily reinforced underground concrete structure built in 1948. It is located under DS-Building on the Main Hill at Mound. T-Building has two floors that are each compartmentalized into three general areas by two 30-inch thick

reinforced concrete fire walls. The reinforced concrete exterior structure, which has a 15-foot thick roof; 16-foot, 7-inch walls; and an 8-foot, 3-inch floor slab, was designed to withstand a direct hit by a 2,000 pound semi-armor piercing, jet-assisted bomb, or a 2,000 pound general purpose bomb. The original mission of T-Building was to purify polonium-210. However, the building was also used to extract various radionuclides, to house the plutonium verification facility, and to store transuranic (TRU) materials.

Since 1980, a number of tritium handling facilities have been added to the building. One of these is the Tritium Emissions Reduction Facility (TERF). Radionuclides other than tritium which may be present within T-Building include, but are not limited to, isotopes of uranium, plutonium, americium, iron, radium, cadmium, cobalt, cesium, iridium, and strontium.

The boundary for T-Building is considered to be the structures, soil, and utilities contained within the footprint of T-Building and the T-East stack (excluding structures, soil, and utilities associated with DS-Building).

1.4 SW/R Tritium Complex

SW-Building (43,066 ft^2) is a two-story building used primarily for handling tritium. Originally constructed in 1950, the SW-Building has undergone 13 major additions. The SW-Building, along with Building 58 (6,610 ft^2) and one corridor of rooms which houses tritium operations in the adjacent R-Building form the SW/R Tritium Complex. Radionuclides other than tritium which may be present within the SW/R Tritium Complex include, but are not limited to, isotopes of uranium, plutonium, americium, protactinium, radium, radon, and actinium.

The boundary for the SW/R Tritium Complex is considered to be the structures, soil, and utilities contained within the footprint of SW-Building and the SW stack as well as the tritium contaminated laboratory equipment and utilities (within those laboratories) located west of R-Corridor 5 within R-Building.

1.5 R-Building

R-Building is a one-story (55,003 sq. ft.) concrete block and brick building built in 1948, with several additions to the original building over the years. The building contains laboratories for both radioactive and non-radioactive work, offices, and service rooms. Radionuclides present in R-Building include, but are not limited to, uranium, plutonium, americium, protactinium, radium, radon, actinium, and tritium.

2.0 TASK SCOPE

The scope of this task is to conduct an engineering study at a conceptual level of detail which will define the activities necessary to effectively decontaminate and decommission T-Building, the SW/R Tritium Complex, and R-Building.

2.1 T-Building

Several alternative methods to achieve unrestricted release of the T-Building site will be considered during the task. A comparative evaluation of these alternatives will be performed which considers factors such as feasibility, cost, resource requirements, and risk to personnel and the environment. The following subsections describe the alternatives under consideration.

2.1.1 Alternative 1 - Immediate D&D for Unrestricted Use

Immediate D&D for unrestricted use involves removal, packaging, and disposal of all radioactively contaminated equipment and systems from within T-Building, decontamination of interior building surfaces, and/or demolition of structures.

2.1.2 Alternative 2 - Decay in Place

The decay in place alternative involves conducting deactivation activities necessary to place T-Building in a safe and stable condition whereby institutional controls can be implemented for the length of time necessary to allow natural decay of the radioactive materials to unrestricted release levels (in excess of 100 years). This may include removing highly contaminated equipment and systems, upgrading tritium effluent capture systems, sealing entryways, and establishing the long-term surveillance and maintenance (S&M) program.

2.1.3 Other Alternatives

Another alternative will be given consideration during design. This alternative involves minimal D&D (i.e., limited removal of equipment) followed by the air purging of the tritium systems to a tritium capture system for a sufficient period until a 100-year decay period will achieve unrestricted release.

Other alternatives which were considered but not selected and which will be briefly discussed include:

- No Action
- Delayed D&D for Unrestricted Release
- In Situ Disposal
- Others, as appropriate

2.1.4 Surveillance and Maintenance

As appropriate, minimal S&M requirements will be established for the alternatives under consideration. The basis for determining these requirements will be Chapter 4 of the *EM-40 Decommissioning Resource Manual* and the requirements of DOE Order 5480.23, *Nuclear Safety Analysis Reports* by invoking DOE-STD-3011-94.

2.1.5 Impact of Building Hazard Classification

When "Safe Shutdown" is completed and all the accountable tritium has been removed from the building, the facility will still be classified as a "Nuclear Facility" because of the tritium contamination in the process piping and equipment. The building will more than likely contain more than 1,000 Ci of tritium, thus classifying the facility as a Category 3 Nuclear Facility. This study will evaluate the possibility that the facility may contain greater than 30 grams of tritium, which would classify it as a Category 2 Nuclear Facility, and discuss the resulting impacts.

2.2 SW/R Tritium Complex

Several alternative methods to achieve unrestricted release of the SW/R Tritium Complex site have been considered. A comparative evaluation of these alternatives will be performed which addresses factors such as feasibility, cost, resource requirements, and risk to personnel and the environment.

2.2.1 Alternative 1 - Immediate D&D for Unrestricted Use

Immediate D&D for unrestricted use involves removal, packaging, and disposal of all radioactively contaminated equipment and systems from within the SW/R Tritium Complex, decontamination of interior building surfaces, and/or demolition of SW Building. Demolition (if appropriate) of R-Building is not within the scope of the SW/R Tritium Complex study.

2.2.2 Other Alternatives

Other alternatives that will not be addressed beyond a comparative evaluation but which will be briefly discussed include:

- Decay in Place
- No Action
- Delayed D&D for Unrestricted Release
- In Situ Disposal
- Others, as appropriate

2.2.3 Surveillance and Maintenance

As appropriate, minimal S&M requirements will be established for the alternatives under consideration. The basis for determining these requirements will be Chapter 4 of the *EM-40 Decommissioning Resource Manual* and the requirements of DOE Order 5480.23, *Nuclear Safety Analysis Reports*.

2.2.4 Impact of Building Hazard Classification

When "Safe Shutdown" is completed and all the accountable tritium has been removed from the building, the facility will still be classified as a "Nuclear Facility" because of the tritium contamination in the process piping and equipment. The building will more than likely contain more than 1,000 Ci of tritium, thus classifying the facility as a Category 3 Nuclear Facility. This study will evaluate the possibility that the facility may contain greater than 30 grams of tritium, which would classify it as a Category 2 Nuclear Facility, and discuss the resulting impacts.

2.3 R-Building

Several alternative methods to achieve unrestricted release of the R-Building site have been considered. A comparative evaluation of these alternatives will be performed which addresses factors such as feasibility, cost, resource requirements, and risk to personnel and the environment.

2.3.1 Alternative 1 - Immediate D&D for Demolition

Immediate D&D for demolition involves removal, packaging, and disposal of all radioactively contaminated equipment and systems in R-Building, decontamination of interior building surfaces, and demolition of R-Building.

2.3.2 Decontamination to Minimize S&M

Decontamination activities necessary to minimize the facility surveillance and maintenance requirements.

2.3.3 Other Alternatives

Other alternatives that will not be addressed beyond a comparative evaluation but which will be briefly discussed include:

- No action
- Others, as appropriate

2.3.4 Surveillance and Maintenance

As appropriate, minimal S&M requirements will be established for the alternatives under consideration. The basis for determining these requirements will be Chapter 4 of the *EM-40 Decommissioning Resource Manual* and the requirements of DOE Order 5480.23, *Nuclear Safety Analysis Reports.*

3.0 ASSUMPTIONS AND BASIS OF ESTIMATE

3.1 General

The following general assumptions apply to preparation of the engineering studies and cost estimate(s). Other assumptions will be identified and documented during the course of the study.

- The design basis for radioactive particulate emissions is not to exceed Mound's site limit of 10 mrem/year (for inhalation) per NESHAP's 40 Code of Federal Regulations (CFR) Part 61, Subpart H.

- The design basis for the level of off-site tritium emissions at T-Building and the SW/R Tritium Complex is not to exceed 1,000 Ci/year, including accidents. An alternative study will use 10,000 Ci/year as a basis for proposing a cleanup method.

- The cost estimate(s) will be prepared under the assumption that subcontractors will be used for part of the D&D activities after a baseline effort is done by Mound employees.

- Much of the estimate will be prepared without the benefit of reliable characterization data. Therefore, assumed contamination levels will be used based primarily on process knowledge.

- Direct labor rates, escalation rates, and indirect and overhead factors are to be supplied by EG&G MAT Finance.

- Labor and other efficiencies will be developed jointly between EG&G MAT and the Parsons Team.

- The level of detail for the cost estimate(s) will be conceptual as defined in DOE Order 5700.2D. The level of accuracy will be -30 percent to +60 percent. Contingency levels will be between 20 percent and 50 percent. Values for the level of accuracy and contingency are defined in Volume 6, Cost Estimating Guide, November 1994, Rev. 0.

- Safe shutdown will remove all stored material and waste from the facilities.

- Safe Shutdown activities will be completed per the May 3, 1996, "Mound Integrated Comprehensive Plan: DOE Exit Plan."

- Wastes which are "listed wastes" or exhibit characteristics of ignitability, corrosivity, and/or reactivity as determined by 40 CFR 261, Subpart C, will be removed during Safe Shutdown activities.

- The "graded approach" will be assumed in compliance with DOE Orders; DOE Orders are also assumed to be consolidated and streamlined.

- Funding for Fiscal Year 1998 and beyond is not constrained.

- Schedule of D&D activities will be based on the most cost-effective approach within existing parameters.

- Exceptions to DOE Order compliance will be considered, when appropriate.

- United States Environmental Protection Agency (US EPA) and Ohio Environmental Protection Agency (Ohio EPA) involvement will be limited to a review of the D&D Project Plan and approval of the final radiological/chemical verification sampling and results.

- Institutional controls can be assumed for no more than 100 years with a regulatory review of the institutional controls no less frequently than every 5 years.

- Only one classified area will remain after safe shutdown is completed.

- Analysis of the structures has been completed by other studies and only potential future concerns will be identified.

- A Readiness Assessment (utilizing checklists) will be completed prior to D&D. An Operational Readiness Review is not required.

- The existing Safety Analysis Reports will require modification. In addition, Basis for Interim Operations (BIO) Reports will be prepared.

- The BIO Reports will be completed by the completion of Safe Shutdown.

- The intent of the National Environmental Policy Act (NEPA) will be met by following the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

- Monitoring of sectioned tritium lines using an LLNL approach is acceptable.

- Residual volumes (approximately 20 cubic centimeters or less) of oil within vane pumps will not be considered free liquids for packaging and disposal requirements.

- Unnecessary size reduction of equipment is not required for disposal (i.e., thermal diffusion columns).

3.2 T-Building

The following specific assumptions apply to preparation of the T-Building engineering studies and cost estimates.

- The TERF will be operational at the outset of D&D activities.
- The TRU waste currently stored in the T-Building will be removed prior to completion of safe shutdown activities.

3.3 SW/R Tritium Complex

The following specific assumptions apply to preparation of the SW/R Tritium Complex engineering studies and cost estimates.

- R-Building D&D activities considered within the scope of this study do not address the crawlspace, structural removal, removal of utilities, or any soil removal (which are addressed in the following section on R-Building).
- The boundary of the tritium handling portion of R-Building is considered to be those areas to the west of R-Corridor 5.
- The estimate will include the cost of removing the tritium processing equipment and tritium contaminated fixtures, and decontaminating the surfaces of walls, floors, and ceilings.

3.4 R-Building

The following specific assumptions apply to the preparation of the R-Building engineering study and cost estimate.

- The entire crawlspace above the rooms in the original R-Building structure is contaminated from migration. The contamination migrated from the crawlspace above the former radioactive research and development area into the crawlspace above rooms that did not contain radioactive material. Specifically, the existing

firewall was not an effective barrier for contamination because of the many unsealed penetrations and fluctuations in pressure differentials over the years.

- The former contaminated glovebox drains in the floor have been removed during previous D&D efforts. This assumption may change if the study uncovers areas where this might not have happened.

- R-109 contains an underground concrete tank containing tritium contaminated water. The SW/R Tritium Complex project will remove the contaminated water and this project will dispose of the tank itself.

- The D&D project scheduled for R-140 will have been completed prior to this project.

- The D&D project scheduled for SW/R Tritium Complex will have been completed prior to this project. The impact of this not occurring will be addressed.

4.0 REGULATIONS AND REQUIREMENTS

This section includes the envelope of primary regulations which will bound the actual D&D activities. A statement about the rationale for application of each regulation is included if required.

4.1 Federal

- Code of Federal Regulations:

  - 10 CFR 71 - "Packaging and Transportation of Radioactive Material"

  - 10 CFR 830.120 - "Nuclear Safety Management; Contractor and Subcontractor Activities, Quality Assurance Requirements"

  - 10 CFR 835 - "Occupational Radiation Protection"

- 10 CFR 1021 - "Compliance with the National Environmental Policy Act"
- 29 CFR 1910 - "Occupational Safety and Health Standards"
- 29 CFR 1926 - "Safety and Health Regulations for Construction"
- 40 CFR 61 - "National Emission Standards for Hazardous Air Pollutants"
- 40 CFR 141 - "National Primary Drinking Water Regulations"
- 40 CFR 260 - "Hazardous Waste Management System: General"

- Resource Conservation and Recovery Act (RCRA) - Hazardous wastes, as defined by RCRA, are regulated as specified in 40 CFR Parts 260-272. These regulations will govern identification, handling, and disposal of hazardous wastes.

- Federal Facilities Agreement - Agreement between the DOE, US EPA, and Ohio EPA signed in July 1993 on Mound CERCLA cleanup.

- CERCLA - Applicable to removal actions of contaminated soil. Limited application to the D&D of buildings (i.e., review of project plans and approval of final radiological/chemical sampling and verification when D&D is completed).

- National Environmental Policies Act - The intent of NEPA will be met by following the CERCLA process.

- Atomic Energy Act - Governing regulation for D&D of buildings not covered by CERCLA process.

- Toxic Substances Control Act (TSCA) - Asbestos abatement activities are regulated by TSCA as specified in 40 CFR Part 763.

- DOE Orders - The key DOE Orders in accordance with which the D&D activities must be conducted are listed below. Other orders may apply but do not have a significant impact on this engineering study. Note: DOE Orders are being replaced by Code of Federal Regulations.

  - DOE Order 1540.1, *Material Transportation and Traffic Management* - Applicable to transportation of wastes.

  - DOE Order 1540.2, *Hazardous Material Packaging for Transport* - Applies to packaging of waste.

  - DOE Order 4700.1, *Project Management* - Determines project engineering requirements.

  - DOE Order 5400.1, *General Environmental Protection Program* - This order defines the unrestricted release criteria for radiological contaminants.

  - DOE Order 5400.4, *Comprehensive Environmental Response, Compensation, and Liability Act.*

  - DOE Order 5400.5, *Radiation Protection of the Public and Environment* - to be replaced by 10 CFR 834.

  - DOE Order 5480.11, *Radiation Protection for Occupational Workers.*

  - DOE Order 5480.23, *Nuclear Safety Analysis Reports* - Determines facility hazard classification.

  - DOE Order 5480.3, *Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Waste* - Applies to waste generation.

- DOE Order 5700.2D, *Cost Estimating, Analysis, and Standardization.*
- DOE Order 5700.6C, *Quality Assurance* - Determines quality requirements.
- DOE Order 5820.2A, *Radioactive Waste Management* - This order establishes the policies, guidelines, and requirements by which the DOE manages its radioactive and mixed waste and contaminated facilities.
- DOE Order N-4700.7, *Project Control System Guidelines.*
- DOE Order N450.3, *Use of the Necessary and Sufficient Process.*
- DOE Order 6430.1A, *General Design Criteria.*
- DOE/EH-02567, *Radiological Control Manual* - Though not an order, this guidance was superseded by the requirements of 10 CFR 835.

4.2 State of Ohio

The D&D process will be implemented following the intent of the documents listed below.

- Federal Facilities Agreement - Agreement between the DOE, US EPA, and Ohio EPA signed in July 1993 on Mound CERCLA cleanup.

4.3 Mound

The D&D process will be implemented following the intent of the manuals and procedures listed below:

- MD-10019, *Radiological Control Manual*
- MD-10167, *D&D Operations Procedures*

- MD-10173, *User's Handbook: Waste Accountability Shipping and Packaging*
- MD-10286, *Mound Safety and Hygiene Manual*
- MD-10332, *D&D Decontamination Procedures*
- MD-10396, *Overall Sampling and Analysis Plan for Packaged Waste Generated from D&D Project(s) Sites*
- MD-10397, *Specific Sampling and Analysis Plan for Packaged Waste Generated from D&D Project(s) Sites*
- MD-20209, *Health Physics Procedures, SW Building*
- MD-21835, *Health Physics Precautions, Technical Building*
- MD-22130, *Low-Level Radioactive Material Characterization*
- MD-22153, *Mound Site Radionuclides by Location, Issue 1*
- MD-70180, *Mound Radioactive Liquid Waste Disposal*
- MD-80036, *Radiological Operations Procedures*
- MD-81010, *Mound Plant Application to Ship Waste to the Nevada Test Site*
- MD-81020, *Mound Plant Waste Certification Program Plan*
- MD-81040, *Waste Certification Procedures Manual*
- MD-81070, *Mound Plant Waste Acceptance Criteria*

- MD-81240, *Low-Level Radioactive Management Operations*

4.4 Mound System Manuals

The D&D process will be implemented following the intent of the manuals listed below:

- System Manual 804, *Project Management*
- System Manual 820, *D&D Program Management*

4.5 Other

- NVO 325, *Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements*

- EnviroCare Waste Acceptance Criteria

5.0 RELEASE CRITERIA

5.1 Radiological Release Criteria

The primary radioactive contaminant of concern is tritium (^3H) for T-Building and SW/R Tritium Complex and plutonium-238 for the remaining R-Building area. Allowable residual radioactive surface contamination is defined in DOE Order 5400.5 and in subsequently released implementation guidance for tritium. This guidance recommends the use of 10,000 dpm/100 cm^2 as the tritium limit for residual removable surface contamination. Consistent with the As Low As Reasonably Achievable concept, Mound has adopted an administrative surface release limit for removable tritium contamination of 1,000 dpm/100 cm^2. The 1,000 dpm/100 cm^2 criterion will be used as the design basis. Table 5-1 lists radioactive release criteria for residual surface contamination.

Table 5-1. Allowable Total Residual Surface Activity (dpm/100 cm^2)[1]

Radionuclides[2]	Average[3/4]	Maximum[4/5]	Removable[6]
Group 1 - Transuranics, I-125, I-129, Ac-227, Ra-226, Ra-228, Th-228, Th-230, Pa-231	100	300	20
Group 2 - Th-natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	1000	3000	200
Group 3 - U-natural, U-235, U-238, and associated decay products, alpha emitters	5000	15000	1000
Group 4 - Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous[7] fission) except Sr-90 and others noted above	5000	15000	1000
Tritium (applicable to surface and subsurface)[8]	N/A	N/A	10000

Notes

1 As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

2 Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

3 Measurements of average contamination should not be averaged over an area of more than 1 m^2. For objects of smaller surface area, the average should be derived for each such object.

4 The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

5 The maximum contamination level applies to an area of not more than 100 cm^2.

6 The amount of removable material per 100 cm^2 of surface area should be determined by wiping an area of that size with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm^2 is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

Table 5-1. Allowable Total Residual Surface Activity (dpm/100 cm^2) (cont

[7] This category of radionuclides includes mixed fission products, including the Sr-90 which is present in them. It does not apply to Sr-90 which has been separated form the other fission products or mixtures where the Sr-90 has been enriched.

[8] Property recently exposed or decontaminated should have measurements (smears) at regular time intervals to ensure that there is not a build-up of contamination over time. Because tritium typically penetrates material it contacts, the surface guidelines in group 4 are not applicable to tritium. The Department has reviewed the analysis conducted by the DOE Tritium Surface Contamination Limits Committee ("Recommended Tritium Surface Contamination Release Guides," February 1991), and has assessed potential doses associated with the release of property containing residual tritium. The Department recommends the use of the stated guideline as an interim value for removable tritium. Measurements demonstrating compliance of the removable fraction of tritium on surfaces with this guideline are acceptable to ensure that non-removable fractions and residual tritium in mass will not cause exposures that exceed DOE dose limits and constraints.

5.2 Asbestos Release Criteria

Asbestos abatement activities are regulated by the TSCA as specified in 40 CFR Part 763. Removal of and demonstration that the presence of friable asbestos has been eliminated is to be conducted in accordance with these regulations.

Friable asbestos material refers to asbestos containing material which, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

5.3 Hazardous Materials Release Criteria

Hazardous wastes are regulated by RCRA. Waste materials can be considered hazardous only if they are a "listed waste" or exhibit a hazardous waste characteristic (40 CFR 261). A waste is considered a hazardous waste if it exhibits any characteristics of ignitability, corrosivity, reactivity, or toxicity as defined by 40 CFR 261, Subpart C.

None of the waste collected during D&D activities is expected to meet the criteria for ignitability since:

- There are no free non-aqueous liquids containing less than 24 percent alcohol by volume with a flash point less than 60 degrees C.

- There are no solids capable of causing fire through friction under standard temperature and pressure conditions.

- There are no ignitable compressed gases.

- There are no oxidizers as defined by 49 CFR 173.151.

None of the waste collected during D&D activities is expected to meet the criteria for corrosivity since:

- There are no aqueous liquids with a pH less than or equal to 2 or greater than or equal to 12.5.

- There are no liquids which corrode steel at a rate greater than 6.35 mm per year at a test temperature of 55 degrees C.

None of the waste collected during D&D activities is expected to meet the criteria for reactivity since:

- There are no wastes normally unstable which readily undergo violent change without detonating.

- There are no wastes which react violently with water.

- There are no wastes which form potentially explosive mixtures with water.

- There are no cyanide or sulfide bearing wastes which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

- There are no wastes capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement.

- There are no wastes which are "forbidden explosives" as defined in 49 CFR 173.51, or Class A explosives as defined in 49 CFR 173.53, or Class B explosives as defined in 49 CFR 173.88.

The toxicity characteristic is the only reasonable characteristic that may be exhibited. The wastes would exhibit the toxicity characteristic if toxicity characteristic leaching procedure (TCLP) testing indicates the presence of one or more compounds in Table 5-2 at or above the listed regulatory level. If process history indicates that there is a potential presence of the listed substances, it must be analytically demonstrated that the regulatory threshold is not exceeded.

Table 5-2. Toxicity Characteristic Constituents and Regulatory Levels

Contaminant	Level* (mg/L)	Contaminant	Level* (mg/L)
Arsenic	5.0	Barium	100.0
Benzene	0.5	Cadmium	1.0
Carbon tetrachloride	0.5	Chlordane	0.03
Chlorobenzene	100.0	Chloroform	6.0
Chromium	5.0	o-Cresol	200.0
m-Cresol	200.0	p-Cresol	200.0
Cresol	200.0	2,4-D	10.0
1,4-Dichlorobenzene	7.5	1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7	2,4-Dinitrotoluene	0.13
Endrin	0.02	Heptachlor (and its epoxide)	0.008
Hexachlorobenzene	0.13	Hexachlorobutadiene	0.5
Hexachloroethane	3.0	Lead	5.0
Lindane	0.4	Mercury	0.2
Methoxychlor	10.0	Methyl ethyl ketone	200.0
Nitrobenzene	2.0	Pentrachlorophenol	100.0
Pyridine	5.0	Selenium	1.0
Silver	5.0	Tetrachloroethylene	0.7
Toxaphene	0.5	Trichloroethylene	0.5
2,4,5-Trichlorophenol	400.0	2,4,6-Trichlorophenol	2.0
2,4,5-TP (Silvex)	1.0	Vinyl chloride	0.2

*Based on TCLP method of analysis

6.0 RESTORATION CRITERIA

This section provides the basis for defining the restoration requirements for T-Building and the SW/R Tritium Complex under each decommissioning alternative.

6.1 T-Building

Restoration will be minimal and limited to the extent necessary to ensure the basic health and safety of the public. No future re-use will be provided for.

6.2 SW/R Tritium Complex

Restoration will be minimal and limited to the extent necessary to ensure the basic health and safety of the public. No future re-use will be provided for. If the building is demolished, restoration will be limited to reshaping and reseeding the excavation site.

6.3 R-Building

Restoration will be minimal and limited to the extent necessary to ensure the basic health and safety of the public. No future re-use will be provided for. If the building is demolished, restoration will be limited to reshaping and reseeding the excavation site.

7.0 WASTE ACCEPTANCE CRITERIA

This section states where the D&D waste from this project will be disposed of and what approved waste packaging containers are applicable.

7.1 Non-Radioactive Waste

Disposition using currently approved commercial off-site locations.

7.2 Mixed Waste

Disposition using future approved DOE or commercial off-site locations.

7.3 Low-Level Radioactive Waste

Nevada Test Site or EnviroCare, as appropriate. Classified low-level radioactive waste will be sent to the Nevada Test Site.

7.4 Contact Handled-Transuranic Waste

Not applicable as no TRU waste is expected to be generated.

8.0 REFERENCES

1. United States Department of Energy, August 1995. *Decommissioning Resource Manual.* DOE/EM-0246.

2. United States Department of Energy, March 1994. *Decommissioning Handbook.* DOE/EM-0142P.

APPENDIX A

ACRONYMS

Appendix A
Acronyms

BIO	Basis for Interim Operations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Ci	curies
cm	centimeter
D&D	Decontamination and Decommissioning
DOE	United States Department of Energy
dpm	disintegrations per minute
ft	feet
mm	millimeter
NEPA	National Environmental Policy Act
Ohio EPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
RCRA	Resource Conservation and Recovery Act
S&M	Surveillance and Maintenance
TCLP	Toxicity Characteristic Leaching Procedure
TERF	Tritium Emissions Reduction Facility
TRU	Transuranic
TSCA	Toxic Substances Control Act
US EPA	United States Environmental Protection Agency

D

VOLUME I
APPENDIX D
1,000-CURIE RELEASE LIMIT LABOR STANDARDS

Mound Technical and Environmental Services, Inc.

Labor Standards for D & D Estimate
(1,000 curie case)

FINAL DRAFT 7/18/96

As part of determining the D & D cost estimate for the tritium facilities at Mound labor standards and tentative work practices were developed. The work practices were developed assuming that the total release of tritium from Mound during the D & D effort would be less than 10,000 curies per year. This release limit would allow the D & D work to proceed with 3-4 D & D teams working in the SW/R Tritium Complex and 3-4 D & D teams working in T-Building. The Final Draft of this report was released on 6/17/96[1]. Recently we were asked to determine the D & D cost for the T-Building and the SW/R Tritium Complex assuming a 1,000 curies per year of tritium release limit (Mound total) during the D & D effort. This is a considerable challenge because the tritium released from Mound for 1995 was 770 curies. To date, the 1996 tritium releases are a little smaller on a month by month basis, but not significantly smaller.

Reducing the potential tritium releases as compared to the 10,000 curies per year case can be accomplished by several methods including: reducing the amount of D & D work done in a year, increasing the cleanup of the contaminated systems prior to disassembly, increasing the tritium confinement efforts during D & D, and increased training of the D & D workers. Each of the items will increase cost and extend the

(1) "Checksheets, Work Packages, and Labor Standards for D & D Estimate, FINAL DRAFT", 6/17/96, 10,000 curie case.

UNCLASSIFIED & NON-SENSITIVE
ADC (Reviewer) Initials: PHL
Do Not Remove From Site Without
Declassification Office Review

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification
Office. Reviewer Initials: NC

schedule.

Several changes will be made in the processes as compared to the 10,000 curie case in order to reduce the tritium emission during the D & D process. These include the following:

1. Each D & D team will be provided with additional training (approximately 1 month) which will concentrate on practical hands-on operations with equipment, gloveboxes, and process equipment which has never been exposed to radioactive materials. This training could take place in T-20 or T-8.
2. Potential major residual tritium sources such as U-beds, molecular sieve traps, and carbon traps (and other items which could have "heels") would be removed early in the project.
3. The gloveboxes would be purged to the TERF/ERS with (room) air. The length of time of the purge would be longer, as compared to the 10,000 curie case. Moist warm (above room temperature) air should be studied (not part of this cost estimate) as a potential purging candidate to enhance the tritium removal.
4. Trash would be "bagged out" of gloveboxes rather than using pass boxes to reduce tritium emissions.
5. The shipping containers would be placed in the tents, filled up and then sealed to reduce emissions during the packaging. This would result in an increase in the size of tent required for each job and an increase in the amount of decontamination required of the shipping containers[2].

(2) Labor to place the shipping container in the tent, weld it shut, and remove it from the tent is not included in the "labor standards".

Additional contaminated waste would be generated because of the bigger tents and by the decontamination efforts on the shipping containers.

6. The full capacity of the TERF/ERS would be used on tent operations during the day to reduce the chance of tritium diffusing into the room and then up the stack. Essentially the full capacity of the TERF/ERS would be used during the off hours to purge the process piping and the glove boxes.

7. Additional cleaning of the interior of the gloveboxes and the equipment inside by scrubbing with a cleaner such as "Grease-B-Gone", as was used in the SW-142 clean-up[3]. For the SW-142 operation the scrubbing reduced contamination and generated additional waste. Box purging was conducted during and after the scrubbing of the interior of the gloveboxes. The interior of some gloveboxes was foamed with "Froth-Pack" to contain oil and to some extent retard the outgasing from tritium contamination.

(3) "Decontamination and Decommissioning of Room 142 in SW Building", by L. R. Kent, presented at the JOWOG 12A Meeting held at Livermore, CA 11/17/92.

LABOR HOURS FOR GLOVEBOX/FUMEHOOD BY COMPLEXITY/CONTAMINATION
(unencumbered labor hours - 1,000 Ci case)

LOW LEVEL GLOVEBOX/FUMEHOOD

Air Purge process piping = Ten day air purge to cleanup. 10% require repurge after line break and monitor check.

Crew

lead technician	process technician
mechanic	pipe fitter
electrician	R C technician
decontamination worker	

Crew hours

lead technician	7 hours
process technician	28
mechanic	9
pipe fitter	11
electrician	3
R C technician	4
decon. worker	6
repurge glovebox (P T)	20

Special labor(1)

Box removal

mechanic (2 each - buddies)	32
R C technician (2)	16
decon. worker	16

Volume of waste from glovebox/fume hood in excess of special items - 3 55-gal. drums

Notes

(1) Tent and bubble suits required for disconnect and removal of glovebox/fumehood. Bag out all trash - do not use pass boxes. Seal trash in shipping container in tent. Tent exhausted to TERF/ERS at high purge rate.

Includes labor to disconnect box/fumehood, reseal with metal blanks. Does not include the labor to seal in a shipping container within the tent.

Materials List

plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
Bubblesuits (8)	metal blanks to seal box	
paper		

LABOR HOURS FOR GLOVEBOX/FUMEHOOD BY COMPLEXITY/CONTAMINATION
(unencumbered labor hours - 1,000 Ci case)

MEDIUM LEVEL GLOVEBOX/FUMEHOOD

Air Purge process piping = 24 day purge to cleanup. 30% require repurge after line break and monitor check.

Crew

lead technician	process technician
mechanic	pipe fitter
electrician	R C technician
decontamination worker	

Crew hours

lead technician	7 hours
process technician	48
mechanic	18
pipe fitter	22
electrician	5
R C technician	8
decon. worker	12
repurge glovebox (P T)	25

Special labor(1)

Box removal

mechanic (2 each - buddies)	32
R C technician	16
decon. worker	24

Volume of waste from glovebox/fume hood in excess of special items - 5 55-gal drums

Notes

(1) Tent and bubble suits required for disconnect and removal of glovebox/fumehood. Bag out all trash - do not use pass boxes. Seal trash in shipping container in tent. Tent exhausted to TERF/ERS at high purge rate.

Includes labor to disconnect box/fumehood, reseal with metal blanks. Does not include labor to seal in a shipping container within the tent.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
tent	paper	Bubblesuits (8)
metal blanks to seal box		

LABOR HOURS FOR GLOVEBOX/FUMEHOOD BY COMPLEXITY/CONTAMINATION
(unencumbered labor hours - 1,000 Ci case)

HIGH LEVEL GLOVEBOX/FUMEHOOD

Air Purge process piping = Four week air purge to cleanup. 50% require repurge after line break and monitor check.

Crew

lead technician	process technician
mechanic	pipe fitter
electrician	R C technician
decontamination worker	

Crew hours

lead technician	14 hours
process technician	82
mechanic	22
pipe fitter	40
electrician	7
R C technician	16
decon. worker	24
repurge glovebox (P T)	30

Special labor(1)

Box removal

mechanic (2 each - buddies)	32
R C technician	16
decon. worker	32

Volume of waste in excess of special items from glovebox/fumehood - 8 55-gal. drums

Notes

(1) Tent and bubble suits required for disconnect and removal of glovebox/fumehood. Bag out all trash - do not use pass boxes. Seal trash in shipping container in tent. Tent exhausted to TERF/ERS at high purge rate.

Includes labor to disconnect box/fumehood, reseal with metal blanks. Does not include labor to seal in a shipping container within the tent.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
metal blanks to seal box	paper	Bubblesuits (8)
tent		

LABOR HOURS FOR U-BEDS
(unencumbered labor hours - 1,000 Ci case)

Air Purge process piping = One week purge. 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician

Crew hours

lead technician	4 hours
process technician	46
pipe fitter	8
electrician	2
repurge glovebox (P T)	8

Special labor(1)

mechanic (2 each - buddies)	16
R C technician (2)	16
decon. worker	24

Notes

(1) Tent, floor papered, and bubble suits required for disconnect and removal of U-bed. High tent exhaust to the TERF/ERS.

Does not include labor to seal U-bed in shipping container within tent.

Assume that accountable tritium has been removed - the process technician's hours include the work time for the oxidation and purge of the U-bed.

U-beds weighs about 130 lbs. U-bed is probably mixed waste.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
tent	paper	Bubblesuits (4)

LABOR HOURS FOR VANE PUMPS
(unencumbered labor hours - 1,000 Ci case)

Air Purge process piping = One week purge. 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician	20
pipe fitter	4
mechanic	4
decon. worker	12
electrician	2
R C technician	4
repurge glovebox (P T)	8
welder (seal in container)	2

Notes

Seals pump in shipping container within tent. High exhaust to TERF/ERS.

Shipping container (with absorbent added) needed for job

Oil left in pump - pump plugged, sealed, and bagged.

Pump disassembled and sealed in glovebox. Pump passed out through gloveport. Motor and base removed as part of box hardware.

Fully assembled pump weighs about 150 lbs.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves

LABOR HOURS FOR ROUGH PUMPS
(unencumbered labor hours - 1,000 Ci case)

Air Purge process piping = Nine day purge. 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician	22
pipe fitter	6
mechanic (remove oil - cap and seal 1402's)	5
repurge glovebox (P T)	8

Special labor(1)

mechanic (2 each - buddies) (remove pump - place in weldable container)	8
decon. worker	24
R C technician (two needed on job)	8
welder (seal in container)	3

Notes

(1) Tent, floor paper, and bubble suits required for disconnect and removal of rough pumps. Window removed to remove pump and then replaced. High exhaust to TERF/ERS.

Seals pump in container within tent (welded container - with absorbal)

Weight of Welch 1402K 185 lbs
Weight of other pumps 100 lbs

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	window seal
tent		

LABOR HOURS FOR MOLECULAR SIEVE TRAPS
(unencumbered labor hours 1,000 Ci case)

Air Purge trap and heat — Nine day purge. 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician (1)	30
pipe fitter	4
repurge glovebox (P T)	8

Special labor (2)

pipe fitter (2 each - buddies) (caps (and seal trap, removes trap - places in weldable container)	10
decon. worker	24
R C technician (two needed on job)	8
welder (seal in container)	3

Notes

(1) Process technician heats, air purges, and then heats and air purges trap for nine days before removal.

(2) Tent, floor paper, and bubble suits required for disconnect and removal of traps. High exhaust on tent to TERF/ERS.

Seals trap in container within tent

Shipping container needed (welded container)

Average trap 0.5 ft by 0.5 ft by 1 ft - estimated weight 10 lbs..

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	window seal
tent		

LABOR HOURS FOR CARBON TRAPS
(unencumbered labor hours - 1,000 Ci case)

Air Purge process piping = Nine day purge. 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician (1)	30
pipe fitter	4
repurge glovebox (P T)	8

Special labor (2)

pipe fitter (2 each - buddies) (cap and seal trap, removes trap - place in weldable container)	10
decon. worker	24
R C technician (two needed on job)	8
welder (seal in container)	3

Notes

(1) Process technician heats, air purges, and then heats and air purges trap for nine days before removal.

(2) Tent, floor paper, and bubble suits required for disconnect and removal of traps. High exhaust to TERF/ERS.

Seals trap in container within tent

Shipping container needed (welded container)

Average trap is 1 ft by 1 ft by 2 ft - estimated weight 10 lbs.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	window seal
tent		

LABOR HOURS FOR REMOVING ONE MASS SPEC. CAPILLARY LINE - T-BLD
(unencumbered labor hours - 1,000 Ci case)

Air Purge capillary — One week purge. 10% require repurge after line break and monitor check.

Crew

lead technician
process technician
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	3 hours
process technician	12

Special labor(1)

decon. worker	16
pipe fitter (2 each - buddies)	8
R C technician	4
welder	2

Notes

(1) Tent with high exhaust to ERS/TERF, paper floor, and bubble suits required for disconnecting and welding of capillary.

Purge capillary with air for one week. Cut and weld capillary at both ends and pull. Roll and then seal (weld) in container in tent. Average capillary is stainless steel with 1/8 inch OD and 120 feet long.

Cut and weld capillaries at (above) the glovebox end first. Cut and weld capillaries on the "trees" in mass spectrometer rooms. Remove all material from glovebox or fumehood. Decon glovebox or fumehood to levels that allow the capillaries to be pulled without the use of a bubble suit but in a tent exhausted at high rate. Pull the capillary with "come along".

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (2)	

LABOR HOURS FOR REMOVING ONE MASS SPEC CAPILLARY LINE - SW/R-BLD
(unencumbered labor hours - 1,000 Ci case)

Air Purge capillary — One week purge. 10% require repurge after line break and monitor check.

Crew

- lead technician
- process technician
- pipe fitter
- welder
- R C technician
- decontamination worker

Crew hours

	lead technician	3 hours
	process technician	14
Special labor(1)		
	decon. worker	16
	pipe fitter (2 each - buddies)	18
	R C technician	9
	welder	3

Notes

(1) Tent with high exhaust to TERF/ERS, paper floor, and bubble suits required for disconnect and weld capillary. High exhaust on tent.

Weld capillary at both ends and pull. Roll and place in shipping container that can be welded. Average capillary is stainless steel with 1/8 inch OD and 120 feet long.

Cut and weld capillaries at (above) the glovebox end first. Cut and weld capillaries on the "trees" in mass spectrometer rooms. Remove all material from glovebox or fumehood. Decon glovebox or fumehood to levels that allow the capillaries to be pulled without the use of a bubble suit. Pull the capillary with "come along". Pull, roll, and seal in container in a tent that is exhausted at high rate to TERF/ERS.
Many SW/R capillaries are in heavy wall conduit - more effort needed to pull than those in T-Building. Many will require assistance at "junction boxes". Tent the junctions box in case capillary breaks.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (2)	

LABOR HOURS AVERAGE FOR GLOVEBOX PRESSURE CONTROL SYSTEM
(unencumbered labor hours - 1,000 Ci case)

Air Purge process piping = One week purge. 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	8 hours
process technician	14
repurge box (P T)	4

Special labor(1)

decon. worker	16
pipe fitter (2 each - buddies)	10
R C technician (2)	10
welder	3

Notes

(1) Tent, paper floor, and bubble suits required for disconnect and removal of system (cap holes left on glovebox after removing system for purging). Last system removed from glovebox. Purging capability removed with this operation. High purge on tent to TERF/ERS.

Seals (welds) system in container within tent.

Shipping container needed (welded container).

Average system has four 3.5 ft pieces of tubing removed and capped. Average system will fill 3 55-gal drums with control valves, gauges, etc. Average system will outgas.

Maintain flow to TERF/ERS

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	tent

LABOR HOURS FOR BUBBLERS
(unencumbered labor hours - 1,000 Ci case)

Crew

lead technician
process technician
mechanic
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	4 hours
process technician	14
repurge box (P T)	8

Special labor(1)

decon. worker	16
pipe fitter (2 each - buddies)	10
R C technician	6
welder	3

Notes

(1) Tent, paper floor, and bubble suits required for disconnect and removal of bubbler (cap bubbler hole on glovebox after removing bubbler for purging). Warning - removing a safety system. High purge to TERF/ERS

Seals (welds) bubbler in container within tent.

Shipping container needed (welded container, absorbal - assume bubbler is 1 ft by 1 ft by 1.5 ft and weighs 20 lbs when ready to place into the shipping container).

One gallon of tritium contaminated oil in bubbler which will be "solidified" in place with absorbal.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	tent
absorbal		

LABOR HOURS FOR REMOVAL OF ERS, ROUGH VACUUM, AND BUBBLER LINES
PER FOOT
(within the buildings - unencumbered labor hours - 1,000 Ci case)

Lines have been purged for one week and are under suction. Line is cut and capped with a valve assembly. The line is lowered and allowed to drain toward the low end for one day. After one day the line is checked for oil and the oil removed. All cuts and line checks are done in a bubble suit within a tent, and paper on floor. High tent exhaust to TERF/ERS. ERS line cuts can have from no oil up to about a quart. For the estimate assume that about 100 cc of mixed waste oil (heavy metal and tritium) will be removed per 21 feet of ERS line. Assume no oil in bubbler lines, however use of bubble suits and draining procedures is to be used in the estimate due to potential of tritiated oil. The 21 ft line was assumed to be an "average" length.

For a 21 foot piece of pipe the following effort will be required assuming the pipe is cut into 3.5 foot lengths (6 cuts). The 3.5 foot sections will outgas and are to be capped/sealed. The 3.5 foot sections are placed in 4 foot wide containers that can be welded shut. Welding done as part of waste packaging.

Crew

lead technician
process technician
R C technician
pipe fitter

Crew Labor (1)	HOURS PER FOOT
lead technician	0.2
process technician (for purging)	0.5
R C technician (2)	0.5
pipe fitter (2 each - buddies)	0.5
decon worker	0.2

Notes

(1) Bubble suits required. Tent with high exhaust to TERF/ERS. Pipe to be welded in 4 ft. wide shipping container that contains the outgasing and is in the tent. Shipping container is welded in tent.

Maintain flow to TERF/ERS.

Materials List per 21 feet of line

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (2)	

LABOR HOUR FOR REMOVAL OF ERS AND TRANSFER LINES BETWEEN T AND SW/R
PER FOOT - unencumbered labor hours - 1,000 Ci case

Lines have been purged for seven days and are under suction at approximately 1 CFM. Line is cut and checked for oil and the oil removed. All cuts and line checks are done in a bubble suit. For a 21 ft. piece of pipe the following effort will be required assuming the pipe is cut into 3.5 ft. lengths (6 cuts). The 3.5 ft. sections will outgas and are to be capped/sealed.

The tunnel and the pit will be reworked so that the air flow is toward T-Building and is to be the confinement system (tent) for the job. Use the full capacity of the TERF (less the 1 CFM for suction on the line being cut). All other operations requiring TERF will be stopped. This operation should be the last job conducted except for the TERF system and the T-Building tritiated water packaging system (if it is installed).

Crew

Lead technician	Process technician
R C technician	Pipe fitter
mechanic	heavy equipment operator

Crew Labor (1)

	HOURS PER FOOT
lead technician	0.6
process technician (for purging)	1.5
R C technician	1.5
pipe fitter (buddies)	1.5
decon worker	0.6
Confined space and rigging for OSHA	
mechanic	0.8
heavy equipment operator	0.6

Notes

(1) Bubble suits and papered pit floor required.

Pipe to be sealed in shipping container that contains outgasing.

Lower pieces of pipe to bottom of pit. Remove after individuals in bubble suits are out of the way. Pipe to be welded in 4 ft. wide shipping container that contains the outgasing and is in a "tent". Use the "head house" as the tent for the pit. Air flow to the T-Building West stack (R building stack) needs to be blocked off for this operation because flow could upset "tent operation". Air flow for TERF would be supplied by T-Building east stack modifications.

Materials List per 21 feet of line

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (6)	

LABOR HOURS FOR REMOVAL OF TRITIUM TRANSFER LINES
PER FOOT
(within the buildings - unencumbered labor hours - 1,000 Ci case)

Lines have been purged for one week and are under suction. Line is cut and capped. All cuts and line checks are done in a bubble suit within a tent, and paper on floor. High tent exhaust to TERF/ERS on tent. The 21 ft line was assumed to be an "average" length.

For a 21 foot piece of pipe the following effort will be required assuming the pipe is cut into 3.5 foot lengths (6 cuts). The 3.5 foot sections will outgas and are to be capped/sealed. The 3.5 foot sections are placed in 4 foot wide containers that can be welded shut. Welding done as part of waste packaging.

Crew

lead technician
process technician
R C technician
pipe fitter

Crew Labor (1)	HOURS PER FOOT
lead technician	0.2
process technician (for purging)	0.5
R C technician (2)	0.5
pipe fitter (2 each - buddies)	0.5
decon worker	0.2

Notes

(1) Bubble suits required. Tent with high exhaust to TERF/ERS.

Pipe to be welded in 4 ft. wide shipping container that contains the outgasing and is in the tent. Shipping container is welded in the tent.

Maintain flow to TERF/ERS.

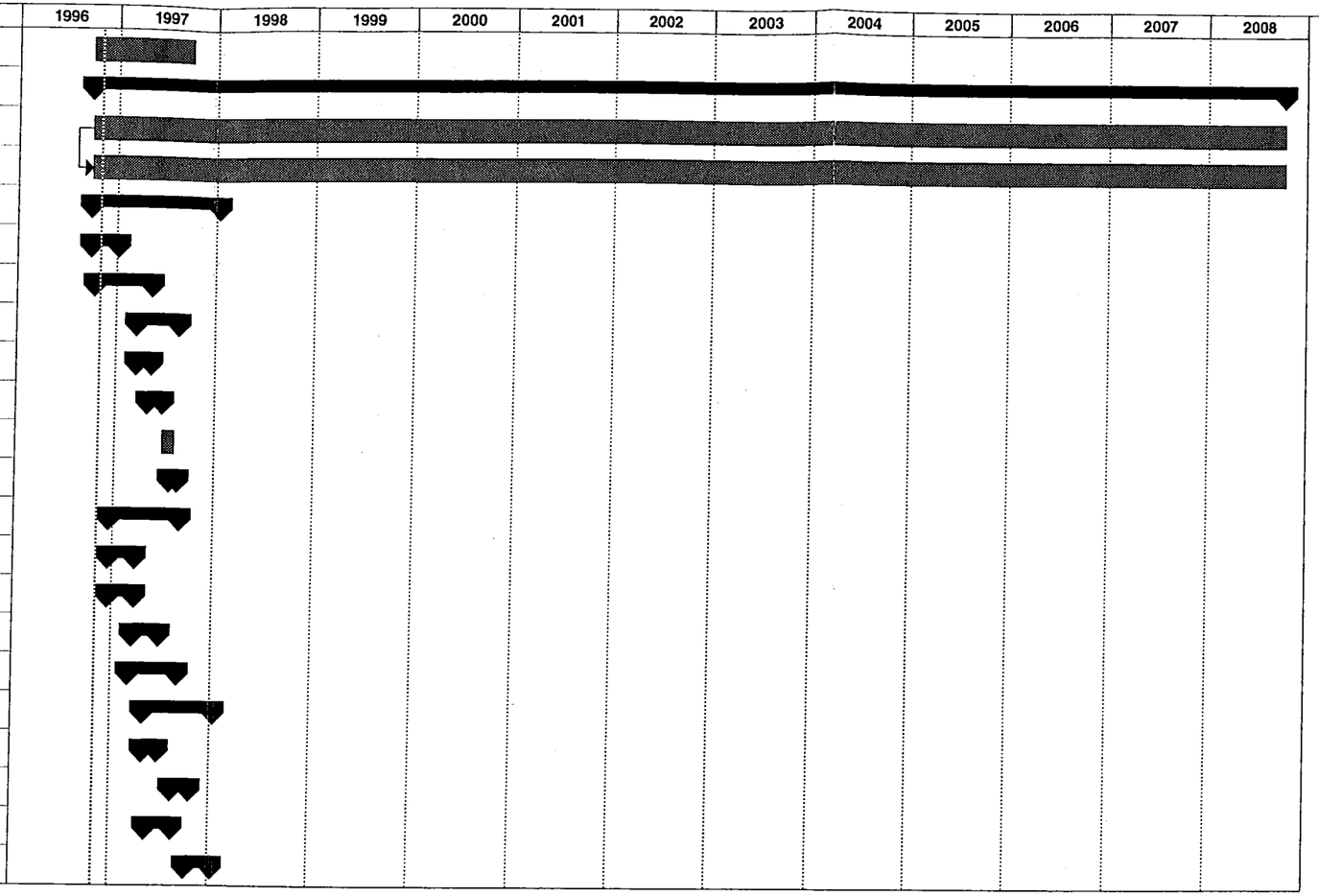
Materials List per 21 feet of line

Plastic bags	plastic tape	duct tape
paper	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
Bubblesuits (2)		

VOLUME I
APPENDIX E
SCHEDULE

SW/R Tritium Complex D&D Pre-Conceptual Engineering Study
Immediate D&D for Unrestricted Use Alternative
1,000 Curie/yr Release Limit

ID	Task Name	Duration	Start	Finish	Predecessors
1	Tritium Operations	52w	10/1/96	9/29/97	
2	**Immediate D&D for Unrestricted Use (1,000 Ci)**	**3142d**	**10/1/96**	**10/15/08**	
3	Project Management	3142d	10/1/96	10/15/08	
4	Site Services	3142d	10/1/96	10/15/08	3SS
5	**Engineering**	**337d**	**10/1/96**	**1/14/98**	
6	**Project Plan**	**70d**	**10/1/96**	**1/6/97**	
11	**Conceptual Engineering Study**	**150d**	**10/15/96**	**5/12/97**	
16	**Characterization**	**112d**	**3/18/97**	**8/20/97**	
17	**Characterization Plan**	**40d**	**3/18/97**	**5/12/97**	
22	**Sampling and Analysis Plan**	**40d**	**4/29/97**	**6/23/97**	
27	Complete Characterization	6w	6/24/97	8/4/97	26
28	**Characterization Report**	**22d**	**7/22/97**	**8/20/97**	
33	**Decommissioning Plan**	**185d**	**12/17/96**	**9/1/97**	
34	**Waste Management Plan**	**70d**	**12/17/96**	**3/24/97**	
39	**Long Lead Packages/Specs**	**70d**	**12/17/96**	**3/24/97**	
44	**Standard Packages/Specs**	**70d**	**3/18/97**	**6/23/97**	
49	**Detailed Work Procedures (batched)**	**130d**	**3/4/97**	**9/1/97**	
54	**Environmental, Safety and Health**	**187d**	**4/29/97**	**1/14/98**	
55	**Sampling HASP**	**40d**	**4/29/97**	**6/23/97**	
60	**Safety Assessment**	**50d**	**8/14/97**	**10/22/97**	
65	**Environmental Compliance Strategy**	**70d**	**5/13/97**	**8/18/97**	
70	**Decommissioning HASP**	**70d**	**10/9/97**	**1/14/98**	



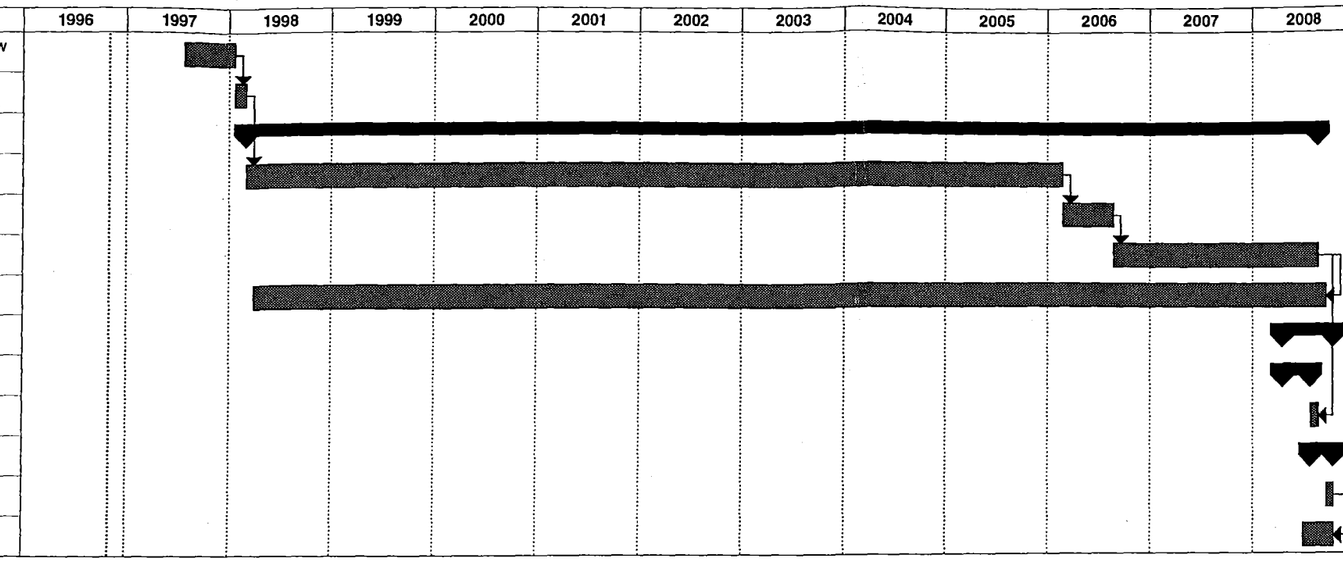
Project: SW/R Tritium Complex Pre-Co
Date: 10/31/96

Task | Milestone | Rolled Up Task | Rolled Up Progress
Progress | Summary | Rolled Up Milestone

Revision 0

SW/R Tritium Complex D&D Pre-Conceptual Engineering Study
Immediate D&D for Unrestricted Use Alternative
1,000 Curie/yr Release Limit

ID	Task Name	Duration	Start	Finish	Predecessors
75	Procedure Training and Mock-up Testing	26w	7/24/97	1/21/98	53SS+2w,74FF+1w
76	Readiness Checklists	6w	1/22/98	3/4/98	74,75
77	**D&D Activites**	**2730d**	**3/5/98**	**8/20/08**	
78	Internal D&D	416w	3/5/98	2/22/06	76
79	Buidling Demolition	26w	2/23/06	8/23/06	78
80	Soil Removal	104w	8/24/06	8/20/08	79
81	Waste Disposal	546w	4/2/98	9/17/08	38,80FF+4w
82	**Closure Activities**	**130d**	**4/17/08**	**10/15/08**	
83	**Facility Release Survey Plans**	**70d**	**4/17/08**	**7/24/08**	
88	Complete Final Surveys	4w	7/24/08	8/20/08	80FF
89	**IVC**	**60d**	**7/24/08**	**10/15/08**	
93	Restoration Activity	4w	9/18/08	10/15/08	91
94	Final Report	16w	6/26/08	10/15/08	84,93FF



ject: SW/R Tritium Complex Pre-Co
Date: 10/31/96

Task | Milestone | Rolled Up Task | Rolled Up Progress
Progress | Summary | Rolled Up Milestone

3 Project Management

Project Management includes project plans, scheduling, cost estimating, procurement support, technical writing, change control, cost/schedule, project reporting, funds management, training, A/E cooridination, and the responsibility for controlling subcontractor work.

4 Site Services

Site services includes environmental monitoring , procurement, safeguards and security, utilities, computer maintenance, and sampling and analysis during D&D activities.

77 D&D Activites

Duration of internal D&D based on sum of "glovebox removal" manhours (w/o contingency). The total hours were divided by a typical crew of 6 workers to determine overall duration. Constraint is that only one glovebox can be purged and removed at a time to remain below 1,000 curie/year release limit. Other activities such as glovebox preparation, misc. equipment removal, crawlspace cleanout and area decontamination are assumed to be done in concert with glovebox removal operations.

81 Waste Disposal

Waste disposal includes activities to handle materials and equipment on site as well as offsite transportation.

F

VOLUME I
APPENDIX F
SW/R TRITIUM COMPLEX FLOOR PLANS

Volume 2

VOLUME II

SW/R TRITIUM COMPLEX D&D COST ESTIMATE

(Rev. 0)

October 31, 1996

EG&G Mound Applied Technologies
P.O. Box 3000
Miamisburg, OH 45343-3000

VOLUME 2
TABLE OF CONTENTS

1.0 Introduction 1
- 1.1 Work Breakdown Structure 1
- 1.2 Contingency 1
- 1.3 Escalation 1

2.0 Basis for Estimate 2
- 2.1 SW/R Tritium Complex for Unrestricted Release (1,000 Ci/yr case) . . . 2
  - 2.1.1 Project Management 2
  - 2.1.2 Engineering 2
  - 2.1.3 Site Services 2
  - 2.1.4 SW/R Tritium Complex D&D Activities (1,000 Ci/yr case) 3
  - 2.1.5 Waste Disposal 3
  - 2.1.6 Independent Verification Contractor 4

3.0 Estimate Results 4

APPENDICES

Appendix A Acronyms
Appendix B Work Breakdown Structure
Appendix C Detailed Estimate - SW/R Tritium Complex D&D for Unrestricted Release (1,000 Ci/yr Case)

1.0 INTRODUCTION

The cost estimate is based on information derived from the technical portion (Volume I) of this study along with walk down data obtained regarding physical requirements necessary for the performance of the scope of work outlined in the engineering study. Raw and peripheral costs were obtained from nationally recognized cost manuals such as R.S. Means, and the U.S. Army Corps. of Engineers, as well as Parsons and MTES personnel experience with the site and previous D&D projects at the Mound. Also, data were used from other DOE D&D project costs and vendor quotations. Labor was analyzed as to the actual requirements and specific manpower (types) needed to perform the tasks. A description of planned equipment removal methods and labor standards is provided in Appendix D of Volume I of this study.

1.1 Work Breakdown Structure

A WBS was prepared for the D&D project as described in Section 5.0 of Volume I. The WBS is included in this Volume as Appendix B.

1.2 Contingency

The contingency level for a conceptual design project in accordance with DOE Order 5700.2D is 40 percent to 50 percent. This initial draft includes an overall contingency of 40 percent to account for uncertainties in the estimate.

For this project, the following items are the main factors in determining this percentage based on the degree of complexity and detail of design:

a. The Facility has not been adequately characterized;
b. It is assumed that the 1,000 Ci/yr release limit will not be exceeded in one year's time; and
c. Detailed packaging criteria have not been defined.

1.3 Escalation

Escalation was obtained from the EG&G baseline studies. The escalation is figured at the midpoint of the project at 19.01 percent of the total project cost.

2.0 BASIS FOR ESTIMATE

2.1 SW/R Tritium Complex for Unrestricted Release (1,000 Ci/yr case)

2.1.1 Project Management

Project Management includes a project plan, staffing, scheduling, cost estimating, procurement support, technical writing, change control, cost/schedule project reporting, funds management, training, A/E coordination, and the responsibility for managing the subcontractor's portion of the work. There are two categories of project management cost:

- Project Management Activities
- Project Controls

Costs for this element have been based on the weighted averages obtained from EG&G's baseline report dated May 20, 1996 for Alternate 1 - Immediate D&D for Unrestricted Release.

2.1.2 Engineering

Engineering includes Title I, II, and III engineering costs associated with A/E deliverables. These include engineering drawings, specifications, calculations, cost estimates, various technical reports (i.e., health, safety, environmental analyses). In addition, costs associated with attendance and participation at all meetings scheduled for project review or coordination with the DOE, the operating contractor, and other public agencies.
Costs for this element have been based on the weighted averages obtained from EG&G's baseline report dated May 20, 1996 for Alternate 1 - Immediate D&D for Unrestricted Release.

2.1.3 Site Services

Costs associated with site services include the following:

- Environmental Monitoring,
- Utilities (CAD Support during D&D Activities),
- Laboratory Sampling Support, and
- TERF Operation (Equipment Removal Period)

2.1.4 SW/R Tritium Complex D&D Activities (1,000 Ci/yr case)

A description of the planned D&D activities is provided in Section 6.1 of Volume I of this study.

2.1.5 Waste Disposal

Costs associated with waste disposal include:

- Costs to handle materials and equipment on site,
- Costs to transport by truck to burial site,
- Disposal costs or burial site fee, and
- Waste container costs.

Further, the following assumptions are made:

- It is assumed that materials will not be decontaminated prior to placing into containers. Waste will be wrapped in plastic and sealed in three types of containers: B-25 (metal) boxes, special boxes (which require a welded closure to contain waste which has the potential to offgas), and Sea/Land containers.

- Concrete debris, brick & block walls and miscellaneous rubble quantities will be used for on-site backfill.

- Drywall, cold ceilings and tiles, and cold structural steel will be shipped to local land fill.

- The boxes or drums containing the radioactive waste are placed on a truck (maximum load of 40,000 lbs.) and shipped to NTS. The approximate truck fare is assumed to be $2,800 per round trip to NTS. The total distance to NTS is 2,061 miles.

- Disposal costs at the NTS site have been estimated at $18.63 per cubic foot of box or drum volume.

When detailed engineering is performed, the use of larger sized containers, bulk shipments using railcars and the use of Envirocare disposal site should be estimated.

2.1.6 Independent Verification Contractor

Costs to account for independent verification that the unrestricted release criteria have been achieved following completion of the D&D activities are included.

3.0 ESTIMATE RESULTS

The Total Estimated Cost (TEC) for the study alternatives, SW/R TRITIUM COMPLEX D&D for Unrestricted Release (1,000 Ci/yr case) is presented on the following page. The detailed estimate is provided in Appendix C.

CLIEN.. MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

T E C (3.0) SW/R TRITIUM COMPLEX D&D - 1,000 Ci / yr

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.1	PROJECT MANAGEMENT	37,442	5,095,956	1,107,816	775,472	775,472	0	7,754,715
3.2	ENGINEERING	35,158	3,721,778	531,683	531,683	531,683	0	5,316,825
3.3	SITE SERVICES	61,360	4,639,583	133,347	55,000	500,000	4,000,000	9,327,930
3.4	SW/R TRITIUM COMPLEX D&D ACTIVITIES	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211
3.5	WASTE DISPOSAL	30,203	2,283,760	11,871,866	12,020	1,691,854	11,122,749	26,982,249
3.6	INDEPENDENT VERIFICATION CONTRACTOR (IVC)	0	0	0	0	0	170,000	170,000
3.7	SITE RESTORATION	1,213	91,741	51,385	6,058	10,000	0	159,184
	SUBTOTAL	541,781	39,717,175	16,306,341	1,901,541	4,813,308	15,292,749	78,031,113
								0
								0
								0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	541,781	39,717,175	16,306,341	1,901,541	4,813,308	15,292,749	78,031,113
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	541,781	39,717,175	16,306,341	1,901,541	4,813,308	15,292,749	78,031,113
0.00%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
19.01%	ESCALATION - AVERAGE EFFECTIVE RATE		7,550,235	3,099,835	361,483	915,010	2,907,152	14,833,715
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
18.80%	G & A Overhead		7,466,829	3,065,592	357,490	904,902	2,875,037	14,669,849
	SUBTOTAL - PROJECT LOADERS	0	15,017,064	6,165,427	718,973	1,819,912	5,782,188	29,503,564
	TOTAL PROJECT COST	541,781	54,734,239	22,471,768	2,620,513	6,633,219	21,074,938	107,534,677
40.00%	CONTINGENCY		21,893,696	8,988,707	1,048,205	2,653,288	8,429,975	43,013,871
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
	TOTAL	541,781	76,627,935	31,460,475	3,668,719	9,286,507	29,504,913	150,548,548

A

APPENDIX A

Acronyms

A/E	Architect-Engineer
CADD	Computer-Aided Design and Drafting
Ci	Curie
D&D	Decontamination and Decommissioning
DOE	Department of Energy
ERS	Effluent Removal System
MT&E	Material Testing and Evaluation
NTS	Nevada Test Site
S&M	Surveillance and Maintenance
TERF	Tritium Emission Reduction Facility
WBS	Work Breakdown Structure
Yr	Year

B

VOLUME II
APPENDIX B
WORK BREAKDOWN STRUCTURE

APPENDIX B

Mound Facilities D&D
Work Breakdown Structure

1. Project Title SW/R Tritium Complex						2. Date 9/4/96
3. Line No.	4. WBS Element Title					
	5. Estimate Level				6. WBS Title	7. WBS Code
	1	2	3	4		
1	x				**SW/R Tritium Complex D&D**	**3.0**
2		x			Project Management	3.1
3		x			Engineering	3.2
4		x			Site Services	3.3
5		x			SW/R Tritium Complex D&D Activities	3.4
6			x		SW/R Tritium Complex Area A	3.4.1
7				x	Preparations	3.4.1.1
8				x	Glovebox Removal	3.4.1.2
9				x	Miscellaneous Equipment Removal	3.4.1.3
10				x	Service Removal/Crawlspace Cleanout	3.4.1.4
11			x		SW/R Tritium Complex Area B	3.4.2
12				x	Preparations	3.4.2.1
13				x	Glovebox Removal	3.4.2.2
14				x	Miscellaneous Equipment Removal	3.4.2.3
15				x	Service Removal/Crawlspace Cleanout	3.4.2.4
16			x		SW/R Tritium Complex Area C	3.4.3
17				x	Preparations	3.4.3.1
18				x	Glovebox Removal	3.4.3.2
19				x	Miscellaneous Equipment Removal	3.4.3.3
20				x	Service Removal/Crawlspace Cleanout	3.4.3.4
21			x		SW/R Tritium Complex Area D	3.4.4
22				x	Preparations	3.4.4.1
23				x	Glovebox Removal	3.4.4.2
24				x	Miscellaneous Equipment Removal	3.4.4.3
25				x	Service Removal/Crawlspace Cleanout	3.4.4.4
26			x		SW/R Tritium Complex Area E	3.4.5
27				x	Preparations	3.4.5.1
28				x	Glovebox Removal	3.4.5.2
29				x	Miscellaneous Equipment Removal	3.4.5.3
30				x	Service Removal/Crawlspace Cleanout	3.4.5.4
31			x		SW/R Tritium Complex Area F	3.4.6
32				x	Preparations	3.4.6.1
33				x	Glovebox Removal	3.4.6.2
34				x	Miscellaneous Equipment Removal	3.4.6.3
35				x	Service Removal/Crawlspace Cleanout	3.4.6.4
36			x		SW/R Tritium Complex Area G	3.4.7
37				x	Preparations	3.4.7.1
38				x	Glovebox Removal	3.4.7.2
39				x	Miscellaneous Equipment Removal	3.4.7.3
40				x	Service Removal/Crawlspace Cleanout	3.4.7.4
41			x		Interior Wall Removal	3.4.8
42			x		Utility Removal	3.4.9
43			x		Interior Decontamination	3.4.10

APPENDIX B

Mound Facilities D&D
Work Breakdown Structure

1. Project Title SW/R Tritium Complex						2. Date 9/4/96
3. Line No.	4. WBS Element Title					
	5. Estimate Level				6. WBS Title	7. WBS Code
	1	2	3	4		
44			x		HVAC Ductwork Removal	3.4.11
45			x		Penthouse (Bldg 58)	3.4.12
46				x	Filterbank Removal	3.4.12.1
47				x	Area Decontamination	3.4.12.2
48				x	Structure Removal	3.4.12.3
49			x		Roof Removal	3.4.13
50			x		Building Demolition	3.4.14
51			x		Stacks (3)	3.4.15
52			x	x	Preparations	3.4.15.1
53				x	Decontamination	3.4.15.2
54				x	Demolition	3.4.15.3
55			x		Slab Demolition	3.4.16
56			x		Soil Excavation	3.4.17
57		x			Waste Disposal	3.5
58			x		Waste Packaging	3.5.1
59			x		Waste Transportation	3.5.2
60			x		Waste Disposal	3.5.3
61		x			Independent Verification Contractor (IVC)	3.6
62			x		IVC Survey	3.6.1
63			x		IVC Report	3.6.2
64		x			Site Restoration	3.7
65			x		Backfill & Compaction	3.7.1
66			x		Seeding, Mulching, Fertilizing & Landscaping	3.7.2

C

VOLUME II
APPENDIX C
DETAILED ESTIMATE
SW/R TRITIUM COMPLEX D&D
FOR UNRESTRICTED RELEASE (1,000 Ci/yr Case)

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

T E C (3.0) SW/R TRITIUM COMPLEX D&D - 1,000 Ci / yr

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.1	PROJECT MANAGEMENT	37,442	5,095,956	1,107,816	775,472	775,472	0	7,754,715
3.2	ENGINEERING	35,158	3,721,778	531,683	531,683	531,683	0	5,316,825
3.3	SITE SERVICES	61,360	4,639,583	133,347	55,000	500,000	4,000,000	9,327,930
3.4	SW/R TRITIUM COMPLEX D&D ACTIVITIES	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211
3.5	WASTE DISPOSAL	30,203	2,283,760	11,871,866	12,020	1,691,854	11,122,749	26,982,249
3.6	INDEPENDENT VERIFICATION CONTRACTOR (IVC)	0	0	0	0	0	170,000	170,000
3.7	SITE RESTORATION	1,213	91,741	51,385	6,058	10,000	0	159,184
	SUBTOTAL	541,781	39,717,175	16,306,341	1,901,541	4,813,308	15,292,749	78,031,113
								0
								0
								0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	541,781	39,717,175	16,306,341	1,901,541	4,813,308	15,292,749	78,031,113
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	541,781	39,717,175	16,306,341	1,901,541	4,813,308	15,292,749	78,031,113
0.00%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
19.01%	ESCALATION - AVERAGE EFFECTIVE RATE		7,550,235	3,099,835	361,483	915,010	2,907,152	14,833,715
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
18.80%	G & A Overhead		7,466,829	3,065,592	357,490	904,902	2,875,037	14,669,849
	SUBTOTAL - PROJECT LOADERS	0	15,017,064	6,165,427	718,973	1,819,912	5,782,188	29,503,564
	TOTAL PROJECT COST	541,781	54,734,239	22,471,768	2,620,513	6,633,219	21,074,938	107,534,677
40.00%	CONTINGENCY		21,893,696	8,988,707	1,048,205	2,653,288	8,429,975	43,013,871
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
	TOTAL	541,781	76,627,935	31,460,475	3,668,719	9,286,507	29,504,913	150,548,548

10/31/96 3:29 PM

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr
WBS NUMBER : 3.1.1
WBS DESCRIPTION: PROJECT MANAGEMENT ACTIVITIES

DETAIL ESTIMATE

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT COSTS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	**Project Management**	11	man yr	40,442	443,127	2,080	22,791	PM	$45.00	1,025,586	40,442	443,127	40,442	443,127	-	0	2,354,966
2	[based on 12% of project cost	0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	(less waste management costs)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
4	including Labor Burden]	0		0	0	0	0		0	0	0	0	0	0	0	0	0
5	*Labor Burden in 3.1 Summary	0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7	**Project Management Costs:**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
8	70% Labor (fully burdened)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
9	20% Material	0		0	0	0	0		0	0	0	0	0	0	0	0	0
10	10% Equipment	0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					443,127		22,791			1,025,586		443,127		443,127		0	2,354,966

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr
WBS NUMBER : 3.1.2
WBS DESCRIPTION: PROJECT CONTROLS

DETAIL ESTIMATE

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT COST	OTHER COSTS EXTENDED COST	SUBTOTAL
1	**Project Controls**	7	man yr	94,364	664,690	2,080	14,651	PM	$45.00	659,306	47,182	332,345	47,182	332,345	-	0	1,988,685
2	[based on 9% of project cost	0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	(less waste management costs)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
4	including Labor Burden]	0		0	0	0	0		0	0	0	0	0	0	0	0	0
5	*Labor Burden in 3.1 Summary	0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7	**Project Control Costs:**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
8	60% Labor (fully burdened)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
9	30% Material	0		0	0	0	0		0	0	0	0	0	0	0	0	0
10	10% Equipment	0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					664,690		14,651			659,306		332,345		332,345		0	1,988,685

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: BOB NEMADE
APPROVED BY: J.M. USHER

WBS - 3.2 - ENGINEERING

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.2.1	ENGINEERING	35,158	1,230,543	531,683	531,683	531,683	0	2,825,591
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	** Based on 14% of project cost (less Waste Managemen	0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
								0
								0
	SUBTOTAL	35,158	1,230,543	531,683	531,683	531,683	0	2,825,591
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	35,158	1,230,543	531,683	531,683	531,683	0	2,825,591
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)	0	0	0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	35,158	1,230,543	531,683	531,683	531,683	0	2,825,591
202.45%	LABOR BURDEN		2,491,235					2,491,235
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	2,491,235	0	0	0	0	2,491,235
	SUBTOTAL	35,158	3,721,778	531,683	531,683	531,683	0	5,316,825
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 3.2 -	ENGINEERING	35,158	3,721,778	531,683	531,683	531,683	0	5,316,825

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS: 3.2.1 ENGINEERING

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT of MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	**Engineering**	17	man yr	31,455	531,683	2080	35,158	ENG	$35.00	1,230,543	31,455	531,683	31,455	531,683	0	0	2,825,591
2	[based on 14% of project cost	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
3	(less waste management costs)	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
4	including Labor Burden]	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
5	*Labor Burden in 3.2 Summary	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
6		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
7	**Engineering Costs:**	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
8	70% Labor (fully burdened)	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
9	15% Material	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
10	10% Equipment	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
11	5% Subcontractors	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
12		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
13		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
14		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
15		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
16		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
17		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
18		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
19		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
20		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
21		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
22		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
23		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
24		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
25		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
26		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
27		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
28		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
29		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
30		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
31		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
32		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
33		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
34		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
35		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
36		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
37		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
38		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
39		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
40		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
41		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
42				0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
43		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
Subtotal					531,683		35,158			1,230,543		531,683		531,683		0	2,825,591

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.3 - SITE SERVICES

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.3.1	ENVIRONMENTAL MONITORING ACTIVITIES	11,440	286,000	0	55,000	0	0	341,000
3.3.2	UTILITIES	0	0	0	0	0	4,000,000	4,000,000
3.3.3	LABORATORY ANALYSIS	0	0	0	0	500,000	0	500,000
3.3.4	TERF/ERS OPERATION	49,920	1,248,000	133,347	0	0	0	1,381,347
								0
								0
	SUBTOTAL	61,360	1,534,000	133,347	55,000	500,000	4,000,000	6,222,347
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	61,360	1,534,000	133,347	55,000	500,000	4,000,000	6,222,347
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	61,360	1,534,000	133,347	55,000	500,000	4,000,000	6,222,347
202.45%	LABOR BURDEN		3,105,583					3,105,583
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	3,105,583	0	0	0	0	3,105,583
	SUBTOTAL	61,360	4,639,583	133,347	55,000	500,000	4,000,000	9,327,930
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 3.3 - SITE SERVICES		61,360	4,639,583	133,347	55,000	500,000	4,000,000	9,327,930

SW/R TRITI' COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.3.1 ENVIRONMENTAL MONITORING ACTIVITIES

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL		LABOR					EQUIPMENT		SUBCONTRACTS		OTHER COSTS		SUBTOTAL
				UNIT COST	EXTENDED COST	UNIT HOURS	HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS XTENDE	UNIT RATE	EXTENDED COST	UNIT RATE	EXTENDED COST	UNIT RATE	EXTENDED COST	
1	Env. Monitoring	5.5	man yr	0	0	2,080	11,440	COMP	$25.00	286,000	10000	55,000	0	0	0	0	341,000
2	(.5 FTE during D&D Activities)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	(11 years)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		11,440			286,000		55,000		0		0	341,000

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.3.2 UTILITIES

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS XTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Annual Utility Cost	8	yr	0	0		0	COMP	$25.00	0		0	0	0	500000	4,000,000	4,000,000
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		4,000,000	4,000,000

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.3.3 LABORATORY ANALYSIS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL		LABOR					EQUIPMENT		SUBCONTRACTS		OTHER COSTS		SUBTOTAL
				UNIT COST	EXTENDED COST	UNIT HOURS	HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS XTENDE	UNIT RATE	EXTENDED COST	UNIT RATE	EXTENDED COST	UNIT RATE	EXTENDED COST	
1	Laboratory Analysis Support	1	lot	0	0	0	0		0	0	0	0	500000	500,000	0	0	500,000
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		500,000		0	500,000

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.3.4 TERF/ERS OPERATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS XTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	TERF/ERS Operation(8 Yrs.)	24	man yr	0	0	2,080	49,920	COMP	$25.00	1,248,000	0	0	0	0	0	0	1,248,000
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	Allowance for Tritiated Water	973	ea	137	133,347	0	0		0	0	0	0	0	0	0	0	133,347
4	(28 liters every 3 days)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					133,347		49,920			1,248,000		0		0		0	1,381,347

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4 - SW/R TRITIUM COMPLEX D&D ACTIVITIES

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.1	SW/R TRITIUM COMPLEX AREA A	32,610	1,935,378	225,376	22,136	0	0	2,182,890
3.4.2	SW/R TRITIUM COMPLEX AREA B	54,279	3,366,510	500,821	23,024	0	0	3,890,355
3.4.3	SW/R TRITIUM COMPLEX AREA C	92,505	5,847,495	718,636	22,256	0	0	6,588,388
3.4.4	SW/R TRITIUM COMPLEX AREA D	53,450	3,299,227	433,964	14,936	0	0	3,748,127
3.4.5	SW/R TRITIUM COMPLEX AREA E	40,259	2,407,561	369,742	33,404	0	0	2,810,707
3.4.6	SW/R TRITIUM COMPLEX AREA F	17,645	1,055,316	129,881	14,936	0	0	1,200,133
3.4.7	SW/R TRITIUM COMPLEX AREA G	32,835	1,978,923	172,413	14,936	0	0	2,166,272
3.4.8	INTERIOR WALL REMOVAL	7,799	589,673	0	21,583	0	0	611,256
3.4.9	UTILITY REMOVAL	0	0	0	0	490,000	0	490,000
3.4.10	INTERIOR DECONTAMINATION	6,859	518,629	27,280	8,742	0	0	554,651
3.4.11	HVAC DUCTWORK REMOVAL	3,721	281,333	0	10,000	0	0	291,333
3.4.12	PENTHOUSE (BLDG 58)	8,629	652,488	28,349	54,800	0	0	735,636
3.4.13	ROOF REMOVAL	1,008	76,217	0	2,352	0	0	78,569
3.4.14	BUILDING DEMOLITION	10,796	816,300	0	104,685	0	0	920,985
3.4.15	STACKS (3)	320	24,196	896	10,000	458,500	0	493,592
3.4.16	SLAB DEMOLITION	3,744	283,078	0	15,605	325,000	0	623,684
3.4.17	SOIL EXCAVATION	9,946	752,034	2,886	147,914	30,800	0	933,634
	SUBTOTAL	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211
0.00%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)						0	0
0.00%	PERMITS						0	0
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR		0					0
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	0	0	0	0	0	0
	SUBTOTAL	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 3.4 -	SW/R TRITIUM COMPLEX D&D ACTIVITIES	376,404	23,884,358	2,610,244	521,309	1,304,300	0	28,320,211

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.1 - SW/R TRITIUM COMPLEX AREA A

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.1.1	PREPARATIONS	238	5,950	225,376	22,136	0	0	253,462
3.4.1.2	GLOVEBOX / FUMEHOOD REMOVAL	13,774	316,058	0	0	0	0	316,058
3.4.1.3	MISCELLANEOUS EQUIPMENT REMOVAL	6,733	122,017	0	0	0	0	122,017
3.4.1.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	11,865	195,875	0	0	0	0	195,875
	SUBTOTAL	32,610	639,900	225,376	22,136	0	0	887,412
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	32,610	639,900	225,376	22,136	0	0	887,412
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	32,610	639,900	225,376	22,136	0	0	887,412
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,295,478					1,295,478
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,295,478	0	0	0	0	1,295,478
	SUBTOTAL	32,610	1,935,378	225,376	22,136	0	0	2,182,890
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.1 - SW/R TRITIUM COMPLEX AREA A		32,610	1,935,378	225,376	22,136	0	0	2,182,890

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.1.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
6	Portable Temporary Lights	2	set	500	1,000	80	160	COMP	$25.00	4,000	0	0	0	0	0	0	5,000
7	GFI Portable Power (cords)	2	ea	250	500	24	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,700
8		6	mn	0	0	0	0	COMP	$25.00	0	870	5,220	0	0	0	0	5,220
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		6	mn	0	0	0	0	COMP	$25.00	0	350	2,100	0	0	0	0	2,100
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials (per MTES)	1	lot	2358	2,358	0	0	COMP	$25.00	0	0	0	0	0	0	0	2,358
22	Bubble Suit	447	ea	290	129,630	0	5	COMP	$25.00	125	0	0	0	0	0	0	129,755
23	Supplied Air Unit	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250sfca ea.)	500	sfca	1.16	580	0	25	COMP	$25.00	625	0	0	0	0	0	0	1,205
25	Additional PPE	32610	hr	2.8	91,308	0	0	COMP	$25.00	0	0	0	0	0	0	0	91,308
26		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
27		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
28		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
29		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
30		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
31		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
32		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
33		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
34		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
35		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
36		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
37		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
38		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
39		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
40		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
Subtotal					225,376		238			5,950		22,136		0		0	253,462

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.1.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glove box/fumehood	40	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	865	hr	0	0	1.00	865	LT	$44.25	38,276	0	0	0	0	0	0	38,276
3	Process Technician	3765	hr	0	0	1.00	3,765	PT	$31.78	119,652	0	0	0	0	0	0	119,652
4	Fabrication Mechanic	2456	hr	0	0	1.00	2,456	FM	$18.19	44,675	0	0	0	0	0	0	44,675
5	Pipefitter / Welder	2010	hr	0	0	1.00	2,010	PW	$18.32	36,823	0	0	0	0	0	0	36,823
6	Electrician	150	hr	0	0	1.00	150	E	$24.73	3,710	0	0	0	0	0	0	3,710
7	R C Technician	2224	hr	0	0	1.00	2,224	RCT	$18.19	40,455	0	0	0	0	0	0	40,455
8	Decon Worker	1831	hr	0	0	1.00	1,831	D	$13.00	23,803	0	0	0	0	0	0	23,803
9	Heavy duty operator	473	hr	0	0	1.00	473	HO	$18.32	8,665	0	0	0	0	0	0	8,665
10		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
11		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
12		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
13		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
14		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
15		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
16		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
17		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
18		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
19		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		13,774			316,058		0		0		0	316,058

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.1.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	192	hr	0	0	1	192	FM	$18.19	3,492	0	0	0	0	0	0	3,492
4	Pipefitter / Welder	4	hr	0	0	1	4	PW	$18.32	73	0	0	0	0	0	0	73
5	Electrician	1722	hr	0	0	1	1,722	E	$24.73	42,585	0	0	0	0	0	0	42,585
6	R C Technician	2,557	hr	0	0	1	2,557	RCT	$18.19	46,512	0	0	0	0	0	0	46,512
7	Decon Worker	2258	hr	0	0	1	2,258	D	$13.00	29,354	0	0	0	0	0	0	29,354
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		6,733			122,017		0		0		0	122,017

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.1.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician		hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician		hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic		hr	0	0	1	0	FM	$18.19	0	0	0	0	0	0	0	0
4	Pipefitter / Welder	3948	hr	0	0	1	3,948	PW	$18.32	72,327	0	0	0	0	0	0	72,327
5	Electrician	9	hr	0	0	1	9	E	$24.73	223	0	0	0	0	0	0	223
6	R C Technician	3954	hr	0	0	1	3,954	RCT	$18.19	71,923	0	0	0	0	0	0	71,923
7	Decon Worker	3954	hr	0	0	1	3,954	D	$13.00	51,402	0	0	0	0	0	0	51,402
8				0	0	0	0	0	0	0	0	0	0	0	0	0	0
9				0	0	0	0	0	0	0	0	0	0	0	0	0	0
10				0	0	0	0	0	0	0	0	0	0	0	0	0	0
11				0	0	0	0	0	0	0	0	0	0	0	0	0	0
12				0	0	0	0	0	0	0	0	0	0	0	0	0	0
13				0	0	0	0	0	0	0	0	0	0	0	0	0	0
14				0	0	0	0	0	0	0	0	0	0	0	0	0	0
15				0	0	0	0	0	0	0	0	0	0	0	0	0	0
16				0	0	0	0	0	0	0	0	0	0	0	0	0	0
17				0	0	0	0	0	0	0	0	0	0	0	0	0	0
18				0	0	0	0	0	0	0	0	0	0	0	0	0	0
19				0	0	0	0	0	0	0	0	0	0	0	0	0	0
20				0	0	0	0	0	0	0	0	0	0	0	0	0	0
21				0	0	0	0	0	0	0	0	0	0	0	0	0	0
22				0	0	0	0	0	0	0	0	0	0	0	0	0	0
23				0	0	0	0	0	0	0	0	0	0	0	0	0	0
24				0	0	0	0	0	0	0	0	0	0	0	0	0	0
25				0	0	0	0	0	0	0	0	0	0	0	0	0	0
26				0	0	0	0	0	0	0	0	0	0	0	0	0	0
27				0	0	0	0	0	0	0	0	0	0	0	0	0	0
28				0	0	0	0	0	0	0	0	0	0	0	0	0	0
29				0	0	0	0	0	0	0	0	0	0	0	0	0	0
30				0	0	0	0	0	0	0	0	0	0	0	0	0	0
31				0	0	0	0	0	0	0	0	0	0	0	0	0	0
32				0	0	0	0	0	0	0	0	0	0	0	0	0	0
33				0	0	0	0	0	0	0	0	0	0	0	0	0	0
34				0	0	0	0	0	0	0	0	0	0	0	0	0	0
35				0	0	0	0	0	0	0	0	0	0	0	0	0	0
36				0	0	0	0	0	0	0	0	0	0	0	0	0	0
37				0	0	0	0	0	0	0	0	0	0	0	0	0	0
38				0	0	0	0	0	0	0	0	0	0	0	0	0	0
39				0	0	0	0	0	0	0	0	0	0	0	0	0	0
40				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal					0		11,865			195,875		0		0		0	195,875

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.2 - SW/R TRITIUM COMPLEX AREA B

			DOLLARS					
Work Code	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.2.1	PREPARATIONS	1,925	48,125	500,821	23,024	0	0	571,970
3.4.2.2	GLOVEBOX / FUMEHOOD REMOVAL	27,085	623,055	0	0	0	0	623,055
3.4.2.3	MISCELLANEOUS EQUIPMENT REMOVAL	12,795	235,951	0	0	0	0	235,951
3.4.2.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	12,474	205,949	0	0	0	0	205,949
	SUBTOTAL	54,279	1,113,080	500,821	23,024	0	0	1,636,925
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	54,279	1,113,080	500,821	23,024	0	0	1,636,925
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	54,279	1,113,080	500,821	23,024	0	0	1,636,925
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		2,253,430					2,253,430
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	2,253,430	0	0	0	0	2,253,430
	SUBTOTAL	54,279	3,366,510	500,821	23,024	0	0	3,890,355
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.2 - SW/R TRITIUM COMPLEX AREA B		54,279	3,366,510	500,821	23,024	0	0	3,890,355

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.2.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	15	mn	0	0	0	0	COMP	$25.00	0	30	450	0	0	0	0	450
2	Saw Blades	45	ea	0	0	0	0	COMP	$25.00	0	9	405	0	0	0	0	405
3	Portable Band Saws	8	mn	0	0	0	0	COMP	$25.00	0	48	384	0	0	0	0	384
4	Band Saw Blades	30	ea	0	0	0	0	COMP	$25.00	0	18	540	0	0	0	0	540
5	Pallet Jack	15	mn	0	0	0	0	COMP	$25.00	0	20	300	0	0	0	0	300
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	15	mn	0	0	0	0	COMP	$25.00	0	125	1,875	0	0	0	0	1,875
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	15	mn	0	0	0	0	COMP	$25.00	0	250	3,750	0	0	0	0	3,750
12	Electric Sheet Metal Cutters	15	mn	0	0	0	0	COMP	$25.00	0	108	1,620	0	0	0	0	1,620
13	Portable Dry Vacuum (hepa) Sys	15	mn	0	0	0	0	COMP	$25.00	0	185	2,775	0	0	0	0	2,775
14	Portable Wet Vacuum System	15	mn	0	0	0	0	COMP	$25.00	0	95	1,425	0	0	0	0	1,425
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	64800	64,800	0	0	COMP	$25.00	0	0	0	0	0	0	0	64,800
22	Bubble Suits	867	ea	290	251,430	0	154	COMP	$25.00	3,850	0	0	0	0	0	0	255,280
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	33500	sfca	1.16	38,860	0	1,675	COMP	$25.00	41,875	0	0	0	0	0	0	80,735
25	Additional PPE	51511	hr	2.8	144,231	0	0		0	0	0	0	0	0	0	0	144,231
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					500,821		1,925			48,125		23,024		0		0	571,970

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.2.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	54	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	1757	hr	0	0	1.00	1,757	LT	$44.25	77,747	0	0	0	0	0	0	77,747
3	Process Technician	7618	hr	0	0	1.00	7,618	PT	$31.78	242,100	0	0	0	0	0	0	242,100
4	Fabrication Mechanic	3751	hr	0	0	1.00	3,751	FM	$18.19	68,231	0	0	0	0	0	0	68,231
5	Pipefitter / Welder	4366	hr	0	0	1.00	4,366	PW	$18.32	79,985	0	0	0	0	0	0	79,985
6	Electrician	260	hr	0	0	1.00	260	E	$24.73	6,430	0	0	0	0	0	0	6,430
7	R C Technician	4421	hr	0	0	1.00	4,421	RCT	$18.19	80,418	0	0	0	0	0	0	80,418
8	Decon Worker	4106	hr	0	0	1.00	4,106	D	$13.00	53,378	0	0	0	0	0	0	53,378
9	Heavy duty operator	806	hr	0	0	1.00	806	X	$18.32	14,766	0	0	0	0	0	0	14,766
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		27,085			623,055		0		0		0	623,055

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.2.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	324	hr	0	0	1	324	FM	$18.19	5,894	0	0	0	0	0	0	5,894
4	Pipefitter / Welder	4	hr	0	0	1	4	PW	$18.32	73	0	0	0	0	0	0	73
5	Electrician	3861	hr	0	0	1	3,861	E	$24.73	95,483	0	0	0	0	0	0	95,483
6	R C Technician	4,359	hr	0	0	1	4,359	RCT	$18.19	79,290	0	0	0	0	0	0	79,290
7	Decon Worker	4247	hr	0	0	1	4,247	D	$13.00	55,211	0	0	0	0	0	0	55,211
8		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
11		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
12		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
13		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
14		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0		0	0	0	0			0	0	0	0	0	0	0	0
17		0		0	0	0	0			0	0	0	0	0	0	0	0
18		0		0	0	0	0			0	0	0	0	0	0	0	0
19		0		0	0	0	0			0	0	0	0	0	0	0	0
20		0		0	0	0	0			0	0	0	0	0	0	0	0
21		0		0	0	0	0			0	0	0	0	0	0	0	0
22		0		0	0	0	0			0	0	0	0	0	0	0	0
23		0		0	0	0	0			0	0	0	0	0	0	0	0
24		0		0	0	0	0			0	0	0	0	0	0	0	0
25		0		0	0	0	0			0	0	0	0	0	0	0	0
26		0		0	0	0	0			0	0	0	0	0	0	0	0
27		0		0	0	0	0			0	0	0	0	0	0	0	0
28		0		0	0	0	0			0	0	0	0	0	0	0	0
29		0		0	0	0	0			0	0	0	0	0	0	0	0
30		0		0	0	0	0			0	0	0	0	0	0	0	0
31		0		0	0	0	0			0	0	0	0	0	0	0	0
32		0		0	0	0	0			0	0	0	0	0	0	0	0
33		0		0	0	0	0			0	0	0	0	0	0	0	0
34		0		0	0	0	0			0	0	0	0	0	0	0	0
35		0		0	0	0	0			0	0	0	0	0	0	0	0
36		0		0	0	0	0			0	0	0	0	0	0	0	0
37		0		0	0	0	0			0	0	0	0	0	0	0	0
38		0		0	0	0	0			0	0	0	0	0	0	0	0
39		0		0	0	0	0			0	0	0	0	0	0	0	0
40		0		0	0	0	0			0	0	0	0	0	0	0	0
Subtotal					0		12,795			235,951		0		0		0	235,951

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.2.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	18	hr	0	0	1	18	FM	$18.19	327	0	0	0	0	0	0	327
4	Pipefitter / Welder	4134	hr	0	0	1	4,134	PW	$18.32	75,735	0	0	0	0	0	0	75,735
5	Electrician	9	hr	0	0	1	9	E	$24.73	223	0	0	0	0	0	0	223
6	R C Technician	4161	hr	0	0	1	4,161	RCT	$18.19	75,689	0	0	0	0	0	0	75,689
7	Decon Worker	4152	hr	0	0	1	4,152	D	$13.00	53,976	0	0	0	0	0	0	53,976
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		12,474			205,949		0		0		0	205,949

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.3 - SW/R TRITIUM COMPLEX AREA C

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.3.1	PREPARATIONS	279	6,975	718,636	22,256	0	0	747,867
3.4.3.2	GLOVEBOX / FUMEHOOD REMOVAL	57,279	1,319,870	0	0	0	0	1,319,870
3.4.3.3	MISCELLANEOUS EQUIPMENT REMOVAL	14,544	269,488	0	0	0	0	269,488
3.4.3.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	20,403	337,042	0	0	0	0	337,042
	SUBTOTAL	92,505	1,933,376	718,636	22,256	0	0	2,674,268
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	92,505	1,933,376	718,636	22,256	0	0	2,674,268
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	92,505	1,933,376	718,636	22,256	0	0	2,674,268
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		3,914,119					3,914,119
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	3,914,119	0	0	0	0	3,914,119
	SUBTOTAL	92,505	5,847,495	718,636	22,256	0	0	6,588,388
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.3 - SW/R TRITIUM COMPLEX AREA C		92,505	5,847,495	718,636	22,256	0	0	6,588,388

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.3.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		6	mn	0	0	0	0	COMP	$25.00	0	870	5,220	0	0	0	0	5,220
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		6	mn	0	0	0	0	COMP	$25.00	0	350	2,100	0	0	0	0	2,100
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4855	4,855	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,855
22	Bubble Suits	1549	ea	290	449,210	0	8	COMP	$25.00	200	0	0	0	0	0	0	449,410
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	3500	sfca	1.16	4,060	0	175	COMP	$25.00	4,375	0	0	0	0	0	0	8,435
25	Additional PPE	92504	hr	2.8	259,011	0	0		0	0	0	0	0	0	0	0	259,011
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					718,636		279			6,975		22,256		0		0	747,867

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.3.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	106	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	3678	hr	0	0	1.00	3,678	LT	$44.25	162,752	0	0	0	0	0	0	162,752
3	Process Technician	16164	hr	0	0	1.00	16,164	PT	$31.78	513,692	0	0	0	0	0	0	513,692
4	Fabrication Mechanic	8148	hr	0	0	1.00	8,148	FM	$18.19	148,212	0	0	0	0	0	0	148,212
5	Pipefitter / Welder	9213	hr	0	0	1.00	9,213	PW	$18.32	168,782	0	0	0	0	0	0	168,782
6	Electrician	618	hr	0	0	1.00	618	E	$24.73	15,283	0	0	0	0	0	0	15,283
7	R C Technician	9248	hr	0	0	1.00	9,248	RCT	$18.19	168,221	0	0	0	0	0	0	168,221
8	Decon Worker	8293	hr	0	0	1.00	8,293	D	$13.00	107,809	0	0	0	0	0	0	107,809
9	Heavy duty operator	1917	hr	0	0	1.00	1,917	X	$18.32	35,119	0	0	0	0	0	0	35,119
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		57,279			1,319,870		0		0		0	1,319,870

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.3.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	1	hr	0	0	1	1	LT	$44.25	44	0	0	0	0	0	0	44
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	230	hr	0	0	1	230	FM	$18.19	4,184	0	0	0	0	0	0	4,184
4	Pipefitter / Welder	11	hr	0	0	1	11	PW	$18.32	202	0	0	0	0	0	0	202
5	Electrician	4591	hr	0	0	1	4,591	E	$24.73	113,535	0	0	0	0	0	0	113,535
6	R C Technician	4,871	hr	0	0	1	4,871	RCT	$18.19	88,603	0	0	0	0	0	0	88,603
7	Decon Worker	4840	hr	0	0	1	4,840	D	$13.00	62,920	0	0	0	0	0	0	62,920
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		14,544			269,488		0		0		0	269,488

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.3.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	18	hr	0	0	1	18	FM	$18.19	327	0	0	0	0	0	0	327
4	Pipefitter / Welder	6732	hr	0	0	1	6,732	PW	$18.32	123,330	0	0	0	0	0	0	123,330
5	Electrician	51	hr	0	0	1	51	E	$24.73	1,261	0	0	0	0	0	0	1,261
6	R C Technician	6801	hr	0	0	1	6,801	RCT	$18.19	123,710	0	0	0	0	0	0	123,710
7	Decon Worker	6801	hr	0	0	1	6,801	D	$13.00	88,413	0	0	0	0	0	0	88,413
8				0	0	0	0		0	0	0	0	0	0	0	0	0
9				0	0	0	0		0	0	0	0	0	0	0	0	0
10					0	0	0		0	0	0	0	0	0	0	0	0
11				0	0	0	0		0	0	0	0	0	0	0	0	0
12				0	0	0	0		0	0	0	0	0	0	0	0	0
13				0	0	0	0		0	0	0	0	0	0	0	0	0
14				0	0	0	0		0	0	0	0	0	0	0	0	0
15				0	0	0	0		0	0	0	0	0	0	0	0	0
16				0	0	0	0		0	0	0	0	0	0	0	0	0
17				0	0	0	0		0	0	0	0	0	0	0	0	0
18				0	0	0	0		0	0	0	0	0	0	0	0	0
19				0	0	0	0		0	0	0	0	0	0	0	0	0
20				0	0	0	0		0	0	0	0	0	0	0	0	0
21				0	0	0	0		0	0	0	0	0	0	0	0	0
22				0	0	0	0		0	0	0	0	0	0	0	0	0
23				0	0	0	0		0	0	0	0	0	0	0	0	0
24				0	0	0	0		0	0	0	0	0	0	0	0	0
25					0	0	0		0	0	0	0	0	0	0	0	0
26				0	0	0	0		0	0	0	0	0	0	0	0	0
27				0	0	0	0		0	0	0	0	0	0	0	0	0
28				0	0	0	0		0	0	0	0	0	0	0	0	0
29				0	0	0	0		0	0	0	0	0	0	0	0	0
30				0	0	0	0		0	0	0	0	0	0	0	0	0
31				0	0	0	0		0	0	0	0	0	0	0	0	0
32				0	0	0	0		0	0	0	0	0	0	0	0	0
33				0	0	0	0		0	0	0	0	0	0	0	0	0
34				0	0	0	0		0	0	0	0	0	0	0	0	0
35				0	0	0	0		0	0	0	0	0	0	0	0	0
36				0	0	0	0		0	0	0	0	0	0	0	0	0
37				0	0	0	0		0	0	0	0	0	0	0	0	0
38				0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40					0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		20,403			337,042		0		0		0	337,042

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.4 - SW/R TRITIUM COMPLEX AREA D

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.4.1	PREPARATIONS	231	5,775	433,964	14,936	0	0	454,675
3.4.4.2	GLOVEBOX / FUMEHOOD REMOVAL	28,195	652,823	0	0	0	0	652,823
3.4.4.3	MISCELLANEOUS EQUIPMENT REMOVAL	9,814	180,442	0	0	0	0	180,442
3.4.4.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	15,210	251,793	0	0	0	0	251,793
	SUBTOTAL	53,450	1,090,834	433,964	14,936	0	0	1,539,734
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	53,450	1,090,834	433,964	14,936	0	0	1,539,734
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	53,450	1,090,834	433,964	14,936	0	0	1,539,734
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		2,208,393					2,208,393
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	2,208,393	0	0	0	0	2,208,393
	SUBTOTAL	53,450	3,299,227	433,964	14,936	0	0	3,748,127
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.4 - SW/R TRITIUM COMPLEX AREA D		53,450	3,299,227	433,964	14,936	0	0	3,748,127

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.4.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4404	4,404	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,404
22	Bubble Suits	950	ea	290	275,500	0	10	COMP	$25.00	250	0	0	0	0	0	0	275,750
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	2500	sfca	1.16	2,900	0	125	COMP	$25.00	3,125	0	0	0	0	0	0	6,025
25	Additional PPE	53450	hr	2.8	149,660	0	0		0	0	0	0	0	0	0	0	149,660
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					433,964		231			5,775		14,936		0		0	454,675

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.4.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	62	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	1798	hr	0	0	1.00	1,798	LT	$44.25	79,562	0	0	0	0	0	0	79,562
3	Process Technician	8428	hr	0	0	1.00	8,428	PT	$31.78	267,842	0	0	0	0	0	0	267,842
4	Fabrication Mechanic	3964	hr	0	0	1.00	3,964	FM	$18.19	72,105	0	0	0	0	0	0	72,105
5	Pipefitter / Welder	4166	hr	0	0	1.00	4,166	PW	$18.32	76,321	0	0	0	0	0	0	76,321
6	Electrician	300	hr	0	0	1.00	300	E	$24.73	7,419	0	0	0	0	0	0	7,419
7	R C Technician	4260	hr	0	0	1.00	4,260	RCT	$18.19	77,489	0	0	0	0	0	0	77,489
8	Decon Worker	4629	hr	0	0	1.00	4,629	D	$13.00	60,177	0	0	0	0	0	0	60,177
9	Heavy duty operator	650	hr	0	0	1.00	650	HO	$18.32	11,908	0	0	0	0	0	0	11,908
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		28,195			652,823		0		0		0	652,823

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.4.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	3	hr	0	0	1	3	LT	$44.25	133	0	0	0	0	0	0	133
2	Process Technician	7	hr	0	0	1	7	PT	$31.78	222	0	0	0	0	0	0	222
3	Fabrication Mechanic	208	hr	0	0	1	208	FM	$18.19	3,784	0	0	0	0	0	0	3,784
4	Pipefitter / Welder	24	hr	0	0	1	24	PW	$18.32	440	0	0	0	0	0	0	440
5	Electrician	2872	hr	0	0	1	2,872	E	$24.73	71,025	0	0	0	0	0	0	71,025
6	R C Technician	3,418	hr	0	0	1	3,418	RCT	$18.19	62,173	0	0	0	0	0	0	62,173
7	Decon Worker	3282	hr	0	0	1	3,282	D	$13.00	42,666	0	0	0	0	0	0	42,666
8				0	0	0	0		0	0	0	0	0	0	0	0	0
9				0	0	0	0		0	0	0	0	0	0	0	0	0
10				0	0	0	0		0	0	0	0	0	0	0	0	0
11				0	0	0	0		0	0	0	0	0	0	0	0	0
12				0	0	0	0		0	0	0	0	0	0	0	0	0
13				0	0	0	0		0	0	0	0	0	0	0	0	0
14				0	0	0	0		0	0	0	0	0	0	0	0	0
15				0	0	0	0		0	0	0	0	0	0	0	0	0
16				0	0	0	0		0	0	0	0	0	0	0	0	0
17				0	0	0	0		0	0	0	0	0	0	0	0	0
18				0	0	0	0		0	0	0	0	0	0	0	0	0
19				0	0	0	0		0	0	0	0	0	0	0	0	0
20				0	0	0	0		0	0	0	0	0	0	0	0	0
21				0	0	0	0		0	0	0	0	0	0	0	0	0
22				0	0	0	0		0	0	0	0	0	0	0	0	0
23				0	0	0	0		0	0	0	0	0	0	0	0	0
24				0	0	0	0		0	0	0	0	0	0	0	0	0
25				0	0	0	0		0	0	0	0	0	0	0	0	0
26				0	0	0	0		0	0	0	0	0	0	0	0	0
27				0	0	0	0		0	0	0	0	0	0	0	0	0
28				0	0	0	0		0	0	0	0	0	0	0	0	0
29				0	0	0	0		0	0	0	0	0	0	0	0	0
30				0	0	0	0		0	0	0	0	0	0	0	0	0
31				0	0	0	0		0	0	0	0	0	0	0	0	0
32				0	0	0	0		0	0	0	0	0	0	0	0	0
33				0	0	0	0		0	0	0	0	0	0	0	0	0
34				0	0	0	0		0	0	0	0	0	0	0	0	0
35				0	0	0	0		0	0	0	0	0	0	0	0	0
36				0	0	0	0		0	0	0	0	0	0	0	0	0
37				0	0	0	0		0	0	0	0	0	0	0	0	0
38				0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40				0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		9,814			180,442		0		0		0	180,442

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.4.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	6	hr	0	0	1	6	FM	$18.19	109	0	0	0	0	0	0	109
4	Pipefitter / Welder	5106	hr	0	0	1	5,106	PW	$18.32	93,542	0	0	0	0	0	0	93,542
5	Electrician	42	hr	0	0	1	42	E	$24.73	1,039	0	0	0	0	0	0	1,039
6	R C Technician	5082	hr	0	0	1	5,082	RCT	$18.19	92,442	0	0	0	0	0	0	92,442
7	Decon Worker	4974	hr	0	0	1	4,974	D	$13.00	64,662	0	0	0	0	0	0	64,662
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		15,210			251,793		0		0		0	251,793

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.5 - SW/R TRITIUM COMPLEX AREA E

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.5.1	PREPARATIONS	3,038	75,950	369,742	33,404	0	0	479,096
3.4.5.2	GLOVEBOX / FUMEHOOD REMOVAL	8,366	194,157	0	0	0	0	194,157
3.4.5.3	MISCELLANEOUS EQUIPMENT REMOVAL	24,676	456,863	0	0	0	0	456,863
3.4.5.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	4,179	69,049	0	0	0	0	69,049
	SUBTOTAL	40,259	796,020	369,742	33,404	0	0	1,199,166
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	40,259	796,020	369,742	33,404	0	0	1,199,166
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	40,259	796,020	369,742	33,404	0	0	1,199,166
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,611,542					1,611,542
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,611,542	0	0	0	0	1,611,542
	SUBTOTAL	40,259	2,407,561	369,742	33,404	0	0	2,810,707
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.5 - SW/R TRITIUM COMPLEX AREA E		40,259	2,407,561	369,742	33,404	0	0	2,810,707

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.5.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	24	mn	0	0	0	0	COMP	$25.00	0	30	720	0	0	0	0	720
2	Saw Blades	120	ea	0	0	0	0	COMP	$25.00	0	9	1,080	0	0	0	0	1,080
3	Portable Band Saws	24	mn	0	0	0	0	COMP	$25.00	0	48	1,152	0	0	0	0	1,152
4	Band Saw Blades	120	ea	0	0	0	0	COMP	$25.00	0	18	2,160	0	0	0	0	2,160
5	Pallet Jack	24	mn	0	0	0	0	COMP	$25.00	0	20	480	0	0	0	0	480
6	Portable Temporary Lights	4	set	500	2,000	40	160	COMP	$25.00	4,000	0	0	0	0	0	0	6,000
7	GFI Portable Power (cords)	8	ea	250	2,000	8	64	COMP	$25.00	1,600	0	0	0	0	0	0	3,600
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	24	mn	0	0	0	0	COMP	$25.00	0	125	3,000	0	0	0	0	3,000
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	24	mn	0	0	0	0	COMP	$25.00	0	250	6,000	0	0	0	0	6,000
12	Electric Sheet Metal Cutters	24	mn	0	0	0	0	COMP	$25.00	0	108	2,592	0	0	0	0	2,592
13	Portable Dry Vacuum (hepa) Sys	24	mn	0	0	0	0	COMP	$25.00	0	185	4,440	0	0	0	0	4,440
14	Portable Wet Vacuum System	24	mn	0	0	0	0	COMP	$25.00	0	95	2,280	0	0	0	0	2,280
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	106277	106,277	0	0	COMP	$25.00	0	0	0	0	0	0	0	106,277
22	Bubble Suits	301	ea	290	87,290	0	251	COMP	$25.00	6,275	0	0	0	0	0	0	93,565
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	51250	sfca	1.16	59,450	0	2,563	COMP	$25.00	64,075	0	0	0	0	0	0	123,525
25	Additional PPE	40259	hr	2.8	112,725	0	0		0	0	0	0	0	0	0	0	112,725
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					369,742		3,038			75,950		33,404		0		0	479,096

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.5.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	20	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	477	hr	0	0	1.00	477	LT	$44.25	21,107	0	0	0	0	0	0	21,107
3	Process Technician	2701	hr	0	0	1.00	2,701	PT	$31.78	85,838	0	0	0	0	0	0	85,838
4	Fabrication Mechanic	1223	hr	0	0	1.00	1,223	FM	$18.19	22,246	0	0	0	0	0	0	22,246
5	Pipefitter / Welder	1097	hr	0	0	1.00	1,097	PW	$18.32	20,097	0	0	0	0	0	0	20,097
6	Electrician	136	hr	0	0	1.00	136	E	$24.73	3,363	0	0	0	0	0	0	3,363
7	R C Technician	1070	hr	0	0	1.00	1,070	RCT	$18.19	19,463	0	0	0	0	0	0	19,463
8	Decon Worker	1580	hr	0	0	1.00	1,580	D	$13.00	20,540	0	0	0	0	0	0	20,540
9	Heavy duty operator	82	hr	0	0	1.00	82	HO	$18.32	1,502	0	0	0	0	0	0	1,502
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		8,366			194,157		0		0		0	194,157

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.5.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	183	hr	0	0	1	183	FM	$18.19	3,329	0	0	0	0	0	0	3,329
4	Pipefitter / Welder	6	hr	0	0	1	6	PW	$18.32	110	0	0	0	0	0	0	110
5	Electrician	7745	hr	0	0	1	7,745	E	$24.73	191,534	0	0	0	0	0	0	191,534
6	R C Technician	8,525	hr	0	0	1	8,525	RCT	$18.19	155,070	0	0	0	0	0	0	155,070
7	Decon Worker	8217	hr	0	0	1	8,217	D	$13.00	106,821	0	0	0	0	0	0	106,821
8				0	0	0	0		0	0	0	0	0	0	0	0	0
9				0	0	0	0		0	0	0	0	0	0	0	0	0
10				0	0	0	0		0	0	0	0	0	0	0	0	0
11				0	0	0	0		0	0	0	0	0	0	0	0	0
12				0	0	0	0		0	0	0	0	0	0	0	0	0
13				0	0	0	0		0	0	0	0	0	0	0	0	0
14				0	0	0	0		0	0	0	0	0	0	0	0	0
15				0	0	0	0		0	0	0	0	0	0	0	0	0
16				0	0	0	0		0	0	0	0	0	0	0	0	0
17				0	0	0	0		0	0	0	0	0	0	0	0	0
18				0	0	0	0		0	0	0	0	0	0	0	0	0
19				0	0	0	0		0	0	0	0	0	0	0	0	0
20				0	0	0	0		0	0	0	0	0	0	0	0	0
21				0	0	0	0		0	0	0	0	0	0	0	0	0
22				0	0	0	0		0	0	0	0	0	0	0	0	0
23				0	0	0	0		0	0	0	0	0	0	0	0	0
24				0	0	0	0		0	0	0	0	0	0	0	0	0
25				0	0	0	0		0	0	0	0	0	0	0	0	0
26				0	0	0	0		0	0	0	0	0	0	0	0	0
27				0	0	0	0		0	0	0	0	0	0	0	0	0
28				0	0	0	0		0	0	0	0	0	0	0	0	0
29				0	0	0	0		0	0	0	0	0	0	0	0	0
30				0	0	0	0		0	0	0	0	0	0	0	0	0
31				0	0	0	0		0	0	0	0	0	0	0	0	0
32				0	0	0	0		0	0	0	0	0	0	0	0	0
33				0	0	0	0		0	0	0	0	0	0	0	0	0
34				0	0	0	0		0	0	0	0	0	0	0	0	0
35				0	0	0	0		0	0	0	0	0	0	0	0	0
36				0	0	0	0		0	0	0	0	0	0	0	0	0
37				0	0	0	0		0	0	0	0	0	0	0	0	0
38				0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40				0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		24,676			456,863		0		0		0	456,863

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.5.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	6	hr	0	0	1	6	FM	$18.19	109	0	0	0	0	0	0	109
4	Pipefitter / Welder	1377	hr	0	0	1	1,377	PW	$18.32	25,227	0	0	0	0	0	0	25,227
5	Electrician	12	hr	0	0	1	12	E	$24.73	297	0	0	0	0	0	0	297
6	R C Technician	1392	hr	0	0	1	1,392	RCT	$18.19	25,320	0	0	0	0	0	0	25,320
7	Decon Worker	1392	hr	0	0	1	1,392	D	$13.00	18,096	0	0	0	0	0	0	18,096
8				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					0		4,179			69,049		0		0		0	69,049

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.6 - SW/R TRITIUM COMPLEX AREA F

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.6.1	PREPARATIONS	205	5,125	129,881	14,936	0	0	149,942
3.4.6.2	GLOVEBOX / FUMEHOOD REMOVAL	7,186	166,725	0	0	0	0	166,725
3.4.6.3	MISCELLANEOUS EQUIPMENT REMOVAL	4,494	81,996	0	0	0	0	81,996
3.4.6.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	5,760	95,076	0	0	0	0	95,076
	SUBTOTAL	17,645	348,922	129,881	14,936	0	0	493,739
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	17,645	348,922	129,881	14,936	0	0	493,739
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	17,645	348,922	129,881	14,936	0	0	493,739
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		706,394					706,394
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	706,394	0	0	0	0	706,394
	SUBTOTAL	17,645	1,055,316	129,881	14,936	0	0	1,200,133
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.6 - SW/R TRITIUM COMPLEX AREA F		17,645	1,055,316	129,881	14,936	0	0	1,200,133

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.6.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4155	4,155	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,155
22	Bubble Suits	250	ea	290	72,500	0	9	COMP	$25.00	225	0	0	0	0	0	0	72,725
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	2000	sfca	1.16	2,320	0	100	COMP	$25.00	2,500	0	0	0	0	0	0	4,820
25	Additional PPE	17645	hr	2.8	49,406	0	0		0	0	0	0	0	0	0	0	49,406
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					129,881		205			5,125		14,936		0		0	149,942

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.6.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	17	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	461	hr	0	0	1.00	461	LT	$44.25	20,399	0	0	0	0	0	0	20,399
3	Process Technician	2176	hr	0	0	1.00	2,176	PT	$31.78	69,153	0	0	0	0	0	0	69,153
4	Fabrication Mechanic	996	hr	0	0	1.00	996	FM	$18.19	18,117	0	0	0	0	0	0	18,117
5	Pipefitter / Welder	1056	hr	0	0	1.00	1,056	PW	$18.32	19,346	0	0	0	0	0	0	19,346
6	Electrician	77	hr	0	0	1.00	77	E	$24.73	1,904	0	0	0	0	0	0	1,904
7	R C Technician	1074	hr	0	0	1.00	1,074	RCT	$18.19	19,536	0	0	0	0	0	0	19,536
8	Decon Worker	1201	hr	0	0	1.00	1,201	D	$13.00	15,613	0	0	0	0	0	0	15,613
9	Heavy duty operator	145	hr	0	0	1.00	145	HO	$18.32	2,656	0	0	0	0	0	0	2,656
10		0		0	0	0	0			0	0	0	0	0	0	0	0
11		0		0	0	0	0			0	0	0	0	0	0	0	0
12		0		0	0	0	0			0	0	0	0	0	0	0	0
13		0		0	0	0	0			0	0	0	0	0	0	0	0
14		0		0	0	0	0			0	0	0	0	0	0	0	0
15		0		0	0	0	0			0	0	0	0	0	0	0	0
16		0		0	0	0	0			0	0	0	0	0	0	0	0
17		0		0	0	0	0			0	0	0	0	0	0	0	0
18		0		0	0	0	0			0	0	0	0	0	0	0	0
19		0		0	0	0	0			0	0	0	0	0	0	0	0
20		0		0	0	0	0			0	0	0	0	0	0	0	0
21		0		0	0	0	0			0	0	0	0	0	0	0	0
22		0		0	0	0	0			0	0	0	0	0	0	0	0
23		0		0	0	0	0			0	0	0	0	0	0	0	0
24		0		0	0	0	0			0	0	0	0	0	0	0	0
25		0		0	0	0	0			0	0	0	0	0	0	0	0
26		0		0	0	0	0			0	0	0	0	0	0	0	0
27		0		0	0	0	0			0	0	0	0	0	0	0	0
28		0		0	0	0	0			0	0	0	0	0	0	0	0
29		0		0	0	0	0			0	0	0	0	0	0	0	0
30		0		0	0	0	0			0	0	0	0	0	0	0	0
31		0		0	0	0	0			0	0	0	0	0	0	0	0
32		0		0	0	0	0			0	0	0	0	0	0	0	0
33		0		0	0	0	0			0	0	0	0	0	0	0	0
34		0		0	0	0	0			0	0	0	0	0	0	0	0
35		0		0	0	0	0			0	0	0	0	0	0	0	0
36		0		0	0	0	0			0	0	0	0	0	0	0	0
37		0		0	0	0	0			0	0	0	0	0	0	0	0
38		0		0	0	0	0			0	0	0	0	0	0	0	0
39		0		0	0	0	0			0	0	0	0	0	0	0	0
40		0		0	0	0	0			0	0	0	0	0	0	0	0
Subtotal					0		7,186			166,725		0		0		0	166,725

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.6.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	203	hr	0	0	1	203	FM	$18.19	3,693	0	0	0	0	0	0	3,693
4	Pipefitter / Welder	16	hr	0	0	1	16	PW	$18.32	293	0	0	0	0	0	0	293
5	Electrician	1191	hr	0	0	1	1,191	E	$24.73	29,453	0	0	0	0	0	0	29,453
6	R C Technician	1,631	hr	0	0	1	1,631	RCT	$18.19	29,668	0	0	0	0	0	0	29,668
7	Decon Worker	1453	hr	0	0	1	1,453	D	$13.00	18,889	0	0	0	0	0	0	18,889
8				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					0		4,494			81,996		0		0		0	81,996

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.6.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	18	hr	0	0	1	18	FM	$18.19	327	0	0	0	0	0	0	327
4	Pipefitter / Welder	1899	hr	0	0	1	1,899	PW	$18.32	34,790	0	0	0	0	0	0	34,790
5	Electrician	3	hr	0	0	1	3	E	$24.73	74	0	0	0	0	0	0	74
6	R C Technician	1920	hr	0	0	1	1,920	RCT	$18.19	34,925	0	0	0	0	0	0	34,925
7	Decon Worker	1920	hr	0	0	1	1,920	D	$13.00	24,960	0	0	0	0	0	0	24,960
8		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11		0		0	0	0	0			0	0	0	0	0	0	0	0
12		0		0	0	0	0			0	0	0	0	0	0	0	0
13		0		0	0	0	0			0	0	0	0	0	0	0	0
14		0		0	0	0	0			0	0	0	0	0	0	0	0
15		0		0	0	0	0			0	0	0	0	0	0	0	0
16		0		0	0	0	0			0	0	0	0	0	0	0	0
17		0		0	0	0	0			0	0	0	0	0	0	0	0
18		0		0	0	0	0			0	0	0	0	0	0	0	0
19		0		0	0	0	0			0	0	0	0	0	0	0	0
20		0		0	0	0	0			0	0	0	0	0	0	0	0
21		0		0	0	0	0			0	0	0	0	0	0	0	0
22		0		0	0	0	0			0	0	0	0	0	0	0	0
23		0		0	0	0	0			0	0	0	0	0	0	0	0
24		0		0	0	0	0			0	0	0	0	0	0	0	0
25		0		0	0	0	0			0	0	0	0	0	0	0	0
26		0		0	0	0	0			0	0	0	0	0	0	0	0
27		0		0	0	0	0			0	0	0	0	0	0	0	0
28		0		0	0	0	0			0	0	0	0	0	0	0	0
29		0		0	0	0	0			0	0	0	0	0	0	0	0
30		0		0	0	0	0			0	0	0	0	0	0	0	0
31		0		0	0	0	0			0	0	0	0	0	0	0	0
32		0		0	0	0	0			0	0	0	0	0	0	0	0
33		0		0	0	0	0			0	0	0	0	0	0	0	0
34		0		0	0	0	0			0	0	0	0	0	0	0	0
35		0		0	0	0	0			0	0	0	0	0	0	0	0
36		0		0	0	0	0			0	0	0	0	0	0	0	0
37		0		0	0	0	0			0	0	0	0	0	0	0	0
38		0		0	0	0	0			0	0	0	0	0	0	0	0
39		0		0	0	0	0			0	0	0	0	0	0	0	0
40		0		0	0	0	0			0	0	0	0	0	0	0	0
Subtotal					0		5,760			95,076		0		0		0	95,076

CLIENT. MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.7 - SW/R TRITIUM COMPLEX AREA G

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.7.1	PREPARATIONS	205	5,125	172,413	14,936	0	0	192,474
3.4.7.2	GLOVEBOX / FUMEHOOD REMOVAL	12,312	283,617	0	0	0	0	283,617
3.4.7.3	MISCELLANEOUS EQUIPMENT REMOVAL	14,774	274,043	0	0	0	0	274,043
3.4.7.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	5,544	91,513	0	0	0	0	91,513
	SUBTOTAL	32,835	654,297	172,413	14,936	0	0	841,646
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	32,835	654,297	172,413	14,936	0	0	841,646
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	32,835	654,297	172,413	14,936	0	0	841,646
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,324,625					1,324,625
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,324,625	0	0	0	0	1,324,625
	SUBTOTAL	32,835	1,978,923	172,413	14,936	0	0	2,166,272
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.7 - SW/R TRITIUM COMPLEX AREA G		32,835	1,978,923	172,413	14,936	0	0	2,166,272

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.7.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4155	4,155	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,155
22	Bubble Suits	250	ea	290	72,500	0	9	COMP	$25.00	225	0	0	0	0	0	0	72,725
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	2000	sfca	1.16	2,320	0	100	COMP	$25.00	2,500	0	0	0	0	0	0	4,820
25	Additional PPE	32835	hr	2.8	91,938	0	0		0	0	0	0	0	0	0	0	91,938
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					172,413		205			5,125		14,936		0		0	192,474

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.7.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	11	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	738	hr	0	0	1.00	738	LT	$44.25	32,657	0	0	0	0	0	0	32,657
3	Process Technician	3619	hr	0	0	1.00	3,619	PT	$31.78	115,012	0	0	0	0	0	0	115,012
4	Fabrication Mechanic	1875	hr	0	0	1.00	1,875	FM	$18.19	34,106	0	0	0	0	0	0	34,106
5	Pipefitter / Welder	1839	hr	0	0	1.00	1,839	PW	$18.32	33,690	0	0	0	0	0	0	33,690
6	Electrician	173	hr	0	0	1.00	173	E	$24.73	4,278	0	0	0	0	0	0	4,278
7	R C Technician	1856	hr	0	0	1.00	1,856	RCT	$18.19	33,761	0	0	0	0	0	0	33,761
8	Decon Worker	1957	hr	0	0	1.00	1,957	D	$13.00	25,441	0	0	0	0	0	0	25,441
9	Heavy duty operator	255	hr	0	0	1.00	255	HO	$18.32	4,672	0	0	0	0	0	0	4,672
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		12,312			283,617		0		0		0	283,617

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.7.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	1	hr	0	0	1	1	LT	$44.25	44	0	0	0	0	0	0	44
2	Process Technician	1	hr	0	0	1	1	PT	$31.78	32	0	0	0	0	0	0	32
3	Fabrication Mechanic	64	hr	0	0	1	64	FM	$18.19	1,164	0	0	0	0	0	0	1,164
4	Pipefitter / Welder	3	hr	0	0	1	3	PW	$18.32	55	0	0	0	0	0	0	55
5	Electrician	4710	hr	0	0	1	4,710	E	$24.73	116,478	0	0	0	0	0	0	116,478
6	R C Technician	5,074	hr	0	0	1	5,074	RCT	$18.19	92,296	0	0	0	0	0	0	92,296
7	Decon Worker	4921	hr	0	0	1	4,921	D	$13.00	63,973	0	0	0	0	0	0	63,973
8				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					0		14,774			274,043		0		0		0	274,043

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.7.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	3	hr	0	0	1	3	FM	$18.19	55	0	0	0	0	0	0	55
4	Pipefitter / Welder	1842	hr	0	0	1	1,842	PW	$18.32	33,745	0	0	0	0	0	0	33,745
5	Electrician	3	hr	0	0	1	3	E	$24.73	74	0	0	0	0	0	0	74
6	R C Technician	1848	hr	0	0	1	1,848	RCT	$18.19	33,615	0	0	0	0	0	0	33,615
7	Decon Worker	1848	hr	0	0	1	1,848	D	$13.00	24,024	0	0	0	0	0	0	24,024
8		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		5,544			91,513		0		0		0	91,513

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.8 - INTERIOR WALL REMOVAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.8.1	INTERIOR WALL REMOVAL	7,799	194,965	0	21,583	0	0	216,549
	SUBTOTAL	7,799	194,965	0	21,583	0	0	216,549
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	7,799	194,965	0	21,583	0	0	216,549
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	7,799	194,965	0	21,583	0	0	216,549
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		394,707					394,707
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	394,707	0	0	0	0	394,707
	SUBTOTAL	7,799	589,673	0	21,583	0	0	611,256
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.8 - INTERIOR WALL REMOVAL		7,799	589,673	0	21,583	0	0	611,256

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.8.1 INTERIOR WALL REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
	Hot Wall Rooms																
1	Demo. 8" Conc. Block Fire Wall	11061.75	sf	0	0	0.24	2,655	COMP	$25.00	66,371	0.14	1,549	0	0	0	0	67,919
2	Demo. drywall & stud Partitions	12010.95	sf	0	0	0.18	2,162	COMP	$25.00	54,049	0.5	6,005	0	0	0	0	60,055
	Cold Wall Rooms						0	COMP	$25.00	0	0	0	0	0	0	0	0
3	Demo. 8" Conc. Block Fire Wall	20543.25	sf	0	0	0.08	1,643	COMP	$25.00	41,087	0.14	2,876	0	0	0	0	43,963
4	Demo. drywall & stud Partitions	22306.05	sf	0	0	0.06	1,338	COMP	$25.00	33,459	0.5	11,153	0	0	0	0	44,612
				0	0	0.00	0	COMP	$25.00	0	0	0	0	0	0	0	0
	** Price includes knockdown			0	0	0.00	0		0	0	0	0	0	0	0	0	0
	and adjustment for1/2 wall area			0	0	0.00	0		0	0	0	0	0	0	0	0	0
	doors are included in wall area			0	0	0.00	0		0	0	0	0	0	0	0	0	0
		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		7,799			194,965		21,583		0		0	216,549

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.9 - UTILITY REMOVAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.9.1	UTILITY REMOVAL	0	0	0	0	490,000	0	490,000
	SUBTOTAL	0	0	0	0	490,000	0	490,000
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	0	0	0	0	490,000	0	490,000
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	0	0	0	0	490,000	0	490,000
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	0	0	0	0	0	0
	SUBTOTAL	0	0	0	0	490,000	0	490,000
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.9 - UTILITY REMOVAL		0	0	0	0	490,000	0	490,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.9.1 UTILITY REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Underground Utilities Removal	1	lot	0	0	0	0	COMP	$25.00	0	0	0	0	300,000	0	0	300,000
	**Assumed to be contaminated	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
	and need to remove prior to bulk	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
	excavation @ 6 wkrs x 12 wks	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
	Plus Trans. & Disposal	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
2	Site Demolition	1	lot	0	0	0	0	COMP	$25.00	0	0	0	0	70,000	0	0	70,000
	**Includes fencing,fire hydrants,	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	guard rails,road pavements,etc.	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	4 wkrs x 8 wks plus disposal	0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	Mechanical utilities removal	1	lot	0	0	0	0		0	0	0	0	0	120,000	0	0	120,000
	**Includes above ground utilities	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	such as sprinkler sys.,water,sewer	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	and other utilities	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	6 wkrs x 12 wks plus disposal	0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		490,000		0	490,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.10 - INTERIOR DECONTAMINATION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.10.1	INTERIOR DECONTAMINATION	6,859	171,476	27,280	8,742	0	0	207,498
	SUBTOTAL	6,859	171,476	27,280	8,742	0	0	207,498
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	6,859	171,476	27,280	8,742	0	0	207,498
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	6,859	171,476	27,280	8,742	0	0	207,498
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		347,153					347,153
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	347,153	0	0	0	0	347,153
	SUBTOTAL	6,859	518,629	27,280	8,742	0	0	554,651
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.10 - INTERIOR DECONTAMINATION		6,859	518,629	27,280	8,742	0	0	554,651

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.10.1 INTERIOR DECONTAMINATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
	Scabbling Walls(Hot area)																
1	Exterior Walls 1st flr. 60% Area	6120	sf	0	0	0.14	857	COMP	$25.00	21,420	0.75	4,590	0	0	0	0	26,010
2	Exterior Walls 2nd flr. 40%Area	3321.6	sf	0	0	0.14	465	COMP	$25.00	11,626	0.75	2,491	0	0	0	0	14,117
3	Exterior Walls Roof Frame 40%	2214.4	sf	0	0	0.14	310	COMP	$25.00	7,750	0.75	1,661	0	0	0	0	9,411
4	Wipedown roof surface underneat	22360	sf	0.004	89	0.01	224	COMP	$25.00	5,590	0	0	0	0	0	0	5,679
5	Wipedown some of ductwork	7200	sf	0.005	36	0.02	144	COMP	$25.00	3,600	0	0	0	0	0	0	3,636
6	Wipedown roof framing stl. & col	1	lot	200	200	480	480	COMP	$25.00	12,000	0	0	0	0	0	0	12,200
7	Paint Support Steel Frames	165	ton	25	4,125	10	1,650	COMP	$25.00	41,250	0	0	0	0	0	0	45,375
8	Paint Roof Under prior to D&D	22360	sf	0.1	2,236	0.06	1,342	COMP	$25.00	33,540	0	0	0	0	0	0	35,776
9	Wipedown hot flr & walls	34700	sf	0.04	1,388	0.04	1,388	COMP	$25.00	34,700	0	0	0	0	0	0	36,088
10	Additional PPE	6859	hr	2.8	19,205	0	0		$0.00	0	0	0	0	0	0	0	19,205
11		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					27,280		6,859			171,476		8,742		0		0	207,498

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.11 - HVAC DUCTWORK REMOVAL

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.11.1	VENTILATION & PROCESS DUCTWORK	3,721	93,018	0	10,000	0	0	103,018
	SUBTOTAL	3,721	93,018	0	10,000	0	0	103,018
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	3,721	93,018	0	10,000	0	0	103,018
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	3,721	93,018	0	10,000	0	0	103,018
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		188,315					188,315
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	188,315	0	0	0	0	188,315
	SUBTOTAL	3,721	281,333	0	10,000	0	0	291,333
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.11 - HVAC DUCTWORK REMOVAL		3,721	281,333	0	10,000	0	0	291,333

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.11.1 VENTILATION & PROCESS DUCTWORK

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Air Handling Unit 1 Ductworks	1	lot	0	0	30	30	COMP	$25.00	750	0	0	0	0	0	0	750
2	Ductwork Less than 12"x12"	130	lf	0	0	0.04	5	COMP	$25.00	130	0	0	0	0	0	0	130
3	Upto 15"x15"	82	lf	0	0	0.05	4	COMP	$25.00	103	0	0	0	0	0	0	103
4	Upto 20"x20"	46	lf	0	0	0.06	3	COMP	$25.00	69	0	0	0	0	0	0	69
5	24"x18" and above	50	lf	0	0	0.08	4	COMP	$25.00	100	0	0	0	0	0	0	100
6	SW-19 Ductwork Upto 15"x15"	150	lf	0	0	0.05	8	COMP	$25.00	188	0	0	0	0	0	0	188
7	24"x18" and above	88	lf	0	0	0.06	5	COMP	$25.00	132	0	0	0	0	0	0	132
8	SW23 AC Unit 12" sq.to 18"sq.	192	lf	0	0	0.06	12	COMP	$25.00	288	0	0	0	0	0	0	288
9	24"x18" and above	61	lf	0	0	0.08	5	COMP	$25.00	122	0	0	0	0	0	0	122
10	Air Filter	1	ea	0	0	15.00	15	COMP	$25.00	375	0	0	0	0	0	0	375
11	AC Unit	1	ea	0	0	9.00	9	COMP	$25.00	225	0	0	0	0	0	0	225
12	AC Unit Small	2	ea	0	0	4.00	8	COMP	$25.00	200	0	0	0	0	0	0	200
13	Fire Damper	1	ea	0	0	1.00	1	COMP	$25.00	25	0	0	0	0	0	0	25
14	S 42 Ductwork Upto 18" sq.	275	lf	0	0	0.07	19	COMP	$25.00	481	0	0	0	0	0	0	481
15	24"x18" and above	169	lf	0	0	0.12	20	COMP	$25.00	507	0	0	0	0	0	0	507
16	Larger than 30" sq.	88	lf	0	0	0.25	22	COMP	$25.00	550	0	0	0	0	0	0	550
17	Roof Ventilator Units	2	ea	0	0	25.00	50	COMP	$25.00	1,250	0	0	0	0	0	0	1,250
18	SW -1B Ductwork Upto 18' sq.	371	lf	0	0	0.06	22	COMP	$25.00	557	0	0	0	0	0	0	557
19	24"x18" and above	132	lf	0	0	0.08	11	COMP	$25.00	264	0	0	0	0	0	0	264
20	Air Handling Units	6	ea	0	0	30.00	180	COMP	$25.00	4,500	0	0	0	0	0	0	4,500
21	Process Ductwork 12"sq & <	180	lf	0	0	0.10	18	COMP	$25.00	450	0	0	0	0	0	0	450
22	Process Ductwork 18"sq & <	140	lf	0	0	0.12	17	COMP	$25.00	420	0	0	0	0	0	0	420
23	Process Ductwork 24"sq & <	388	lf	0	0	0.16	62	COMP	$25.00	1,552	0	0	0	0	0	0	1,552
24	Process Ductwork 30"sq & <	192	lf	0	0	0.25	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,200
25	Process Ductwork 30"sq & >	281	lf	0	0	0.40	112	COMP	$25.00	2,810	0	0	0	0	0	0	2,810
26	72"x60" Main Trunk	24	lf	0	0	0.60	14	COMP	$25.00	360	0	0	0	0	0	0	360
27	84"x30" Main Trunk	58	lf	0	0	0.80	46	COMP	$25.00	1,160	0	0	0	0	0	0	1,160
28	54"x54" Main Supply Ducts(Avera	180	lf	0	0	0.60	108	COMP	$25.00	2,700	0	0	0	0	0	0	2,700
29	60" dia Ductwork	222	lf	0	0	0.60	133	COMP	$25.00	3,330	0	0	0	0	0	0	3,330
30	52" dia Ductwork	139	lf	0	0	0.55	76	COMP	$25.00	1,911	0	0	0	0	0	0	1,911
31	34" dia Ductwork	88	lf	0	0	0.45	40	COMP	$25.00	990	0	0	0	0	0	0	990
32	72"dia Main Exhaust Duct &<	196	lf	0	0	0.80	157	COMP	$25.00	3,920	0	0	0	0	0	0	3,920
33	Air Handlers for process sys	6	ea	0	0	40.00	240	COMP	$25.00	6,000	0	0	0	0	0	0	6,000
34	Ac Units Larger in Process room	4	ea	0	0	15.00	60	COMP	$25.00	1,500	0	0	0	0	0	0	1,500
35	Contaminate Ductwork Above Ite	1200	lf	0	0	1.00	1,200	COMP	$25.00	30,000	0	0	0	0	0	0	30,000
36	Vertical Ductworks Fl. to Fl.	1	lot	0	0	400.00	400	COMP	$25.00	10,000	0	0	0	0	0	0	10,000
37	Connections & joints cutouts	1	lot	0	0	200.00	200	COMP	$25.00	5,000	0	0	0	0	0	0	5,000
38	Misc. Equip. for cutting ducts	1	lot	0	0	0.00	0	COMP	$25.00	0	10000	10,000	0	0	0	0	10,000
39	Steam reheat coils,Humidifiers,da	18	ea	0	0	2.00	36	COMP	$25.00	900	0	0	0	0	0	0	900
40	Misc. Clean ups etc.1wkr,8wks	1	lot	0	0	320.00	320	COMP	$25.00	8,000	0	0	0	0	0	0	8,000
Subtotal					0		3,721			93,018		10,000		0		0	103,018

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.12 - PENTHOUSE (BLDG 58)

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.12.1	FILTERBANK REMOVAL	2,303	57,575	11,267	5,000	0	0	73,842
3.4.12.2	AREA DECONTAMINATION	344	8,600	332	0	0	0	8,932
3.4.12.3	STRUCTURE REMOVAL	5,982	149,559	16,750	49,800	0	0	216,109
	SUBTOTAL	8,629	215,734	28,349	54,800	0	0	298,883
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	8,629	215,734	28,349	54,800	0	0	298,883
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	8,629	215,734	28,349	54,800	0	0	298,883
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		436,754					436,754
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	436,754	0	0	0	0	436,754
	SUBTOTAL	8,629	652,488	28,349	54,800	0	0	735,636
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.12 - PENTHOUSE (BLDG 58)		8,629	652,488	28,349	54,800	0	0	735,636

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.12.1 FILTERBANK REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Demo. Plenum 37"x111"	46	lf	0	0	7.4	340	COMP	$25.00	8,510	0	0	0	0	0	0	8,510
2	Demo. Plenum 32"x65"	20	lf	0	0	4.8	96	COMP	$25.00	2,400	0	0	0	0	0	0	2,400
3	Demo. Plenum 48"x48"	32	lf	0	0	4.8	154	COMP	$25.00	3,840	0	0	0	0	0	0	3,840
4	Demo. Plenum 64"x48"	36	lf	0	0	5.60	202	COMP	$25.00	5,040	0	0	0	0	0	0	5,040
5	Demo. Plenum 84"x48"	28	lf	0	0	6.60	185	COMP	$25.00	4,620	0	0	0	0	0	0	4,620
6	Demo. Plenum 120"x78"	24	lf	0	0	10.00	240	COMP	$25.00	6,000	0	0	0	0	0	0	6,000
7	Demo. 72" dia. ducts to stack	16	lf	0	0	5.60	90	COMP	$25.00	2,240	0	0	0	0	0	0	2,240
8	Demo. ductwork 16"x16"	48	lf	0	0	1.60	77	COMP	$25.00	1,920	0	0	0	0	0	0	1,920
9	Demo. ductwork 10"x8"	24	lf	0	0	1.00	24	COMP	$25.00	600	0	0	0	0	0	0	600
10	Demo. Filter banks	16	ea	0	0	8	128	COMP	$25.00	3,200	0	0	0	0	0	0	3,200
11	Demo EF-101,102,103,104,105	5	ea	0	0	120	600	COMP	$25.00	15,000	0	0	0	0	0	0	15,000
12	Decontaminate Filter banks	1	lot	0	0	80	80	COMP	$25.00	2,000	0	0	0	0	0	0	2,000
13	Scabble contaminated flr.	630	sf	0	0	0.14	88	COMP	$25.00	2,205	0	0	0	0	0	0	2,205
14	Misc. equip.	1	lot	0	0	0	0	COMP	$25.00	0	5000	5,000	0	0	0	0	5,000
15	PPE's (incl.3.4.11.1)	4024	hr	2.8	11,267	0	0		0	0	0	0	0	0	0	0	11,267
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					11,267		2,303			57,575		5,000		0		0	73,842

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.12.2 AREA DECONTAMINATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Remove any hot spots left	1	lot	0	0	48	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,200
2	Wash &wipedown the floor	1	lot	200	200	80	80	COMP	$25.00	2,000	0	0	0	0	0	0	2,200
3	Clean inside siding wall	2400	sf	0.02	48	0.02	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,248
4	Decon. roof supports & surface	2100	sf	0.04	84	0.08	168	COMP	$25.00	4,200	0	0	0	0	0	0	4,284
5		0	sf	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
6		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					332		344			8,600		0		0		0	8,932

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.12.3 STRUCTURE REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Substation conc. flr demo	24	cy	0	0	4	96	COMP	$25.00	2,400	0	0	0	0	0	0	2,400
2	Substation struct. stl. demo	35	ton	0	0	20	700	COMP	$25.00	17,500	0	0	0	0	0	0	17,500
3	Crawl space demo	26	ton	0	0	20	520	COMP	$25.00	13,000	0	0	0	0	0	0	13,000
4	Filter hse framework demo	59	ton	0	0	20	1,180	COMP	$25.00	29,500	0	0	0	0	0	0	29,500
5	Insulated alum. siding demo	3840	sf	0	0	0.08	307	COMP	$25.00	7,680	0	0	0	0	0	0	7,680
5a	Ceiling demo	2502	sf			0.06	150	COMP	$25.00	3,753	0	0	0	0	0	0	3,753
6	Floor slab demo	220	cy	0	0	4.00	880	COMP	$25.00	22,000	0	0	0	0	0	0	22,000
7	Conc. block wall demo.	9300	sf	0	0	0.08	744	COMP	$25.00	18,600	0	0	0	0	0	0	18,600
8	Deck & built-up roof demo	52	sq	0	0	4.50	234	COMP	$25.00	5,850	0	0	0	0	0	0	5,850
9	Old filter house demo	810	sf	0	0	0.71	575	COMP	$25.00	14,376	0	0	0	0	0	0	14,376
10	Concrete foundation	24	cy	0	0	4.00	96	COMP	$25.00	2,400	0	0	0	0	0	0	2,400
11	Electrical demo	1	lot	0	0	320.00	320	COMP	$25.00	8,000	0	0	0	0	0	0	8,000
12	Piping demo	1	lot	0	0	180.00	180	COMP	$25.00	4,500	0	0	0	0	0	0	4,500
13	Lifting & hoisting Equips.	2	mo.	0	0	0	0	COMP	$25.00	0	18000	36,000	0	0	0	0	36,000
14	Forklift	3	mo	0	0	0	0	COMP	$25.00	0	2200	6,600	0	0	0	0	6,600
15	Flatbed trucks (2ea.)	6	mo	0	0	0	0	COMP	$25.00	0	1200	7,200	0	0	0	0	7,200
16	PPE's	5982	hr	2.8	16,750	0	0			0		0	0	0	0	0	16,750
17		0		0	0	0	0			0	0	0	0	0	0	0	0
18		0		0	0	0	0			0	0	0	0	0	0	0	0
19		0		0	0	0	0			0	0	0	0	0	0	0	0
20		0		0	0	0	0			0	0	0	0	0	0	0	0
21		0		0	0	0	0			0	0	0	0	0	0	0	0
22		0		0	0	0	0			0	0	0	0	0	0	0	0
23		0		0	0	0	0			0	0	0	0	0	0	0	0
24		0		0	0	0	0			0	0	0	0	0	0	0	0
25		0		0	0	0	0			0	0	0	0	0	0	0	0
26		0		0	0	0	0			0	0	0	0	0	0	0	0
27		0		0	0	0	0			0	0	0	0	0	0	0	0
28		0		0	0	0	0			0	0	0	0	0	0	0	0
29		0		0	0	0	0			0	0	0	0	0	0	0	0
30		0		0	0	0	0			0	0	0	0	0	0	0	0
31		0		0	0	0	0			0	0	0	0	0	0	0	0
32		0		0	0	0	0			0	0	0	0	0	0	0	0
33		0		0	0	0	0			0	0	0	0	0	0	0	0
34		0		0	0	0	0			0	0	0	0	0	0	0	0
35		0		0	0	0	0			0	0	0	0	0	0	0	0
36		0		0	0	0	0			0	0	0	0	0	0	0	0
37		0		0	0	0	0			0	0	0	0	0	0	0	0
38		0		0	0	0	0			0	0	0	0	0	0	0	0
39		0		0	0	0	0			0	0	0	0	0	0	0	0
40		0		0	0	0	0			0	0	0	0	0	0	0	0
Subtotal					16,750		5,982			149,559		49,800		0		0	216,109

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.13 - ROOF REMOVAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.13.1	ROOF REMOVAL	1,008	25,200	0	2,352	0	0	27,552
	SUBTOTAL	1,008	25,200	0	2,352	0	0	27,552
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	1,008	25,200	0	2,352	0	0	27,552
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	1,008	25,200	0	2,352	0	0	27,552
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		51,017					51,017
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	51,017	0	0	0	0	51,017
	SUBTOTAL	1,008	76,217	0	2,352	0	0	78,569
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.13 - ROOF REMOVAL		1,008	76,217	0	2,352	0	0	78,569

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.13.1 ROOF REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Demo. Built-up Roofing by layers	224	sq	0	0	4.5	1,008	COMP	$25.00	25,200	10.5	2,352	0	0	0	0	27,552
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		1,008			25,200		2,352		0		0	27,552

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.14 - BUILDING DEMOLITION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.14.1	BUILDING DEMOLITION	10,796	269,896	0	104,685	0	0	374,581
	SUBTOTAL	10,796	269,896	0	104,685	0	0	374,581
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	10,796	269,896	0	104,685	0	0	374,581
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	10,796	269,896	0	104,685	0	0	374,581
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		546,404					546,404
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	546,404	0	0	0	0	546,404
	SUBTOTAL	10,796	816,300	0	104,685	0	0	920,985
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.14 - BUILDING DEMOLITION		10,796	816,300	0	104,685	0	0	920,985

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.14.1 BUILDING DEMOLITION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Demo. exterior walls	16319	cf	0	0	0.08	1,306	COMP	$25.00	32,638	0	0	0	0	0	0	32,638
2	Demo. ceiling (cold rooms)	16531	sf	0	0	0.02	331	COMP	$25.00	8,266	0	0	0	0	0	0	8,266
3	Demo. ceiling (hot rooms)	21823	sf	0	0	0.06	1,309	COMP	$25.00	32,735	0	0	0	0	0	0	32,735
4	Remove asbestos tiles (hot area)	21823	sf	0	0	0.10	2,182	COMP	$25.00	54,558	0	0	0	0	0	0	54,558
5	Remove asbestos tiles (cold area)	16531	sf	0	0	0.06	992	COMP	$25.00	24,797	0	0	0	0	0	0	24,797
6	Demo. 2nd flr. concrete slab	3835.4	cf	0	0	0.15	575	COMP	$25.00	14,383	1.43	5,485	0	0	0	0	19,867
7	Roof framing demo	79.3	ton	0	0	16.00	1,269	COMP	$25.00	31,720	0	0	0	0	0	0	31,720
8	Floor framing demo.	35.1	ton	0	0	16.00	562	COMP	$25.00	14,040	0	0	0	0	0	0	14,040
9	Metal deck demo	22360	sf	0	0	0.01	224	COMP	$25.00	5,590	0	0	0	0	0	0	5,590
10	Misc. steel items demo	18	ton	0	0	30.00	540	COMP	$25.00	13,500	0	0	0	0	0	0	13,500
11	Steel column demo.	28.6	ton	0	0	25.00	715	COMP	$25.00	17,875	0	0	0	0	0	0	17,875
12	Remove 4" stone coping on roof	692	lf	0	0	0.24	166	COMP	$25.00	4,152	0	0	0	0	0	0	4,152
13		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
16	Electrical Conduits/Wires/cable tra	3700	lf	0	0	0.02	74	COMP	$25.00	1,850	0	0	0	0	0	0	1,850
17	Electrical Light Fixtures	384	ea	0	0	0.50	192	COMP	$25.00	4,794	0	0	0	0	0	0	4,794
18	Transformers	3	ea	0	0	40	120	COMP	$25.00	3,000	0	0	0	0	0	0	3,000
19	Control Panels,Emergency lighting	1	lot	0	0	120	120	COMP	$25.00	3,000	0	0	0	0	0	0	3,000
20	Miscellaneous Items	1	lot	0	0	120	120	COMP	$25.00	3,000	0	0	0	0	0	0	3,000
21	Lifting & hoisting equips.	4	mo	0	0	0	0	COMP	0	0	18000	72,000	0	0	0	0	72,000
22	Heavy forklifts (2ea)	8	mo	0	0	0	0	COMP	0	0	2200	17,600	0	0	0	0	17,600
23	Flatbed trucks (2ea)	8	mo	0	0	0	0	COMP	0	0	1200	9,600	0	0	0	0	9,600
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		10,796			269,896		104,685		0		0	374,581

SW/R TRITIUM COMPLEX

CLIENT. MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.15 - STACKS (3)

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.15.1	STACKS (3)	320	8,000	896	10,000	458,500	0	477,396
	SUBTOTAL	320	8,000	896	10,000	458,500	0	477,396
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	320	8,000	896	10,000	458,500	0	477,396
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	320	8,000	896	10,000	458,500	0	477,396
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		16,196					16,196
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	16,196	0	0	0	0	16,196
	SUBTOTAL	320	24,196	896	10,000	458,500	0	493,592
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.15 - STACKS (3)		320	24,196	896	10,000	458,500	0	493,592

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.15.1 STACKS (3)

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Saw cut metal stack 8'dia.x130ft.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	250000	250,000	0	0	250,000
2	Saw cut metal stack 3'dia.x110ft.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	100000	100,000	0	0	100,000
3	Saw cut metal stack 3'dia.x110ft.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	100000	100,000	0	0	100,000
4	Decon. all above stacks	1	lot	0	0	320	320	COMP	$25.00	8,000	0	0	6000	6,000	0	0	14,000
5	Concrete Foundations demo.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	2500	2,500	0	0	2,500
6	Excavations	1	lot	0	0	0	0	COMP	$25.00	0	10000	10,000	0	0	0	0	10,000
7	PPE's	320	hr	2.8	896	0	0		0	0	0	0	0	0	0	0	896
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					896		320			8,000		10,000		458,500		0	477,396

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.16 - SLAB DEMOLITION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.16.1	SLAB DEMOLITION	3,744	93,595	0	15,605	325,000	0	434,201
	SUBTOTAL	3,744	93,595	0	15,605	325,000	0	434,201
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	3,744	93,595	0	15,605	325,000	0	434,201
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	3,744	93,595	0	15,605	325,000	0	434,201
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		189,483					189,483
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	189,483	0	0	0	0	189,483
	SUBTOTAL	3,744	283,078	0	15,605	325,000	0	623,684
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.16 - SLAB DEMOLITION		3,744	283,078	0	15,605	325,000	0	623,684

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.16.1 SLAB DEMOLITION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Concrete slab 6" Main bldg.	224	cy	0	0	4	894	COMP	$25.00	22,352	38.5	8,605	0	0	0	0	30,957
2	Area 1-C alterations	33	cy	0	0	4	133	COMP	$25.00	3,333	0	0	0	0	0	0	3,333
3	Ceramic Facility	7	cy	0	0	4	30	COMP	$25.00	741	0	0	0	0	0	0	741
4	Concrete footings & piers	213	cy	0	0	5	1,065	COMP	$25.00	26,625	0	0	0	0	0	0	26,625
5	Concrete foundation walls	72	cy	0	0	5	362	COMP	$25.00	9,044	0	0	0	0	0	0	9,044
6	Remove contaminated drains	1	lot	0	0	200	200	COMP	$25.00	5,000	0	0	0	0	0	0	5,000
7	Remove underground piping	1	lot	0	0	500	500	COMP	$25.00	12,500	0	0	0	0	0	0	12,500
8		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0			0	0	0	0	0	0	0	0
11	**Old Cave Removal**	0		0	0	0	0			0	0	0	0	0	0	0	0
12	*Construct Temporary Structure	1	lot	0	0	0	0			0	0	0	75000	75,000	0	0	75,000
13	Diamond Wire Saw Operation	1	lot	0	0	0	0			0	0	0	250000	250,000	0	0	250,000
14	Package Removed Material	560	hr	0	0	1	560	COMP	$25.00	14,000	12.5	7,000	0	0	0	0	21,000
15		0		0	0	0	0			0	0	0	0	0	0	0	0
16	* 60ft x 40ft. size	0		0	0	0	0			0	0	0	0	0	0	0	0
17		0		0	0	0	0			0	0	0	0	0	0	0	0
18		0		0	0	0	0			0	0	0	0	0	0	0	0
19		0		0	0	0	0			0	0	0	0	0	0	0	0
20		0		0	0	0	0			0	0	0	0	0	0	0	0
21		0		0	0	0	0			0	0	0	0	0	0	0	0
22		0		0	0	0	0			0	0	0	0	0	0	0	0
23		0		0	0	0	0			0	0	0	0	0	0	0	0
24		0		0	0	0	0			0	0	0	0	0	0	0	0
25		0		0	0	0	0			0	0	0	0	0	0	0	0
26		0		0	0	0	0			0	0	0	0	0	0	0	0
27		0		0	0	0	0			0	0	0	0	0	0	0	0
28		0		0	0	0	0			0	0	0	0	0	0	0	0
29		0		0	0	0	0			0	0	0	0	0	0	0	0
30		0		0	0	0	0			0	0	0	0	0	0	0	0
31		0		0	0	0	0			0	0	0	0	0	0	0	0
32		0		0	0	0	0			0	0	0	0	0	0	0	0
33		0		0	0	0	0			0	0	0	0	0	0	0	0
34		0		0	0	0	0			0	0	0	0	0	0	0	0
35		0		0	0	0	0			0	0	0	0	0	0	0	0
36		0		0	0	0	0			0	0	0	0	0	0	0	0
37		0		0	0	0	0			0	0	0	0	0	0	0	0
38		0		0	0	0	0			0	0	0	0	0	0	0	0
39		0		0	0	0	0			0	0	0	0	0	0	0	0
40		0		0	0	0	0			0	0	0	0	0	0	0	0
Subtotal					0		3,744			93,595		15,605		325,000		0	434,201

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 3.4.17 - SOIL EXCAVATION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.4.17.1	SOIL EXCAVATION	9,946	248,647	2,886	147,914	30,800	0	430,248
	SUBTOTAL	9,946	248,647	2,886	147,914	30,800	0	430,248
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	9,946	248,647	2,886	147,914	30,800	0	430,248
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	9,946	248,647	2,886	147,914	30,800	0	430,248
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		503,387					503,387
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	503,387	0	0	0	0	503,387
	SUBTOTAL	9,946	752,034	2,886	147,914	30,800	0	933,634
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 3.4.17 - SOIL EXCAVATION		9,946	752,034	2,886	147,914	30,800	0	933,634

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.4.17.1 SOIL EXCAVATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Soil Excavation	17630	cy	0	0	0.55	9,696	COMP	$25.00	242,407	8.36	147,384	0	0	0	0	389,791
	**Assume limit of excavation			0	0	0	0		0	0	0	0	0	0	0	0	0
	10 ft. around the bldg. w/2:1 slope	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	Includes load & haul to stockpile	0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2	Wood Sheeting,including wales,	1560	sf	1.85	2,886	0.16	250	COMP	$25.00	6,240	0.34	530	0	0	0	0	9,656
	braces and spacers (12ft. depth)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	** Between R bldg. & SW bldg.	0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	Erosion control & site drainage	1	lot	0	0	0	0		0	0	0	0	20000	20,000	0	0	20,000
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4	Temp. construction fencing w/gate	720	lf	0	0	0	0		0	0	0	0	15	10,800	0	0	10,800
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					2,886		9,946			248,647		147,914		30,800		0	430,248

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B.NEMADE
APPROVED BY: J.M. USHER

WBS - 3.5 - WASTE DISPOSAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.5.1	WASTE PACKAGING (Cost to Procure & Handling)	30,203	755,087	11,871,866	12,020	0	0	12,638,973
3.5.2	WASTE TRANSPORTATION	0	0	0	0	1,691,854	304,059	1,995,913
3.5.3	WASTE DISPOSAL (Final Disposition)	0	0	0	0	0	10,818,690	10,818,690
	SUBTOTAL	30,203	755,087	11,871,866	12,020	1,691,854	11,122,749	25,453,575
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	30,203	755,087	11,871,866	12,020	1,691,854	11,122,749	25,453,575
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	30,203	755,087	11,871,866	12,020	1,691,854	11,122,749	25,453,575
202.45%	LABOR BURDEN		1,528,673					1,528,673
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,528,673	0	0	0	0	1,528,673
	SUBTOTAL	30,203	2,283,760	11,871,866	12,020	1,691,854	11,122,749	26,982,249
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 3.5 -	WASTE DISPOSAL	30,203	2,283,760	11,871,866	12,020	1,691,854	11,122,749	26,982,249

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.5.1 WASTE PACKAGING (Cost to Procure & Handling)

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	B-25 boxes to NTS	2,817	ea	800	2,253,762	1	2,817	COMP	$25.00	70,430	0	0	0	0	0	0	2,324,192
2	Vol. to Local land fill	63,261		0	0	0.083	5,251	COMP	$25.00	131,267	0.19	12,020	0	0	0	0	143,287
3	Visquene (90 mil)	1065000	sf	0.0018	1,917	0.0008	852	COMP	$25.00	21,300	0	0	0	0	0	0	23,217
4	55 gallon drum	973	ea	55	53,533	0.5	487	COMP	$25.00	12,167	0	0	0	0	0	0	65,700
5	Tape	2254	roll	3.75	8,452	0.5	1,127	COMP	$25.00	28,172	0	0	0	0	0	0	36,624
6	Special Sealed Tritium box A(Rad)	803	ea	1600	1,284,647	2	1,606	COMP	$25.00	40,145	0	0	0	0	0	0	1,324,793
7	Special Sealed Tritium box B(Rad)	3,875	ea	2100	8,137,348	3	11,625	COMP	$25.00	290,620	0	0	0	0	0	0	8,427,967
8	Special Sealed Tritium box A(Mix)	5	ea	1600	8,264	2	10	COMP	$25.00	258	0	0	0	0	0	0	8,522
9	Special Sealed Tritium box B(Mix)	3	ea	2100	5,423	3	8	COMP	$25.00	194	0	0	0	0	0	0	5,617
10	Wooden Box Liner	0	ea	50	0	0.5	0	COMP	$25.00	0	0	0	0	0	0	0	0
11	Manifesting - Labeling	7503	container	2.5	18,757	0.1	750	COMP	$25.00	18,757	0	0	0	0	0	0	37,514
12	Inventory Set- up	7503	container	2	15,006	0.1	750	COMP	$25.00	18,757	0	0	0	0	0	0	33,763
13	Loading	7503	container	0	0	0.25	1,876	COMP	$25.00	46,892	0	0	0	0	0	0	46,892
14	Unloading	7503	container	0	0	0.25	1,876	COMP	$25.00	46,892	0	0	0	0	0	0	46,892
15	Certification	7503	container	2.5	18,757	0.15	1,125	COMP	$25.00	28,135	0	0	0	0	0	0	46,892
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
22	Sea/Land Containers	11	ea	6000	66,000	4	44	COMP	$25.00	1,100	0	0	0	0	0	0	67,100
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0		0			0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					11,871,866		30,203			755,087		12,020		0		0	12,638,973

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.5.2 WASTE TRANSPORTATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Transportation to NTS - B25 boxes	583	trip	0	0	0	0		0	0	0	0	2800	1,632,140	0	0	1,632,140
2	Truck special container	468	trip	0	0	0	0		0	0	0	0	0	0	650	304,059	304,059
3	Transportation (to local landfill)	235	dumpster	0	0	0	0		0	0	0	0	100	23,513	0	0	23,513
4	Transportation (mixed waste)	1	trip	0	0	0	0		0	0	0	0	5400	5,400	0	0	5,400
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
12	Sea/Land Containers	11	trip	0	0	0	0		0	0	0	0	2800	30,800	0	0	30,800
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0						0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		1,691,854		304,059	1,995,913

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.5.3 WASTE DISPOSAL (Final Disposition)

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Disposal Costs @ Burial	551,547	cf	0	0	0	0		0	0	0	0	0	0	18.63	10,275,328	10,275,328
2				0	0	0	0		0	0	0	0	0	0		0	0
3	Local landfill fee (12 ton/dumpster	63261	cf	0	0	0	0		0	0	0	0	0	0	2.5	158,153	158,153
4	Disposal Cost (mixed waste)	297	cf	0	0	0	0		0	0	0	0	0	0	400	118,800	118,800
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	8	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
12	Sea/Land Containers	14300	cf	0	0	0	0		0	0	0	0	0	0	18.63	266,409	266,409
13	Disposal/Surcharge	0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0		0			0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		10,818,690	10,818,690

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B.NEMADE
APPROVED BY: J.M. USHER

WBS - 3.6 - INDEPENDENT VERIFICATION CONTRACTOR (IVC)

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.6.1	Independent Verification Contractor (IVC) SURVEY	0	0	0	0	0	100,000	100,000
3.6.2	Independent Verification Contractor (IVC) REPORT	0	0	0	0	0	70,000	70,000
	SUBTOTAL	0	0	0	0	0	170,000	170,000
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	0	0	0	0	0	170,000	170,000
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	0	0	0	0	0	170,000	170,000
202.45%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	0	0	0	0	0	0
	SUBTOTAL	0	0	0	0	0	170,000	170,000
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 3.6 -	INDEPENDENT VERIFICATION CONTRACTOR (IVC)	0	0	0	0	0	170,000	170,000

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.6.1 Independent Verification Contractor (IVC) SURVEY

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Characterization Survey	1	lot	0	0	0	0			0	0	0	0	0	100000	100,000	100,000
2		0		0	0		0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		100,000	100,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.6.2 Independent Verification Contractor (IVC) REPORT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Characterization Report	1	lot	0	0	0	0			0	0	0	0	0	45000	45,000	45,000
2	Documentation	1	lot	0	0	0	0			0	0	0	0	0	25000	25,000	25,000
3		0		0	0	0	0			0	0	0	0	0	0	0	0
4		0		0	0	0	0			0	0	0	0	0	0	0	0
5		0		0	0	0	0			0	0	0	0	0	0	0	0
6		0		0	0	0	0			0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		70,000	70,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 1,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B.NEMADE
APPROVED BY: J.M. USHER

WBS - 3.7 - SITE RESTORATION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
3.7.1	BACKFILL & COMPACTION	1,047	26,180	50,621	5,360	0	0	82,161
3.7.2	SEEDING,MULCHING & FERTILIZING & LANDSCAPING	166	4,153	764	698	10,000	0	15,615
	SUBTOTAL	1,213	30,333	51,385	6,058	10,000	0	97,775
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	1,213	30,333	51,385	6,058	10,000	0	97,775
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	1,213	30,333	51,385	6,058	10,000	0	97,775
202.45%	LABOR BURDEN		61,408					61,408
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	61,408	0	0	0	0	61,408
	SUBTOTAL	1,213	91,741	51,385	6,058	10,000	0	159,184
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 3.7 - SITE RESTORATION		1,213	91,741	51,385	6,058	10,000	0	159,184

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

2407.407407 47487

DETAIL ESTIMATE
WBS : 3.7.1 BACKFILL & COMPACTION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Backfill bldg. exc. w/off-site borrow	6,504	cy	6.5	42,279	0.15	976	COMP	$25.00	24,392	0.61	3,968	0	0	0	0	70,639
	**Price incl.compaction in 6"to8"	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	in layers	0		0	0	0	0		0	0	0	0	50	0	0	0	0
	** Assumed that borrow material	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	available within 8 mile radius	0		0	0	0	0		0	0	0	0	0	0	0	0	0
2	Furnish & Place Imported Topsoil	477	cy	17.5	8,342	0.09	43	COMP	$25.00	1,073	1.72	820	0	0	0	0	10,234
3	Spread topsoil by loader	477	cy	0	0	0.06	28.62	COMP	$25.00	716	1.20	572.40	0.00	0.00	0	0	1,288
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					50,621		1,047			26,180		5,360		0		0	82,161

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 1,000 Ci / yr

DETAIL ESTIMATE
WBS : 3.7.2 SEEDING,MULCHING & FERTILIZING & LANDSCAPING

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Hydro Seeding, Incl. seed,fertilizer	3322	sy	0.23	764	0.05	166	COMP	$25.00	4,153	0.21	698	0	0	0	0	5,615
	& mulching, final grading			0	0	0	0			0	0	0	0	0	0	0	0
				0	0	0	0			0	0	0	0	0	0	0	0
2	Lawn maintenance etc.	1	lot	0	0	0	0			0	0	0	10000	10,000	0	0	10,000
		0		0	0	0	0			0	0	0	0	0	0	0	0
		0		0	0	0	0			0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					764		166			4,153		698		10,000		0	15,615

Addendum

SW/R TRITIUM COMPLEX D&D PRE-CONCEPTUAL ENGINEERING STUDY

ADDENDUM
Impact of Raising Off-Site Release Limit to 10,000 Ci/yr

Revision 0

October 31, 1996

EG&G Mound Applied Technologies
P.O. Box 3000
Miamisburg, OH 45343-3000

Addendum

TABLE OF CONTENTS **PAGE**

1.0 Introduction 1
2.0 Background 1
3.0 D&D Design Considerations 1
4.0 Impacts 2
4.1 Schedule 3
4.2 Cost 3
5.0 Conclusion 3
6.0 Recommendation 4

Appendices

A - Project Schedule
B - Cost Estimate
C - Labor Standards
D - Acronyms

1.0 Introduction

The SW/R Tritium Complex Pre-conceptual Decontamination and Decommissioning (D&D) Engineering Study was prepared with the design constraint that tritium emissions from all operations at Mound will not exceed 1,000 Ci/yr, including accidents. This addendum addresses the impacts associated with increasing the design constraint to 10,000 Ci/yr.

2.0 Background

The permissible level for tritium emissions at Mound has followed an ever- decreasing trend. In 1969, the level was 300,000 Ci/yr. This was reduced to 10,000 Ci/yr in 1974, and in the years since has been gradually reduced to its present level of 1,000 Ci/yr. Mound has consistently stayed within the limit with the exception of a single incident in 1989 which resulted in the release of approximately 38,000 curies of tritium.

The current average annual stack emissions are approximately 600 to 800 Ci/yr.

3.0 D&D Design Considerations

The D&D activities with the highest potential for unplanned releases of tritium are process piping outside of gloveboxes, and removal of gloveboxes and fumehoods. The D&D design for both alternative release limits requires the setup of purging equipment to remove the residual tritium gas which may be present within the process equipment or the gloveboxes. Effluent from the purging operation is then to be processed by either the Effluent Recovery System (ERS) or the Tritium Emissions Reduction Facility (TERF) systems, either of which have an efficiency of approximately 99.99 percent. Consequently, for every 10,000 curies of tritium which are processed, an estimated 1 curie will escape through the stacks.

The design for both alternative release limits utilizes tented enclosures to contain fugitive emissions which may escape the gloveboxes during removal of glovebox equipment or removal of the gloveboxes themselves. These tented enclosures are in place primarily for environmental protection but they also provide an additional level of personnel protection. The capacity of the ERS and TERF systems is not large enough to handle the effluent from numerous tented enclosures and the purge lines simultaneously. Therefore, operations will have to be carefully planned so that tented removal activities may occur during the work shift and purging activities can be set up to occur during the off-work hours.

A number of additional considerations were taken into account to prepare the labor standards for the 1,000 Ci/yr release limit alternative that are not required for the 10,000 Ci/yr alternative. Some of the core differences in the bases for the two alternatives are discussed below:

1) The 1,000 Ci/yr alternative specified that only one "tented" D&D activity would occur at any time on each of the T-Building and SW/R Tritium Complex D&D projects to minimize the potential for release of tritium to the stacks. The 10,000 Ci/yr alternative specifies that up to three "tented" tritium activities and one non-tritium activity may occur concurrently on each of the aforementioned projects.

2) The 1,000 Ci/yr alternative requires that potential residual tritium sources such as U-beds, molecular sieve traps, and carbon traps (and other items which could have "heels") be removed early in the project. The 10,000 Ci/yr alternative does not require any special scheduling considerations such as these.

3) Purging operations in the 10,000 Ci/yr alternative require much shorter durations than in the 1,000 Ci/yr alternative.

4) Glovebox waste in the 10,000 Ci/yr alternative could be removed through pass boxes rather than "bagged out" as required in the 1,000 Ci/yr alternative.

5) For the 10,000 Ci/yr alternative, waste containers would not have to be placed in the tent, loaded, and then seal welded shut prior to removal as they would be for the 1,000 Ci/yr alternative. This would increase waste packaging efficiencies.

6) Less decontamination and verification efforts would be required on the interior of the gloveboxes prior to dismantlement for the 10,000 Ci/yr alternative.

Although the 10,000 Ci/yr case will require less hours to achieve the work objectives, safe work practices will be maintained to protect the workers and the environment.

4.0 Impacts

Based on the known risks of tritium release, the history of tritium operations at Mound, and the state-of-the-art technology available, 100 percent capture of the tritium gas during D&D is not a reasonable goal. Therefore, the practical course of action is to design the D&D activities based on sound assumptions concerning the expected loss which *may* occur. This is the approach which was taken to prepare the engineering

study for the 1,000 Ci/yr release limit alternative. As a result, to ensure that the release limit was not exceeded, a large degree of conservatism is required in the assumptions. This caused the schedule for physical D&D activities to be 8 years long and extended the overall project into Fiscal Year 2008 (FY08). The cost was estimated to be $150.6 million.

The impacts to the schedule and cost resulting from raising the tritium release limit to 10,000 Ci/yr are discussed below.

4.1 Schedule

Regarding the schedule, the impact of the higher release limit is significant. The number of operating crews within the building is no longer limited because of release concerns. Rather, the logistics of coordinating simultaneous activities becomes the limiting condition for determining the number of crews. Assuming that the SW/R Tritum Complex D&D Project is to occur in parallel with the T-Building D&D Project, it is recommended that a maximum of four D&D crews be scheduled to operate concurrently on each project. Three of the four SW/R Tritium Complex crews may utilize the ERS or TERF systems for effluent processing. The fourth crew must operate in a non-tritium area. Following this approach, the schedule for physical D&D activities is reduced to 2.5 years with overall project completion in FY03 (see Appendix A).

4.2 Cost

The total project cost was reduced to $119.3 million (see Appendix B). For the 10,000 Ci/yr alternative study, the planned removal methods are essentially the same as for the 1,000 Ci/yr study. However, an increase in efficiency is expected and the revised labor standards (see Appendix C) have been prepared to account for this.

The major contributor to the reduction in total cost is the fact that the level of effort activities such as operation of the TERF and ERS systems are required for a shorter total duration. High cost items, such as the waste container and waste disposal costs, are the same for either alternative.

5.0 Conclusion

There are no technical reasons why the D&D activities could not be planned in compliance with either of the two proposed release limits. However, raising the limit has a positive impact on the cost. Moreover, the major disadvantage of imposing the lower limit is that the duration of the project is extended into FY08 which is not consistent with the stakeholder expectations. Both the latest issue of the Integrated Comprehensive Plan and the recently released draft Request for Proposal for operation

of the Mound site indicate that D&D operations are to be completed by the end of FY05. This goal is attainable if the higher release limit can be negotiated.

6.0 Recommendations

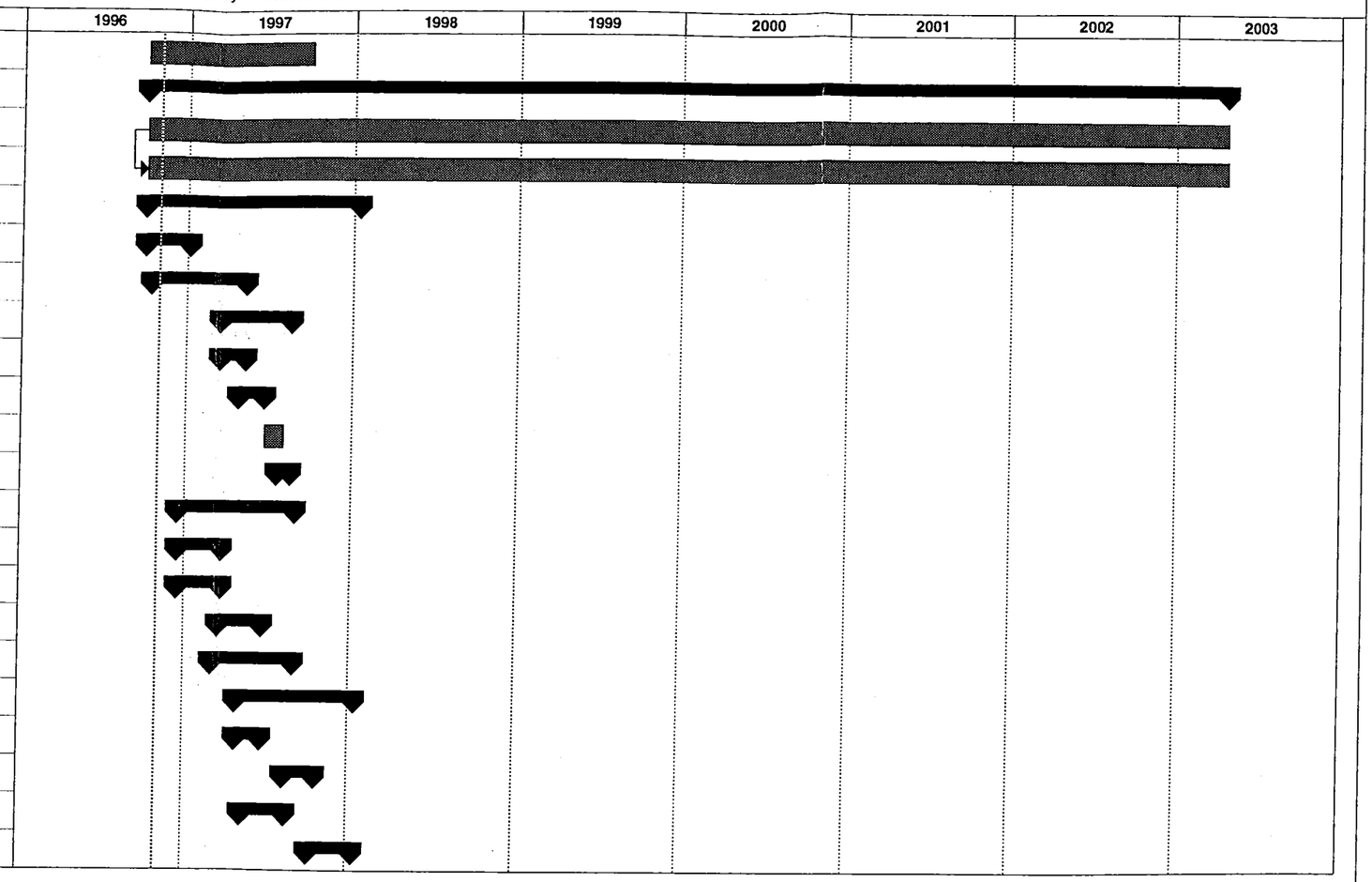
Detailed risk analyses should confirm that 10,000 Ci/yr presents an acceptable level of risk to the public and the environment. These studies are currently ongoing. Following their completion the results of the risk analyses, coupled with the results of this study, will comprise the defensible basis necessary for negotiating the 10,000 Ci/yr release limit.

A

ADDENDUM
APPENDIX A
PROJECT SCHEDULE

SW/R Tritium Complex D&D Pre-Conceptual Engineering Study
Immediate D&D for Unrestricted Use Alternative
10,000 Curie/yr Release Limit

ID	Task Name	Duration	Start	Finish	Predecessors
1	Tritium Operations	52w	10/1/96	9/29/97	
2	**Immediate D&D for Unrestricted Use (1,000 Ci)**	**1712d**	**10/1/96**	**4/23/03**	
3	Project Management	1712d	10/1/96	4/23/03	
4	Site Services	1712d	10/1/96	4/23/03	3SS
5	**Engineering**	**337d**	**10/1/96**	**1/14/98**	
6	**Project Plan**	**70d**	**10/1/96**	**1/6/97**	
11	**Conceptual Engineering Study**	**150d**	**10/15/96**	**5/12/97**	
16	**Characterization**	**112d**	**3/18/97**	**8/20/97**	
17	**Characterization Plan**	**40d**	**3/18/97**	**5/12/97**	
22	**Sampling and Analysis Plan**	**40d**	**4/29/97**	**6/23/97**	
27	Complete Characterization	6w	6/24/97	8/4/97	26
28	**Characterization Report**	**22d**	**7/22/97**	**8/20/97**	
33	**Decommissioning Plan**	**185d**	**12/17/96**	**9/1/97**	
34	**Waste Management Plan**	**70d**	**12/17/96**	**3/24/97**	
39	**Long Lead Packages/Specs**	**70d**	**12/17/96**	**3/24/97**	
44	**Standard Packages/Specs**	**70d**	**3/18/97**	**6/23/97**	
49	**Detailed Work Procedures (batched)**	**130d**	**3/4/97**	**9/1/97**	
54	**Environmental, Safety and Health**	**187d**	**4/29/97**	**1/14/98**	
55	**Sampling HASP**	**40d**	**4/29/97**	**6/23/97**	
60	**Safety Assessment**	**50d**	**8/14/97**	**10/22/97**	
65	**Environmental Compliance Strategy**	**70d**	**5/13/97**	**8/18/97**	
70	**Decommissioning HASP**	**70d**	**10/9/97**	**1/14/98**	



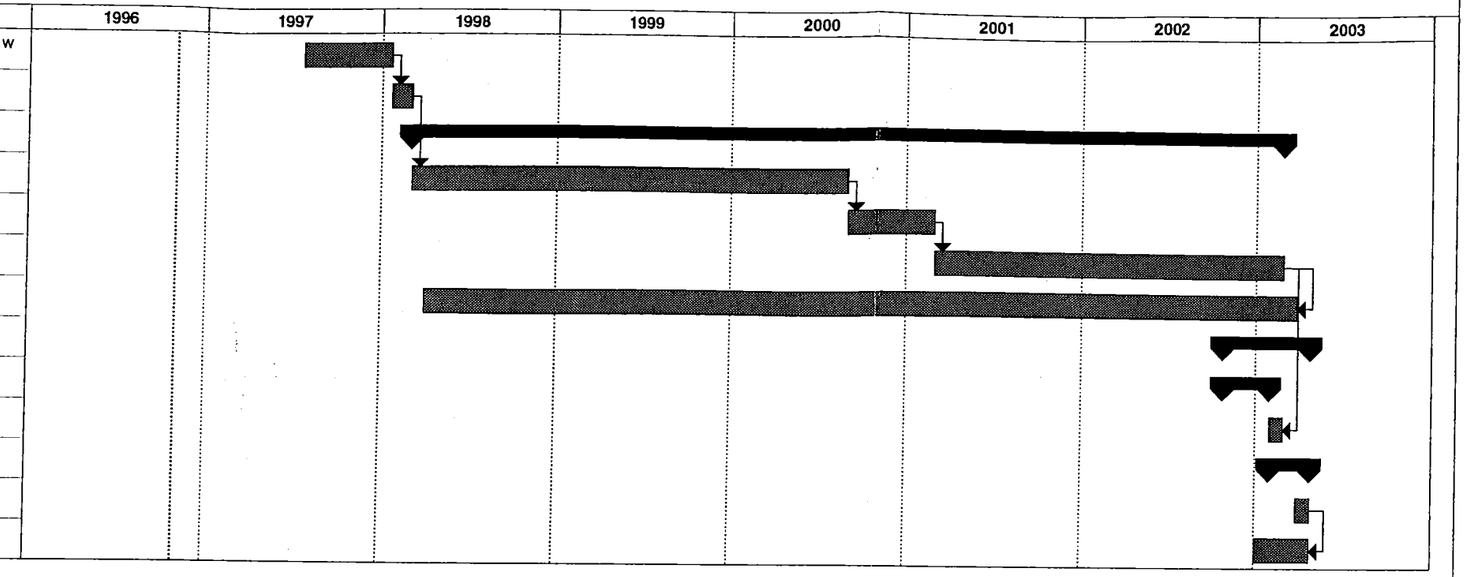
oject: SW/R Tritium Complex Pre-Co
Date: 10/31/96

Task | Milestone | Rolled Up Task | Rolled Up Progress
Progress | Summary | Rolled Up Milestone

Revision 0

SW/R Tritium Complex D&D Pre-Conceptual Engineering Study
Immediate D&D for Unrestricted Use Alternative
10,000 Curie/yr Release Limit

ID	Task Name	Duration	Start	Finish	Predecessors
75	Procedure Training and Mock-up Testing	26w	7/24/97	1/21/98	53SS+2w,74FF+1w
76	Readiness Checklists	6w	1/22/98	3/4/98	74,75
77	**D&D Activites**	**1300d**	**3/5/98**	**2/26/03**	
78	Internal D&D	130w	3/5/98	8/30/00	76
79	Buidling Demolition	26w	8/31/00	2/28/01	78
80	Soil Removal	104w	3/1/01	2/26/03	79
81	Waste Disposal	260w	4/2/98	3/26/03	38,80FF+4w
82	**Closure Activities**	**130d**	**10/24/02**	**4/23/03**	
83	**Facility Release Survey Plans**	**70d**	**10/24/02**	**1/30/03**	
88	Complete Final Surveys	4w	1/30/03	2/26/03	80FF
89	**IVC**	**60d**	**1/30/03**	**4/23/03**	
93	Restoration Activity	4w	3/27/03	4/23/03	91
94	Final Report	16w	1/2/03	4/23/03	84,93FF



3 Project Management

Project Management includes project plans, scheduling, cost estimating, procurement support, technical writing, change control, cost/schedule, project reporting, funds management, training, A/E cooridination, and the responsibility for controlling subcontractor work.

4 Site Services

Site services includes environmental monitoring , procurement, safeguards and security, utilities, computer maintenance, and sampling and analysis during D&D activities.

77 D&D Activites

Duration of internal D&D based on sum of "glovebox removal" manhours (w/o contingency). The total hours were divided by a typical crew of 6 workers to determine overall duration. Constraint is that 3 glovebox can be purged and removed at a time to remain below 10,000 curie/year release limit. Other activities such as glovebox preparation, misc. equipment removal, crawlspace cleanout and area decontamination are assumed to be done in concert with glovebox removal operations.

81 Waste Disposal

Waste disposal includes activities to handle materials and equipment on site as well as offsite transportation.

B

ADDENDUM
APPENDIX B
COST ESTIMATE

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

T E C (6.0) SW/R TRITIUM COMPLEX D&D - 10,000 Ci / yr

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.1	PROJECT MANAGEMENT	29,093	3,959,587	860,780	602,546	602,546	0	6,025,458
6.2	ENGINEERING	27,061	2,864,643	409,235	409,235	409,235	0	4,092,347
6.3	SITE SERVICES	32,240	2,437,747	66,673	35,000	500,000	2,000,000	5,039,420
6.4	SW/R TRITIUM COMPLEX D&D ACTIVITIES	312,135	19,426,592	2,610,244	521,309	1,304,300	0	23,862,445
6.5	WASTE DISPOSAL	29,960	2,265,361	11,845,100	12,020	1,637,347	10,986,750	26,746,577
6.6	INDEPENDENT VERIFICATION CONTRACTOR (IVC)	0	0	0	0	0	170,000	170,000
6.7	SITE RESTORATION	1,213	91,741	51,385	6,058	10,000	0	159,184
	SUBTOTAL	431,703	31,045,670	15,843,416	1,586,167	4,463,427	13,156,750	66,095,431
								0
								0
								0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	431,703	31,045,670	15,843,416	1,586,167	4,463,427	13,156,750	66,095,431
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	431,703	31,045,670	15,843,416	1,586,167	4,463,427	13,156,750	66,095,431
0.00%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
10.18%	ESCALATION - AVERAGE EFFECTIVE RATE		3,158,897	1,612,068	161,393	454,154	1,338,699	6,725,210
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
18.80%	G & A Overhead		5,836,586	2,978,562	298,199	839,124	2,473,469	12,425,941
	SUBTOTAL - PROJECT LOADERS	0	8,995,483	4,590,630	459,592	1,293,278	3,812,168	19,151,151
	TOTAL PROJECT COST	431,703	40,041,153	20,434,046	2,045,759	5,756,705	16,968,918	85,246,582
40.00%	CONTINGENCY		16,016,461	8,173,618	818,304	2,302,682	6,787,567	34,098,633
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
	TOTAL	431,703	56,057,614	28,607,664	2,864,063	8,059,388	23,756,486	119,345,215

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: BOB NEMADE
APPROVED BY: J.M. USHER

WBS - 6.1 - PROJECT MANAGEMENT

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIPMENT	SUBCONTRACTS	OTHER	TOTAL
6.1.1	PROJECT MANAGEMENT ACTIVITIES	17,709	796,887	344,312	344,312	344,312	0	1,829,822
6.1.2	PROJECT CONTROLS	11,384	512,284	516,468	258,234	258,234	0	1,545,220
	** Based on %'s of the Project Cost (less Waste Management Costs)							
	SUBTOTAL	29,093	1,309,171	860,780	602,546	602,546	0	3,375,042
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	29,093	1,309,171	860,780	602,546	602,546	0	3,375,042
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT							
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)							
	TOTAL FIELD AND HOME OFFICE	29,093	1,309,171	860,780	602,546	602,546	0	3,375,042
202.45%	LABOR BURDEN		2,650,416					2,650,416
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	2,650,416	0	0	0	0	2,650,416
	SUBTOTAL	29,093	3,959,587	860,780	602,546	602,546	0	6,025,458
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.1 -	PROJECT MANAGEMENT	29,093	3,959,587	860,780	602,546	602,546	0	6,025,458

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr
WBS NUMBER : 6.1.1
WBS DESCRIPTION: PROJECT MANAGEMENT ACTIVITIES

DETAIL ESTIMATE

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT COSTS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	**Project Management**	9	man yr	40,442	344,312	2,080	17,709	PM	$45.00	796,887	40,442	344,312	40,442	344,312	-	0	1,829,822
2	[based on 12% of project cost	0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	(less waste management costs)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
4	including Labor Burden]	0		0	0	0	0		0	0	0	0	0	0	0	0	0
5	*Labor Burden in 3.1 Summary	0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7	**Project Management Costs:**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
8	70% Labor (fully burdened)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
9	20% Material	0		0	0	0	0		0	0	0	0	0	0	0	0	0
10	10% Equipment	0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					344,312		17,709			796,887		344,312		344,312		0	1,829,822

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr
WBS NUMBER : 6.1.2
WBS DESCRIPTION: PROJECT CONTROLS

DETAIL ESTIMATE

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT COST	OTHER COSTS EXTENDED COST	SUBTOTAL
1	**Project Controls**	5	man yr	94,364	516,468	2,080	11,384	PM	$45.00	512,284	47,182	258,234	47,182	258,234	-	0	1,545,220
2	[based on 9% of project cost	0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	(less waste management costs)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
4	including Labor Burden]	0		0	0	0	0		0	0	0	0	0	0	0	0	0
5	*Labor Burden in 3.1 Summary	0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7	**Project Control Costs:**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
8	60% Labor (fully burdened)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
9	30% Material	0		0	0	0	0		0	0	0	0	0	0	0	0	0
10	10% Equipment	0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					516,468		11,384			512,284		258,234		258,234		0	1,545,220

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: BOB NEMADE
APPROVED BY: J.M. USHER

WBS - 6.2 - ENGINEERING

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.2.1	ENGINEERING	27,061	947,146	409,235	409,235	409,235	0	2,174,850
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	** Based on 14% of project cost (less Waste Managemen	0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
								0
								0
	SUBTOTAL	27,061	947,146	409,235	409,235	409,235	0	2,174,850
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	27,061	947,146	409,235	409,235	409,235	0	2,174,850
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)	0	0	0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	27,061	947,146	409,235	409,235	409,235	0	2,174,850
202.45%	LABOR BURDEN		1,917,497					1,917,497
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,917,497	0	0	0	0	1,917,497
	SUBTOTAL	27,061	2,864,643	409,235	409,235	409,235	0	4,092,347
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.2 -	ENGINEERING	27,061	2,864,643	409,235	409,235	409,235	0	4,092,347

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS: 6.2.1 ENGINEERING

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT of MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	**Engineering**	13	man yr	31,455	409,235	2080	27,061	ENG	$35.00	947,146	31,455	409,235	31,455	409,235	0	0	2,174,850
2	[based on 14% of project cost	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
3	(less waste management costs)	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
4	including Labor Burden]	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
5	*Labor Burden in 3.2 Summary	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
6		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
7	**Engineering Costs:**	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
8	70% Labor (fully burdened)	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
9	15% Material	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
10	10% Equipment	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
11	5% Subcontractors	0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
12		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
13		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
14		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
15		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
16		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
17		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
18		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
19		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
20		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
21		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
22		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
23		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
24		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
25		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
26		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
27		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
28		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
29		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
30		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
31		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
32		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
33		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
34		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
35		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
36		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
37		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
38		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
39		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
40		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
41		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
42				0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
43		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
Subtotal					409,235		27,061			947,146		409,235		409,235		0	2,174,850

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.3 - SITE SERVICES

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.3.1	REQD. ENVIRONMENTAL MONITORING ACTIVITIES	7,280	182,000	0	35,000	0	0	217,000
6.3.2	UTILITIES	0	0	0	0	0	2,000,000	2,000,000
6.3.3	FACILITY CHARACTERIZATION / LAB. SAMPLING	0	0	0	0	500,000	0	500,000
6.3.4	TERF/ERS OPERATION	24,960	624,000	66,673	0	0	0	690,673
								0
								0
	SUBTOTAL	32,240	806,000	66,673	35,000	500,000	2,000,000	3,407,673
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	32,240	806,000	66,673	35,000	500,000	2,000,000	3,407,673
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	32,240	806,000	66,673	35,000	500,000	2,000,000	3,407,673
202.45%	LABOR BURDEN		1,631,747					1,631,747
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,631,747	0	0	0	0	1,631,747
	SUBTOTAL	32,240	2,437,747	66,673	35,000	500,000	2,000,000	5,039,420
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.3 - SITE SERVICES		32,240	2,437,747	66,673	35,000	500,000	2,000,000	5,039,420

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.3.1 REQD. ENVIRONMENTAL MONITORING ACTIVITIES

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS XTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Env. Monitoring	3.5	man yr	0	0	2,080	7,280	COMP	$25.00	182,000	10000	35,000	0	0	0	0	217,000
2	(.5 FTE During D&D Activities)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	(7 years)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		7,280			182,000		35,000		0		0	217,000

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.3.2 UTILITIES

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS XTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Annual Utility Cost	4	yr	0	0	0	0		0	0	0	0	0	0	500000	2,000,000	2,000,000
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		2,000,000	2,000,000

SW/R TRITIU COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.3.3 FACILITY CHARACTERIZATION / LAB. SAMPLING

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS XTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Laboratory Analysis Support	1	lot	0	0	0	0		0	0	0	0	500000	500,000	0	0	500,000
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		500,000		0	500,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.3.4 TERF/ERS OPERATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS XTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	TERF Operation(4 Yrs.)	12	man yr	0	0	2,080	24,960	COMP	$25.00	624,000	0	0	0	0	0	0	624,000
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	Allowance for Tritiated Water	487	ea	137	66,673	0	0		0	0	0	0	0	0	0	0	66,673
4	(28 liters every 3 days)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					66,673		24,960			624,000		0		0		0	690,673

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4 - SW/R TRITIUM COMPLEX D&D ACTIVITIES

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.1	SW/R TRITIUM COMPLEX AREA A	26,241	1,492,766	225,376	22,136	0	0	1,740,278
6.4.2	SW/R TRITIUM COMPLEX AREA B	42,615	2,558,520	500,821	23,024	0	0	3,082,364
6.4.3	SW/R TRITIUM COMPLEX AREA C	67,341	4,087,678	718,636	22,256	0	0	4,828,571
6.4.4	SW/R TRITIUM COMPLEX AREA D	41,696	2,491,918	433,964	14,936	0	0	2,940,818
6.4.5	SW/R TRITIUM COMPLEX AREA E	37,587	2,226,036	369,742	33,404	0	0	2,629,182
6.4.6	SW/R TRITIUM COMPLEX AREA F	14,725	854,807	129,881	14,936	0	0	999,624
6.4.7	SW/R TRITIUM COMPLEX AREA G	29,109	1,720,918	172,413	14,936	0	0	1,908,267
6.4.8	INTERIOR WALL REMOVAL	7,799	589,673	0	21,583	0	0	611,256
6.4.9	UTILITY REMOVAL	0	0	0	0	490,000	0	490,000
6.4.10	INTERIOR DECONTAMINATION	6,859	518,629	27,280	8,742	0	0	554,651
6.4.11	HVAC DUCTWORK REMOVAL	3,721	281,333	0	10,000	0	0	291,333
6.4.12	PENTHOUSE (BLDG 58)	8,629	652,488	28,349	54,800	0	0	735,636
6.4.13	ROOF REMOVAL	1,008	76,217	0	2,352	0	0	78,569
6.4.14	BUILDING DEMOLITION	10,796	816,300	0	104,685	0	0	920,985
6.4.15	STACKS (3)	320	24,196	896	10,000	458,500	0	493,592
6.4.16	SLAB DEMOLITION	3,744	283,078	0	15,605	325,000	0	623,684
6.4.17	SOIL EXCAVATION	9,946	752,034	2,886	147,914	30,800	0	933,634
	SUBTOTAL	312,135	19,426,592	2,610,244	521,309	1,304,300	0	23,862,445
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	312,135	19,426,592	2,610,244	521,309	1,304,300	0	23,862,445
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	312,135	19,426,592	2,610,244	521,309	1,304,300	0	23,862,445
0.00%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)						0	0
0.00%	PERMITS						0	0
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR		0					0
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	0	0	0	0	0	0
	SUBTOTAL	312,135	19,426,592	2,610,244	521,309	1,304,300	0	23,862,445
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.4 -	SW/R TRITIUM COMPLEX D&D ACTIVITIES	312,135	19,426,592	2,610,244	521,309	1,304,300	0	23,862,445

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.1 - SW/R TRITIUM COMPLEX AREA A

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.1.1	PREPARATIONS	238	5,950	225,376	22,136	0	0	253,462
6.4.1.2	GLOVEBOX / FUMEHOOD REMOVAL	7,405	169,716	0	0	0	0	169,716
6.4.1.3	MISCELLANEOUS EQUIPMENT REMOVAL	6,733	122,017	0	0	0	0	122,017
6.4.1.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	11,865	195,875	0	0	0	0	195,875
	SUBTOTAL	26,241	493,558	225,376	22,136	0	0	741,070
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	26,241	493,558	225,376	22,136	0	0	741,070
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	26,241	493,558	225,376	22,136	0	0	741,070
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		999,208					999,208
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	999,208	0	0	0	0	999,208
	SUBTOTAL	26,241	1,492,766	225,376	22,136	0	0	1,740,278
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.1 - SW/R TRITIUM COMPLEX AREA A		26,241	1,492,766	225,376	22,136	0	0	1,740,278

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.1.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
6	Portable Temporary Lights	2	set	500	1,000	80	160	COMP	$25.00	4,000	0	0	0	0	0	0	5,000
7	GFI Portable Power (cords)	2	ea	250	500	24	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,700
8		6	mn	0	0	0	0	COMP	$25.00	0	870	5,220	0	0	0	0	5,220
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		6	mn	0	0	0	0	COMP	$25.00	0	350	2,100	0	0	0	0	2,100
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials (per MTES)	1	lot	2358	2,358	0	0	COMP	$25.00	0	0	0	0	0	0	0	2,358
22	Bubble Suit	447	ea	290	129,630	0	5	COMP	$25.00	125	0	0	0	0	0	0	129,755
23	Supplied Air Unit	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250sfca ea.)	500	sfca	1.16	580	0	25	COMP	$25.00	625	0	0	0	0	0	0	1,205
25	Additional PPE	32610	hr	2.8	91,308	0	0	COMP	$25.00	0	0	0	0	0	0	0	91,308
26		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
27		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
28		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
29		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
30		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
31		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
32		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
33		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
34		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
35		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
36		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
37		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
38		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
39		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
40		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
Subtotal					225,376		238			5,950		22,136		0		0	253,462

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.1.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glove box/fumehood	40	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	550	hr	0	0	1.00	550	LT	$44.25	24,338	0	0	0	0	0	0	24,338
3	Process Technician	1776	hr	0	0	1.00	1,776	PT	$31.78	56,441	0	0	0	0	0	0	56,441
4	Fabrication Mechanic	1479	hr	0	0	1.00	1,479	FM	$18.19	26,903	0	0	0	0	0	0	26,903
5	Pipefitter / Welder	1015	hr	0	0	1.00	1,015	PW	$18.32	18,595	0	0	0	0	0	0	18,595
6	Electrician	150	hr	0	0	1.00	150	E	$24.73	3,710	0	0	0	0	0	0	3,710
7	R C Technician	1071	hr	0	0	1.00	1,071	RCT	$18.19	19,481	0	0	0	0	0	0	19,481
8	Decon Worker	891	hr	0	0	1.00	891	D	$13.00	11,583	0	0	0	0	0	0	11,583
9	Heavy duty operator	473	hr	0	0	1.00	473	HO	$18.32	8,665	0	0	0	0	0	0	8,665
10		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
11		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
12		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
13		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
14		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
15		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
16		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
17		0		0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
18		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
19		0		0	0	0	0	X	$0.00	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		7,405			169,716		0		0		0	169,716

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.1.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	192	hr	0	0	1	192	FM	$18.19	3,492	0	0	0	0	0	0	3,492
4	Pipefitter / Welder	4	hr	0	0	1	4	PW	$18.32	73	0	0	0	0	0	0	73
5	Electrician	1722	hr	0	0	1	1,722	E	$24.73	42,585	0	0	0	0	0	0	42,585
6	R C Technician	2,557	hr	0	0	1	2,557	RCT	$18.19	46,512	0	0	0	0	0	0	46,512
7	Decon Worker	2258	hr	0	0	1	2,258	D	$13.00	29,354	0	0	0	0	0	0	29,354
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		6,733			122,017		0		0		0	122,017

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.1.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician		hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician		hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic		hr	0	0	1	0	FM	$18.19	0	0	0	0	0	0	0	0
4	Pipefitter / Welder	3948	hr	0	0	1	3,948	PW	$18.32	72,327	0	0	0	0	0	0	72,327
5	Electrician	9	hr	0	0	1	9	E	$24.73	223	0	0	0	0	0	0	223
6	R C Technician	3954	hr	0	0	1	3,954	RCT	$18.19	71,923	0	0	0	0	0	0	71,923
7	Decon Worker	3954	hr	0	0	1	3,954	D	$13.00	51,402	0	0	0	0	0	0	51,402
8				0	0	0	0	0	0	0	0	0	0	0	0	0	0
9				0	0	0	0	0	0	0	0	0	0	0	0	0	0
10				0	0	0	0	0	0	0	0	0	0	0	0	0	0
11				0	0	0	0	0	0	0	0	0	0	0	0	0	0
12				0	0	0	0	0	0	0	0	0	0	0	0	0	0
13				0	0	0	0	0	0	0	0	0	0	0	0	0	0
14				0	0	0	0	0	0	0	0	0	0	0	0	0	0
15				0	0	0	0	0	0	0	0	0	0	0	0	0	0
16				0	0	0	0	0	0	0	0	0	0	0	0	0	0
17				0	0	0	0	0	0	0	0	0	0	0	0	0	0
18				0	0	0	0	0	0	0	0	0	0	0	0	0	0
19				0	0	0	0	0	0	0	0	0	0	0	0	0	0
20				0	0	0	0	0	0	0	0	0	0	0	0	0	0
21				0	0	0	0	0	0	0	0	0	0	0	0	0	0
22				0	0	0	0	0	0	0	0	0	0	0	0	0	0
23				0	0	0	0	0	0	0	0	0	0	0	0	0	0
24				0	0	0	0	0	0	0	0	0	0	0	0	0	0
25				0	0	0	0	0	0	0	0	0	0	0	0	0	0
26				0	0	0	0	0	0	0	0	0	0	0	0	0	0
27				0	0	0	0	0	0	0	0	0	0	0	0	0	0
28				0	0	0	0	0	0	0	0	0	0	0	0	0	0
29				0	0	0	0	0	0	0	0	0	0	0	0	0	0
30				0	0	0	0	0	0	0	0	0	0	0	0	0	0
31				0	0	0	0	0	0	0	0	0	0	0	0	0	0
32				0	0	0	0	0	0	0	0	0	0	0	0	0	0
33				0	0	0	0	0	0	0	0	0	0	0	0	0	0
34				0	0	0	0	0	0	0	0	0	0	0	0	0	0
35				0	0	0	0	0	0	0	0	0	0	0	0	0	0
36				0	0	0	0	0	0	0	0	0	0	0	0	0	0
37				0	0	0	0	0	0	0	0	0	0	0	0	0	0
38				0	0	0	0	0	0	0	0	0	0	0	0	0	0
39				0	0	0	0	0	0	0	0	0	0	0	0	0	0
40				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal					0		11,865			195,875		0		0		0	195,875

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.2 - SW/R TRITIUM COMPLEX AREA B

			DOLLARS					
Work Code	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.2.1	PREPARATIONS	1,925	48,125	500,821	23,024	0	0	571,970
6.4.2.2	GLOVEBOX / FUMEHOOD REMOVAL	15,433	356,125	0	0	0	0	356,125
6.4.2.3	MISCELLANEOUS EQUIPMENT REMOVAL	12,795	235,951	0	0	0	0	235,951
6.4.2.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	12,462	205,731	0	0	0	0	205,731
	SUBTOTAL	42,615	845,931	500,821	23,024	0	0	1,369,776
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	42,615	845,931	500,821	23,024	0	0	1,369,776
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	42,615	845,931	500,821	23,024	0	0	1,369,776
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,712,588					1,712,588
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,712,588	0	0	0	0	1,712,588
	SUBTOTAL	42,615	2,558,520	500,821	23,024	0	0	3,082,364
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.2 - SW/R TRITIUM COMPLEX AREA B		42,615	2,558,520	500,821	23,024	0	0	3,082,364

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.2.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	15	mn	0	0	0	0	COMP	$25.00	0	30	450	0	0	0	0	450
2	Saw Blades	45	ea	0	0	0	0	COMP	$25.00	0	9	405	0	0	0	0	405
3	Portable Band Saws	8	mn	0	0	0	0	COMP	$25.00	0	48	384	0	0	0	0	384
4	Band Saw Blades	30	ea	0	0	0	0	COMP	$25.00	0	18	540	0	0	0	0	540
5	Pallet Jack	15	mn	0	0	0	0	COMP	$25.00	0	20	300	0	0	0	0	300
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	15	mn	0	0	0	0	COMP	$25.00	0	125	1,875	0	0	0	0	1,875
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	15	mn	0	0	0	0	COMP	$25.00	0	250	3,750	0	0	0	0	3,750
12	Electric Sheet Metal Cutters	15	mn	0	0	0	0	COMP	$25.00	0	108	1,620	0	0	0	0	1,620
13	Portable Dry Vacuum (hepa) Sys	15	mn	0	0	0	0	COMP	$25.00	0	185	2,775	0	0	0	0	2,775
14	Portable Wet Vacuum System	15	mn	0	0	0	0	COMP	$25.00	0	95	1,425	0	0	0	0	1,425
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	64800	64,800	0	0	COMP	$25.00	0	0	0	0	0	0	0	64,800
22	Bubble Suits	867	ea	290	251,430	0	154	COMP	$25.00	3,850	0	0	0	0	0	0	255,280
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	33500	sfca	1.16	38,860	0	1,675	COMP	$25.00	41,875	0	0	0	0	0	0	80,735
25	Additional PPE	51511	hr	2.8	144,231	0	0		0	0	0	0	0	0	0	0	144,231
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					500,821		1,925			48,125		23,024		0		0	571,970

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.2.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	54	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	1220	hr	0	0	1.00	1,220	LT	$44.25	53,985	0	0	0	0	0	0	53,985
3	Process Technician	3792	hr	0	0	1.00	3,792	PT	$31.78	120,510	0	0	0	0	0	0	120,510
4	Fabrication Mechanic	2329	hr	0	0	1.00	2,329	FM	$18.19	42,365	0	0	0	0	0	0	42,365
5	Pipefitter / Welder	2466	hr	0	0	1.00	2,466	PW	$18.32	45,177	0	0	0	0	0	0	45,177
6	Electrician	294	hr	0	0	1.00	294	E	$24.73	7,271	0	0	0	0	0	0	7,271
7	R C Technician	2546	hr	0	0	1.00	2,546	RCT	$18.19	46,312	0	0	0	0	0	0	46,312
8	Decon Worker	1980	hr	0	0	1.00	1,980	D	$13.00	25,740	0	0	0	0	0	0	25,740
9	Heavy duty operator	806	hr	0	0	1.00	806	X	$18.32	14,766	0	0	0	0	0	0	14,766
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		15,433			356,125		0		0		0	356,125

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.2.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	324	hr	0	0	1	324	FM	$18.19	5,894	0	0	0	0	0	0	5,894
4	Pipefitter / Welder	4	hr	0	0	1	4	PW	$18.32	73	0	0	0	0	0	0	73
5	Electrician	3861	hr	0	0	1	3,861	E	$24.73	95,483	0	0	0	0	0	0	95,483
6	R C Technician	4,359	hr	0	0	1	4,359	RCT	$18.19	79,290	0	0	0	0	0	0	79,290
7	Decon Worker	4247	hr	0	0	1	4,247	D	$13.00	55,211	0	0	0	0	0	0	55,211
8		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
11		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
12		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
13		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
14		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		12,795			235,951		0		0		0	235,951

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.2.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	6	hr	0	0	1	6	FM	$18.19	109	0	0	0	0	0	0	109
4	Pipefitter / Welder	4134	hr	0	0	1	4,134	PW	$18.32	75,735	0	0	0	0	0	0	75,735
5	Electrician	9	hr	0	0	1	9	E	$24.73	223	0	0	0	0	0	0	223
6	R C Technician	4161	hr	0	0	1	4,161	RCT	$18.19	75,689	0	0	0	0	0	0	75,689
7	Decon Worker	4152	hr	0	0	1	4,152	D	$13.00	53,976	0	0	0	0	0	0	53,976
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		12,462			205,731		0		0		0	205,731

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.3 - SW/R TRITIUM COMPLEX AREA C

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.3.1	PREPARATIONS	279	6,975	718,636	22,256	0	0	747,867
6.4.3.2	GLOVEBOX / FUMEHOOD REMOVAL	32,115	738,017	0	0	0	0	738,017
6.4.3.3	MISCELLANEOUS EQUIPMENT REMOVAL	14,544	269,488	0	0	0	0	269,488
6.4.3.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	20,403	337,042	0	0	0	0	337,042
	SUBTOTAL	67,341	1,351,522	718,636	22,256	0	0	2,092,414
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	67,341	1,351,522	718,636	22,256	0	0	2,092,414
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	67,341	1,351,522	718,636	22,256	0	0	2,092,414
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		2,736,156					2,736,156
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	2,736,156	0	0	0	0	2,736,156
	SUBTOTAL	67,341	4,087,678	718,636	22,256	0	0	4,828,571
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.3 - SW/R TRITIUM COMPLEX AREA C		67,341	4,087,678	718,636	22,256	0	0	4,828,571

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.3.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		6	mn	0	0	0	0	COMP	$25.00	0	870	5,220	0	0	0	0	5,220
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		6	mn	0	0	0	0	COMP	$25.00	0	350	2,100	0	0	0	0	2,100
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4855	4,855	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,855
22	Bubble Suits	1549	ea	290	449,210	0	8	COMP	$25.00	200	0	0	0	0	0	0	449,410
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	3500	sfca	1.16	4,060	0	175	COMP	$25.00	4,375	0	0	0	0	0	0	8,435
25	Additional PPE	92504	hr	2.8	259,011	0	0		0	0	0	0	0	0	0	0	259,011
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					718,636		279			6,975		22,256		0		0	747,867

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.3.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	106	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	2400	hr	0	0	1.00	2,400	LT	$44.25	106,200	0	0	0	0	0	0	106,200
3	Process Technician	7904	hr	0	0	1.00	7,904	PT	$31.78	251,189	0	0	0	0	0	0	251,189
4	Fabrication Mechanic	4957	hr	0	0	1.00	4,957	FM	$18.19	90,168	0	0	0	0	0	0	90,168
5	Pipefitter / Welder	4957	hr	0	0	1.00	4,957	PW	$18.32	90,812	0	0	0	0	0	0	90,812
6	Electrician	680	hr	0	0	1.00	680	E	$24.73	16,816	0	0	0	0	0	0	16,816
7	R C Technician	5166	hr	0	0	1.00	5,166	RCT	$18.19	93,970	0	0	0	0	0	0	93,970
8	Decon Worker	4134	hr	0	0	1.00	4,134	D	$13.00	53,742	0	0	0	0	0	0	53,742
9	Heavy duty operator	1917	hr	0	0	1.00	1,917	X	$18.32	35,119	0	0	0	0	0	0	35,119
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		32,115			738,017		0		0		0	738,017

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.3.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	1	hr	0	0	1	1	LT	$44.25	44	0	0	0	0	0	0	44
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	230	hr	0	0	1	230	FM	$18.19	4,184	0	0	0	0	0	0	4,184
4	Pipefitter / Welder	11	hr	0	0	1	11	PW	$18.32	202	0	0	0	0	0	0	202
5	Electrician	4591	hr	0	0	1	4,591	E	$24.73	113,535	0	0	0	0	0	0	113,535
6	R C Technician	4,871	hr	0	0	1	4,871	RCT	$18.19	88,603	0	0	0	0	0	0	88,603
7	Decon Worker	4840	hr	0	0	1	4,840	D	$13.00	62,920	0	0	0	0	0	0	62,920
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		14,544			269,488		0		0		0	269,488

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.3.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	18	hr	0	0	1	18	FM	$18.19	327	0	0	0	0	0	0	327
4	Pipefitter / Welder	6732	hr	0	0	1	6,732	PW	$18.32	123,330	0	0	0	0	0	0	123,330
5	Electrician	51	hr	0	0	1	51	E	$24.73	1,261	0	0	0	0	0	0	1,261
6	R C Technician	6801	hr	0	0	1	6,801	RCT	$18.19	123,710	0	0	0	0	0	0	123,710
7	Decon Worker	6801	hr	0	0	1	6,801	D	$13.00	88,413	0	0	0	0	0	0	88,413
8				0	0	0	0		0	0	0	0	0	0	0	0	0
9				0	0	0	0		0	0	0	0	0	0	0	0	0
10					0	0	0		0	0	0	0	0	0	0	0	0
11				0	0	0	0		0	0	0	0	0	0	0	0	0
12				0	0	0	0		0	0	0	0	0	0	0	0	0
13				0	0	0	0		0	0	0	0	0	0	0	0	0
14				0	0	0	0		0	0	0	0	0	0	0	0	0
15				0	0	0	0		0	0	0	0	0	0	0	0	0
16				0	0	0	0		0	0	0	0	0	0	0	0	0
17				0	0	0	0		0	0	0	0	0	0	0	0	0
18				0	0	0	0		0	0	0	0	0	0	0	0	0
19				0	0	0	0		0	0	0	0	0	0	0	0	0
20				0	0	0	0		0	0	0	0	0	0	0	0	0
21				0	0	0	0		0	0	0	0	0	0	0	0	0
22				0	0	0	0		0	0	0	0	0	0	0	0	0
23				0	0	0	0		0	0	0	0	0	0	0	0	0
24				0	0	0	0		0	0	0	0	0	0	0	0	0
25					0	0	0		0	0	0	0	0	0	0	0	0
26				0	0	0	0		0	0	0	0	0	0	0	0	0
27				0	0	0	0		0	0	0	0	0	0	0	0	0
28				0	0	0	0		0	0	0	0	0	0	0	0	0
29				0	0	0	0		0	0	0	0	0	0	0	0	0
30				0	0	0	0		0	0	0	0	0	0	0	0	0
31				0	0	0	0		0	0	0	0	0	0	0	0	0
32				0	0	0	0		0	0	0	0	0	0	0	0	0
33				0	0	0	0		0	0	0	0	0	0	0	0	0
34				0	0	0	0		0	0	0	0	0	0	0	0	0
35				0	0	0	0		0	0	0	0	0	0	0	0	0
36				0	0	0	0		0	0	0	0	0	0	0	0	0
37				0	0	0	0		0	0	0	0	0	0	0	0	0
38				0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40					0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		20,403			337,042		0		0		0	337,042

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.4 - SW/R TRITIUM COMPLEX AREA D

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.4.1	PREPARATIONS	231	5,775	433,964	14,936	0	0	454,675
6.4.4.2	GLOVEBOX / FUMEHOOD REMOVAL	16,441	385,900	0	0	0	0	385,900
6.4.4.3	MISCELLANEOUS EQUIPMENT REMOVAL	9,814	180,442	0	0	0	0	180,442
6.4.4.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	15,210	251,793	0	0	0	0	251,793
	SUBTOTAL	41,696	823,911	433,964	14,936	0	0	1,272,811
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	41,696	823,911	433,964	14,936	0	0	1,272,811
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	41,696	823,911	433,964	14,936	0	0	1,272,811
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,668,007					1,668,007
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,668,007	0	0	0	0	1,668,007
	SUBTOTAL	41,696	2,491,918	433,964	14,936	0	0	2,940,818
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.4 - SW/R TRITIUM COMPLEX AREA D		41,696	2,491,918	433,964	14,936	0	0	2,940,818

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.4.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4404	4,404	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,404
22	Bubble Suits	950	ea	290	275,500	0	10	COMP	$25.00	250	0	0	0	0	0	0	275,750
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	2500	sfca	1.16	2,900	0	125	COMP	$25.00	3,125	0	0	0	0	0	0	6,025
25	Additional PPE	53450	hr	2.8	149,660	0	0		0	0	0	0	0	0	0	0	149,660
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					433,964		231			5,775		14,936		0		0	454,675

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.4.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	62	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	1365	hr	0	0	1.00	1,365	LT	$44.25	60,401	0	0	0	0	0	0	60,401
3	Process Technician	4379	hr	0	0	1.00	4,379	PT	$31.78	139,165	0	0	0	0	0	0	139,165
4	Fabrication Mechanic	2598	hr	0	0	1.00	2,598	FM	$18.19	47,258	0	0	0	0	0	0	47,258
5	Pipefitter / Welder	2475	hr	0	0	1.00	2,475	PW	$18.32	45,342	0	0	0	0	0	0	45,342
6	Electrician	370	hr	0	0	1.00	370	E	$24.73	9,150	0	0	0	0	0	0	9,150
7	R C Technician	2471	hr	0	0	1.00	2,471	RCT	$18.19	44,947	0	0	0	0	0	0	44,947
8	Decon Worker	2133	hr	0	0	1.00	2,133	D	$13.00	27,729	0	0	0	0	0	0	27,729
9	Heavy duty operator	650	hr	0	0	1.00	650	HO	$18.32	11,908	0	0	0	0	0	0	11,908
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		16,441			385,900		0		0		0	385,900

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.4.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	3	hr	0	0	1	3	LT	$44.25	133	0	0	0	0	0	0	133
2	Process Technician	7	hr	0	0	1	7	PT	$31.78	222	0	0	0	0	0	0	222
3	Fabrication Mechanic	208	hr	0	0	1	208	FM	$18.19	3,784	0	0	0	0	0	0	3,784
4	Pipefitter / Welder	24	hr	0	0	1	24	PW	$18.32	440	0	0	0	0	0	0	440
5	Electrician	2872	hr	0	0	1	2,872	E	$24.73	71,025	0	0	0	0	0	0	71,025
6	R C Technician	3,418	hr	0	0	1	3,418	RCT	$18.19	62,173	0	0	0	0	0	0	62,173
7	Decon Worker	3282	hr	0	0	1	3,282	D	$13.00	42,666	0	0	0	0	0	0	42,666
8				0	0	0	0		0	0	0	0	0	0	0	0	0
9				0	0	0	0		0	0	0	0	0	0	0	0	0
10				0	0	0	0		0	0	0	0	0	0	0	0	0
11				0	0	0	0		0	0	0	0	0	0	0	0	0
12				0	0	0	0		0	0	0	0	0	0	0	0	0
13				0	0	0	0		0	0	0	0	0	0	0	0	0
14				0	0	0	0		0	0	0	0	0	0	0	0	0
15				0	0	0	0		0	0	0	0	0	0	0	0	0
16				0	0	0	0		0	0	0	0	0	0	0	0	0
17				0	0	0	0		0	0	0	0	0	0	0	0	0
18				0	0	0	0		0	0	0	0	0	0	0	0	0
19				0	0	0	0		0	0	0	0	0	0	0	0	0
20				0	0	0	0		0	0	0	0	0	0	0	0	0
21				0	0	0	0		0	0	0	0	0	0	0	0	0
22				0	0	0	0		0	0	0	0	0	0	0	0	0
23				0	0	0	0		0	0	0	0	0	0	0	0	0
24				0	0	0	0		0	0	0	0	0	0	0	0	0
25				0	0	0	0		0	0	0	0	0	0	0	0	0
26				0	0	0	0		0	0	0	0	0	0	0	0	0
27				0	0	0	0		0	0	0	0	0	0	0	0	0
28				0	0	0	0		0	0	0	0	0	0	0	0	0
29				0	0	0	0		0	0	0	0	0	0	0	0	0
30				0	0	0	0		0	0	0	0	0	0	0	0	0
31				0	0	0	0		0	0	0	0	0	0	0	0	0
32				0	0	0	0		0	0	0	0	0	0	0	0	0
33				0	0	0	0		0	0	0	0	0	0	0	0	0
34				0	0	0	0		0	0	0	0	0	0	0	0	0
35				0	0	0	0		0	0	0	0	0	0	0	0	0
36				0	0	0	0		0	0	0	0	0	0	0	0	0
37				0	0	0	0		0	0	0	0	0	0	0	0	0
38				0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40				0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		9,814			180,442		0		0		0	180,442

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.4.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	6	hr	0	0	1	6	FM	$18.19	109	0	0	0	0	0	0	109
4	Pipefitter / Welder	5106	hr	0	0	1	5,106	PW	$18.32	93,542	0	0	0	0	0	0	93,542
5	Electrician	42	hr	0	0	1	42	E	$24.73	1,039	0	0	0	0	0	0	1,039
6	R C Technician	5082	hr	0	0	1	5,082	RCT	$18.19	92,442	0	0	0	0	0	0	92,442
7	Decon Worker	4974	hr	0	0	1	4,974	D	$13.00	64,662	0	0	0	0	0	0	64,662
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		15,210			251,793		0		0		0	251,793

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.5 - SW/R TRITIUM COMPLEX AREA E

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.5.1	PREPARATIONS	3,038	75,950	369,742	33,404	0	0	479,096
6.4.5.2	GLOVEBOX / FUMEHOOD REMOVAL	5,694	134,139	0	0	0	0	134,139
6.4.5.3	MISCELLANEOUS EQUIPMENT REMOVAL	24,676	456,863	0	0	0	0	456,863
6.4.5.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	4,179	69,049	0	0	0	0	69,049
	SUBTOTAL	37,587	736,001	369,742	33,404	0	0	1,139,148
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	37,587	736,001	369,742	33,404	0	0	1,139,148
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	37,587	736,001	369,742	33,404	0	0	1,139,148
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,490,035					1,490,035
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,490,035	0	0	0	0	1,490,035
	SUBTOTAL	37,587	2,226,036	369,742	33,404	0	0	2,629,182
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.5 - SW/R TRITIUM COMPLEX AREA E		37,587	2,226,036	369,742	33,404	0	0	2,629,182

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.5.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	24	mn	0	0	0	0	COMP	$25.00	0	30	720	0	0	0	0	720
2	Saw Blades	120	ea	0	0	0	0	COMP	$25.00	0	9	1,080	0	0	0	0	1,080
3	Portable Band Saws	24	mn	0	0	0	0	COMP	$25.00	0	48	1,152	0	0	0	0	1,152
4	Band Saw Blades	120	ea	0	0	0	0	COMP	$25.00	0	18	2,160	0	0	0	0	2,160
5	Pallet Jack	24	mn	0	0	0	0	COMP	$25.00	0	20	480	0	0	0	0	480
6	Portable Temporary Lights	4	set	500	2,000	40	160	COMP	$25.00	4,000	0	0	0	0	0	0	6,000
7	GFI Portable Power (cords)	8	ea	250	2,000	8	64	COMP	$25.00	1,600	0	0	0	0	0	0	3,600
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	24	mn	0	0	0	0	COMP	$25.00	0	125	3,000	0	0	0	0	3,000
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	24	mn	0	0	0	0	COMP	$25.00	0	250	6,000	0	0	0	0	6,000
12	Electric Sheet Metal Cutters	24	mn	0	0	0	0	COMP	$25.00	0	108	2,592	0	0	0	0	2,592
13	Portable Dry Vacuum (hepa) Sys	24	mn	0	0	0	0	COMP	$25.00	0	185	4,440	0	0	0	0	4,440
14	Portable Wet Vacuum System	24	mn	0	0	0	0	COMP	$25.00	0	95	2,280	0	0	0	0	2,280
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	106277	106,277	0	0	COMP	$25.00	0	0	0	0	0	0	0	106,277
22	Bubble Suits	301	ea	290	87,290	0	251	COMP	$25.00	6,275	0	0	0	0	0	0	93,565
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	51250	sfca	1.16	59,450	0	2,563	COMP	$25.00	64,075	0	0	0	0	0	0	123,525
25	Additional PPE	40259	hr	2.8	112,725	0	0		0	0	0	0	0	0	0	0	112,725
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					369,742		3,038			75,950		33,404		0		0	479,096

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.5.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	20	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	422	hr	0	0	1.00	422	LT	$44.25	18,674	0	0	0	0	0	0	18,674
3	Process Technician	1658	hr	0	0	1.00	1,658	PT	$31.78	52,691	0	0	0	0	0	0	52,691
4	Fabrication Mechanic	1004	hr	0	0	1.00	1,004	FM	$18.19	18,263	0	0	0	0	0	0	18,263
5	Pipefitter / Welder	765	hr	0	0	1.00	765	PW	$18.32	14,015	0	0	0	0	0	0	14,015
6	Electrician	160	hr	0	0	1.00	160	E	$24.73	3,957	0	0	0	0	0	0	3,957
7	R C Technician	809	hr	0	0	1.00	809	RCT	$18.19	14,716	0	0	0	0	0	0	14,716
8	Decon Worker	794	hr	0	0	1.00	794	D	$13.00	10,322	0	0	0	0	0	0	10,322
9	Heavy duty operator	82	hr	0	0	1.00	82	HO	$18.32	1,502	0	0	0	0	0	0	1,502
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		5,694			134,139		0		0		0	134,139

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.5.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	183	hr	0	0	1	183	FM	$18.19	3,329	0	0	0	0	0	0	3,329
4	Pipefitter / Welder	6	hr	0	0	1	6	PW	$18.32	110	0	0	0	0	0	0	110
5	Electrician	7745	hr	0	0	1	7,745	E	$24.73	191,534	0	0	0	0	0	0	191,534
6	R C Technician	8,525	hr	0	0	1	8,525	RCT	$18.19	155,070	0	0	0	0	0	0	155,070
7	Decon Worker	8217	hr	0	0	1	8,217	D	$13.00	106,821	0	0	0	0	0	0	106,821
8				0	0	0	0		0	0	0	0	0	0	0	0	0
9				0	0	0	0		0	0	0	0	0	0	0	0	0
10				0	0	0	0		0	0	0	0	0	0	0	0	0
11				0	0	0	0		0	0	0	0	0	0	0	0	0
12				0	0	0	0		0	0	0	0	0	0	0	0	0
13				0	0	0	0		0	0	0	0	0	0	0	0	0
14				0	0	0	0		0	0	0	0	0	0	0	0	0
15				0	0	0	0		0	0	0	0	0	0	0	0	0
16				0	0	0	0		0	0	0	0	0	0	0	0	0
17				0	0	0	0		0	0	0	0	0	0	0	0	0
18				0	0	0	0		0	0	0	0	0	0	0	0	0
19				0	0	0	0		0	0	0	0	0	0	0	0	0
20				0	0	0	0		0	0	0	0	0	0	0	0	0
21				0	0	0	0		0	0	0	0	0	0	0	0	0
22				0	0	0	0		0	0	0	0	0	0	0	0	0
23				0	0	0	0		0	0	0	0	0	0	0	0	0
24				0	0	0	0		0	0	0	0	0	0	0	0	0
25				0	0	0	0		0	0	0	0	0	0	0	0	0
26				0	0	0	0		0	0	0	0	0	0	0	0	0
27				0	0	0	0		0	0	0	0	0	0	0	0	0
28				0	0	0	0		0	0	0	0	0	0	0	0	0
29				0	0	0	0		0	0	0	0	0	0	0	0	0
30				0	0	0	0		0	0	0	0	0	0	0	0	0
31				0	0	0	0		0	0	0	0	0	0	0	0	0
32				0	0	0	0		0	0	0	0	0	0	0	0	0
33				0	0	0	0		0	0	0	0	0	0	0	0	0
34				0	0	0	0		0	0	0	0	0	0	0	0	0
35				0	0	0	0		0	0	0	0	0	0	0	0	0
36				0	0	0	0		0	0	0	0	0	0	0	0	0
37				0	0	0	0		0	0	0	0	0	0	0	0	0
38				0	0	0	0		0	0	0	0	0	0	0	0	0
39				0	0	0	0		0	0	0	0	0	0	0	0	0
40				0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		24,676			456,863		0		0		0	456,863

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.5.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	6	hr	0	0	1	6	FM	$18.19	109	0	0	0	0	0	0	109
4	Pipefitter / Welder	1377	hr	0	0	1	1,377	PW	$18.32	25,227	0	0	0	0	0	0	25,227
5	Electrician	12	hr	0	0	1	12	E	$24.73	297	0	0	0	0	0	0	297
6	R C Technician	1392	hr	0	0	1	1,392	RCT	$18.19	25,320	0	0	0	0	0	0	25,320
7	Decon Worker	1392	hr	0	0	1	1,392	D	$13.00	18,096	0	0	0	0	0	0	18,096
8				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					0		4,179			69,049		0		0		0	69,049

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.6 - SW/R TRITIUM COMPLEX AREA F

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.6.1	PREPARATIONS	205	5,125	129,881	14,936	0	0	149,942
6.4.6.2	GLOVEBOX / FUMEHOOD REMOVAL	4,266	100,430	0	0	0	0	100,430
6.4.6.3	MISCELLANEOUS EQUIPMENT REMOVAL	4,494	81,996	0	0	0	0	81,996
6.4.6.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	5,760	95,076	0	0	0	0	95,076
	SUBTOTAL	14,725	282,628	129,881	14,936	0	0	427,445
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	14,725	282,628	129,881	14,936	0	0	427,445
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	14,725	282,628	129,881	14,936	0	0	427,445
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		572,179					572,179
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	572,179	0	0	0	0	572,179
	SUBTOTAL	14,725	854,807	129,881	14,936	0	0	999,624
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.6 - SW/R TRITIUM COMPLEX AREA F		14,725	854,807	129,881	14,936	0	0	999,624

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.6.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4155	4,155	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,155
22	Bubble Suits	250	ea	290	72,500	0	9	COMP	$25.00	225	0	0	0	0	0	0	72,725
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	2000	sfca	1.16	2,320	0	100	COMP	$25.00	2,500	0	0	0	0	0	0	4,820
25	Additional PPE	17645	hr	2.8	49,406	0	0		0	0	0	0	0	0	0	0	49,406
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					129,881		205			5,125		14,936		0		0	149,942

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.6.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	17	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	365	hr	0	0	1.00	365	LT	$44.25	16,151	0	0	0	0	0	0	16,151
3	Process Technician	1142	hr	0	0	1.00	1,142	PT	$31.78	36,293	0	0	0	0	0	0	36,293
4	Fabrication Mechanic	654	hr	0	0	1.00	654	FM	$18.19	11,896	0	0	0	0	0	0	11,896
5	Pipefitter / Welder	671	hr	0	0	1.00	671	PW	$18.32	12,293	0	0	0	0	0	0	12,293
6	Electrician	95	hr	0	0	1.00	95	E	$24.73	2,349	0	0	0	0	0	0	2,349
7	R C Technician	630	hr	0	0	1.00	630	RCT	$18.19	11,460	0	0	0	0	0	0	11,460
8	Decon Worker	564	hr	0	0	1.00	564	D	$13.00	7,332	0	0	0	0	0	0	7,332
9	Heavy duty operator	145	hr	0	0	1.00	145	HO	$18.32	2,656	0	0	0	0	0	0	2,656
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		4,266			100,430		0		0		0	100,430

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.6.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	203	hr	0	0	1	203	FM	$18.19	3,693	0	0	0	0	0	0	3,693
4	Pipefitter / Welder	16	hr	0	0	1	16	PW	$18.32	293	0	0	0	0	0	0	293
5	Electrician	1191	hr	0	0	1	1,191	E	$24.73	29,453	0	0	0	0	0	0	29,453
6	R C Technician	1,631	hr	0	0	1	1,631	RCT	$18.19	29,668	0	0	0	0	0	0	29,668
7	Decon Worker	1453	hr	0	0	1	1,453	D	$13.00	18,889	0	0	0	0	0	0	18,889
8				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					0		1,494			81,996		0		0		0	81,996

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.6.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	18	hr	0	0	1	18	FM	$18.19	327	0	0	0	0	0	0	327
4	Pipefitter / Welder	1899	hr	0	0	1	1,899	PW	$18.32	34,790	0	0	0	0	0	0	34,790
5	Electrician	3	hr	0	0	1	3	E	$24.73	74	0	0	0	0	0	0	74
6	R C Technician	1920	hr	0	0	1	1,920	RCT	$18.19	34,925	0	0	0	0	0	0	34,925
7	Decon Worker	1920	hr	0	0	1	1,920	D	$13.00	24,960	0	0	0	0	0	0	24,960
8		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		5,760			95,076		0		0		0	95,076

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.7 - SW/R TRITIUM COMPLEX AREA G

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.7.1	PREPARATIONS	205	5,125	172,413	14,936	0	0	192,474
6.4.7.2	GLOVEBOX / FUMEHOOD REMOVAL	8,586	198,312	0	0	0	0	198,312
6.4.7.3	MISCELLANEOUS EQUIPMENT REMOVAL	14,774	274,043	0	0	0	0	274,043
6.4.7.4	SERVICE REMOVAL / CRAWLSPACE CLEANOUT	5,544	91,513	0	0	0	0	91,513
	SUBTOTAL	29,109	568,993	172,413	14,936	0	0	756,342
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	29,109	568,993	172,413	14,936	0	0	756,342
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	29,109	568,993	172,413	14,936	0	0	756,342
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		1,151,926					1,151,926
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,151,926	0	0	0	0	1,151,926
	SUBTOTAL	29,109	1,720,918	172,413	14,936	0	0	1,908,267
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.7 - SW/R TRITIUM COMPLEX AREA G		29,109	1,720,918	172,413	14,936	0	0	1,908,267

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.7.1 PREPARATIONS

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Sawsall Electric (reciprocating)	5	mn	0	0	0	0	COMP	$25.00	0	30	150	0	0	0	0	150
2	Saw Blades	20	ea	0	0	0	0	COMP	$25.00	0	9	180	0	0	0	0	180
3	Portable Band Saws	4	mn	0	0	0	0	COMP	$25.00	0	48	192	0	0	0	0	192
4	Band Saw Blades	12	ea	0	0	0	0	COMP	$25.00	0	18	216	0	0	0	0	216
5	Pallet Jack	6	mn	0	0	0	0	COMP	$25.00	0	20	120	0	0	0	0	120
6	Portable Temporary Lights	2	set	500	1,000	40	80	COMP	$25.00	2,000	0	0	0	0	0	0	3,000
7	GFI Portable Power (cords)	2	ea	250	500	8	16	COMP	$25.00	400	0	0	0	0	0	0	900
8		0	mn	0	0	0	0	COMP	$25.00	0	870	0	0	0	0	0	0
9	Hydraulic Shears (small)	6	mn	0	0	0	0	COMP	$25.00	0	125	750	0	0	0	0	750
10		0	mn	0	0	0	0	COMP	$25.00	0	350	0	0	0	0	0	0
11	Hydraulic Sheet Metal Scissors	6	mn	0	0	0	0	COMP	$25.00	0	250	1,500	0	0	0	0	1,500
12	Electric Sheet Metal Cutters	6	mn	0	0	0	0	COMP	$25.00	0	108	648	0	0	0	0	648
13	Portable Dry Vacuum (hepa) Sys	6	mn	0	0	0	0	COMP	$25.00	0	185	1,110	0	0	0	0	1,110
14	Portable Wet Vacuum System	6	mn	0	0	0	0	COMP	$25.00	0	95	570	0	0	0	0	570
15		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
16		0	mn	0	0	0	0	COMP	$25.00	0	30	0	0	0	0	0	0
17		0	ea	0	0	0	0	COMP	$25.00	0	9	0	0	0	0	0	0
18		0	mn	0	0	0	0	COMP	$25.00	0	48	0	0	0	0	0	0
19		0	ea	0	0	0	0	COMP	$25.00	0	18	0	0	0	0	0	0
20		0	ea	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
21	Decon Materials(per Mtes)	1	lot	4155	4,155	0	0	COMP	$25.00	0	0	0	0	0	0	0	4,155
22	Bubble Suits	250	ea	290	72,500	0	9	COMP	$25.00	225	0	0	0	0	0	0	72,725
23	Supplied Air Units	1	ea	0	0	0	0	COMP	$25.00	0	9500	9,500	0	0	0	0	9,500
24	Tent Material (250 sfca ea.)	2000	sfca	1.16	2,320	0	100	COMP	$25.00	2,500	0	0	0	0	0	0	4,820
25	Additional PPE	32835	hr	2.8	91,938	0	0		0	0	0	0	0	0	0	0	91,938
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					172,413		205			5,125		14,936		0		0	192,474

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.7.2 GLOVEBOX / FUMEHOOD REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Glovebox / Fumehood	11	count	0	0	0.00	0	X	$0.00	0	0	0	0	0	0	0	0
2	Lead Technician	568	hr	0	0	1.00	568	LT	$44.25	25,134	0	0	0	0	0	0	25,134
3	Process Technician	2384	hr	0	0	1.00	2,384	PT	$31.78	75,764	0	0	0	0	0	0	75,764
4	Fabrication Mechanic	1464	hr	0	0	1.00	1,464	FM	$18.19	26,630	0	0	0	0	0	0	26,630
5	Pipefitter / Welder	1214	hr	0	0	1.00	1,214	PW	$18.32	22,240	0	0	0	0	0	0	22,240
6	Electrician	191	hr	0	0	1.00	191	E	$24.73	4,723	0	0	0	0	0	0	4,723
7	R C Technician	1256	hr	0	0	1.00	1,256	RCT	$18.19	22,847	0	0	0	0	0	0	22,847
8	Decon Worker	1254	hr	0	0	1.00	1,254	D	$13.00	16,302	0	0	0	0	0	0	16,302
9	Heavy duty operator	255	hr	0	0	1.00	255	HO	$18.32	4,672	0	0	0	0	0	0	4,672
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		8,586			198,312		0		0		0	198,312

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.7.3 MISCELLANEOUS EQUIPMENT REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	1	hr	0	0	1	1	LT	$44.25	44	0	0	0	0	0	0	44
2	Process Technician	1	hr	0	0	1	1	PT	$31.78	32	0	0	0	0	0	0	32
3	Fabrication Mechanic	64	hr	0	0	1	64	FM	$18.19	1,164	0	0	0	0	0	0	1,164
4	Pipefitter / Welder	3	hr	0	0	1	3	PW	$18.32	55	0	0	0	0	0	0	55
5	Electrician	4710	hr	0	0	1	4,710	E	$24.73	116,478	0	0	0	0	0	0	116,478
6	R C Technician	5,074	hr	0	0	1	5,074	RCT	$18.19	92,296	0	0	0	0	0	0	92,296
7	Decon Worker	4921	hr	0	0	1	4,921	D	$13.00	63,973	0	0	0	0	0	0	63,973
8				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40				0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					0		14,774			274,043		0		0		0	274,043

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.7.4 SERVICE REMOVAL / CRAWLSPACE CLEANOUT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	CREW MIX	CREW RATE	DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Lead Technician	0	hr	0	0	1	0	LT	$44.25	0	0	0	0	0	0	0	0
2	Process Technician	0	hr	0	0	1	0	PT	$31.78	0	0	0	0	0	0	0	0
3	Fabrication Mechanic	3	hr	0	0	1	3	FM	$18.19	55	0	0	0	0	0	0	55
4	Pipefitter / Welder	1842	hr	0	0	1	1,842	PW	$18.32	33,745	0	0	0	0	0	0	33,745
5	Electrician	3	hr	0	0	1	3	E	$24.73	74	0	0	0	0	0	0	74
6	R C Technician	1848	hr	0	0	1	1,848	RCT	$18.19	33,615	0	0	0	0	0	0	33,615
7	Decon Worker	1848	hr	0	0	1	1,848	D	$13.00	24,024	0	0	0	0	0	0	24,024
8		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		5,544			91,513		0		0		0	91,513

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.8 - INTERIOR WALL REMOVAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.8.1	INTERIOR WALL REMOVAL	7,799	194,965	0	21,583	0	0	216,549
6.4.8.2								
6.4.8.3								
6.4.8.4								
	SUBTOTAL	7,799	194,965	0	21,583	0	0	216,549
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	7,799	194,965	0	21,583	0	0	216,549
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	7,799	194,965	0	21,583	0	0	216,549
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		394,707					394,707
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	394,707	0	0	0	0	394,707
	SUBTOTAL	7,799	589,673	0	21,583	0	0	611,256
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (PAYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.8 - INTERIOR WALL REMOVAL		7,799	589,673	0	21,583	0	0	611,256

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.8.1 INTERIOR WALL REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
	Hot Wall Rooms																
1	Demo. 8" Conc. Block Fire Wall	11061.75	sf	0	0	0.24	2,655	COMP	$25.00	66,371	0.14	1,549	0	0	0	0	67,919
2	Demo. drywall & stud Partitions	12010.95	sf	0	0	0.18	2,162	COMP	$25.00	54,049	0.5	6,005	0	0	0	0	60,055
	Cold Wall Rooms						0	COMP	$25.00	0	0	0	0	0	0	0	0
3	Demo. 8" Conc. Block Fire Wall	20543.25	sf	0	0	0.08	1,643	COMP	$25.00	41,087	0.14	2,876	0	0	0	0	43,963
4	Demo. drywall & stud Partitions	22306.05	sf	0	0	0.06	1,338	COMP	$25.00	33,459	0.5	11,153	0	0	0	0	44,612
				0	0	0.00	0	COMP	$25.00	0	0	0	0	0	0	0	0
	** Price includes knockdown			0	0	0.00	0		0	0	0	0	0	0	0	0	0
	and adjustment for1/2 wall area			0	0	0.00	0		0	0	0	0	0	0	0	0	0
	doors are included in wall area			0	0	0.00	0		0	0	0	0	0	0	0	0	0
		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		7,799			194,965		21,583		0		0	216,549

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.9 - UTILITY REMOVAL

			DOLLARS					
WBS	DESCRIPTION	MANHOURS	LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.9.1	UTILITY REMOVAL	0	0	0	0	490,000	0	490,000
6.4.9.2								
6.4.9.3								
6.4.9.4								
	SUBTOTAL	0	0	0	0	490,000	0	490,000
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	0	0	0	0	490,000	0	490,000
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	0	0	0	0	490,000	0	490,000
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	0	0	0	0	0	0
	SUBTOTAL	0	0	0	0	490,000	0	490,000
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.9 - UTILITY REMOVAL		0	0	0	0	490,000	0	490,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.9.1 UTILITY REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Underground Utilities Removal	1	lot	0	0	0	0	COMP	$25.00	0	0	0	0	300,000	0	0	300,000
	**Assumed to be contaminated	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
	and need to remove prior to bulk	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
	excavation @ 6 wkrs x 12 wks	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
	Plus Trans. & Disposal	0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
2	Site Demolition	1	lot	0	0	0	0	COMP	$25.00	0	0	0	0	70,000	0	0	70,000
	**Includes fencing,fire hydrants,	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	guard rails,road pavements,etc.	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	4 wkrs x 8 wks plus disposal	0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	Mechanical utilities removal	1	lot	0	0	0	0		0	0	0	0	0	120,000	0	0	120,000
	**Includes above ground utilities	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	such as sprinkler sys.,water,sewer	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	and other utilities	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	6 wkrs x 12 wks plus disposal	0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		490,000		0	490,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.10 - INTERIOR DECONTAMINATION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.10.1	INTERIOR DECONTAMINATION	6,859	171,476	27,280	8,742	0	0	207,498
6.410.2								
6.4.10.3								
6.4.10.4								
	SUBTOTAL	6,859	171,476	27,280	8,742	0	0	207,498
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	6,859	171,476	27,280	8,742	0	0	207,498
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	6,859	171,476	27,280	8,742	0	0	207,498
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		347,153					347,153
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	347,153	0	0	0	0	347,153
	SUBTOTAL	6,859	518,629	27,280	8,742	0	0	554,651
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.10 - INTERIOR DECONTAMINATION		6,859	518,629	27,280	8,742	0	0	554,651

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.10.1 INTERIOR DECONTAMINATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
	Scabbling Walls(Hot area)																
1	Exterior Walls 1st flr. 60% Area	6120	sf	0	0	0.14	857	COMP	$25.00	21,420	0.75	4,590	0	0	0	0	26,010
2	Exterior Walls 2nd flr. 40%Area	3321.6	sf	0	0	0.14	465	COMP	$25.00	11,626	0.75	2,491	0	0	0	0	14,117
3	Exterior Walls Roof Frame 40%	2214.4	sf	0	0	0.14	310	COMP	$25.00	7,750	0.75	1,661	0	0	0	0	9,411
4	Wipedown roof surface underneat	22360	sf	0.004	89	0.01	224	COMP	$25.00	5,590	0	0	0	0	0	0	5,679
5	Wipedown some of ductwork	7200	sf	0.005	36	0.02	144	COMP	$25.00	3,600	0	0	0	0	0	0	3,636
6	Wipedown roof framing stl. & col	1	lot	200	200	480	480	COMP	$25.00	12,000	0	0	0	0	0	0	12,200
7	Paint Support Steel Frames	165	ton	25	4,125	10	1,650	COMP	$25.00	41,250	0	0	0	0	0	0	45,375
8	Paint Roof Under prior to D&D	22360	sf	0.1	2,236	0.06	1,342	COMP	$25.00	33,540	0	0	0	0	0	0	35,776
9	Wipedown hot flr & walls	34700	sf	0.04	1,388	0.04	1,388	COMP	$25.00	34,700	0	0	0	0	0	0	36,088
10	Additional PPE	6859	hr	2.8	19,205	0	0		$0.00	0	0	0	0	0	0	0	19,205
11		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
12		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
13		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
14		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
15		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
16		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
17		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
18		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
19		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
20		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
21		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
22		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
23		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
24		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
25		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
26		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
27		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
28		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
29		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
30		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
31		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
32		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
33		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
34		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
35		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
36		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
37		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
38		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
39		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
40		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
Subtotal					27,280		6,859			171,476		8,742		0		0	207,498

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.11 - HVAC DUCTWORK REMOVAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.11.1	VENTILATION & PROCESS DUCTWORK	3,721	93,018	0	10,000	0	0	103,018
6.4.11.2								
6.4.11.3								
6.4.11.4								
	SUBTOTAL	3,721	93,018	0	10,000	0	0	103,018
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	3,721	93,018	0	10,000	0	0	103,018
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	3,721	93,018	0	10,000	0	0	103,018
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		188,315					188,315
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	188,315	0	0	0	0	188,315
	SUBTOTAL	3,721	281,333	0	10,000	0	0	291,333
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.11 - HVAC DUCTWORK REMOVAL		3,721	281,333	0	10,000	0	0	291,333

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.11.1 VENTILATION & PROCESS DUCTWORK

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Air Handling Unit 1 Ductworks	1	lot	0	0	30	30	COMP	$25.00	750	0	0	0	0	0	0	750
2	Ductwork Less than 12"x12"	130	lf	0	0	0.04	5	COMP	$25.00	130	0	0	0	0	0	0	130
3	Upto 15"x15"	82	lf	0	0	0.05	4	COMP	$25.00	103	0	0	0	0	0	0	103
4	Upto 20"x20"	46	lf	0	0	0.06	3	COMP	$25.00	69	0	0	0	0	0	0	69
5	24"x18" and above	50	lf	0	0	0.08	4	COMP	$25.00	100	0	0	0	0	0	0	100
6	SW-19 Ductwork Upto 15"x15"	150	lf	0	0	0.05	8	COMP	$25.00	188	0	0	0	0	0	0	188
7	24"x18" and above	88	lf	0	0	0.06	5	COMP	$25.00	132	0	0	0	0	0	0	132
8	SW23 AC Unit 12" sq.to 18"sq.	192	lf	0	0	0.06	12	COMP	$25.00	288	0	0	0	0	0	0	288
9	24"x18" and above	61	lf	0	0	0.08	5	COMP	$25.00	122	0	0	0	0	0	0	122
10	Air Filter	1	ea	0	0	15.00	15	COMP	$25.00	375	0	0	0	0	0	0	375
11	AC Unit	1	ea	0	0	9.00	9	COMP	$25.00	225	0	0	0	0	0	0	225
12	AC Unit Small	2	ea	0	0	4.00	8	COMP	$25.00	200	0	0	0	0	0	0	200
13	Fire Damper	1	ea	0	0	1.00	1	COMP	$25.00	25	0	0	0	0	0	0	25
14	S 42 Ductwork Upto 18" sq.	275	lf	0	0	0.07	19	COMP	$25.00	481	0	0	0	0	0	0	481
15	24"x18" and above	169	lf	0	0	0.12	20	COMP	$25.00	507	0	0	0	0	0	0	507
16	Larger than 30" sq.	88	lf	0	0	0.25	22	COMP	$25.00	550	0	0	0	0	0	0	550
17	Roof Ventilator Units	2	ea	0	0	25.00	50	COMP	$25.00	1,250	0	0	0	0	0	0	1,250
18	SW -1B Ductwork Upto 18' sq.	371	lf	0	0	0.06	22	COMP	$25.00	557	0	0	0	0	0	0	557
19	24"x18" and above	132	lf	0	0	0.08	11	COMP	$25.00	264	0	0	0	0	0	0	264
20	Air Handling Units	6	ea	0	0	30.00	180	COMP	$25.00	4,500	0	0	0	0	0	0	4,500
21	Process Ductwork 12"sq & <	180	lf	0	0	0.10	18	COMP	$25.00	450	0	0	0	0	0	0	450
22	Process Ductwork 18"sq & <	140	lf	0	0	0.12	17	COMP	$25.00	420	0	0	0	0	0	0	420
23	Process Ductwork 24"sq & <	388	lf	0	0	0.16	62	COMP	$25.00	1,552	0	0	0	0	0	0	1,552
24	Process Ductwork 30"sq & <	192	lf	0	0	0.25	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,200
25	Process Ductwork 30"sq & >	281	lf	0	0	0.40	112	COMP	$25.00	2,810	0	0	0	0	0	0	2,810
26	72"x60" Main Trunk	24	lf	0	0	0.60	14	COMP	$25.00	360	0	0	0	0	0	0	360
27	84"x30" Main Trunk	58	lf	0	0	0.80	46	COMP	$25.00	1,160	0	0	0	0	0	0	1,160
28	54"x54" Main Supply Ducts(Avera	180	lf	0	0	0.60	108	COMP	$25.00	2,700	0	0	0	0	0	0	2,700
29	60" dia Ductwork	222	lf	0	0	0.60	133	COMP	$25.00	3,330	0	0	0	0	0	0	3,330
30	52" dia Ductwork	139	lf	0	0	0.55	76	COMP	$25.00	1,911	0	0	0	0	0	0	1,911
31	34" dia Ductwork	88	lf	0	0	0.45	40	COMP	$25.00	990	0	0	0	0	0	0	990
32	72"dia Main Exhaust Duct &<	196	lf	0	0	0.80	157	COMP	$25.00	3,920	0	0	0	0	0	0	3,920
33	Air Handlers for process sys	6	ea	0	0	40.00	240	COMP	$25.00	6,000	0	0	0	0	0	0	6,000
34	Ac Units Larger in Process room	4	ea	0	0	15.00	60	COMP	$25.00	1,500	0	0	0	0	0	0	1,500
35	Contaminate Ductwork Above lte	1200	lf	0	0	1.00	1,200	COMP	$25.00	30,000	0	0	0	0	0	0	30,000
36	Vertical Ductworks Fl. to Fl.	1	lot	0	0	400.00	400	COMP	$25.00	10,000	0	0	0	0	0	0	10,000
37	Connections & joints cutouts	1	lot	0	0	200.00	200	COMP	$25.00	5,000	0	0	0	0	0	0	5,000
38	Misc. Equip. for cutting ducts	1	lot	0	0	0.00	0	COMP	$25.00	0	10000	10,000	0	0	0	0	10,000
39	Steam reheat coils,Humidifiers,da	18	ea	0	0	2.00	36	COMP	$25.00	900	0	0	0	0	0	0	900
40	Misc. Clean ups etc.1wkr.8wks	1	lot	0	0	320.00	320	COMP	$25.00	8,000	0	0	0	0	0	0	8,000
Subtotal					0		3,721			93,018		10,000		0		0	103,018

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.12 - PENTHOUSE (BLDG 58)

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.12.1	FILTERBANK REMOVAL	2,303	57,575	11,267	5,000	0	0	73,842
6.4.12.2	AREA DECONTAMINATION	344	8,600	332	0	0	0	8,932
6.4.12.3	STRUCTURE REMOVAL	5,982	149,559	16,750	49,800	0	0	216,109
6.4.12.4								
	SUBTOTAL	8,629	215,734	28,349	54,800	0	0	298,883
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	8,629	215,734	28,349	54,800	0	0	298,883
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	8,629	215,734	28,349	54,800	0	0	298,883
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		436,754					436,754
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	436,754	0	0	0	0	436,754
	SUBTOTAL	8,629	652,488	28,349	54,800	0	0	735,636
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.12 - PENTHOUSE (BLDG 58)		8,629	652,488	28,349	54,800	0	0	735,636

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.12.1 FILTERBANK REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Demo. Plenum 37"x111"	46	lf	0	0	7.4	340	COMP	$25.00	8,510	0	0	0	0	0	0	8,510
2	Demo. Plenum 32"x65"	20	lf	0	0	4.8	96	COMP	$25.00	2,400	0	0	0	0	0	0	2,400
3	Demo. Plenum 48"x48"	32	lf	0	0	4.8	154	COMP	$25.00	3,840	0	0	0	0	0	0	3,840
4	Demo. Plenum 64"x48"	36	lf	0	0	5.60	202	COMP	$25.00	5,040	0	0	0	0	0	0	5,040
5	Demo. Plenum 84"x48"	28	lf	0	0	6.60	185	COMP	$25.00	4,620	0	0	0	0	0	0	4,620
6	Demo. Plenum 120"x78"	24	lf	0	0	10.00	240	COMP	$25.00	6,000	0	0	0	0	0	0	6,000
7	Demo. 72" dia. ducts to stack	16	lf	0	0	5.60	90	COMP	$25.00	2,240	0	0	0	0	0	0	2,240
8	Demo. ductwork 16"x16"	48	lf	0	0	1.60	77	COMP	$25.00	1,920	0	0	0	0	0	0	1,920
9	Demo. ductwork 10"x8"	24	lf	0	0	1.00	24	COMP	$25.00	600	0	0	0	0	0	0	600
10	Demo. Filter banks	16	ea	0	0	8	128	COMP	$25.00	3,200	0	0	0	0	0	0	3,200
11	Demo EF-101,102,103,104,105	5	ea	0	0	120	600	COMP	$25.00	15,000	0	0	0	0	0	0	15,000
12	Decontaminate Filter banks	1	lot	0	0	80	80	COMP	$25.00	2,000	0	0	0	0	0	0	2,000
13	Scabble contaminated flr.	630	sf	0	0	0.14	88	COMP	$25.00	2,205	0	0	0	0	0	0	2,205
14	Misc. equip.	1	lot	0	0	0	0	COMP	$25.00	0	5000	5,000	0	0	0	0	5,000
15	PPE's (incl.3.4.11.1)	4024	hr	2.8	11,267	0	0		0	0	0	0	0	0	0	0	11,267
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					11,267		2,303			57,575		5,000		0		0	73,842

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.12.2 AREA DECONTAMINATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Remove any hot spots left	1	lot	0	0	48	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,200
2	Wash &wipedown the floor	1	lot	200	200	80	80	COMP	$25.00	2,000	0	0	0	0	0	0	2,200
3	Clean inside siding wall	2400	sf	0.02	48	0.02	48	COMP	$25.00	1,200	0	0	0	0	0	0	1,248
4	Decon. roof supports & surface	2100	sf	0.04	84	0.08	168	COMP	$25.00	4,200	0	0	0	0	0	0	4,284
5		0	sf	0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
6		0		0	0	0	0		$0.00	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					332		344			8,600		0		0		0	8,932

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.12.3 STRUCTURE REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Substation conc. flr demo	24	cy	0	0	4	96	COMP	$25.00	2,400	0	0	0	0	0	0	2,400
2	Substation struct. stl. demo	35	ton	0	0	20	700	COMP	$25.00	17,500	0	0	0	0	0	0	17,500
3	Crawl space demo	26	ton	0	0	20	520	COMP	$25.00	13,000	0	0	0	0	0	0	13,000
4	Filter hse framework demo	59	ton	0	0	20	1,180	COMP	$25.00	29,500	0	0	0	0	0	0	29,500
5	Insulated alum. siding demo	3840	sf	0	0	0.08	307	COMP	$25.00	7,680	0	0	0	0	0	0	7,680
5a	Ceiling demo	2502	sf			0.06	150	COMP	$25.00	3,753	0	0	0	0	0	0	3,753
6	Floor slab demo	220	cy	0	0	4.00	880	COMP	$25.00	22,000	0	0	0	0	0	0	22,000
7	Conc. block wall demo.	9300	sf	0	0	0.08	744	COMP	$25.00	18,600	0	0	0	0	0	0	18,600
8	Deck & built-up roof demo	52	sq	0	0	4.50	234	COMP	$25.00	5,850	0	0	0	0	0	0	5,850
9	Old filter house demo	810	sf	0	0	0.71	575	COMP	$25.00	14,376	0	0	0	0	0	0	14,376
10	Concrete foundation	24	cy	0	0	4.00	96	COMP	$25.00	2,400	0	0	0	0	0	0	2,400
11	Electrical demo	1	lot	0	0	320.00	320	COMP	$25.00	8,000	0	0	0	0	0	0	8,000
12	Piping demo	1	lot	0	0	180.00	180	COMP	$25.00	4,500	0	0	0	0	0	0	4,500
13	Lifting & hoisting Equips.	2	mo.	0	0	0	0	COMP	$25.00	0	18000	36,000	0	0	0	0	36,000
14	Forklift	3	mo	0	0	0	0	COMP	$25.00	0	2200	6,600	0	0	0	0	6,600
15	Flatbed trucks (2ea.)	6	mo	0	0	0	0	COMP	$25.00	0	1200	7,200	0	0	0	0	7,200
16	PPE's	5982	hr	2.8	16,750	0	0			0		0	0	0	0	0	16,750
17		0		0	0	0	0			0	0	0	0	0	0	0	0
18		0		0	0	0	0			0	0	0	0	0	0	0	0
19		0		0	0	0	0			0	0	0	0	0	0	0	0
20		0		0	0	0	0			0	0	0	0	0	0	0	0
21		0		0	0	0	0			0	0	0	0	0	0	0	0
22		0		0	0	0	0			0	0	0	0	0	0	0	0
23		0		0	0	0	0			0	0	0	0	0	0	0	0
24		0		0	0	0	0			0	0	0	0	0	0	0	0
25		0		0	0	0	0			0	0	0	0	0	0	0	0
26		0		0	0	0	0			0	0	0	0	0	0	0	0
27		0		0	0	0	0			0	0	0	0	0	0	0	0
28		0		0	0	0	0			0	0	0	0	0	0	0	0
29		0		0	0	0	0			0	0	0	0	0	0	0	0
30		0		0	0	0	0			0	0	0	0	0	0	0	0
31		0		0	0	0	0			0	0	0	0	0	0	0	0
32		0		0	0	0	0			0	0	0	0	0	0	0	0
33		0		0	0	0	0			0	0	0	0	0	0	0	0
34		0		0	0	0	0			0	0	0	0	0	0	0	0
35		0		0	0	0	0			0	0	0	0	0	0	0	0
36		0		0	0	0	0			0	0	0	0	0	0	0	0
37		0		0	0	0	0			0	0	0	0	0	0	0	0
38		0		0	0	0	0			0	0	0	0	0	0	0	0
39		0		0	0	0	0			0	0	0	0	0	0	0	0
40		0		0	0	0	0			0	0	0	0	0	0	0	0
Subtotal					16,750		5,982			149,559		49,800		0		0	216,109

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.13 - ROOF REMOVAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.13.1	ROOF REMOVAL	1,008	25,200	0	2,352	0	0	27,552
6.4.13.2								
6.4.13.3								
6.4.13.4								
	SUBTOTAL	1,008	25,200	0	2,352	0	0	27,552
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	1,008	25,200	0	2,352	0	0	27,552
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	1,008	25,200	0	2,352	0	0	27,552
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		51,017					51,017
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	51,017	0	0	0	0	51,017
	SUBTOTAL	1,008	76,217	0	2,352	0	0	78,569
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.13 - ROOF REMOVAL		1,008	76,217	0	2,352	0	0	78,569

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.13.1 ROOF REMOVAL

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Demo. Built-up Roofing by layers	224	sq	0	0	4.5	1,008	COMP	$25.00	25,200	10.5	2,352	0	0	0	0	27,552
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		1,008			25,200		2,352		0		0	27,552

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.14 - BUILDING DEMOLITION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.14.1	BUILDING DEMOLITION	10,796	269,896	0	104,685	0	0	374,581
6.4.14.2								
6.4.14.3								
6.4.14.4								
	SUBTOTAL	10,796	269,896	0	104,685	0	0	374,581
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	10,796	269,896	0	104,685	0	0	374,581
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	10,796	269,896	0	104,685	0	0	374,581
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		546,404					546,404
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	546,404	0	0	0	0	546,404
	SUBTOTAL	10,796	816,300	0	104,685	0	0	920,985
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.14 - BUILDING DEMOLITION		10,796	816,300	0	104,685	0	0	920,985

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.14.1 BUILDING DEMOLITION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Demo. exterior walls	16319	cf	0	0	0.08	1,306	COMP	$25.00	32,638	0	0	0	0	0	0	32,638
2	Demo. ceiling (cold rooms)	16531	sf	0	0	0.02	331	COMP	$25.00	8,266	0	0	0	0	0	0	8,266
3	Demo. ceiling (hot rooms)	21823	sf	0	0	0.06	1,309	COMP	$25.00	32,735	0	0	0	0	0	0	32,735
4	Remove asbestos tiles (hot area)	21823	sf	0	0	0.10	2,182	COMP	$25.00	54,558	0	0	0	0	0	0	54,558
5	Remove asbestos tiles (cold area)	16531	sf	0	0	0.06	992	COMP	$25.00	24,797	0	0	0	0	0	0	24,797
6	Demo. 2nd flr. concrete slab	3835.4	cf	0	0	0.15	575	COMP	$25.00	14,383	1.43	5,485	0	0	0	0	19,867
7	Roof framing demo	79.3	ton	0	0	16.00	1,269	COMP	$25.00	31,720	0	0	0	0	0	0	31,720
8	Floor framing demo.	35.1	ton	0	0	16.00	562	COMP	$25.00	14,040	0	0	0	0	0	0	14,040
9	Metal deck demo	22360	sf	0	0	0.01	224	COMP	$25.00	5,590	0	0	0	0	0	0	5,590
10	Misc. steel items demo	18	ton	0	0	30.00	540	COMP	$25.00	13,500	0	0	0	0	0	0	13,500
11	Steel column demo.	28.6	ton	0	0	25.00	715	COMP	$25.00	17,875	0	0	0	0	0	0	17,875
12	Remove 4" stone coping on roof	692	lf	0	0	0.24	166	COMP	$25.00	4,152	0	0	0	0	0	0	4,152
13		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0.00	0		0	0	0	0	0	0	0	0	0
16	Electrical Conduits/Wires/cable tra	3700	lf	0	0	0.02	74	COMP	$25.00	1,850	0	0	0	0	0	0	1,850
17	Electrical Light Fixtures	384	ea	0	0	0.50	192	COMP	$25.00	4,794	0	0	0	0	0	0	4,794
18	Transformers	3	ea	0	0	40	120	COMP	$25.00	3,000	0	0	0	0	0	0	3,000
19	Control Panels,Emergency lighting	1	lot	0	0	120	120	COMP	$25.00	3,000	0	0	0	0	0	0	3,000
20	Miscellaneous Items	1	lot	0	0	120	120	COMP	$25.00	3,000	0	0	0	0	0	0	3,000
21	Lifting & hoisting equips.	4	mo	0	0	0	0	COMP	0	0	18000	72,000	0	0	0	0	72,000
22	Heavy forklifts (2ea)	8	mo	0	0	0	0	COMP	0	0	2200	17,600	0	0	0	0	17,600
23	Flatbed trucks (2ea)	8	mo	0	0	0	0	COMP	0	0	1200	9,600	0	0	0	0	9,600
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		10,796			269,896		104,685		0		0	374,581

CLIENT. MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.15 - STACKS (3)

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.15.1	STACKS (3)	320	8,000	896	10,000	458,500	0	477,396
6.4.15.2								
6.4.15.3								
6.4.15.4								
	SUBTOTAL	320	8,000	896	10,000	458,500	0	477,396
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	320	8,000	896	10,000	458,500	0	477,396
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	320	8,000	896	10,000	458,500	0	477,396
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		16,196					16,196
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	16,196	0	0	0	0	16,196
	SUBTOTAL	320	24,196	896	10,000	458,500	0	493,592
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.15 - STACKS (3)		320	24,196	896	10,000	458,500	0	493,592

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.15.1 STACKS (3)

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Saw cut metal stack 8'dia.x130ft.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	250000	250,000	0	0	250,000
2	Saw cut metal stack 3'dia.x110ft.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	100000	100,000	0	0	100,000
3	Saw cut metal stack 3'dia.x110ft.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	100000	100,000	0	0	100,000
4	Decon. all above stacks	1	lot	0	0	320	320	COMP	$25.00	8,000	0	0	6000	6,000	0	0	14,000
5	Concrete Foundations demo.	1	lot	0	0	0	0	COMP	$25.00	0	0	0	2500	2,500	0	0	2,500
6	Excavations	1	lot	0	0	0	0	COMP	$25.00	0	10000	10,000	0	0	0	0	10,000
7	PPE's	320	hr	2.8	896	0	0		0	0	0	0	0	0	0	0	896
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					896		320			8,000		10,000		458,500		0	477,396

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.16 - SLAB DEMOLITION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.16.1	SLAB DEMOLITION	3,744	93,595	0	15,605	325,000	0	434,201
6.4.16.2								
6.4.16.3								
6.4.16.4								
	SUBTOTAL	3,744	93,595	0	15,605	325,000	0	434,201
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	3,744	93,595	0	15,605	325,000	0	434,201
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	3,744	93,595	0	15,605	325,000	0	434,201
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		189,483					189,483
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	189,483	0	0	0	0	189,483
	SUBTOTAL	3,744	283,078	0	15,605	325,000	0	623,684
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.16 - SLAB DEMOLITION		3,744	283,078	0	15,605	325,000	0	623,684

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.16.1 SLAB DEMOLITION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Concrete slab 6" Main bldg.	224	cy	0	0	4	894	COMP	$25.00	22,352	38.5	8,605	0	0	0	0	30,957
2	Area 1-C alterations	33	cy	0	0	4	133	COMP	$25.00	3,333	0	0	0	0	0	0	3,333
3	Ceramic Facility	7	cy	0	0	4	30	COMP	$25.00	741	0	0	0	0	0	0	741
4	Concrete footings & piers	213	cy	0	0	5	1,065	COMP	$25.00	26,625	0	0	0	0	0	0	26,625
5	Concrete foundation walls	72	cy	0	0	5	362	COMP	$25.00	9,044	0	0	0	0	0	0	9,044
6	Remove contaminated drains	1	lot	0	0	200	200	COMP	$25.00	5,000	0	0	0	0	0	0	5,000
7	Remove underground piping	1	lot	0	0	500	500	COMP	$25.00	12,500	0	0	0	0	0	0	12,500
8		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
9		0		0	0	0	0	COMP	$25.00	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
12	*Construct Temporary Structure	1	lot	0	0	0	0		0	0	0	0	75000	75,000	0	0	75,000
13	Diamond Wire Saw Operation	1	lot	0	0	0	0		0	0	0	0	250000	250,000	0	0	250,000
14	Package Removed Material	560	hr	0	0	1	560	COMP	$25.00	14,000	12.5	7,000	0	0	0	0	21,000
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16	* 60ft x 40ft. size	0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		3,744			93,595		15,605		325,000		0	434,201

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B. NEMADE
APPROVED BY: J.M. USHER

WBS - 6.4.17 - SOIL EXCAVATION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.4.17.1	SOIL EXCAVATION	9,946	248,647	2,886	147,914	30,800	0	430,248
6.4.17.2								
6.4.17.3								
6.4.17.4								
	SUBTOTAL	9,946	248,647	2,886	147,914	30,800	0	430,248
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	9,946	248,647	2,886	147,914	30,800	0	430,248
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	9,946	248,647	2,886	147,914	30,800	0	430,248
202.45%	LABOR BURDEN (FIELD LABOR ONLY)		503,387					503,387
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY (MARK - UP FACTOR)		0	0	0	0	0	0
0.00%	MISCELLANEOUS (Productivity Factor on Labor)	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	503,387	0	0	0	0	503,387
	SUBTOTAL	9,946	752,034	2,886	147,914	30,800	0	933,634
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES / PROFIT (PERCENTAGE OF COST + LOADERS)		0	0	0	0	0	0
0.00%	BONDS (P AYMENT & PERFORMANCE)		0	0	0	0	0	0
WBS - 6.4.17 - SOIL EXCAVATION		9,946	752,034	2,886	147,914	30,800	0	933,634

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.4.17.1 SOIL EXCAVATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDE	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Soil Excavation	17630	cy	0	0	0.55	9,696	COMP	$25.00	242,407	8.36	147,384	0	0	0	0	389,791
	**Assume limit of excavation			0	0	0	0		0	0	0	0	0	0	0	0	0
	10 ft. around the bldg. w/2:1 slope	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	Includes load & haul to stockpile	0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2	Wood Sheeting,including wales,	1560	sf	1.85	2,886	0.16	250	COMP	$25.00	6,240	0.34	530	0	0	0	0	9,656
	braces and spacers (12ft. depth)	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	** Between R bldg. & SW bldg.	0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3	Erosion control & site drainage	1	lot	0	0	0	0		0	0	0	0	20000	20,000	0	0	20,000
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4	Temp. construction fencing w/gate	720	lf	0	0	0	0		0	0	0	0	15	10,800	0	0	10,800
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					2,886		9,946			248,647		147,914		30,800		0	430,248

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B.NEMADE
APPROVED BY: J.M. USHER

WBS - 6.5 - WASTE DISPOSAL

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.5.1	WASTE PACKAGING (Cost to Procure & Handling)	29,960	749,003	11,845,100	12,020	0	0	12,606,123
6.5.2	WASTE TRANSPORTATION	0	0	0	0	1,637,347	304,059	1,941,406
6.5.3	WASTE DISPOSAL (Final Disposition)	0	0	0	0	0	10,682,691	10,682,691
	SUBTOTAL	29,960	749,003	11,845,100	12,020	1,637,347	10,986,750	25,230,220
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	29,960	749,003	11,845,100	12,020	1,637,347	10,986,750	25,230,220
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	29,960	749,003	11,845,100	12,020	1,637,347	10,986,750	25,230,220
202.45%	LABOR BURDEN		1,516,358					1,516,358
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	1,516,358	0	0	0	0	1,516,358
	SUBTOTAL	29,960	2,265,361	11,845,100	12,020	1,637,347	10,986,750	26,746,577
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.5 -	WASTE DISPOSAL	29,960	2,265,361	11,845,100	12,020	1,637,347	10,986,750	26,746,577

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.5.1 WASTE PACKAGING (Cost to Procure & Handling)

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	B-25 boxes to NTS	2,817	ea	800	2,253,762	1	2,817	COMP	$25.00	70,430	0	0	0	0	0	0	2,324,192
2	Vol. to Local land fill	63,261		0	0	0.083	5,251	COMP	$25.00	131,267	0.19	12,020	0	0	0	0	143,287
3	Visquene (90 mil)	1065000	sf	0.0018	1,917	0.0008	852	COMP	$25.00	21,300	0	0	0	0	0	0	23,217
4	55 gallon drum	487	ea	55	26,767	0.5	243	COMP	$25.00	6,083	0	0	0	0	0	0	32,850
5	Tape	2254	roll	3.75	8,452	0.5	1,127	COMP	$25.00	28,172	0	0	0	0	0	0	36,624
6	Special Sealed Tritium box A(Rad)	803	ea	1600	1,284,647	2	1,606	COMP	$25.00	40,145	0	0	0	0	0	0	1,324,793
7	Special Sealed Tritium box B(Rad)	3,875	ea	2100	8,137,348	3	11,625	COMP	$25.00	290,620	0	0	0	0	0	0	8,427,967
8	Special Sealed Tritium box A(Mix)	5	ea	1600	8,264	2	10	COMP	$25.00	258	0	0	0	0	0	0	8,522
9	Special Sealed Tritium box B(Mix)	3	ea	2100	5,423	3	8	COMP	$25.00	194	0	0	0	0	0	0	5,617
10	Wooden Box Liner	0	ea	50	0	0.5	0	COMP	$25.00	0	0	0	0	0	0	0	0
11	Manifesting - Labeling	7503	container	2.5	18,757	0.1	750	COMP	$25.00	18,757	0	0	0	0	0	0	37,514
12	Inventory Set- up	7503	container	2	15,006	0.1	750	COMP	$25.00	18,757	0	0	0	0	0	0	33,763
13	Loading	7503	container	0	0	0.25	1,876	COMP	$25.00	46,892	0	0	0	0	0	0	46,892
14	Unloading	7503	container	0	0	0.25	1,876	COMP	$25.00	46,892	0	0	0	0	0	0	46,892
15	Certification	7503	container	2.5	18,757	0.15	1,125	COMP	$25.00	28,135	0	0	0	0	0	0	46,892
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
22	Sea/Land Containers	11	ea	6000	66,000	4	44	COMP	$25.00	1,100	0	0	0	0	0	0	67,100
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0		0			0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					11,845,100		29,960			749,003		12,020		0		0	12,606,123

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.5.2 WASTE TRANSPORTATION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Transportation to NTS - B25 boxes	563	trip	0	0	0	0		0	0	0	0	2800	1,577,634	0	0	1,577,634
2	Truck special container	468	trip	0	0	0	0		0	0	0	0	0	0	650	304,059	304,059
3	Transportation (to local landfill)	235	dumpster	0	0	0	0		0	0	0	0	100	23,513	0	0	23,513
4	Transportation (mixed waste)	1	trip	0	0	0	0		0	0	0	0	5400	5,400	0	0	5,400
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
12	Sea/Land Containers	11	trip	0	0	0	0		0	0	0	0	2800	30,800	0	0	30,800
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0						0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		1,637,347		304,059	1,941,406

SW/R TRITIUM COMPLEX

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.5.3 WASTE DISPOSAL (Final Disposition)

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Disposal Costs @ Burial	544,247	cf	0	0	0	0		0	0	0	0	0	0	18.63	10,139,329	10,139,329
2				0	0	0	0		0	0	0	0	0	0		0	0
3	Local landfill fee (12 ton/dumpster	63261	cf	0	0	0	0		0	0	0	0	0	0	2.5	158,153	158,153
4	Disposal Cost (mixed waste)	297	cf	0	0	0	0		0	0	0	0	0	0	400	118,800	118,800
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	8	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11	**Old Cave Removal**	0		0	0	0	0		0	0	0	0	0	0	0	0	0
12	Sea/Land Containers	14300	cf	0	0	0	0		0	0	0	0	0	0	18.63	266,409	266,409
13	Disposal/Surcharge	0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0		0			0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		10,682,691	10,682,691

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B.NEMADE
APPROVED BY: J.M. USHER

WBS - 6.6 - INDEPENDENT VERIFICATION CONTRACTOR (IVC)

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.6.1	Independent Verification Contractor (IVC) SURVEY	0	0	0	0	0	100,000	100,000
6.6.2	Independent Verification Contractor (IVC) REPORT	0	0	0	0	0	70,000	70,000
	SUBTOTAL	0	0	0	0	0	170,000	170,000
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	0	0	0	0	0	170,000	170,000
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	0	0	0	0	0	170,000	170,000
202.45%	LABOR BURDEN		0					0
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	0	0	0	0	0	0
	SUBTOTAL	0	0	0	0	0	170,000	170,000
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.6 -	INDEPENDENT VERIFICATION CONTRACTOR (IVC)	0	0	0	0	0	170,000	170,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.6.1 Independent Verification Contractor (IVC) SURVEY

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Characterization Survey	1	lot	0	0	0	0			0	0	0	0	0	100000	100,000	100,000
2		0		0	0		0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		100,000	100,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.6.2 Independent Verification Contractor (IVC) REPORT

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Characterization Report	1	lot	0	0	0	0			0	0	0	0	0	45000	45,000	45,000
2	Documentation	1	lot	0	0	0	0			0	0	0	0	0	25000	25,000	25,000
3		0		0	0	0	0			0	0	0	0	0	0	0	0
4		0		0	0	0	0			0	0	0	0	0	0	0	0
5		0		0	0	0	0			0	0	0	0	0	0	0	0
6		0		0	0	0	0			0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
31		0		0	0	0	0		0	0	0	0	0	0	0	0	0
32		0		0	0	0	0		0	0	0	0	0	0	0	0	0
33		0		0	0	0	0		0	0	0	0	0	0	0	0	0
34		0		0	0	0	0		0	0	0	0	0	0	0	0	0
35		0		0	0	0	0		0	0	0	0	0	0	0	0	0
36		0		0	0	0	0		0	0	0	0	0	0	0	0	0
37		0		0	0	0	0		0	0	0	0	0	0	0	0	0
38		0		0	0	0	0		0	0	0	0	0	0	0	0	0
39		0		0	0	0	0		0	0	0	0	0	0	0	0	0
40		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					0		0			0		0		0		70,000	70,000

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
STUDY: 10,000 Ci / yr

DATE: 31-Oct-96
PRICED BY: B.NEMADE
APPROVED BY: J.M. USHER

WBS - 6.7 - SITE RESTORATION

WBS	DESCRIPTION	MANHOURS	DOLLARS LABOR	MATERIAL	EQUIP	SUBS	OTHER	TOTAL
6.7.1	BACKFILL & COMPACTION	1,047	26,180	50,621	5,360	0	0	82,161
6.7.2	SEEDING,MULCHING & FERTILIZING & LANDSCAPING	166	4,153	764	698	10,000	0	15,615
	SUBTOTAL	1,213	30,333	51,385	6,058	10,000	0	97,775
	INDIRECT FIELD COST	0	0	0	0	0	0	0
	TOTAL FIELD COST	1,213	30,333	51,385	6,058	10,000	0	97,775
A	ADMINISTRATIVE / ENGINEERING LABOR SUPPORT	0	0	0	0	0	0	0
B	ADMINISTRATIVE OFFICE SUPPORT (ODC)			0	0	0	0	0
	TOTAL FIELD AND HOME OFFICE	1,213	30,333	51,385	6,058	10,000	0	97,775
202.45%	LABOR BURDEN		61,408					61,408
0.00%	TAXES (EXCLUDING PAYROLL BASED)			0	0	0	0	0
0.00%	INSURANCES (EXCLUDING PAYROLL BASED)							
0.00%	PERMITS							
0.00%	CRAFT PREMIUM PAY - MARKUP FACTOR							
0.00%	Miscellaneous	0	0	0	0	0	0	0
0.00%	ESCALATION - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%			0	0	0	0	0	0
0.00%	RETAINAGE - AVERAGE EFFECTIVE RATE		0	0	0	0	0	0
0.00%	G & A Overhead		0	0	0	0	0	0
	SUBTOTAL - PROJECT LOADERS	0	61,408	0	0	0	0	61,408
	SUBTOTAL	1,213	91,741	51,385	6,058	10,000	0	159,184
0.00%	CONTINGENCY		0	0	0	0	0	0
0.00%	FEES/PROFIT (PERCENTAGE ON COST)		0	0	0	0	0	0
0.00%	BONDS (P&P)		0	0	0	0	0	0
WBS - 6.7 - SITE RESTORATION		1,213	91,741	51,385	6,058	10,000	0	159,184

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.7.1 BACKFILL & COMPACTION

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Backfill bldg. exc. w/off-site borrow	6,504	cy	6.5	42,279	0.15	976	COMP	$25.00	24,392	0.61	3,968	0	0	0	0	70,639
	**Price incl.compaction in 6"to8"	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	in layers	0		0	0	0	0		0	0	0	0	50	0	0	0	0
	** Assumed that borrow material	0		0	0	0	0		0	0	0	0	0	0	0	0	0
	available within 8 mile radius	0		0	0	0	0		0	0	0	0	0	0	0	0	0
2	Furnish & Place Imported Topsoil	477	cy	17.5	8,342	0.09	43	COMP	$25.00	1,073	1.72	820	0	0	0	0	10,234
3	Spread topsoil by loader	477	cy	0	0	0.06	28.62	COMP	$25.00	716	1.20	572.40	0.00	0.00	0	0	1,288
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
26		0		0	0	0	0		0	0	0	0	0	0	0	0	0
27		0		0	0	0	0		0	0	0	0	0	0	0	0	0
28		0		0	0	0	0		0	0	0	0	0	0	0	0	0
29		0		0	0	0	0		0	0	0	0	0	0	0	0	0
30		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					50,621		1,047			26,180		5,360		0		0	82,161

CLIENT: MOUND
PROJECT: SW/R TRITIUM COMPLEX
LOCATION: 10,000 Ci / yr

DETAIL ESTIMATE
WBS : 6.7.2 SEEDING,MULCHING & FERTILIZING & LANDSCAPING

DATE: 10/31/96
ESTIMATOR: B. NEMADE

LINE ITEM #	DESCRIPTION	QUANTITY	UNIT OF MEASURE	MATERIAL UNIT COST	MATERIAL EXTENDED COST	LABOR UNIT HOURS	LABOR HOURS EXTENDED	LABOR CREW MIX	LABOR CREW RATE	LABOR DOLLARS EXTENDED	EQUIPMENT UNIT RATE	EQUIPMENT EXTENDED COST	SUBCONTRACTS UNIT RATE	SUBCONTRACTS EXTENDED COST	OTHER COSTS UNIT RATE	OTHER COSTS EXTENDED COST	SUBTOTAL
1	Hydro Seeding, Incl. seed,fertilizer	3322	sy	0.23	764	0.05	166	COMP	$25.00	4,153	0.21	698	0	0	0	0	5,615
	& mulching, final grading			0	0	0	0			0	0	0	0	0	0	0	0
				0	0	0	0			0	0	0	0	0	0	0	0
2	Lawn maintenance etc.	1	lot	0	0	0	0			0	0	0	10000	10,000	0	0	10,000
		0		0	0	0	0			0	0	0	0	0	0	0	0
		0		0	0	0	0			0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
		0		0	0	0	0		0	0	0	0	0	0	0	0	0
1		0		0	0	0	0		0	0	0	0	0	0	0	0	0
2		0		0	0	0	0		0	0	0	0	0	0	0	0	0
3		0		0	0	0	0		0	0	0	0	0	0	0	0	0
4		0		0	0	0	0		0	0	0	0	0	0	0	0	0
5		0		0	0	0	0		0	0	0	0	0	0	0	0	0
6		0		0	0	0	0		0	0	0	0	0	0	0	0	0
7		0		0	0	0	0		0	0	0	0	0	0	0	0	0
8		0		0	0	0	0		0	0	0	0	0	0	0	0	0
9		0		0	0	0	0		0	0	0	0	0	0	0	0	0
10		0		0	0	0	0		0	0	0	0	0	0	0	0	0
11		0		0	0	0	0		0	0	0	0	0	0	0	0	0
12		0		0	0	0	0		0	0	0	0	0	0	0	0	0
13		0		0	0	0	0		0	0	0	0	0	0	0	0	0
14		0		0	0	0	0		0	0	0	0	0	0	0	0	0
15		0		0	0	0	0		0	0	0	0	0	0	0	0	0
16		0		0	0	0	0		0	0	0	0	0	0	0	0	0
17		0		0	0	0	0		0	0	0	0	0	0	0	0	0
18		0		0	0	0	0		0	0	0	0	0	0	0	0	0
19		0		0	0	0	0		0	0	0	0	0	0	0	0	0
20		0		0	0	0	0		0	0	0	0	0	0	0	0	0
21		0		0	0	0	0		0	0	0	0	0	0	0	0	0
22		0		0	0	0	0		0	0	0	0	0	0	0	0	0
23		0		0	0	0	0		0	0	0	0	0	0	0	0	0
24		0		0	0	0	0		0	0	0	0	0	0	0	0	0
25		0		0	0	0	0		0	0	0	0	0	0	0	0	0
Subtotal					764		166			4,153		698		10,000		0	15,615

C

ADDENDUM
APPENDIX C
LABOR STANDARDS

Checksheets, Work Packages, and Labor Standards for D & D Estimate

FINAL DRAFT 6/17/96
(10,000 curie case)

Checksheets were developed which will be used to identify room by room the tritium contaminated equipment which must be removed as part of the D & D process. Work Packages will be provided. The Work Packages can contain filled in checksheets, room layouts, and blueprints pertinent to the D & D effort. Non-tritium radioactive contamination and hazardous chemical contamination will be identified separately. Labor requirements for the removal of tritium contaminated equipment were developed.

The labor requirements and procedures for the removal of tritium-contaminated equipment and process piping were those utilized historically by Mound Plant personnel. Mound Plant personnel also developed procedures and trained Lawrence Livermore National Laboratory (LLNL) personnel to decontaminate and decommission Building 331. LLNL procedure END 92-041A (TIR 94-011A) "Room 130 Maintenance Box System Operating Procedure" July 20, 1994, is typical of the technical basis for some of the cost estimates provided in this effort. Individuals who actually assisted LLNL with their project management, procedure writing, and provided hands-on technical assistance were part of the team that developed the D & D cost estimate for this project. The labor estimates for operations requiring tents and supplied air bubble suits reflect the requirements and procedures given in Mound Plant documents MD-80036 "Health Physics Procedure", and MD-21835 "Health Physics Precautions Manual, Technical Building".

The labor estimated for removing specific tritium contaminated equipment and process piping is provided along with a brief summary of methods and techniques for removing the items.

Removal times in "unincumbered hours" were estimated. We assumed that efficiencies and work rules will be formulated by the estimators after discussions with Mound Plant personnel. Preparation times, bubble suit inefficiencies, tent building, line purging, box purging, and cleanup are included in the labor estimate.

The uranium beds located in both of the facilities under consideration by this project were assumed to require "inerting" before they can be removed for burial, since most waste acceptance criteria require the absence of pyrophoric material. The "inerting process" is assumed to be completed by an adaptation of the procedure used by Martin Marietta Specialty Components personnel. The procedure, CHM 5760-1 "Operation of the Uranium Bed Oxidation System" August 6, 1992 will require modification to meet Mound Plant technical and safety requirements. Ninety hours of labor is estimated to modify the procedure and obtain approvals. Labor hours for uranium bed inerting were estimated and included as part of the uranium bed removal costs.

"Unincumbered Hours" is defined as:

1. Hours required for the job effort before the implementation of compliance with 10 CFR 835 and
2. Project team efforts vs compartmentalized labor efforts.

The checksheets for room/corridor and glovebox/fumehood surveys are

on the following pages. This document also provides background information for the individuals conducting the D & D room assessments. Consequently, a simplified checksheet procedure follows the checksheets. Individuals with tritium operating experience will survey the rooms and corridors of the two tritium facilities. They will note the various equipment that needs to be removed as part of the D & D effort. They will make technical judgements as to the complexity of the removal effort and to note this on the checksheets. Items which might be removed during D & D are given in Table 1. Table 1 is not an all inclusive list. It is simply a list of equipment to look for during the room/corridor surveys.

The labor standards as developed for the various D & D operation for the removal of tritium contaminated process equipment are provide in this document. The labor standards are for a tritium release level of 10,000 ci/year.

Characterization (radionuclide) of the facilities under consideration by this study has not be done. MD-22153, Issue 1, "Mound Site Radionuclide by Location", June 1995 provides the <u>potential</u> location numerous radionuclide. Consequently, the location of non-tritium radionuclides and heavy metals that need to be removed from T-Building as part of the D & D were identified by interview T-Building Radiation Control personnel (Table 2).

Further studies will be conducted to estimate the amount of tritium contamination remaining in the two facilities after the accountable tritium inventory has been removed and "safe shutdown" has been completed.

D & D ROOM/CORRIDOR CHECKSHEET
***** DO NOT INCLUDE PROGRAM DATA *****

Building _____ Room/Corridor No. _____ Sheet No. ____ of ____

Room/Corridor Item	Average Size		
base cabinets	_____	ln ft	_____
wall cabinets	_____	ln ft	_____
relay/instrument racks	_____	No.	_____
Power/electronic cables	_____	ln ft	_____
cable trays	_____	ln ft	_____
conduit	_____	ln ft	_____
_____	_____	ln ft	_____

Utilities *	Average Size		
water	_____	ln ft	_____
nitrogen	_____	ln ft	_____
argon	_____	ln ft	_____
helium	_____	ln ft	_____
liquid nitrogen	_____	ln ft	_____
compressed air	_____	ln ft	_____
breathing air	_____	ln ft	_____
_____	_____	ln ft	_____
_____	_____	ln ft	_____

	Type		
light fixtures	_____	No.	_____
floor covering type/area	_____	sq ft	_____
walls area	_____	sq ft	_____
ceilings area	_____	sq ft	_____

Special items(1, 2)			
ERS line	_____	ln ft	_____
Bubbler line	_____	ln ft	_____
tritium transfer line	_____	ln ft	_____
vacuum, house ,rough	_____	ln ft	_____
_____	_____	ln ft	_____
_____	_____	ln ft	_____

CAM lines (3) _____ ln ft _____

Type Contamination

radioactive _____ mixed waste _____

(1) Items removed using bubble suits (paper floor) and suction on line.
(2) Inside surface will outgas - outside surface slight contamination. Purge lines prior to making cuts.
(3) might outgas - cut and cap
* Chilled water accounted for in work packages for T and SW/R

Comments:

D & D GLOVEBOX/FUMEHOOD CHECKSHEET

***** DO NOT INCLUDE PROGRAM DATA *****

Building _____ Room No. _____ Glovebox/Fumehood I D _____

Glovebox/Fumehood Type L M H complexity or contamination

Number of Special items to remove

Number	Item
____	U-beds
____	rough pumps
____	vane pumps
____	tanks (volume) _____
____	mole sieve traps (in line, vane pumps, above rough pumps,...)
____	carbon traps
____	Mass spec. capillaries (count only in Mass Spec rooms)
____	bubbler (length of bubbler line on room checksheet)
____	glovebox purge and pressure control systems
____	_____
____	_____

Size of glovebox/fumehood (H x W x D) _____

____ number of prefab metal blanks to seal box after disconnected

Size of large items within the glovebox/fumehood (H x W x D)

ID_____ Size _____

ID_____ Size _____

ID_____ Size _____

ID_____ Size _____

Type Contamination

radioactive _____ Mixed waste _____

Comments:

Check Sheet Procedures

***** DO NOT INCLUDE PROGRAM DATA *****

1. Fill in building and room number on room check sheet.

2. Fill in room check sheet per survey. Do not include any information which would imply information about programs or components.

3. Fill in building and room number on glovebox/fumehood check sheet.

4. I D glovebox or fumehood on room floor plan (modify floor plan as required).

5. Chose L, M, or H for highest level of complexity or contamination - indicate by underlining complexity or contamination as driver for selection.)

6. Identify items noted on check sheet

7. Per instructions of the Mound Plant Classification Officer <u>all</u> checksheets are to be considered "born classified" and are to be treated as such. The sheet will be placed in a classified safe and can only leave the building (SW/R or T) by courier.

8. The check sheet must be reviewed by an ADC, usually Paul Lamberger. The ADC will initial and date each page after he/she has determined that it is unclassified.

9. Before any checksheet leaves the plant site it must receive final review and sign-off by the Mound Plant Classification Office. Use form ML 9352 for submission.

10. Keep the signed ML 9352 as proof of authority to remove the checksheets from the plant site.

TABLE 1

ITEMS ASSUMED TO BE REMOVED DURING D & D

gloveboxes	fumehoods
U-beds	rough pumps (vacuum)
transfer pumps	compressors
molecular sieve traps	carbon traps (gas and fluid)
tanks	manifolds - process piping
instruments in gloveboxes	welders
bell jars	insulation - in boxes or hoods
reactors	lasers
presses	x-ray heads
high vacuum pumps	Toepler pumps (mercury)
Sprengle pumps (mercury)	mercury trapped in process piping
mercury traps	flow meters
Pall traps (line filters)	knock out traps (Brinks mist eliminators)
mass spectrometers	mass spec capillaries and sample bottles
heat exchangers-water, freon	boxline coolers (water cooled)
de-oxo and dryers	Ni-trains (nitrogen removal equipment
dry-trains	condensation tanks
helium refrigerators	tritium powered "exit" signs (SW/R only)
electrolysis cells	calorimeters
ion exchange columns	T D columns (water jacketed)
T D column /mercury wells	transformers
power supplies	instruments outside the boxes
Instrons	boxline exhaust filters

TABLE 1 CONTINUED

ITEMS ASSUMED TO BE REMOVED DURING D & D

filter banks	double contained transfer lines
T - SW transfer lines	ERS/TERF headers
helium refrigerator	Spencer turbines
Walk-in hoods	building chilled water systems
air locks	pass boxes
oil reservoirs	heat exchangers
Liq Nitrogen piping	ERS and TERF Surge tanks
bubblers (oil)	duct
vacuum pumps (high vac.)	

Table 2

T-BUILDING CONTAMINATION
(outside tritium and Kyle areas)

Room	Comment - Type Contamination
T-230 & T-229 duct	Rn-226 and daughters
dock	Cs-137 (crack by elevator exit)
T-229 floor and duct	Rn-226 and daughters hot spot
T-22 area surface contamination	Pu-239, Pu-238, Am-241 (need survey after samples removed)
T-242	?
3rd floor east tower duct (permeation tests)	tritium
T-to-HH tunnel (outside the scope of this study)	Co-60, Cs-137, Zn-65 ??
T-exhaust tunnel to R-bld stack at 1st baffle (from T-99)	(see Tim Taulbee for analysis) maybe actinium, proactinium, Pu (from R-building stack plenum
T-252	needs survey after samples removed
tunnel vaults removed	needs survey after samples
T-78 to east stack	tritium
T-78 to east stack	cadmium

Some crawl spaces outside the room RBA's are posted as RBA's if they have potentially contaminated duct running through them. The only known contaminated crawl space is the one above T-48, T-49, and T-50.

The information given above was obtained by interviewing Mark McClelland and David Shatto on April 24, 1996. These individuals were recommended as the "best source" of information since a characterization of the building was not available.

LABOR HOURS FOR GLOVEBOX/FUMEHOOD BY COMPLEXITY/CONTAMINATION
(unincumbered labor hours - 10,000 ci case)

LOW LEVEL GLOVEBOX/FUMEHOOD

Air Purge process piping = Two day purge; 10% require repurge after line break and monitor check.

Crew

lead technician	process technician
mechanic	pipe fitter
electrician	R C technician
decontamination worker	

Crew hours

lead technician	7 hours
process technician	18
mechanic	7
pipe fitter	9
electrician	3
R C technician	4
decon. worker	4
repurge box (P T)	10

Special labor(1)

Box removal

mechanic (2 each)	24
R C technician	8
decon. worker	8

Volume of waste from glovebox/fume hood in excess of special items 2 55-gal. drums

Notes

(1) Tent and bubble suits not required for disconnect and removal of glovebox/fumehood.

Includes labor to disconnect box/fumehood and move about 10 feet.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber glovers
metal blanks to seal box		paper

LABOR HOURS FOR GLOVEBOX/FUMEHOOD BY COMPLEXITY/CONTAMINATION
(unincumbered labor hours - 10,000 ci case)

MEDIUM LEVEL GLOVEBOX/FUMEHOOD

Air Purge process piping = Two day purge 30% require repurge after line break and monitor check.

Crew

lead technician	process technician
mechanic	pipe fitter
electrician	R C technician
decontamination worker	

Crew hours

lead technician	7 hours
process technician	28
mechanic	14
pipe fitter	18
electrician	5
R C technician	8
decon. worker	8
repurge box (P T)	16

Special labor(1)

Box removal

mechanic (2 each - buddies)	32
R C technician	16
decon. worker	16

Volume of waste from glovebox/fume hood in excess of special items 4 55-gal drums

Notes

(1) Tent and bubble suits required for disconnect and removal of glovebox and fumehood. Floor papered. Tent and Glovebox purged to TERF/ERS for disconnect reseal with metal blanks.

Includes labor to disconnect box/fumehood and move about 10 feet.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
tent	paper	Bubblesuits (8)
metal blanks to seal box		

LABOR HOURS FOR GLOVEBOX/FUMEHOOD BY COMPLEXITY/CONTAMINATION
(unincumbered labor hours - 10,000 ci case)

HIGH LEVEL GLOVEBOX/FUMEHOOD

Air Purge process piping = two day purge 50% require repurge after line break and monitor check.

Crew

lead technician	process technician
mechanic	pipe fitter
electrician	R C technician
decontamination worker	

Crew hours

lead technician	14 hours
process technician	42
mechanic	18
pipe fitter	36
electrician	7
R C technician	16
decon. worker	16
repurge box (P T)	30

Special labor(1)

Box removal

mechanic (2 each - buddies)	32
R C technician	16
decon. worker	24

Volume of waste in excess of special items from glovebox/fumehood 7 55-gal. drums

Notes

(1) Tent and bubble suits required for disconnect and removal of glovebox/fumehood. Tent and glovebox purged to TERF/ERS for initial disconnect. Floor papered.

Includes labor to disconnect glovebox/fumehood and move about 10 feet.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
metal blanks to seal box	paper	Bubblesuits (8)
tent		

LABOR HOURS FOR U-BEDS
(unincumbered labor hours - 10,000 ci case)

Air Purge process piping = one day purge 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician

Crew hours

lead technician	4 hours
process technician	36
pipe fitter	4
electrician	2
repurge box (P T)	8

Special labor(1)

mechanic (2 each - buddies)	16
R C technician (2)	16
decon. worker	16

Notes

(1) Tent, floor papered, and bubble suits required for disconnect and removal of U-bed.

Places U-bed in shipping container within 10 feet of job

Assume that accountable tritium has been removed - the process technician's hours include the work time for the oxidation of the U-bed.

U-beds weighs about 130 lbs. U-bed is probably mixed waste.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
tent	paper	Bubblesuits (4)
metal blanks to seal box		

LABOR HOURS FOR VANE PUMPS
(unincumbered labor hours - 10,000 ci case)

Air Purge process piping = one day purge 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician	12
pipe fitter	2
mechanic	4
decon. worker	4
electrician	2
R C technician	4
repurge box (P T)	8
welder (seal in container)	2

Notes

Places pump in shipping container within 10 feet of job

Shipping container (with absorbent added) needed for job

Oil left in pump - pump plugged and sealed.

Pump dissembled and sealed in box. Pump passed out through gloveport or passbox. Motor and base removed as part of box hardware.

Fully assembled pump weighs about 150 lbs.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves

LABOR HOURS FOR ROUGH PUMPS
(unincumbered labor hours - 10,000 ci case)

Air Purge process piping = two day purge 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician	12
pipe fitter	4
mechanic (remove oil - cap and seal 1402's)	3
repurge box (P T)	8

Special labor(1)

mechanic (2 each - buddies) (remove pump - place in weldable container)	8
decon. worker	16
R C technician (two needed on job)	8
welder (seal in container)	3

Notes

(1) Tent, floor paper, and bubble suits required for disconnect and removal of rough pumps. Window removed to remove pump and then replaced.

Places pump in shipping container within 10 feet of job

shipping container needed (welded container, absorbal)

Weight of Welch 1402K 185 lbs
Weight of other pumps 100 lbs

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	window seal
tent		

LABOR HOURS FOR MOLECULAR SIEVE TRAPS
(unincumbered labor hours 10,000 ci case)

Air Purge trap and heat — two day purge 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician (1)	20
pipe fitter	4
repurge box (P T)	8

Special labor(2)

pipe fitter (2 each - buddies) (remove (trap - place in weldable container)	8
decon. worker	16
R C technician (two needed on job)	8
welder (seal in container)	3

Notes

(1) Process technician heats, air purges, and then heats and air purges trap for two days before removal.

(2) Tent, floor paper, and bubble suits required for disconnect and removal of traps.

Places pump in shipping container within 10 feet of job

Shipping container needed (welded container)

Average trap 0.5 ft by 0.5 ft by 1 ft.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	window seal
tent		

LABOR HOURS FOR CARBON TRAPS
(unincumbered labor hours - 10,000 ci case)

Air Purge process piping = two day purge 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
R C technician
decontamination worker
electrician
welder

Crew hours

lead technician	4 hours
process technician (1)	20
pipe fitter	4
repurge box (P T)	8

Special labor(2)

pipe fitter (2 each - buddies) (remove trap - place in weldable container)	8
decon. worker	16
R C technician (two needed on job)	8
welder (seal in container)	3

Notes

(1) Process technician heats, air purges, and then heats and air purges trap for two days before removal.

(2) Tent, floor paper, and bubble suits required for disconnect and removal of traps.

Places pump in shipping container within 10 feet of job

Shipping container needed (welded container)

Average trap is 1 ft by 1 ft by 2 ft

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	window seal
tent		

LABOR HOURS FOR REMOVING ONE MASS SPEC. CAPILLARY LINES - T-BLD
(unincumbered labor hours - 10,000 ci case)

Air Purge process cap. Two hour; 10% require repurge after line break and monitor check.

Crew

lead technician
process technician
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	3 hours
process technician	2

Special labor(1)

decon. worker	8
pipe fitter (2 each - buddies)	6
R C technician	3
welder	2

Notes

(1) Paper floor and bubble suits required for disconnecting and welding of capillary.

Purge capillary with air for 2 hours. Cut and weld capillary at both ends and pull. Roll and place in container that can be welded.

Shipping container needed (welded container).

Cut and weld capillaries at (above) the glovebox end first. Cut and weld capillaries on the "trees" in mass spectrometer rooms. Remove all material from glovebox or fumehood. Decon glovebox or fumehood to levels that allow the capillaries to be pulled without the use of a bubble suit. Pull the capillary with "come along".

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	

LABOR HOURS FOR REMOVING ONE MASS SPEC CAPILLARY LINES - SW/R-BLD
(unincumbered labor hours - 10,000 ci case)

Air Purge process cap. Two hour; 10% require repurge after line break and monitor check.

Crew

lead technician
process technician
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	3 hours
process technician	4

Special labor(1)

decon. worker	8
pipe fitter (2 each - buddies)	14
R C technician	7
welder	2

Notes

(1) Paper floor and bubble suits required for disconnect and weld capillary.

Weld capillary at both ends and pull. Roll and place in container that can be welded.

Shipping container needed (welded container).

Cut and weld capillaries at (above) the glovebox end first. Cut and weld capillaries on the "trees" in mass spectrometer rooms. Remove all material from glovebox or fumehood. Decon glovebox or fumehood to levels that allow the capillaries to be pulled without the use of a bubble suit. Pull the capillary with "come along".

Many SW/R capillaries are in heavy wall conduit - more effort needed to pull. Many will require assistance at "junction boxes".

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (4)	

LABOR HOURS AVERAGE FOR GLOVEBOX CONTROL SYSTEM
(unincumbered labor hours - 10,000 ci case)

Air Purge process piping = two day purge 30% require repurge after line break and monitor check.

Crew

lead technician
process technician
mechanic
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	8 hours
process technician	4
repurge box (P T)	4

Special labor(1)

decon. worker	8
pipe fitter (2 each - buddies)	8
R C technician (2)	8
welder	2

Notes

(1) Tent, paper floor, and bubble suits required for disconnect and removal of system (cap holes left on glovebox after removing system for purging). Last system removed from glovebox. purging capability removed with this operation.

Places system in shipping container within 10 feet of job.

shipping container needed (welded container).

Average system has four 3.5 ft pieces of tubing removed and capped. Average system will have fill 3 55 gal drums with control valves, gauges, etc. Average system will outgas.

Maintain flow to TERF/ERS

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	tent

LABOR HOURS FOR BUBBLERS
(unincumbered labor hours - 10,000 ci case)

Crew

lead technician
process technician
mechanic
pipe fitter
welder
R C technician
decontamination worker

Crew hours

lead technician	4 hours
process technician	4
repurge box (P T)	8

Special labor(1)

decon. worker	8
pipe fitter (2 each - buddies)	8
R C technician	4
welder	3

Notes

(1) Tent, paper floor, and bubble suits required for disconnect and removal of bubbler (cap bubbler hole on glovebox after removing bubbler for purging). Warning - removing safety system.

Places bubbler in shipping container within 10 feet of job.

shipping container needed (welded container, absorbal - assume bubbler is 1 ft by 1 ft by 1.5 ft).

one gallon of tritium contaminated oil.

Materials List

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (3)	tent

LABOR HOURS FOR REMOVAL OF ERS, ROUGH VACUUM, AND BUBBLER LINES
PER FOOT
(within the buildings - unincumbered labor hours - 10,000 ci case)

Lines have been purged for two days and are under suction. Line is cut and capped with a valve assembly. The line is lowered and allowed to drain toward the low end for one day. After one day the line is checked for oil and the oil removed. All cuts and line checks are done in a bubble suit with paper on floor. Paper is 6 ft wide and length of job plus 12 ft. ERS line cuts can have from no oil up to about a quart. For the estimate assume that about 100 cc of mixed waste oil (heavy metal and tritium) will be removed per 21 feet of ERS line. Assume no oil in bubbler lines, however use of bubble suits and draining procedures is to be used in the estimate due to potential of tritiated oil. The 21 ft line was assumed to be an "average" length.

For a 21 foot piece of pipe the following effort will be required assuming the pipe is cut into 3.5 foot lengths (6 cuts). The 3.5 foot sections will outgas and are to be capped/sealed. The 3.5 foot sections are placed in 4 foot wide containers that can be welded shut. Welding done as part of waste packaging.

Crew

lead technician
process technician
R C technician
pipe fitter

Crew Labor (1)	HOURS PER FOOT
lead technician	0.2
process technician (for purging)	0.2
R C technician (2)	0.4
pipe fitter (2 each - buddies)	0.4
decon worker	0.1

Notes

(1) Bubble suits required. Paper floor

Pipe to be welded in 4 ft. wide shipping container that contains the outgasing.

Maintain flow to TERF/ERS.

Materials List per 21 feet of line

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (2)	

LABOR HOUR FOR REMOVAL OF ERS AND TRANSFER LINES BETWEEN T AND SW/R
PER FOOT - unincumbered labor hours - 10,000 ci case

Lines have been purged for two days and are under suction. Line is cut and capped with valve assembly. Line is lowered and allowed to drain toward the low end for one day (if required). After one day the line is checked for oil and the oil removed. All cuts and line checks are done in a bubble suit. ERS line cuts can have from no oil up to about a quart. For the estimate assume that about 100 cc of mixed waste oil (heavy metal and tritium) will be removed per 21 feet of ERS line.

For a 21 ft. piece of pipe the following effort will be required assuming the pipe is cut into 3.5 ft. lengths (6 cuts). The 3.5 ft. sections will outgas and are to be capped/sealed.

Eight to twelve air changes per hour should be maintained in the tunnel during the cutting operation. Air flow should be away from the workers. Therefore, the airflow direction will need to be changed by duct work changes in T-99. Air flow changes are estimated to require 80 hours of labor by HVAC personnel.

Crew

Lead technician	Process technician
R C technician	Pipe fitter
mechanic	heavy equipment operator

Crew Labor (1)

lead technician	0.6	
process technician (for purging)	0.2	
R C technician	1.2	
pipe fitter (buddies)		1.2

Confined space and rigging for OSHA

mechanic	0.8
heavy equipment operator	0.6

Notes

(1) Bubble suits and papered pit floor required.

Pipe to be sealed in shipping container that contains outgasing.

Lower pieces of pipe to bottom of pit. Remove after individuals in bubble suits are out of the way.

Materials List per 21 feet of line

Plastic bags	plastic tape	duct tape
Cajon blind glands	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
paper	Bubblesuits (6)	

LABOR HOURS FOR REMOVAL OF TRITIUM TRANSFER LINES
PER FOOT
(within the buildings - unincumbered labor hours - 10,000 ci case)

Lines have been purged for two days and are under suction. Line is cut and capped. All cuts and line checks are done in a bubble suit with paper on floor. Paper is 6 ft wide and length of job plus 12 ft. Assume no oil in lines. The 21 ft line was assumed to be an "average" length.

For a 21 foot piece of pipe the following effort will be required assuming the pipe is cut into 3.5 foot lengths (6 cuts). The 3.5 foot sections will outgas and are to be capped/sealed. The 3.5 foot sections are placed in 4 foot wide containers that can be welded shut. Welding done as part of waste packaging.

Crew

lead technician
process technician
R C technician
pipe fitter

Crew Labor (1)	HOURS PER FOOT
lead technician	0.2
process technician (for purging)	0.2
R C technician (2)	0.4
pipe fitter (2 each - buddies)	0.4
decon worker	0.1

Notes

(1) Bubble suits required. Paper floor

Pipe to be welded in 4 ft. wide shipping container that contains the outgasing.

Maintain flow to TERF/ERS.

Materials List per 21 feet of line

Plastic bags	plastic tape	duct tape
paper	plastic end caps	RTV
latex gloves	cotton glove liners	rubber gloves
Bubblesuits (2)		

D

ADDENDUM
APPENDIX D
ACRONYMS

Appendix D

Acronyms

Ci	curies
D&D	Decontamination and Decommissioning
ERS	Effluent Recovery System
FY	Fiscal Year
TERF	Tritium Emissions Reduction Facility
yr	year