AIM

Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

Centimeter

Inches

MANUFACTURED TO AIM STANDARDS
BY APPLIED IMAGE, INC.

1 of 3

Energy Systems Environmental Restoration Program
ORNL Decontamination and Decommissioning Program

**Alternatives Evaluation for the Decontamination and
Decommissioning of Buildings 3506 and 3515 at Oak Ridge
National Laboratory, Oak Ridge, Tennessee**

Date Issued—January 1994

Prepared by
Ebasco Services, Inc.
Oak Ridge, Tennessee
under contract DE-AC05-91OR21928 ✓

Prepared for
U.S. Department of Energy
Office of Environmental Restoration and Waste Management
under budget and reporting code EW 20

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6285
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400 ✓

MASTER

CONTENTS

TABLES	vi
FIGURES	viii
ABBREVIATIONS	x
EXECUTIVE SUMMARY	xii
1. INTRODUCTION	1
2. BACKGROUND	3
2.1 WASTE EVAPORATOR FACILITY (BUILDING 3506)	3
2.2 FISSION PRODUCT PILOT PLANT (BUILDING 3515)	4
3. AVAILABLE TECHNOLOGY	5
3.1 TECHNOLOGY CATEGORIES	5
3.2 SELECTED TECHNOLOGIES	6
3.2.1 Surface Decontamination	6
3.2.2 Cutting Techniques	7
3.2.3 Concrete Construction	8
3.2.4 Excavation	8
3.2.5 Below-grade Entombment	8
3.2.6 Solidification	8
3.2.7 Remote Processes	9
4. D&D ALTERNATIVES	10
4.1 BUILDING 3506	10
4.1.1 Continued S&M	10
4.1.2 Decontamination	10
4.1.3 Entombment	11
4.1.4 Partial Dismantlement	11
4.1.5 Complete Dismantlement	12
4.2 BUILDING 3515	12
4.2.1 Continued S&M	12
4.2.2 Decontamination	13
4.2.3 Entombment	13
4.2.4 Partial Dismantlement	14
4.2.5 Complete Dismantlement	14
5. EVALUATION OF ALTERNATIVES	16
5.1 CRITERIA	16
5.1.1 Cost	16
5.1.2 Worker Risks	16
5.1.3 Reduction of Risks	17
5.1.4 Environmental Risks	17
5.1.5 Institutional Concerns	17
5.1.6 Technical Feasibility	18

5.1.7	Program Compatibility	18
5.1.8	Waste Management	18
5.2	BUILDING 3506	19
5.2.1	Continued S&M	19
5.2.2	Decontamination	19
5.2.3	Entombment	19
5.2.4	Partial Dismantlement	19
5.2.5	Complete Dismantlement	19
5.3	BUILDING 3515	20
5.3.1	Continued S&M	20
5.3.2	Decontamination	20
5.3.3	Entombment	21
5.3.4	Partial Dismantlement	21
5.3.5	Complete Dismantlement	21
6.	UNCERTAINTIES AND ASSUMPTIONS	22
6.1	GENERAL UNCERTAINTIES	22
6.2	GENERAL ASSUMPTIONS	22
6.3	BUILDING 3506 UNCERTAINTIES	23
6.4	BUILDING 3506 ASSUMPTIONS	23
6.5	BUILDING 3515 UNCERTAINTIES	23
6.6	BUILDING 3515 ASSUMPTIONS	24
7.	RECOMMENDED ALTERNATIVES	26
7.1	BUILDING 3506	26
7.2	BUILDING 3515	27
8.	COST ESTIMATE—RECOMMENDED ALTERNATIVE	29
8.1	BASIS FOR COST ESTIMATE	29
8.1.1	Engineering Estimate	29
8.1.2	Construction Estimate	29
8.1.3	Escalation	32
8.1.4	Estimate Assumptions	32
8.1.5	Contingency in the estimate	35
8.2	BUILDING 3506	36
8.3	BUILDING 3515	44
Appendix A. Cost Estimate for Partial Dismantlement of Building 3506		A-1
Appendix B. Cost Estimate for Complete Dismantlement of Building 3506		B-1
Appendix C. Cost Estimate for Complete Dismantlement of Building 3515		C-1
Appendix D. Cost Estimate for Partial Dismantlement of Building 3515		D-1

TABLES

1	Applicable technology categories for D&D of Building 3506	5
2	Applicable technology categories for D&D of Building 3515	6
3	Semiquantitative evaluation of D&D alternatives for Building 3506	20
4	Semiquantitative evaluation of D&D alternatives for Building 3515	21
5	Engineering cost estimate	29
6	Standard value file, January 1993	30
7	Indirect markups	31
8	Project management costs	32

FIGURES

1	Schedule for D&D of Building 3506	37
2	Fourth-level project summary by WBS for partial dismantlement of Building 3506	38
3	Fourth-level project summary by WBS for complete dismantlement of Building 3506	41
4	Schedule for D&D of Building 3515	45
5	Fourth-level project summary by WBS for complete dismantlement of Building 3515	46
6	Fourth-level project summary by WBS for partial dismantlement of Building 3515	49

ABBREVIATIONS

AES	Automated Estimating System
BM	bill of material
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOE-OR	DOE Oak Ridge Field Office
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FPPP	Fission Product Pilot Plant
GAAT	Gunitite and Associated Tanks
HDPE	high density polyethylene
LLW	low-level radioactive waste
MK-F	MK-Ferguson of Oak Ridge
MMES	Martin Marietta Energy Systems, Inc.
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
OU	operable unit
PPE	personnel protective equipment
PSWBS	Project Summary WBS
S&M	surveillance and maintenance
SFMP	Surplus Facilities Management Program
SWSA	solid waste storage area
WAG	waste area grouping
WBS	work breakdown structure

EXECUTIVE SUMMARY

This is an alternative evaluation document that records the evaluation process and justification for choosing the alternative recommended for the decontamination and decommissioning (D&D) of the 3506 and 3515 buildings at the Oak Ridge National Laboratory (ORNL). These two buildings are within the administrative boundary of the Gunite and Associated Tanks (GAAT) Operable Unit (OU) as well as Waste Area Grouping (WAG) 1. Even though D&D of these two buildings is not being done under the environmental restoration regulations, the schedule should be consistent with the schedule for remediation of the site. Consequently, the start of the D&D engineering is coincident with the receipt of the Record of Decision for the GAAT OU. The waste materials coming from the D&D of these buildings will be disposed in Solid Waste Storage Area 6 (at a cost of \$85 per ft³).

The alternatives for the D&D of the two buildings were: (1) no action (continued surveillance and maintenance), (2) decontamination for free release, (3) entombment in place, (4) partial dismantlement, and (5) complete dismantlement. The no action alternative maintains the status quo for the facility. The free release alternative leaves the building in place cleaned of radioactive and hazardous materials. The entombment alternative leaves the building filled with concrete, thereby isolating any radioactive and hazardous materials present. The partial dismantlement alternative removes the building superstructure, disposes of the radioactive and hazardous materials, and leaves the partially decontaminated below-grade structures for the soils remediation project. The complete dismantlement alternative expands on the partial dismantlement alternative by including the removal of the below-grade structures. Soil remediation is not included in any of the alternatives.

The recommended alternative for the D&D of Building 3506 is partial dismantlement at an estimated cost of \$936,000 in escalated dollars. This alternative is recommended, because the below-grade concrete may remain in place in the chosen alternative for the below-grade remediation effort. As a comparison to the partial dismantlement of Building 3506, the cost estimate for complete dismantlement is \$1,384,000. This cost is \$448,000 more than the cost for the recommended alternative. The recommended alternative for the D&D of Building 3515 is complete dismantlement at an estimated cost of \$3,733,000 in escalated dollars. This alternative is recommended, because the soils below the foundation of the 3515 building are highly contaminated, and removing the foundation in the D&D project results in lower overall worker risk, costs, and improved post-D&D site conditions. As a comparison, the cost for partial dismantlement of Building 3515, leaving the decontaminated slab in place, is estimated to be \$3,757,000. This is \$24,000 more than the recommended cost because of the decontamination of the remaining slab, even though handling and disposal costs for the material are left to other remediation efforts.

A further recommendation is to revise these cost estimates after the conclusion of the ongoing characterization study. The results of the characterization of the two buildings is expected to change some of the assumptions and resolve some of the uncertainties in the development of these estimates.

1. INTRODUCTION

This alternatives evaluation is a decision document that records the evaluation process and justification for choosing the alternatives to be implemented for the decontamination and decommissioning (D&D) of the Waste Evaporator Facility (Building 3506) and the Fission Product Pilot Plant (Building 3515). The two buildings are located within the administrative boundary of the Gunitite and Associated Tanks (GAAT) Operable Unit (OU). Because of the location of the two buildings, D&D of the buildings will be integrated with the remediation projects. This integration is accomplished by constraining the Title I/II engineering to the receipt of the Record of Decision, which is scheduled for November 5, 1996. Even though these buildings are included in the GAAT OU, there is no intention to imply that D&D of these buildings is regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

D&D of the two buildings is within the purview of the Oak Ridge National Laboratory (ORNL) D&D program and must adhere to the goals and guidelines of that program. Specifically, the goals of the D&D program as they apply to the 3506 and 3515 buildings are to (1) achieve final disposition of the facilities—not an interim activity until final disposition can be achieved, (2) maintain compatibility with the Environmental Restoration (ER) Program and ER activities for Waste Area Grouping (WAG) 1 and the GAAT OU, and (3) protect human health and the environment. To accomplish these goals, five D&D alternatives were identified for evaluation. The five alternatives include (1) a no action alternative [continued surveillance and maintenance (S&M)], (2) a decontamination alternative for leaving the structures in place, (3) an entombment in place alternative, including both horizontal and vertical controls, (4) a partial dismantlement alternative, which dismantles the above-grade structures and caps below-grade structures, and (5) a complete dismantlement alternative. The five D&D alternatives are identified in this document as continued S&M, decontamination, entombment, partial dismantlement, and complete dismantlement, respectively.

The evaluation of the alternatives will include eight criteria. The criteria include (1) costs; (2) D&D worker risks during D&D; (3) environmental risks after D&D; (4) the overall reduction of risks to human health of the ORNL workers and general population as a result of the D&D operations; (5) institutional concerns and requirements; (6) program compatibility with the ER GAAT OU activities; (7) technical feasibility; and (8) waste management, minimization, and management. A semiquantitative evaluation of the five alternatives was performed to recommend the best alternative for each building. Cost estimates for the recommended alternative and the other dismantlement alternative for each building are provided to a level of detail consistent with the data available from the provided documentation and visual observation of the buildings.

This document is divided into eight sections. Section 1 is the introduction and provides information on the document and its organization. Section 2 presents the background information on the two buildings. Section 3 describes the technologies available for the D&D alternatives for these buildings and identifies any technologies that represent limiting factors for the required D&D tasks. Section 4 presents descriptions of the five D&D alternatives evaluated for each building. Section 5 presents the evaluation criteria and results of the semiquantitative evaluation of the five D&D alternatives. The uncertainties and assumptions used for the evaluation of the D&D alternatives are discussed in Sect. 6. The recommended

alternatives for D&D of each building are identified in Sect. 7, while Sect. 8 contains the basis of the cost estimate and the estimates for the recommended alternatives. The Appendixes include the detailed cost estimates for the recommended alternatives.

2. BACKGROUND

This section provides a brief description of the 3506 and 3515 buildings, their operating history, an overview of their inclusion into the GAAT OU, and their present condition with regard to their D&D. The first section describes the Waste Evaporator Facility, while the second section describes the Fission Product Pilot Plant.

Both buildings are within the administrative boundary of the GAAT OU. The soil within the GAAT OU and surrounding the two buildings is contaminated from various operations at ORNL. Therefore, the soils surrounding and beneath the buildings are included in a soils remediation project. The extent and magnitude of the soil contamination may require additional operational concerns during and after D&D of the two buildings to continue to safeguard human health.

2.1 WASTE EVAPORATOR FACILITY (BUILDING 3506)

The Waste Evaporator Facility (Building 3506) is located at the ORNL Bethel Valley site. It is situated on the west side of the GAAT OU south tank farm, near the intersection of Central Avenue and Third Street. The building is a split-level structure with overall dimensions of approximately 32 ft $\times$ 23 ft. On the east side of the building is a wood-frame operating gallery. The west side of the building is the hot cell area. About half of the hot cell area is below-grade. In addition to the below-grade cell, there are three valve pits on the north end of the building and a single pit on the west side of the building.

This building was constructed in 1949 and was modified throughout its operational life. It originally housed the first liquid waste evaporator at ORNL, which operated until 1954. After this, the building was extensively decontaminated, and an experimental radioactive waste incinerator was housed in the cell area. In 1959, equipment for rare earth separation was installed in the building. After removal of equipment from the operating gallery and cell areas and decontamination of the interior of the building, the operating gallery was used as a dressing room for workers in the tank farm area.

In 1976, Building 3506 was transferred into the Surplus Facilities Management Program (SFMP), and routine S&M has been performed. Routine S&M has included reroofing of this building. Building 3506 is now in the D&D program.

The building is currently expected to be relatively free of radioactive contamination; specific contamination levels assumed are documented later. Both an interior survey of the operating gallery and prior surveys of the cell interior show that there is no transferable contamination. The only contaminated areas are associated with the remaining embedded piping.

This building is within the administrative boundary of the GAAT OU, and, therefore, the 3506 building D&D activities and the remediation of the tanks and the soils within the GAAT OU must be coordinated to prevent conflict between all on-site efforts.

2.2 FISSION PRODUCT PILOT PLANT (BUILDING 3515)

The Fission Product Pilot Plant (FPPP), Building 3515, is located on the east side of the GAAT OU south tank farm, near the intersection of Central Avenue and Fourth Street. The building contains two rooms with solid masonry block walls shielding the process equipment. In addition, lean-tos were constructed to house the operating area for the processes and later removed. Currently, concrete shielding surrounds the entire structure, and all doorways are sealed.

This building was built in 1948 and was modified throughout its operational life. The original facility in 1948 consisted of a concrete pad with tanks and a tent surrounding the shield blocks. In 1950-1951, construction of a hot cell was begun with 18-in.-thick solid masonry block walls and a 2-ft-thick reinforced concrete roof. Lean-to buildings contained the operating area. The FPPP was used to extract radioisotopes of ruthenium, strontium, cesium, cerium, and other elements from liquid waste, which came from ORNL operations and Chalk River cleanup operations in Canada. Operations in this facility resulted in severe contamination of the interior surfaces caused by the practice of overflowing the piping and vessels with purge liquids for decontamination to allow entry for work. The drain from this building contained highly radioactive material, resulting in the evacuation of the operating area because of high radiation fields from the drain. It is known that this line leaked and that the soil was extensively contaminated.

In 1976, Building 3515 was transferred into the SFMP for eventual D&D. Since then, routine S&M has been performed, including extensive roof repairs. Building 3515 is now in the D&D program.

The building interior is currently inaccessible, because it is completely enclosed by an added concrete shield wall. A stainless steel roof was installed to prevent leakage of rainwater into the building. No information is available on the equipment or systems still located inside the building. A substantial amount of fission products is located within the building; however, because of decay, the major radionuclides remaining are ^{137}Cs and ^{90}Sr . As expected, only ^{137}Cs has been detected from the external radiation measurements. There is also extensive contamination of the soil under and around this building because of the leaky drain line. On the north side of this building is a small valve pit which contains valves and controls.

This building is within the administrative boundary of the GAAT OU. Therefore, the 3515 building D&D activities and the remediation of the tanks and soils within the GAAT OU must be coordinated to prevent conflict between all on-site efforts.

3. AVAILABLE TECHNOLOGY

This section describes the technologies available for use in the five D&D alternatives for the 3506 and 3515 buildings. The first section identifies applicable categories of technologies used in each alternative. The second section briefly describes the various technologies in each category and explains why specific technologies were selected for the D&D project.

3.1 TECHNOLOGY CATEGORIES

The technology categories identified for the five D&D alternatives for the 3506 building are presented in Table 1.

Table 1. Applicable technology categories for D&D of Building 3506

D&D alternative	Technology categories
Continued S&M	None
Decontamination	Surface Decontamination
Entombment	Concrete Construction Excavation Below-grade Entombment
Partial Dismantlement	Surface Decontamination Cutting Solidification
Complete Dismantlement	Surface Decontamination Cutting Solidification Excavation

The technology categories identified for the five D&D alternatives for the 3515 building are presented in Table 2.

Table 2. Applicable technology categories for D&D of Building 3515

D&D alternative	Technology categories
Continued S&M	None
Decontamination	Surface Decontamination Remote Processes Cutting
Entombment	Concrete Construction Excavation Below-grade Entombment
Partial Dismantlement	Surface Decontamination Cutting Remote Processes Solidification
Complete Dismantlement	Surface Decontamination Cutting Remote Processes Solidification Excavation

3.2 SELECTED TECHNOLOGIES

The various available technologies and those that were selected from each category for the D&D alternatives are described in limited detail below.

3.2.1 Surface Decontamination

The only technology selected for surface decontamination of the surfaces of either of the buildings is scabbling. Scabbling (also known as scarifying) is a mechanical decontamination technique used primarily on steel and concrete surfaces. The scabber tool uses pneumatically operated piston heads positioned to strike the surface being decontaminated with enough force to physically remove some of the surface material. For these projects, scabbling will remove approximately one quarter inch of concrete from the concrete surfaces. For the steel surfaces, scabbling will remove the paint layers, surface oxidation, and a thin film of the metal surface. The removal of surface and embedded contamination is assumed to be complete after one treatment with the scabbling tool. In reality, a surface contamination survey will be performed to certify that sufficient amounts of contamination have been removed. Areas that are not sufficiently cleaned would have the scabbling treatment repeated. The scabbling decontamination is used most successfully on poured concrete surfaces. Scabbling of concrete block is not included in this application because of the possibility of crumbling of the block, causing an increase in the disposal volume. However, scabbling is currently being performed successfully on concrete block on Building 3505 (in the immediate vicinity), and other D&D projects may use this technique.

Several other technologies for surface decontamination were examined and rejected for various reasons. Microwave scabbling was rejected for being too recent and requiring further development before it is commercially viable. Dry ice blasting has not been proven on surfaces for other than surface films such as paint. Removal at depth for dry ice may not be currently available or technically feasible. Abrasive blasting techniques use a type of grit which would become contaminated and would require disposal as secondary waste. Other generators of secondary waste include chemical stripping means. Abrasive blasting of concrete block would be attempted, if the cost of such decontamination would result in offsetting costs in the disposal of the contaminated materials, including the abrasive material. This is not expected to be the case with the anticipated disposal landfills being estimated for these two D&D projects.

3.2.2 Cutting Techniques

Cutting apart the equipment and the buildings is the selected technique for dismantlement. Metallic cutting uses hydraulic shears and concrete cutting uses any of four different techniques. Other techniques for cutting that were examined and rejected include plasma arc cutting and ultra-high-pressure water jet cutters. Plasma arc cutters for cutting metals were rejected for use in Building 3515 because of fire hazards and the tight tolerances required for effective cutting. These tolerances are not considered achievable under the remote handling conditions in the 3515 building. Ultra-high-pressure water jet cutters were rejected because of the long and expensive set-up required for each different cut.

3.2.2.1 Hydraulic shears

Cutting of the equipment, piping, and nonconcrete structural materials will be done by hydraulic shears, usually mounted on a backhoe-type of vehicle. The hydraulic shears will cut through the materials, and the remains will be picked up by clamshell grippers on a small crane. Hydraulic shears are used preferentially to any other cutting operation, because the shears are only mechanical, and their operation will not cause sparking nor generate heat that could cause fires.

3.2.2.2 Concrete cutters

Cutting of the concrete structure will be done using a combination of wall saws, wire saws, hydraulic hammers, or expansive grout. The first two techniques will segment the concrete walls, floors, or pits into manageable sized pieces without rubble. These pieces can then be packed into disposal boxes at high packing factors. The last two techniques break the concrete into smaller debris, which may be quicker than the cutting operations. All techniques are described below. All of the techniques, except the expansive grout, generate dust which must be collected, typically by a water spray, which is then vacuumed.

Wall saws. Wall saws are diamond-studded circular blades that abrasively cut a kerf through the concrete. The blades also cut through reinforcing rods. The depth of cut is limited to slightly less than the radius of the blade.

Diamond wire saws. A diamond wire saw uses a diamond-studded wire cable which is pulled at high speed and high tension through predrilled holes, producing a clean cut in the concrete. The only limit to the cut shape or size is that limited to accessing the required guide holes.

Hydraulic hammer. A mobile, remotely controlled hydraulic hammer can be used to break apart the concrete walls, floor slab, or below-grade pit. The hydraulic hammer possesses a high-energy and high blow rate, which results in the efficient removal of areas of concrete. However, any rebar in the concrete must be cut by other methods. In addition, the resulting rubble may require additional disposal volume, unless the packing factor of the debris can approach the packing factor of the intact cutting techniques described above.

Expansive grout. An expansive grout can be used to break apart large or oddly shaped concrete foundations. Guide holes are drilled in a given pattern and injected with expansive grout, causing the concrete to break apart in predictable shaped pieces which can be handled easily. However, any rebar spanning the cracking must be cut by other methods.

3.2.3 Concrete Construction

Standard concrete construction techniques will be used for the entombment of the above-grade structures.

3.2.4 Excavation

Soil excavation by tools such as backhoes, trench diggers, and others is employed when the soil around the concrete structure must be removed before the concrete structure is removed. These tools will remove the soil, allowing access to the concrete for cutting, cleaning, or removal.

3.2.5 Below-grade Entombment

Below-grade entombment requires that all volumes of the contaminated structure be isolated from the environment. This means that all of the below-grade structure must be enclosed with material that will prevent migration of the contamination from the structure into the outside environment. A grout material is specified to be injected under and around the below-grade structure to prevent the migration of the contaminants. This task is comparable to encapsulating the entire below-grade structure.

Entombment beneath the building foundation will be accomplished by first excavating trenches on opposite sides of the building. The depth of the trenches will be 2-4 ft below the bottom of the lowest extent of the foundation. Horizontal holes will be drilled for the installation of 2-in.-diameter pipes on 5-ft centers, extending the full length of the building. Perforated piping will be installed with both ends extending into the trench. Grout is forced into the perforated pipe under pressure, which then spreads out from the pipe to fill the underside of the slab with a controlled volume of grout.

3.2.6 Solidification

In some cases, wastes may be required to be solidified before their ultimate disposal. This would occur for wastes that contain a high concentration of finely divided materials, such as the debris generated in the concrete cutting activity. Solidification agents that can be used are concrete, grout, or epoxy. The choice will depend on the chemical and physical characteristics of the waste as well as the disposal form required.

3.2.7 Remote Processes

Remotely operated processes are required when the radiation field in the work area is more than that allowed for human presence. For much of the work on Building 3515, remotely operated equipment must be used. The three basic types of remotely operated items are described below. These are (1) sensors, (2) tools, and (3) transporters. Each type of device will be mounted on its own remotely controlled robotic arm.

3.2.7.1 Remote sensors

Remote sensors include all of the items required to visualize what is within the high-radiation field. This includes cameras and lights, instruments for measuring radiation, and other measurement or detection instruments. A robotic arm-mounted camera and lights will be used to inspect the areas in which the radiation field prohibits human entry. Radiation survey instruments would also be included on the robotic arm carrying the camera for viewing the areas within the high-radiation field. The survey instruments would allow detection of the highest contamination areas and provide information needed for the removal, packaging, and disposal of the material contained within the high-radiation field. Any other remote-sensing instruments that might be required for work within the high-radiation field would be mounted on this robotic arm.

3.2.7.2 Remote tools

All of the remote tools required will be mounted on a robotic arm that will do all of the tooled activities. Some of the tools that might be required are shears for cutting, concrete wall saw for sawing, scabbling tool for surface decontamination, drills for drilling guide holes for the wire saw, and vacuums for removing debris generated by the cutting operations.

3.2.7.3 Remote transporters

A single robotic arm or a remotely operated crane will be used to remove the material cut up by the remote tools. The arm will have sufficient lifting capacity to lift the largest items within the high-radiation field and to move them sufficiently to place them into the disposal boxes after any cutting or removing has been accomplished.

4. D&D ALTERNATIVES

The D&D alternatives for the 3506 and 3515 buildings range from "no action" to complete demolition of the building. Each of the alternatives for the two buildings are identified and described to the level of detail required to support the evaluation process in the following two sections.

4.1 BUILDING 3506

The five alternatives for the D&D of Building 3506 are (1) continued S&M, (2) decontamination, (3) entombment, (4) partial dismantlement, and (5) complete dismantlement. Each of these alternatives is described below.

4.1.1 Continued S&M

This alternative is considered to be the status quo for the D&D of the building; therefore, it is the appropriate "no action" alternative required for all DOE alternative evaluations. Continued S&M for the foreseeable future would include whatever periodic surveys are required to show that contained radioactivity, if any, has not migrated away from the building and is not posing a hazard to the workers or to the general public. After the period of continued S&M, to comply with the goal of the ORNL D&D program, the 3506 building would undergo one of the other four alternatives for ultimate disposition. Building 3506 has previously undergone decontamination activities, and no radioactive process equipment remains in the building. Therefore, little remaining radioactivity is expected; consequently, migration away from the building is considered improbable.

4.1.2 Decontamination

This alternative, commonly called "free release," involves the final decontamination of the building, verification that the building is free of radioactive materials, and the release of the building for unrestricted use as any other type of facility. Building 3506 has previously undergone decontamination activities and presumably has little remaining radioactivity. The steps in this alternative include inventory and characterization, D&D operations, and a final release survey.

The first task in this alternative would be to perform an inventory of the remaining material within the building. After the material inventory is complete, a thorough characterization of the building would be performed to document which building surfaces are free of contamination and to identify remaining areas that are still contaminated. D&D operations would include equipment removal, surface decontamination, and structural refurbishment. Equipment removal operations include removing any remaining equipment and surveying it to determine its level of contamination. Equipment decontamination would be attempted only if the equipment is salvageable and the decontamination effort is not too cost-intensive. Otherwise, the equipment would be packaged along with other low-level radioactive waste for ultimate disposal in a radioactive low-level waste (LLW) landfill.

Surface decontamination operations would only be required if the initial characterization survey identified areas that remained contaminated after the previous decontamination efforts.

Typical surface decontamination efforts would include scabbling of the concrete, removal and disposal of contaminated wood, and replacement of porous contaminated materials. The pits associated with the cell in this building would require decontamination of the internal surfaces as well as verification that leakage of contamination did not enter the soils surrounding the pit. The roof will probably have to be removed and replaced because of its level of contamination (contamination from other sources), and major portions of the building would also require reconstruction. In addition, any penetrations into the building would be sealed.

After completion of all D&D operations, a final verification survey would be performed to document that the entire building is free of radioactive and hazardous materials and that it can be released for unrestricted use. Upon the successful completion of the final survey and verification, the building's radiological control area access restrictions would be removed. However, because of the contamination of the soils around the building (as described in Sect. 2), the building probably would not be released for unrestricted use until the conclusion of the soils remediation project, if then. Structural refurbishment operations would be required to replace any essential utilities or structure removed during the decontamination efforts. These include the electrical; lighting; heating, ventilation, and air conditioning (if any); roof; walls; or foundation to the building, including the pits. After the building is released, any costs for its final demolition would not be part of the D&D program.

4.1.3 Entombment

This alternative is precisely the same alternative that the U.S. Nuclear Regulatory Commission defines as "entomb." This alternative takes the existing facility and backfills it completely with concrete to produce a monolith that contains all radioactive or hazardous contaminants and prevents their release to the environment. All areas, including below-grade pits, would be entombed with sufficient confidence that radioactive or hazardous materials would not migrate into the environment, either from above-grade or from below-grade structures. This alternative might allow contaminated materials to be disposed of in the building using the entombment method.

4.1.4 Partial Dismantlement

This alternative completely removes the above-grade structure and covers the below-grade structures for inclusion in the soils remediation task. Building 3506 has previously undergone decontamination activities and presumably has little remaining radioactivity. The steps in this alternative include inventory and characterization, equipment removal, decontamination, demolition, and backfilling.

The first task in this alternative would be to perform an inventory of the remaining material within the building. After the material inventory is complete, a thorough characterization of the building would be performed to document which building surfaces are free of contamination and to identify remaining areas that are still contaminated. Equipment removal would be followed by surface decontamination of up to 50% of the interior surfaces inside the pits. The fines would be solidified and disposed of as LLW. Equipment removal operations include removing any remaining equipment and surveying it to determine its level of contamination. Equipment decontamination would be attempted only if the equipment is salvageable and the decontamination effort is not too cost-intensive. Otherwise, the equipment would be packaged along with other LLW for ultimate disposal in a LLW landfill. Surface decontamination efforts for equipment would only be expended if the cost of such

efforts would result in offsetting costs in the disposal of the contaminated materials. This is not expected to be the case with the anticipated disposal landfills being used for this project.

The above-grade portions of the building would be demolished using conventional means. Other than normal health physics (HP) monitoring, contamination control procedures will not be necessary during demolition activities. Backfilling operations would include filling the below-grade cell volume with concrete rubble removed from the walls, covering it with an impermeable plastic liner, backfilling with soil, grading, and grass seeding for appearance. Any radioactivity or hazardous constituents remaining in the soils around the pits would be remediated by the soils remediation efforts. Therefore, no final release surveys are to be performed on the site of the demolished building.

4.1.5 Complete Dismantlement

This alternative expands on the partial dismantlement alternative by including the removal of the below-grade portions of Building 3506. The additional step in this alternative is removal of below-ground foundation materials. The first task in this alternative would be to perform an inventory of the remaining material located within the building. Equipment removal would be followed by surface decontamination (if appropriate). The fines would be solidified and disposed as LLW. Equipment removal operations include removing any remaining equipment and surveying it to determine its level of contamination. Equipment decontamination would be attempted only if the equipment is salvageable and if the decontamination effort is not too cost-intensive. Otherwise, the equipment would be packaged along with other LLW for ultimate disposal in a LLW landfill. Surface decontamination efforts for equipment would only be expended if the cost of such efforts would result in offsetting costs in the disposal of the contaminated materials. This is not expected to be the case with the anticipated disposal landfills being used for this project.

The above-grade portions of the building would be demolished using conventional means. Other than normal HP monitoring, contamination control procedures will not be necessary during demolition activities. The pits would be excavated. Contamination control is expected for below-grade activities. Finally, the area would be lined with an impermeable plastic liner, backfilled with soil, graded, and grass seeded for appearances. No final release survey would be performed because the soils are part of the ER effort.

4.2 BUILDING 3515

The five alternatives for the D&D of Building 3515 are (1) continued S&M, (2) decontamination, (3) entombment, (4) partial dismantlement, and (5) complete dismantlement. Each of these alternatives are described below.

4.2.1 Continued S&M

This alternative is considered to be the status quo for the D&D of the building; therefore, it is the appropriate "no action" alternative required for all DOE alternative evaluations. This alternative is also consistent with the U.S. Nuclear Regulatory Commission's "SAFSTOR" option for D&D. Continued S&M for the foreseeable future would include whatever periodic surveys are required to show that the contained radioactivity has not migrated away from the building and is not posing a hazard to the workers or to the general

public. Continued maintenance would be required to maintain the integrity of the shielding. This alternative may be useful because the radioactive hazard continually decreases. However, because the half-lives of the dominant radioisotopes are about 30 yr, many decades will be required to substantially reduce radiation exposure to D&D workers. After the period of continued S&M, to comply with the goal of the ORNL D&D program, the 3515 building would have to undergo one of the other four alternatives for ultimate disposition.

4.2.2 Decontamination

This alternative, commonly called "free release," involves the final decontamination of the building, verification that the building is free of radioactive materials, and release of the building for unrestricted use as any other type of facility. The steps in this alternative include initial characterization, D&D operations, and a final release survey.

The first task in this alternative would be to perform an inventory of the remaining material within the building. The characterization of the building would consist of sufficient measurements to locate the sources of high radiation in the building. D&D operations would include equipment removal, surface decontamination, and structural refurbishment. Equipment removal operations include the removal of all equipment. Equipment decontamination would be attempted only if the equipment is salvageable and if the decontamination effort is not too cost-intensive. Otherwise, the equipment would be packaged along with other LLW for ultimate disposal in an LLW landfill. Surface decontamination operations are required for all the interior surfaces of Building 3515. Typical surface decontamination efforts would include scabbling of the masonry block and removal of any other contaminated structural material. The sampling station associated with the cell in this building would require decontamination of the interior surfaces as well as verification that leakage of contamination did not enter the soils surrounding the sampling station. The roof would probably have to be removed and replaced because of its level of contamination.

After the completing all D&D operations, a final verification survey would be performed to document that the entire building is free of radioactive or hazardous materials and that it can be released for unrestricted use. Upon the successful completion of the final survey and verification, the building's radiological control area access restrictions would be removed. However, because of the contamination of the soils around the building (as described in Sect. 2), the building would probably not be released for unrestricted use until after the conclusion of the soils remediation project, if then. Structural refurbishment operations would be required to replace any required utilities or structure removed during the decontamination efforts. These include the electrical; lighting; heating, ventilation, and air conditioning (if any); roof; walls; or foundation to the building, including the sampling station. After the final release survey, any costs for its final demolition would not be part of the D&D program.

4.2.3 Entombment

This alternative is precisely the same alternative that the U.S. Nuclear Regulatory Commission defines as "Entomb." This alternative takes the existing facility and backfills it completely with concrete to produce a monolith which contains all radioactive or hazardous contaminants and prevents their release to the environment. All areas, including the sampling station, would be entombed with sufficient confidence that radioactive or hazardous materials would not migrate into the environment from either above-grade or below-grade structures.

4.2.4 Partial Dismantlement

This alternative completely removes the above-grade structure and covers the below-grade structures for inclusion in the soils remediation task. The steps in this alternative include initial characterization, dismantlement, and backfilling.

The first task in this alternative would be to perform an inventory of the remaining material within the building. The characterization of the building would consist of sufficient measurements to locate the sources of high radiation in the building. Dismantlement operations would include equipment removal, surface decontamination, and building demolition. Equipment removal operations include the removal of all equipment. Equipment decontamination would be attempted only if the equipment is salvageable and if the decontamination effort is not too cost-intensive. Otherwise, the equipment would be packaged along with other LLW for ultimate disposal in an LLW landfill. Surface decontamination efforts would only be expended if the cost of such efforts would result in offsetting costs in the disposal of the contaminated materials or significantly decreased requirements for access control during demolition. This is not expected to be the case with the anticipated disposal landfills being used for this project. The entire building would be demolished using appropriate contamination control procedures as well as appropriate shielding to protect the D&D workers and general ORNL population from the radiation shine from the remaining structure. The top surface of the concrete pad would be decontaminated to remove the bulk of the radioactive or hazardous contamination.

Backfilling operations would include lining the sampling station and concrete with an impermeable plastic liner, backfilling the sampling station and pad with soil, grading, and grass seeding for appearances. The remaining radioactivity or hazardous constituents in the sampling station or in the soils under the building would be remediated by the soils remediation efforts. Therefore, no final release surveys are to be performed on the site of the demolished building.

4.2.5 Complete Dismantlement

This alternative expands on the previous alternative by including the removal of the concrete pad and sampling station of Building 3515. The steps in this alternative are initial characterization, dismantlement, and removal of below-ground materials.

The first task in this alternative would be to perform an inventory of the remaining material within the building. The characterization of the building would consist of sufficient measurements to locate the sources of high radiation in the building. Dismantlement operations would include equipment removal, possible surface decontamination, and building demolition. Equipment removal operations include the removal of all equipment. Equipment decontamination would be attempted only if the equipment is salvageable and if the decontamination effort is not too cost-intensive. Otherwise, the equipment would be packaged along with other LLW for ultimate disposal in an LLW landfill. Surface decontamination efforts would only be expended if the cost of such efforts would result in offsetting costs in the disposal of the contaminated materials or significantly decreased requirements for access control during demolition. This is not expected to be the case with the anticipated disposal landfills being used for this project. The entire building would be demolished using appropriate contamination control procedures as well as appropriate shielding to protect the

D&D workers and general ORNL population from the radiation shine from the remaining structure. The concrete pad and sampling station would be excavated.

Finally, the area would be lined with an impermeable plastic liner, backfilled with soil, graded, and grass seeded for appearances. The soils would be left for the soils remediation effort and no final verification survey would be performed.

5. EVALUATION OF ALTERNATIVES

This section describes the evaluation criteria by which the five D&D alternatives for the buildings were semiquantitatively evaluated. The results of the evaluation for each building are tabulated, and important items that contributed to the resultant ranking are described. The first section explains the evaluation criteria. Section 5.2 presents the evaluation of the alternatives for the 3506 building, and Section 5.3 presents the evaluation of the alternatives for the 3515 building.

5.1 CRITERIA

The alternatives for the D&D of the buildings are evaluated according to eight criteria. These criteria are (1) cost, (2) worker risks, (3) reduction of risks, (4) environmental risks, (5) institutional concerns, (6) technical feasibility, (7) program compatibility, and (8) waste management. Each of these criteria is detailed below, along with the range of assessments for each criterion.

All criteria are assessed in a semiquantitative manner with ratings from one to five. The best situation is assessed as a "five" and the worst situation is assessed a "one." Some examples of the ratings are provided in the descriptions below.

5.1.1 Cost

The overall cost of the D&D alternatives is semiquantitatively assessed. The assessment of the cost includes design, construction, operation, waste treatment and packaging, and waste disposal. In general, for each building, the design cost would remain essentially the same over the four alternatives that perform D&D operations; therefore, the design cost does not affect the rating order for cost. The D&D operations of construction and operation as well as waste disposal would vary among the alternatives. Thus, the major cost factors affecting the ordering of the alternatives are the D&D operations and the waste disposal. The D&D alternative judged to be the least expensive is rated a five, while the most expensive is rated a one. The other three alternatives are rated accordingly. If an actual cost estimate were done on each of the alternatives, their rating order might change.

5.1.2 Worker Risks

The risk to the workers in the D&D alternative is semiquantitatively assessed for this criterion. Items considered in the evaluation of worker risks include industrial safety, radiation exposure, and other risks typical of construction and trenching activities in a radiation environment. The total risk is estimated by examining the major components of the D&D alternative and summing their risks to obtain the total risk. An assessment of five indicates that the risk to the workers is typical of standard industrial projects. An assessment of three indicates that the risks to the workers are greater than for standard activities, but that the work activities do not need to be strictly controlled for life safety reasons. A worker risk assessment of one indicates that the work required is inherently dangerous and that much attention to worker safety is required before any tasks are performed.

5.1.3 Reduction of Risks

The overall reduction of risks caused by the D&D alternative is assessed in relation to the other D&D alternatives. The reduction of risks to human health refers to the removal of radiological and hazardous materials from pathways that could impact human health. An assessment of one is used when the risks to the ORNL workers and the general public are not removed and when the migration of contaminants is not prevented. An assessment of two indicates that the risks are not removed or are only partially removed from the environment or that the migration of contaminants is partially mitigated. An assessment of three of the reduction of risks indicates that the contaminants are partially removed or that there is moderate prevention of the migration of contamination from the site to the general environment. An assessment of four indicates that most of the contamination is removed from the environment or that the migration of the contamination is prevented to the extent possible. An assessment of five is reported when all of the contamination is removed from the environment or when the migration is completely prevented. If this is not possible, the D&D alternative representing the maximum removal of contamination is assessed as the maximum reduction of risk.

5.1.4 Environmental Risks

The environmental risks of each D&D alternative are assessed for the period after the D&D project is completed. Environmental risks refer to those radioactive and hazardous contaminants that could cause environmental harm if released from the structures into the general environment by transport into the air, surface water, groundwater, or solid materials. An assessment of five indicates that much of the contamination is removed from the environment or is prevented from migrating into the environment from the site. An assessment of three is used when some of the contamination is expected to be released into the environment from all sources. An assessment of one is used when little is done to prevent the movement of contamination from the site into the environment.

5.1.5 Institutional Concerns

The institutional concerns and requirements are evaluated in a semiquantitative manner according to the amount of institutional control required both during and after the D&D project has been completed. This evaluation is split between the period before and during the D&D project and after the conclusion of the project. For the period before and during D&D, the assessments include only one and five. An assessment of five indicates that a normal amount of institutional control is required during the D&D project. An assessment of one indicates that extra institutional oversight of the D&D project is necessary. For the period after D&D, the assessments are as follows: An assessment of five indicates that institutional controls can be removed from the site following the D&D and remediation projects. An assessment of three indicates that institutional controls must be maintained at the site, such as S&M of existing structures, even after the completion of the D&D and remediation projects. An assessment of one requires that more extensive controls are required in order to continue to protect human health and the environment. The two assessments are then combined to produce a single one. If the during D&D assessment is five, then the overall rating is the after assessment plus one (i.e., a five before D&D plus a three after D&D results in an overall assessment of four).

5.1.6 Technical Feasibility

Technical feasibility is assessed according to the applicability of currently available technology to perform the required tasks. A rating of one for technical feasibility is used for technologies that are poorly demonstrated or that require continued research or development before implementation for the D&D alternative. A rating of three indicates that the technology is available for performing the D&D tasks, but at a high cost, with a high probability of rework or with complex technological requirements. A rating of five for technical feasibility indicates that the tasks use currently available technologies. Additionally, the technical feasibility criterion includes the ability to perform the required tasks on the particular building being decommissioned. An example is the requirement to perform surface decontamination on a completely contaminated wall while leaving the wall intact. If, after removing all of the contamination, no wall is left standing, then, even though the technology is available to perform the decontamination (a rating of five), the task is rated a one to indicate that it cannot be accomplished as required.

5.1.7 Program Compatibility

Program compatibility is individually assessed for each D&D alternative. A rating of one for compatibility indicates that one or more provisions of the D&D alternative conflicts with the requirements of the D&D program. A rating of three indicates that, although the provisions of the D&D alternative do not conflict with the D&D program, they are inappropriate to the goals of the D&D program. An assessment of five for program compatibility indicates that the D&D alternative is in complete agreement with the goals and requirements of the D&D program at ORNL.

5.1.8 Waste Management

Waste management includes the generation of primary waste and secondary waste. Primary waste is the waste being generated by the actual dismantling or decontaminating processes and consists of the actual parts of the two buildings. Secondary waste is the waste generated, but not primary wastes, such as gloves and surveillance and survey materials. The two aspects of waste management, primary and secondary, are assessed separately as indicated below.

5.1.8.1 Primary waste management

Assessment of the primary waste is not considered as a separate criterion for the evaluation of the alternatives. The generation of primary waste and its quantity are integral parts of both the cost and technical feasibility criteria. The cost explicitly includes the cost for ultimate disposal of the volume of primary waste generated at a local waste disposal facility [Solid Waste Storage Area (SWSA) 6]. Technical feasibility includes the primary waste in determining the effective techniques for dismantling and decontaminating the buildings.

5.1.8.2 Secondary waste management

Assessment of the secondary waste generated is considered separately. A rating of five represents a D&D alternative that only produces the quantities associated with personnel protection, surveillance, and required surveys. A rating of three represents a D&D alternative that produces small or moderate volumes of secondary waste from the decontamination

processes in addition to the required quantities for personnel protection, surveillance, and surveys. A rating of one indicates that the tasks required to perform the D&D alternative generate large quantities of secondary wastes, such as contaminated wash waters.

5.2 BUILDING 3506

The semiquantitative assessment of the D&D alternatives for Building 3506 is provided in Table 3.

5.2.1 Continued S&M

The continued S&M alternative, while low-cost in a single year, will increase in total cost as the number of years of S&M increases. In addition, at the end of the continued S&M period, the cost of one of the other D&D alternatives must be added to the existing S&M cost. Therefore, even though the annual cost is low for this alternative, the overall project cost (life cycle) will be high. In addition, over the course of years of maintenance, the above-grade portions of the structure will be essentially replaced, converting the continued S&M alternative into a hybrid of continued S&M and decontamination.

5.2.2 Decontamination

The decontamination alternative is desirable, except that the structure is still standing, presumably free released in the middle of an area of contaminated soil that has not yet been remediated by the soils remediation project. Therefore, the compatibility with the ER program is not high, because the soil below Building 3506 may require remediation, and the presence of above-grade structures restricts access to the immediate area.

5.2.3 Entombment

The entombment alternative requires that the 3506 building be sealed into a concrete monolith. Because this building has previously undergone decontamination activities, it has little remaining radioactivity or hazardous contaminants. Therefore, this alternative is not realistic, because there is little radioactivity to contain by entombment. In addition, the program compatibility is not high, because the structure remains, and the soil below the structure probably requires remediation.

5.2.4 Partial Dismantlement

The partial dismantlement alternative meets almost all of the criteria for performance, except that the concrete structure is still in the ground. Depending on the selected scenario for remediation of WAG 1 soils, the below-grade structures may be closed in place.

5.2.5 Complete Dismantlement

The complete dismantlement alternative meets all of the criteria for the D&D project. In addition, it allows free access to the contaminated soils beneath Building 3506 for the soils remediation project.

Table 3. Semiquantitative evaluation of D&D alternatives for Building 3506

Criterion	Continued S&M	Decontamination	Entombment	Partial Dismantlement	Complete Dismantlement
Cost	5	3	1	4	2
Worker Risk	5	5	5	5	4
Reduction of Risk	1	5	3	5	5
Environmental	1	5	5	5	5
Institutional	4	4	4	5	5
Feasibility	5	5	3	5	5
Compatibility	1	3	3	4	5
Secondary Waste	5	5	5	5	5
SUM	27	35	29	38	36

5.3 BUILDING 3515

The semiquantitative assessment of the D&D alternatives for Building 3515 is provided Table 4.

5.3.1 Continued S&M

The continued S&M alternative, while low-cost in a single year, will increase in total cost as the number of years of S&M increases. Additionally, at the end of the continued S&M period, the cost of one of the other D&D alternatives must be added to the existing S&M cost. Therefore, even though the annual cost is low for this alternative, the overall project cost (life cycle) will be high.

5.3.2 Decontamination

The decontamination alternative for Building 3515 is not technically feasible, because surface decontamination of the interior surfaces of the building would probably result in the *de facto* demolition of the structure. Therefore, trying to maintain the structural integrity of the building while decontaminating it will require enormous refitting and work to accomplish the task. This alternative also leaves the building intact, so that remediation of the soil below the building would be a difficult task.

Table 4. Semiquantitative evaluation of D&D alternatives for Building 3515

Criterion	Continued S&M	Decontamination	Entombment	Partial Dismantlement	Complete Dismantlement
Cost	5	2	1	4	3
Worker Risk	3	3	1	3	3
Reduction of Risk	1	5	3	4	5
Environmental	1	5	3	5	5
Institutional	1	2	2	3	4
Feasibility	5	1	3	5	5
Compatibility	1	3	3	4	5
Secondary Waste	4	3	3	3	3
SUM	21	24	19	31	33

5.3.3 Entombment

The entombment alternative is acceptable, although, like the decontamination alternative, remediation of the soil beneath the entombed building would be difficult. However, there is very little confidence that the below-grade entombment process would completely contain the radioactive and hazardous contaminants. The acceptability of this alternative is further reduced, given the worker risk in performing this entombment. The subsequent soil remediation effort would be especially difficult given the effort required to entomb the concrete slab on-grade and ensure that migration of radioactive or hazardous materials would not occur.

5.3.4 Partial Dismantlement

The partial dismantlement alternative meets almost all of the criteria for performance, except that, because the concrete pad and sampling station are still in the ground, the soils remediation project must include those costs for their remediation.

5.3.5 Complete Dismantlement

The complete dismantlement alternative meets all of the criteria for the D&D project. In addition, it allows free access to the contaminated soils beneath Building 3515 for the soils remediation project.

6. UNCERTAINTIES AND ASSUMPTIONS

This section describes the uncertainties and assumptions that are inherent in the semiquantitative evaluation of the D&D alternatives for the two buildings. The first two sections list the uncertainties and assumptions that are common to both buildings. The next two sections give the Building 3506 specific uncertainties and assumptions, while the last two sections describe the Building 3515 specific uncertainties and assumptions.

6.1 GENERAL UNCERTAINTIES

The identified uncertainties that are common to both buildings are listed below.

- The schedule for the D&D of the two buildings in relation to the remediation of the soil in the GAAT OU is an uncertainty. If the remediation of the soil around the buildings is scheduled so that the completion of the D&D project feeds immediately into the remediation of the soil, the task in Alternatives 4 and 5 for both buildings of backfilling and grass seeding is no longer necessary. If this is the case, then the cost for these alternatives would be reduced. Conversely, if the remediation of the soil is scheduled to be completed before the start of the D&D projects, then the remaining soil remediation must be scheduled after the completion of the D&D projects, increasing the cost of the remediation. The maximum cost occurs if the D&D project is completed well before the start of the soil remediation, so that the D&D project pays for the backfilling, grading, and seeding, and the remediation project pays for the removal of the clean overburden before starting the remediation.
- For the entombment alternative, uncertainty exists whether any operation such as grout injection would completely seal the below-grade structures. In addition, verifying that the below-grade structures are completely sealed may not be feasible. In any event, sealing the below-grade structures while leaving the contaminated soil alone would cause further problems with the soil remediation task, especially for volumes below the center of the building.
- In the decontamination alternative, uncertainty exists whether the decontaminated portions of the building will remain structurally intact. Additional work may be required to provide for permanent repair or support of the building structure. Furthermore, the basic structural integrity of the building is uncertain.

6.2 GENERAL ASSUMPTIONS

The identified assumptions that are common to both buildings are listed below.

- All wastes will be no greater than LLW (i.e., no high-level waste nor transuranic materials). However, it is expected that the radiation field around the packages from Building 3515 will be high enough to require remote handling.
- All sides of the buildings can be accessed for D&D purposes.

- Underground utilities will be sealed at the outside edge of the foundation (or trench, if any) for both buildings, and the remediation project will be responsible for draining and remediating the remainder of the system, back to the nearest system-wide connection point.

6.3 BUILDING 3506 UNCERTAINTIES

Specific uncertainties for estimating the cost of the preferred alternative for D&D of Building 3506 are listed below.

- Contamination of the building from materials contained within the connecting underground piping is unknown.
- The amount of contained rainwater is unknown.

6.4 BUILDING 3506 ASSUMPTIONS

Specific assumptions for estimating the cost of the preferred alternative for D&D of Building 3506 are listed below.

- The interior is basically clean because of previous decontamination operations. Specifically, the areas requiring decontamination for any alternative do not exceed 10% for the wood-framed portion, 20% of the above-grade portions of the cells, and 50% of the below-grade portions of the cells.
- All decontamination or demolition work tasks can be done with minimal contamination control requirements. Specifically, activities that would reduce worker productivity are unnecessary.
- Any rainwater will be treated as process waste.
- For the decontamination alternative, the building will not receive upgraded utilities.
- For the complete dismantlement alternative, the concrete pad and cell pits below-grade will be removed by segmenting and removing the walls and the bottom separately. Alternatively, the concrete could be rubble and removed.

6.5 BUILDING 3515 UNCERTAINTIES

Specific uncertainties for estimating the cost for D&D of Building 3515 using the preferred alternative are listed below.

- Contamination of the building from materials contained within the connecting underground piping is unknown.
- The magnitude of the radiation field within and under the building is unknown.

- The magnitude of contamination on the equipment is unknown. This contamination results in elevated radiation dose rates around the equipment.
- The hazard presented by the presence of chemicals remaining in the process equipment is unknown.
- The process equipment, as illustrated by the available photographs, is still installed as shown. No addition or removal of equipment is known to have occurred.
- The structural integrity of the building is unknown.
- The interior configuration, exterior outline, and building height of the sealed building is unknown.

6.6 BUILDING 3515 ASSUMPTIONS

Specific assumptions for estimating the cost for D&D of Building 3515 using the preferred alternative are listed below.

- Even though the magnitude of the radiation field within the building is unknown, human access will presumably be prohibited during a major portion of the project. Consequently, most D&D work will be done remotely.
- The roof will structurally support the required initial characterization and D&D tasks (i.e., personnel and hand tools but no large equipment).
- The steam and air lines on the east side of the building can be rerouted for the duration of the D&D project.
- No chemical hazards are present in the building nor in the process equipment. Specifically, any chemicals remaining present no special fire or explosion hazards as a result of being sealed for over 30 yr.
- For the decontamination alternative, the building will not receive any utilities.
- For the complete dismantlement alternative, the concrete pad and sampling station will be removed by segmenting and removing the walls and the bottom separately. Alternatively, the concrete could be rubble and removed.
- A high efficiency particulate air-filtered exhaust system will be installed as the first item in the D&D. There will be a constant exhaust of ~2,000 cfm throughout the project.
- The penetration into the building requires shielding to protect D&D workers and the general ORNL population from radiation streaming or scattering from the interior of the building. A steel structure of 3-in. thickness is assumed to be required for the shielding of the direct radiation. A steel roof of 1-in. thickness is assumed sufficient to shield the scattered radiation.

- Specially designed boxes will provide sufficient shielding to permit handling and movement without entirely stopping work activities.
- For purposes of the cost estimate, the contamination and resulting radiation fields are considered to be very high (>1 R/hr at 1 ft).
- The lead bricks would be encapsulated and transported to a commercial mixed waste disposal facility for disposal.
- Based on the available information, a building layout was developed and assumed for cost estimating purposes only.
- D&D activities will be coordinated with adjacent operations, including normal workday operations, to limit personnel exposure to radiation.
- The D&D operations can be done using existing remote handling technology.
- Temporary shielding during off-working hours to protect casually exposed personnel will use materials existing for the project.

7. RECOMMENDED ALTERNATIVES

This section describes the recommended alternatives for the D&D of Buildings 3506 and 3515. Section 7.1 discusses Building 3506, while Sect. 7.2 discusses Building 3515.

7.1 BUILDING 3506

The recommended alternative for the D&D of Building 3506 is partial dismantlement. This alternative has a total score of 38 vs complete dismantlement, with a score of 36, and decontamination, with a score of 35. Reasons for the selection of this alternative are provided below.

The main reason for the selection of partial dismantlement is that the concrete foundation below-grade remains and would be handled by the soils remediation project for disposition. Because of the relative lack of known soil contamination under Building 3506, the soils remediation project may elect to leave the concrete structure in place, which would reduce ER costs. Another reason to leave the foundation for the soils remediation project is that, if D&D did the removal, the contaminated soils would have to be handled twice, once by D&D in the excavation and again by the remediation project to perform final treatment and disposition. Thus, costs are doubled for the soil, if D&D performs excavation.

The cost of the complete dismantlement alternative is judged to be greater than the partial dismantlement and decontamination alternatives because of the extensive excavation required to remove the below-grade structures. The worker risk is considered greater in the complete dismantlement, because the D&D workers will be in contact with contaminated soils. This is a moot point for all the GAAT OU projects because, if the soil requires removal, the risk would be associated with one or another of the projects, and the lowered risk to D&D is associated with a corresponding increase in worker risk in the soils remediation project. An offsetting criterion between partial and complete dismantlement is program compatibility. In complete dismantlement, the structures are removed sooner and represent an incremental increase in program compatibility for the complete dismantlement alternative.

The decontamination alternative scored almost as high as the complete dismantlement. The major disadvantages for this alternative are the requirement for continued S&M of the released facility after the D&D project and the compatibility with the D&D program goal of removing completely the facilities being decommissioned. Also, there is no expected benefit in terms of the reuse of the decontaminated facility or of the equipment contained within. The relative lower cost of decontamination is an offsetting factor.

After the ongoing characterization of Building 3506 ends, some of the uncertainties listed in Sect. 6.3 will be resolved. In addition, some of the assumptions in Sect. 6.4 may be changed. Consequently, a reexamination of this evaluation and associated D&D cost estimate is recommended to determine whether a revision to the cost estimate is warranted.

The semiquantitative analysis results for Building 3506, illustrated in Table 3, show that the complete dismantlement alternative scored second. Consequently, a cost estimate for the complete dismantlement alternative has been included in this document as well.

7.2 BUILDING 3515

The recommended alternative for the D&D of Building 3515 is complete dismantlement, with one caveat. This alternative has a total score of 33 vs partial dismantlement, with a score of 31. Reasons for the selection of this alternative are provided below.

The main reason for the selection of complete dismantlement is that the soils below the foundation are known to be contaminated and will require removal or treatment during the soils remediation project. The partial dismantlement alternative requires scabbling of the top surface of the foundation. The soils remediation project would then have to remove and dispose of the concrete foundation in exactly the same manner as would have been done in the D&D project. Therefore, the partial dismantlement D&D project, which has the added cost of the scabbling, drives up the overall cost of the site remediation, including D&D and soils remediation.

The caveat to the recommendation for complete dismantlement concerns the removal of the foundation. It is considered that the D&D project can remove the foundation without disturbing the underlying soil, to any great extent. If this is not the case and soils have to be disturbed by extensive excavation, the D&D project's cost and worker risk would increase.

The cost of the complete dismantlement alternative is judged to be higher than the partial dismantlement alternative because of the disposal of the concrete in SWSA 6. In this evaluation, the scabbling cost is approximately equal to the cutting cost, resulting in no relative difference.

The worker risk is judged the same for both partial and complete dismantlement alternatives, because the worker risk from scabbling the top surface of the concrete is like the worker risk from cutting the concrete into appropriately sized pieces for packaging and disposal. In addition, the worker risk for the soils remediation project, given partial dismantlement, would be increased by adding the risk of cutting the concrete foundation to the risk in the soils remediation project. Therefore, having the soils remediation project remove the concrete foundation results in increased worker risk for the remediation projects.

The institutional concerns for the complete dismantlement alternative are judged to be better than for the partial dismantlement alternative. This is because, for the period between the conclusion of the D&D project and the start of the soils remediation project, the complete dismantlement alternative requires less institutional control than the partial dismantlement alternative. Another highly rated criterion for complete dismantlement is program compatibility. In complete dismantlement, the structures are removed sooner and represent an incremental increase in program compatibility for the complete dismantlement alternative.

No other alternative scored close to the partial and complete dismantlement alternatives. Therefore, no assessments between other alternatives are required.

The semiquantitative analysis results for Building 3515, as illustrated in Table 4, show that the partial dismantlement alternative scored second. Consequently, a cost estimate for the partial dismantlement alternative has been included in this document as well.

After the conclusion of the ongoing characterization of Building 3515, some of the uncertainties listed in Sect. 6.5 will be resolved. In addition, some of the assumptions in Sect. 6.6 may be changed. Consequently, it is recommended that this evaluation and associated D&D cost estimate be reexamined to determine whether a revision to the cost estimate is warranted.

8. COST ESTIMATE—RECOMMENDED ALTERNATIVE

This section provides the basis for the cost estimate and the cost estimates for both buildings. Section 8.1 discusses the basis for the cost estimates, Sect. 8.2 provides the details of Building 3506's cost estimate and schedule, and Sect. 8.3 provides the details of Building 3515's cost estimate and schedule.

8.1 BASIS FOR COST ESTIMATE

The information contained in this section is intended to provide an understanding of the methodology used in developing the cost for this project.

8.1.1 Engineering Estimate

The engineering cost estimate consists of Titles I, II, and III engineering (Table 5). Titles I and II engineering include all of the design activities required for the D&D work plan. Title III engineering includes those engineering-related activities necessary to ensure that construction conforms to Titles I and II design drawings and specifications. Titles I, II and III engineering costs are estimated as a percentage of construction or are based on an appropriate level of effort necessary for this particular project. Computer costs, reproduction costs, travel costs, and material costs were also included in the estimates. Project management has been factored into the estimate to include Titles I and II reports; schedule development and maintenance; cost reporting; progress reporting; contract administration; staffing; project review; meetings; project direction; and guidance by the Project Manager, Project Engineer, Program Director, and Task Engineer/Coordinator.

Table 5. Engineering cost estimate

Building	A-E Title I & II	A-E Title III	MMES Title III
3506	300 hr.	1/2 FTE for 1-1/2 mo	1 1/2 FTE for 1-1/2 mo
3515	15% of FPC	1/2 FTE for 9 mo	1 1/2 FTE for 9 mo

8.1.2 Construction Estimate

8.1.2.1 Material and labor pricing

The construction estimate was based on bills of material (BMs) prepared by each participating design discipline. The BMs were summarized and reviewed for reasonableness of the work task by the lead estimating engineer. Each discipline was then estimated by estimators specialized in that discipline. The crafts that will perform the tasks were identified, and the appropriate wage rates were applied. Material and labor pricing was based on vendor quotes, recent similar job history, and nationally recognized publications such as *R. S. Means Construction Cost Data* and *Richardson's Construction Estimating Standards*. Special equipment costs were obtained either by vendor contact or data from similar projects.

8.1.2.2 Wage rates

The wage rates for construction labor are those current as of January 1993 for the Oak Ridge area from the Automated Estimating System (AES) Standard Value File ORER193.VAL. These rates are effective for an hour of productive work and are given in Table 6.

Fixed-price construction labor rates are based on an average crew with necessary craftsmen, foremen, general foremen, etc. All fringe benefits, payroll taxes, and workman's compensation insurance are included.

Table 6. Standard value file, January 1993

Code	Craft	Fixed Price
AW	Asbestos Worker	25.45
BM	Boiler Maker	26.35
M	Brickmason	22.60
C	Carpenter	22.15
F	Cement Finisher	19.45
E	Electrician	22.95
IW	Ironworker	23.65
L	Laborer	15.45
MW	Millwright	22.55
OP	Operating Engineer	22.30
P	Painter	21.75
PF	Pipefitter	22.90
R	Roofer	17.75
SM	Sheetmetal Worker	23.80
SF	Sprinkler Fitter	25.30
TD	Truck Driver	16.80

8.1.2.3 Additional cost considerations

The base estimating units used in this estimate generally reflect a normal standard for construction costs. Many special work situations and job conditions can cause additional material consumption and/or a greater number of work hours to be used. During the estimating process, the estimating engineer included costs as appropriate depending on the anticipated job conditions for the following items: mobilization and demobilization; supporting items, breakage, and waste; temporary facilities; temporary services; cleanup; scaffolding;

industrial hygiene; construction safety meetings; safety inspections; and allowances for Occupational Safety and Health Administration (OSHA) and United States Environmental Protection Agency (EPA) compliance.

8.1.2.4 Indirect Markups

The indirect markups used in this estimate have been applied according to the guidelines provided in the Oak Ridge Field Office Estimating and Cost Control Manual. Those appear in Table 7.

Table 7. Indirect markups

Category	General Contractor	Subcontractor
Overhead (applied to labor and materials)	10%	10%
Profit (applied to labor and materials)	8%	8%
Bond (applied to labor and materials)	1%	1%
General contractor's markup		5%
Compounded total	20%	26%
Sales tax (applied to materials)	8.25%	8.25%

Fixed-price construction. For fixed-price general contractors' work, these markups compound and appear in the estimate as totals: indirect 20% and tax 8.25%. For subcontractors' work, the markups appear as totals: indirect 26% and tax 8.25%.

MK-Ferguson of Oak Ridge (MK-F), under prime contract to the U.S. Department of Energy (DOE), will award, administer, and manage all construction contracts required for this project. The indirect cost of this service is 12% of the fixed-price construction value plus \$51.70 per work hour as computed from the MK-F administrative table and other miscellaneous equipment costs.

MMES site overhead. Martin Marietta Energy Systems, Inc. (MMES), site overhead is included on DOE contractors and MMES labor, purchased materials, and contractors.

MMES labor. MMES site overhead is applied to all MMES labor. This overhead recovers costs associated with administration, facilities maintenance, plant services, corporate and central services, and general expenses. The rates are 46.01% for ORNL personnel and 25.37% for ORNL Central personnel.

MMES purchased materials. MMES site overhead is applied to all purchased materials with the exception of single item purchases of more than \$20,000. This overhead recovers costs associated with administration, facilities maintenance, plant services, corporate and central services, and general expenses. This overhead rate is 46.01%.

MMES and DOE contractors. An off-site subcontractor overhead is applied to the total cost of all DOE prime contracts and subcontracts to MK-F or MMES, except for the A-E Title III Engineer, technical support, contractor, and environmental assessment subcontractor. This overhead is an apportionment of the costs of plant services, purchasing, facilities maintenance, administration, etc. The off-site subcontract rate is 8.7%.

Project management—Energy Systems. Project management services consist of A-E and construction support. This work spans all facets of the project and its administration and is included as construction cost. Project management includes those activities necessary to support the project such as A-E design coordination and review, cost estimate reviews, field support of construction, project reviews and reporting, project coordination and planning, and other direct costs such as travel, reproduction, inspection materials, etc. Costs (Table 8) were estimated as a percentage of FPC or were based on an appropriate level of effort required.

Table 8. Project management costs

Building	MMES Project Services	MMES Divisional Support	MMES Project Management	MMES A-E Support
3506	8% of FPC	5% of FPC	1/2 FTE for 3 mo	6% of FPC
3515	8% of FPC	5% of FPC	1/2 FTE for 12 mo	6% of FPC

8.1.3 Escalation

The estimate has been escalated using the DOE Oak Ridge Field Office (DOE-OR) approved annual rates issued by MMES in the January 1993 Standard Value File. The estimate is based on FY 1993 fourth quarter costs and then escalated over the period of activity, as determined by the project schedule.

The approved escalation rates are 2.4% for FY 1993, 3.1% for FY 1994, and 3.5% for FY 1995, 3.7% for FY 1996, and 3.8%/yr thereafter.

8.1.4 Estimate Assumptions

8.1.4.1 Typical assumption for basis of estimate

Labor (all shifts are 8 hr each) productive work time calculations are as follows:

- Work performed in uncontaminated areas includes nonproductive time such as travel between portals and work stations and breaks.
- Level D work conditions require an additional 10% of work hours to be expended for nonproductive time.
- Level C work conditions require an additional 25% of work hours to be expended for nonproductive time.

- Level C and D personal protective equipment and clothing have been calculated at \$21.00 and \$3.61 per total work hour, respectively. This includes replacement and laundry costs.

8.1.4.2 General assumptions

- MMES will furnish a portable boundary control station with monitoring equipment to be set up at each site. Cost is assumed to be \$100,000 and will be shared by each project.
- Personnel protective equipment (PPE) will be furnished by MMES.
- MK-F will provide industrial hygiene and health physics support to Fixed Price Contractor.
- Traffic rerouting may be required during D&D; however, its cost has not been included.
- Cost for on site disposal of solid materials in B-25 or other boxes is assumed to be \$85.00 per ft³.
- Liquid waste will be drummed and transported to the Process Waste Treatment Facility for treatment/disposal. The cost is assumed to be \$0.11 per gal.
- After the structure has been removed, the area will be covered with a 60 mil high-density polyethylene (HDPE) liner, 2 ft of soil, and grass cover.

8.1.4.3 Building 3506 assumptions—partial dismantlement

- Building 3506 can be demolished using standard demolition techniques.
- All equipment and building materials will be cut up and placed in B-25 or B-12 boxes for disposal.
- Fifty percent of the remaining below-grade pit will be scabbled to a depth of 1/4 in. to remove any contamination before being filled. This is necessary to be able to release the building for unrestricted use after the D&D project is concluded. How much of the area may need to be decontaminated is unknown, but 50% is expected to be sufficient to estimate this item.
- The above-grade concrete structure will be demolished. Of this demolished concrete, 972 ft³ will be placed into the remaining below-grade pit. The remaining volume of rubble will be placed in B-25 boxes for disposal.
- The disturbed area will be covered with an HDPE liner and soil cap.
- Level C protective equipment will be required for scabbling. All other demolition activities will require Level D protection.

8.1.4.4 Building 3506 assumptions—complete dismantlement

- Building 3506 can be demolished using standard demolition techniques.

- All equipment, building materials, and structure will be demolished, cut up, and placed in B-25 or B-12 boxes for disposal.
- Soil excavated during removal of the below-grade structure will be replaced into the bottom of the excavated volume. The remaining excavated volume will be filled with clean borrow soil and the disturbed areas will be covered with a HDPE liner and soil cap.
- Demolition and excavation activities will require Level D protective equipment.

8.1.4.5 Building 3515 assumptions—complete dismantlement

- Building 3515 cannot be demolished using standard demolition techniques. Remote operated equipment will be required.
- A factor of 3.2 has been applied to standard labor unit rates to adjust for remote operation activities.
- Equipment located inside the building will be cut up with hydraulic shears and placed into specially sized boxes that have 2 in. of steel shielding.
- The lead bricks will be placed into 1.6 ft³ boxes constructed of 1/2 in. carbon steel. Each box will hold 1 ft³ of bricks encapsulated in an epoxy grout. These containers will be shipped to an off-site disposal facility. Cost of this disposal is assumed to be \$45 per ft³.
- The remaining concrete structure and foundation will be cut up into blocks using diamond wire or circular-type saws. The concrete blocks will be placed into B-25 boxes for disposal.
- Remotely operated equipment will include manipulator hydraulic shears, cameras, and monitoring equipment mounted on articulating three-piece arms. A four-man crew will be required for operation.
- Shielding will be required for personnel protection during material removal operations. A custom designed shielding arrangement consisting of 3-in. of steel plates on the sides and 1-in. of steel plate on the roof will be constructed around the penetrations. After the material has been removed, boxed, and moved to a staging area for disposal, the shielding will be removed.
- The volume where the foundation was removed will be filled with clean borrow soil.
- The disturbed area will be covered with an HDPE liner and soil cap.
- Concrete cutting, work performed while in the shielded area, and closing of boxes will require Level C protective equipment. All other demolition activities will require Level D protective equipment.

8.1.4.6 Building 3515 assumptions—partial dismantlement

- Building 3515 cannot be demolished using standard demolition techniques. Remotely operated equipment will be required.
- A factor of 3.2 has been applied to standard labor unit rates to adjust for remote operation activities.
- Equipment located inside the building will be cut up with hydraulic shears and placed into specially sized boxes that have 2 in. of steel shielding.
- The lead bricks will be placed into 1.6 ft³ boxes constructed of 1/2 in. carbon steel. Each box will hold 1 ft³ of bricks encapsulated in an epoxy grout. These containers will be shipped to an off-site disposal facility. Cost of this disposal is assumed to be \$45 per ft³.
- The remaining concrete structure will be cut up into blocks using diamond wire or circular type saws. The concrete blocks will be placed into B-25 boxes for disposal.
- Remotely operated equipment will include manipulator hydraulic shears, cameras, and monitoring equipment mounted on articulating three-piece arms. A four-man crew will be required for operation.
- Shielding will be required for personnel protection during material removal operations. A custom-designed shielding arrangement consisting of 3-in. of steel plates on the sides and 1-in. of steel plate on the roof will be constructed around the penetrations. After the material has been removed, boxed, and moved to a staging area for disposal, the shielding will be removed.
- The foundation concrete slab will be scabbled to an average depth of 1 in. to remove any contamination and left in place.
- Level C protective equipment will be required for scabbling, concrete cutting, work performed while in the shielded area, and closing of boxes. All other demolition activities will require Level D protective equipment.

8.1.5 Contingency in the estimate

According to DOE Order 4700.1, contingency is defined as the sum of funds included within an estimate to cover materials, labor, conditions, and risk situations which are an intrinsic part of the presently intended scope of work but are not specifically allowed for elsewhere in the estimate because of uncertainty either as to their existence, nature, likelihood of occurrence, or magnitude of effect.

Contingency cost has been included in this project to cover costs that may result from incomplete design, unforeseen and unpredictable conditions, or uncertainties within the defined scope. A contingency analysis was conducted per headquarter guidance provided by the William Heffelfinger memorandum titled, "Cost Estimating Guide for Application of Contingency," dated June 18, 1985.

A midrange contingency of 30% for standard projects was chosen based on the referenced guidance. The midrange was adjusted by evaluation of the completeness of design and complexity of construction for each major Work Breakdown Structure (WBS) element.

Design completeness adjustment factors typically range from 0.7 to 1.5, with 1.0 being the "average" completeness of design at the conceptual level. A greater than 1.0 adjustment factor would indicate a less than average "completeness of design."

Degree of complexity adjustment factor typically ranges from 0.7 to as high as 1.5 for extreme conditions. An adjustment factor of 1.0 would indicate a degree of complexity common at the BDR level with normal uncertainty as to procurement cost or installation complexity. Conversely, a 1.5 adjustment factor would indicate a one-of-a-kind design or, for example, the uncertainty associated with the disposal of a highly toxic or highly contaminated material or high levels of radiation in work areas.

Average contingency for Building 3506 is 30%, while the average for Building 3515 is 33.5%.

8.2 BUILDING 3506

The schedule for the partial decontamination alternative for the D&D of Building 3506 takes into account the entire process and sequencing of tasks from the beginning of the work activities through decontamination, demolition, and backfilling of the building and through disposal of the waste materials at an existing on-site tumulus. The critical tasks identified determine the duration of the project. The schedule is illustrated in Fig. 1. A summary of the partial dismantlement alternative by the fourth-level project summary WBS (PSWBS) is shown in Fig. 2. All of the summary reports and the detail cost estimate for the partial dismantlement D&D of Building 3506 are included in Appendix A. A summary of the complete dismantlement alternative by the fourth-level PSWBS is shown in Fig. 3. All of the summary reports and the detail cost estimate for the complete dismantlement D&D of Building 3506 are included in Appendix B. The schedule for complete dismantlement is the same as for partial dismantlement (Fig. 1).

Fig. 1. Schedule for D&D of Building 3506.

D & D BLDG 3506, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material	Labor	Total	Material	Labor	Total
	\$	\$	\$	\$	\$	\$
1.1.1.1 PROJECT INTEGRATION, 3506						
49 MWES PROJECT SERVICES	0	18	18	0	18	18
90 ER DIVISION	1	21	22	1	21	22
TOTAL PROJECT INTEGRATION, 3506	1	39	40	1	39	40
1.1.1.2 TITLE I & II ENGINEERING, 3506						
18 A-E TITLE I & II ENGR.	0	24	24	0	24	24
48 MWES A-E SUPPORT	0	8	8	0	8	8
TOTAL TITLE I & II ENGINEERING, 3506	0	32	32	0	32	32
1.1.1.3 CONST MGMT & SUPPORT, 3506						
66 MK-F INDIRECTS ON PP	14	0	14	15	0	15
67 MK-F DIRECTS ON PP	0	32	32	0	32	32
TOTAL CONST MGMT & SUPPORT, 3506	14	32	46	15	32	47
1.1.1.4 TITLE III ENGINEERING, 3506						
13 MWES TITLE III ENGR.	2	27	29	2	28	30
19 A-E TITLE III ENGR.	0	7	7	0	7	7
TOTAL TITLE III ENGINEERING, 3506	2	34	36	2	35	37
1.1.2 BUILDING 3506 D & D, PARTIAL						
41 MWES FIELD MAINTENANCE	112	1	113	115	1	116
51 FIXED PRICE CONSTRUCTION	33	36	69	34	37	71
TOTAL BUILDING 3506 D & D, PARTIAL	145	37	182	149	38	187
1.1.2.1 INITIAL CHARACTERIZATION, 3506						
51 FIXED PRICE CONSTRUCTION	2	7	9	2	7	9
TOTAL INITIAL CHARACTERIZATION, 3506	2	7	9	2	7	9

Fig. 2. Fourth-level project summary by WBS for partial dismantlement of Building 3506.

D & D BLDG 3506, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	Unescalated			Escalated		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.1.2.2 EQUIPMENT REMOVAL, 3506						
51 FIXED PRICE CONSTRUCTION	0	2	2	0	2	2
TOTAL EQUIPMENT REMOVAL, 3506	0	2	2	0	2	2
1.1.2.3 DECONTAMINATION, 3506						
51 FIXED PRICE CONSTRUCTION	1	2	3	1	2	3
TOTAL DECONTAMINATION, 3506	1	2	3	1	2	3
1.1.2.4 DISMANTLE STRUCTURE, 3506						
51 FIXED PRICE CONSTRUCTION	5	11	16	5	11	16
TOTAL DISMANTLE STRUCTURE, 3506	5	11	16	5	11	16
1.1.2.5 CLOSURE, 3506						
51 FIXED PRICE CONSTRUCTION	3	1	4	3	1	4
TOTAL CLOSURE, 3506	3	1	4	3	1	4
1.1.3.1 TREATMENT, 3506						
51 FIXED PRICE CONSTRUCTION	5	0	5	5	0	5
TOTAL TREATMENT, 3506	5	0	5	5	0	5
1.1.3.2 PACK/TRANSF TO MWES WM, 3506						
51 FIXED PRICE CONSTRUCTION	1	1	2	1	1	2
TOTAL PACK/TRANSF TO MWES WM, 3506	1	1	2	1	1	2
1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L						
92 WASTE MANAGEMENT	0	0	0	0	0	0
99 SPECIAL	326	0	326	335	0	335
TOTAL DISPOSAL OF BLDG 3506 MAT'L	326	0	326	335	0	335

Fig. 2. (continued)

D & D BLDG 3506, PARTIAL

SUMMARY REPORT

S1 = \$1000

11/10/93

Arranged By: MBS / Participant

--

SUB - TOTAL
CONTINGENCY

GRAND TOTAL

----- Unescalated -----			----- Escalated -----		
Material	Labor	Total	Material	Labor	Total
\$	\$	\$	\$	\$	\$
505	198	703	519	200	719
151	59	210	156	61	217
656	257	913	675	261	936

Fig. 2. (continued)

D & D BLDG 3506

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.1.1.1 PROJECT INTEGRATION, 3506						
49 NMES PROJECT SERVICES	0	18	18	0	19	19
90 ER DIVISION	1	21	22	1	21	22
TOTAL PROJECT INTEGRATION, 3506	1	39	40	1	40	41
1.1.1.2 TITLE I & II ENGINEERING, 3506						
18 A-E TITLE I & II ENGR.	0	24	24	0	24	24
48 NMES A-E SUPPORT	0	8	8	0	8	8
TOTAL TITLE I & II ENGINEERING, 3506	0	32	32	0	32	32
1.1.1.3 CONST MGMT & SUPPORT, 3506						
66 MK-F INDIRECTS ON FP	15	0	15	15	0	15
67 MK-F DIRECTS ON FP	0	32	32	0	32	32
TOTAL CONST MGMT & SUPPORT, 3506	15	32	47	15	32	47
1.1.1.4 TITLE III ENGINEERING, 3506						
13 NMES TITLE III ENGR.	2	27	29	2	28	30
19 A-E TITLE III ENGR.	0	7	7	0	7	7
TOTAL TITLE III ENGINEERING, 3506	2	34	36	2	35	37
1.1.2 BUILDING 3506 D & D						
41 NMES FIELD MAINTENANCE	130	1	131	134	1	135
51 FIXED PRICE CONSTRUCTION	33	36	69	34	37	71
TOTAL BUILDING 3506 D & D	163	37	200	168	38	206
1.1.2.1 INITIAL CHARACTERIZATION, 3506						
51 FIXED PRICE CONSTRUCTION	2	7	9	2	7	9
TOTAL INITIAL CHARACTERIZATION, 3506	2	7	9	2	7	9

Fig. 3. Fourth-level project summary by WBS for complete dismantlement of Building 3506.

D & D BLDG 3506

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----	----- Escalated -----
	Material Labor Total	Material Labor Total
	\$ \$ \$	\$ \$ \$
1.1.2.2 EQUIPMENT REMOVAL, 3506		
51 FIXED PRICE CONSTRUCTION	0 2 2	0 2 2
TOTAL EQUIPMENT REMOVAL, 3506	0 2 2	0 2 2
1.1.2.3 DECONTAMINATION, 3506		
51 FIXED PRICE CONSTRUCTION	0 0 0	0 0 0
TOTAL DECONTAMINATION, 3506	0 0 0	0 0 0
1.1.2.4 DISMANTLE STRUCTURE, 3506		
51 FIXED PRICE CONSTRUCTION	9 15 24	9 16 25
TOTAL DISMANTLE STRUCTURE, 3506	9 15 24	9 16 25
1.1.2.5 CLOSURE, 3506		
51 FIXED PRICE CONSTRUCTION	3 1 4	3 1 4
TOTAL CLOSURE, 3506	3 1 4	3 1 4
1.1.3.1 TREATMENT, 3506		
51 FIXED PRICE CONSTRUCTION	0 0 0	0 0 0
TOTAL TREATMENT, 3506	0 0 0	0 0 0
1.1.3.2 PACK/TRANSF TO HHES UN, 3506		
51 FIXED PRICE CONSTRUCTION	2 1 3	2 2 4
TOTAL PACK/TRANSF TO HHES UN, 3506	2 1 3	2 2 4
1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L		
92 WASTE MANAGEMENT	0 0 0	0 0 0
99 SPECIAL	639 0 639	657 0 657
TOTAL DISPOSAL OF BLDG 3506 MAT'L	639 0 639	657 0 657

Fig. 3 (continued)

D & D BLDG 3506

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

SUB - TOTAL
CONTINGENCY

GRAND TOTAL

----- Unescalated -----			----- Escalated -----		
Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
836	200	1036	859	205	1064
251	60	311	258	62	320
1087	260	1347	1117	267	1384

Fig. 3 (continued)

8.3 BUILDING 3515

The schedule for the complete decontamination alternative for the D&D of Building 3515 takes into account the entire process and sequencing of tasks from the beginning of the work activities, through decontamination, demolition, and backfilling the building, through disposal of the waste materials at an existing on-site tumulus. The critical tasks identified determine the duration of the project. The schedule is illustrated in Fig. 4. A summary of the complete dismantlement alternative by the fourth level PSWBS is shown in Fig. 5. All of the summary reports and the detail cost estimate for the complete dismantlement D&D of Building 3515 are included in Appendix C. A summary of the partial dismantlement alternative by the fourth-level PSWBS is shown in Fig. 6. All of the summary reports and the detail cost estimate for the partial dismantlement D&D of Building 3515 are included in Appendix D. The schedule for partial dismantlement is the same as for partial dismantlement (Fig. 4).

Fig. 4. Schedule for D&D of Building 3515.

D & D BLDG 3515

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material	Labor	Total	Material	Labor	Total
	\$	\$	\$	\$	\$	\$
1.2.1.1 PROJECT INTEGRATION, 3515						
49 MMES PROJECT SERVICES	0	131	131	0	136	136
90 ER DIVISION	4	84	88	4	86	90
TOTAL PROJECT INTEGRATION, 3515	4	215	219	4	222	226
1.2.1.2 TITLE I & II ENGINEERING, 3515						
18 A-E TITLE I & II ENGR.	0	121	121	0	122	122
48 MMES A-E SUPPORT	0	61	61	0	61	61
TOTAL TITLE I & II ENGINEERING, 3515	0	182	182	0	183	183
1.2.1.3 CONST MGMT & SUPPORT, 3515						
66 MK-F INDIRECTS ON PP	105	0	105	110	0	110
67 MK-F DIRECTS ON PP	3	222	225	3	230	233
TOTAL CONST MGMT & SUPPORT, 3515	108	222	330	113	230	343
1.2.1.4 TITLE III ENGINEERING, 3515						
13 MMES TITLE III ENGR.	9	161	170	10	169	179
19 A-E TITLE III ENGR.	0	43	43	0	45	45
TOTAL TITLE III ENGINEERING, 3515	9	204	213	10	214	224
1.2.2 BUILDING 3515 D & D						
41 MMES FIELD MAINTENANCE	299	1	300	314	1	315
51 FIXED PRICE CONSTRUCTION	306	51	357	322	53	375
TOTAL BUILDING 3515 D & D	605	52	657	636	54	690
1.2.2.1 INITIAL CHARACTERIZATION, 3515						
51 FIXED PRICE CONSTRUCTION	6	24	30	6	25	31
TOTAL INITIAL CHARACTERIZATION, 3515	6	24	30	6	25	31

Fig. 5. Fourth-level project summary by WBS for complete dismantlement of Building 3515.

D & D BLDG 3515

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MDS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.2.2.2 EQUIPMENT REMOVAL, 3515						
51 FIXED PRICE CONSTRUCTION	113	154	267	118	161	279
TOTAL EQUIPMENT REMOVAL, 3515	113	154	267	118	161	279
1.2.2.3 DECONTAMINATION, 3515						
51 FIXED PRICE CONSTRUCTION	0	0	0	0	0	0
TOTAL DECONTAMINATION, 3515	0	0	0	0	0	0
1.2.2.4 DISMANTLE STRUCTURE, 3515						
51 FIXED PRICE CONSTRUCTION	48	90	138	51	95	146
TOTAL DISMANTLE STRUCTURE, 3515	48	90	138	51	95	146
1.2.2.5 CLOSURE, 3515						
51 FIXED PRICE CONSTRUCTION	6	3	9	6	3	9
TOTAL CLOSURE, 3515	6	3	9	6	3	9
1.2.3.1 TREATMENT, 3515						
51 FIXED PRICE CONSTRUCTION	0	0	0	0	0	0
TOTAL TREATMENT, 3515	0	0	0	0	0	0
1.2.3.2 PACK/TRANSF TO MWES WM, 3515						
51 FIXED PRICE CONSTRUCTION	2	2	4	2	2	4
TOTAL PACK/TRANSF TO MWES WM, 3515	2	2	4	2	2	4
1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L						
92 WASTE MANAGEMENT	0	0	0	0	0	0
99 SPECIAL	629	0	629	661	0	661
TOTAL DISPOSAL OF BLDG 3515 MAT'L	629	0	629	661	0	661

Fig. 5 (continued)

D & D BLDG 3515

SUMMARY REPORT

S1 = \$1000

11/10/93

Arranged By: LBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
SUB - TOTAL	1530	1148	2678	1607	1189	2796
CONTINGENCY	503	393	896	529	408	937
GRAND TOTAL	2033	1541	3574	2136	1597	3733

Fig. 5 (continued)

D & D BLDG 3515, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	Unescalated			Escalated		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.2.1.1 PROJECT INTEGRATION, 3515						
49 MMS PROJECT SERVICES	0	143	143	0	148	148
90 ER DIVISION	4	84	88	4	86	90
TOTAL PROJECT INTEGRATION, 3515	4	227	231	4	234	238
1.2.1.2 TITLE I & II ENGINEERING, 3515						
18 A-E TITLE I & II ENGR.	0	132	132	0	133	133
48 MMS A-E SUPPORT	0	66	66	0	67	67
TOTAL TITLE I & II ENGINEERING, 3515	0	198	198	0	200	200
1.2.1.3 CONST MGMT & SUPPORT, 3515						
66 MK-F INDIRECTS ON PP	115	0	115	120	0	120
67 MK-F DIRECTS ON PP	3	234	237	3	243	246
TOTAL CONST MGMT & SUPPORT, 3515	118	234	352	123	243	366
1.2.1.4 TITLE III ENGINEERING, 3515						
13 MMS TITLE III ENGR.	9	161	170	10	169	179
19 A-E TITLE III ENGR.	0	43	43	0	45	45
TOTAL TITLE III ENGINEERING, 3515	9	204	213	10	214	224
1.2.2 BUILDING 3515 D & D, PARTIAL						
41 MMS FIELD MAINTENANCE	334	1	335	350	1	351
51 FIXED PRICE CONSTRUCTION	306	51	357	322	53	375
TOTAL BUILDING 3515 D & D, PARTIAL	640	52	692	672	54	726
1.2.2.1 INITIAL CHARACTERIZATION, 3515						
51 FIXED PRICE CONSTRUCTION	6	24	30	6	25	31
TOTAL INITIAL CHARACTERIZATION, 3515	6	24	30	6	25	31

Fig. 6. Fourth-level project summary by WBS for partial dismantlement of Building 3515.

D & D BLDG 3515, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----	----- Escalated -----
	Material Labor Total	Material Labor Total
	\$ \$ \$	\$ \$ \$
1.2.2.2 EQUIPMENT REMOVAL, 3515		
51 FIXED PRICE CONSTRUCTION	113 154 267	118 161 279
TOTAL EQUIPMENT REMOVAL, 3515	113 154 267	118 161 279
1.2.2.3 DECONTAMINATION, 3515		
51 FIXED PRICE CONSTRUCTION	22 23 45	23 24 47
TOTAL DECONTAMINATION, 3515	22 23 45	23 24 47
1.2.2.4 DISMANTLE STRUCTURE, 3515		
51 FIXED PRICE CONSTRUCTION	38 85 123	40 89 129
TOTAL DISMANTLE STRUCTURE, 3515	38 85 123	40 89 129
1.2.2.5 CLOSURE, 3515		
51 FIXED PRICE CONSTRUCTION	6 3 9	6 3 9
TOTAL CLOSURE, 3515	6 3 9	6 3 9
1.2.3.1 TREATMENT, 3515		
51 FIXED PRICE CONSTRUCTION	43 1 44	45 1 46
TOTAL TREATMENT, 3515	43 1 44	45 1 46
1.2.3.2 PACK/TRANSF TO HHES MH, 3515		
51 FIXED PRICE CONSTRUCTION	2 2 4	2 2 4
TOTAL PACK/TRANSF TO HHES MH, 3515	2 2 4	2 2 4
1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L		
92 WASTE MANAGEMENT	19 0 19	20 0 20
99 SPECIAL	467 0 467	491 0 491
TOTAL DISPOSAL OF BLDG 3515 MAT'L	486 0 486	511 0 511

Fig. 6 (continued)

D & D BLDG 3515, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

SUB - TOTAL
CONTINGENCY

GRAND TOTAL

----- Unescalated -----			----- Escalated -----		
Material	Labor	Total	Material	Labor	Total
\$	\$	\$	\$	\$	\$
1487	1207	2694	1540	1250	2810
492	414	906	517	430	947
1979	1621	3600	2077	1680	3757

Fig. 6 (continued)

Appendix A.

**Cost Estimate for
Partial Dismantlement of Building 3506**

SUMMARY REPORT

Project Number: 930031.1
D & D BLDG 3506, PARTIAL

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant

Approved by:

Heary Kaneson
Project Estimator

11-12-93
Date

Yuchi Lin for Dan Dudek
Estimating Manager

11/12/93
Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3506P.est 11/10/93
SCHEDULE FILE: 3506P
REPORT FILE : D:\AES52C\X10\3506PS.out 11/10/93 16:53:53

D & D BLDG 3506, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.1.1.1 PROJECT INTEGRATION, 3506						
49 MMES PROJECT SERVICES	0	18	18	0	18	18
90 ER DIVISION	1	21	22	1	21	22
TOTAL PROJECT INTEGRATION, 3506	1	39	40	1	39	40
1.1.1.2 TITLE I & II ENGINEERING, 3506						
18 A-E TITLE I & II ENGR.	0	24	24	0	24	24
48 MMES A-E SUPPORT	0	8	8	0	8	8
TOTAL TITLE I & II ENGINEERING, 3506	0	32	32	0	32	32
1.1.1.3 CONST MGMT & SUPPORT, 3506						
66 MK-F INDIRECTS ON FP	14	0	14	15	0	15
67 MK-F DIRECTS ON FP	0	32	32	0	32	32
TOTAL CONST MGMT & SUPPORT, 3506	14	32	46	15	32	47
1.1.1.4 TITLE III ENGINEERING, 3506						
13 MMES TITLE III ENGR.	2	27	29	2	28	30
19 A-E TITLE III ENGR.	0	7	7	0	7	7
TOTAL TITLE III ENGINEERING, 3506	2	34	36	2	35	37
1.1.2 BUILDING 3506 D & D, PARTIAL						
41 MMES FIELD MAINTENANCE	112	1	113	115	1	116
51 FIXED PRICE CONSTRUCTION	33	36	69	34	37	71
TOTAL BUILDING 3506 D & D, PARTIAL	145	37	182	149	38	187
1.1.2.1 INITIAL CHARACTERIZATION, 3506						
51 FIXED PRICE CONSTRUCTION	2	7	9	2	7	9
TOTAL INITIAL CHARACTERIZATION, 3506	2	7	9	2	7	9

D & D BLDG 3506, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.1.2.2 EQUIPMENT REMOVAL, 3506						
51 FIXED PRICE CONSTRUCTION	0	2	2	0	2	2
TOTAL EQUIPMENT REMOVAL, 3506	0	2	2	0	2	2
1.1.2.3 DECONTAMINATION, 3506						
51 FIXED PRICE CONSTRUCTION	1	2	3	1	2	3
TOTAL DECONTAMINATION, 3506	1	2	3	1	2	3
1.1.2.4 DISMANTLE STRUCTURE, 3506						
51 FIXED PRICE CONSTRUCTION	5	11	16	5	11	16
TOTAL DISMANTLE STRUCTURE, 3506	5	11	16	5	11	16
1.1.2.5 CLOSURE, 3506						
51 FIXED PRICE CONSTRUCTION	3	1	4	3	1	4
TOTAL CLOSURE, 3506	3	1	4	3	1	4
1.1.3.1 TREATMENT, 3506						
51 FIXED PRICE CONSTRUCTION	5	0	5	5	0	5
TOTAL TREATMENT, 3506	5	0	5	5	0	5
1.1.3.2 PACK/TRANSF TO MMES WM, 3506						
51 FIXED PRICE CONSTRUCTION	1	1	2	1	1	2
TOTAL PACK/TRANSF TO MMES WM, 3506	1	1	2	1	1	2
1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L						
92 WASTE MANAGEMENT	0	0	0	0	0	0
99 SPECIAL	326	0	326	335	0	335
TOTAL DISPOSAL OF BLDG 3506 MAT'L	326	0	326	335	0	335

D & D BLDG 3506, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----		----- Escalated -----			
Material	Labor	Total	Material	Labor	Total	
\$	\$	\$	\$	\$	\$	
SUB - TOTAL	505	198	703	519	200	719
CONTINGENCY	151	59	210	156	61	217
GRAND TOTAL	656	257	913	675	261	936

DETAIL REPORT

Project Number: 930031.1
D & D BLDG 3506, PARTIAL

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant
3. S/M Attribute

Approved by:

Henry Knesson
Project Estimator

11-12-93
Date

Chuck Lin for Dan Dudek
Estimating Manager

11/12/93
Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3506P.est 11/10/93
SCHEDULE FILE: 3506P
REPORT FILE : D:\AES52C\X10\3506PD.out 11/10/93 16:48:51

D & D BLDG 3506, PARTIAL

Creation Date 08/18/93
Revision Number ... 0

Estimating Job Number .. 4225.420

Project Estimator.. G KENESON
WBS ..... 1.1.1.1 PROJECT INTEGRATION, 3506
Cost Code ..... 9100 PROJECT INTEGRATION
Participant ..... 49 MMES PROJECT SERVICES
Contracting Type .. G
B/M Attribute ..... X1.1.1B MMES PROJECT SERVICES
Discipline ..... X Engineering
B/M Title ..... MMES PROJECT SERVICES
Receiving Site X-10
Standard Value File ORER193.val
Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Project Engineer ..... SNEDAKER
Building/Area 3506
Plant Site X
Level of Estimate ..... P
Funding Type ..... EXPENSE
Source Site X-10
Discipline Estimator ... WGK
Quantity Take-Off By ... WGK
Trace Number X.1.2 0
Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES PROJECT SERVICES (8% OF CONST COSTS)	110.00	KS	0.00	0	160	XE	55.00	8800	8800
2	DIVISIONAL SUPPORT (5% OF CONST COST) INCLUDES IN, HP, HSEA,WM & ESD	110.00	KS	0.00	0	100	XE	55.00	5500	5500
TOTAL DIRECT					0				14300	14300
OVERHEAD				46.01%	0			25.37%	3628	3628
TOTAL					0	260			17928	17928

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.1.1 PROJECT INTEGRATION, 3506		Building/Area 3506
Cost Code ..... 9100 PROJECT INTEGRATION		Plant Site X
Participant ..... 90 ER DIVISION		Level of Estimate ..... P
Contracting Type .. G		Funding Type ..... EXPENSE
B/M Attribute ..... X1.1.1A NMES PROJECT MANAGEMENT		Source Site X-10
Discipline ..... X Engineering		Discipline Estimator ... WGK
B/M Title ..... PROJECT MANAGEMENT		Quantity Take-Off By ...
Receiving Site X-10		Trace Number X.1.1 0
Standard Value File ORER193.vol		Expiration Date: 04/20/94
Estimate File: D:\AES32C\X10\3506P.est 11-10-93 4:45p		

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	PROJECT MANAGEMENT (1/2 FTE)	3.00	MO	0.00	0	260	EV	55.00	14300	14300
2	MATERIALS & EXPENSES (5% OF LABOR)	3.00	MO	239.25	718	0		0.00	0	718
TOTAL DIRECT					718				14300	15018
OVERHEAD				46.01%	330			46.01%	6579	6909
TOTAL					1048	260			20879	21927

D & D BLDG 3506, PARTIAL

WBS	1.1.1.2	TITLE I & II ENGINEERING, 3506	Building/Area	3506
Cost Code	5200	D & D DESIGN	Plant Site	X
Participant	18	A-E TITLE I & II ENGR.	Level of Estimate	P
Contracting Type ..	G		Funding Type	EXPENSE
B/M Attribute	X1.1.2A	A-E TITLE I & II	Source Site	X-10
Discipline	X	Engineering	Discipline Estimator ...	WGK
B/M Title	A-E TITLE I & II		Quantity Take-Off By ...	WGK
Receiving Site	X-10		Trace Number	X.1.3 0
Standard Value File	ORER193.val		Expiration Date:	04/20/94
Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p				

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	D & D DESIGN	1.00	LS	0.00	0	300	ER	80.00	24000	24000
TOTAL DIRECT					0	24000				24000
OVERHEAD										0
TOTAL					0	300			24000	24000

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.1.2 TITLE I & II ENGINEERING, 3506
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 48 MMES A-E SUPPORT
 Contracting Type .. G
 B/M Attribute ..... X1.1.2B MMES A-E SUPPORT
 Discipline ..... X Engineering
 B/M Title ..... MMES A-E SUPPORT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:43p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WCK
 Quantity Take-Off By ... WCK
 Trace Number X.1.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	HOURS	CFT.	RATE	Total	
1	MMES A-E SUPPORT (6% OF CONST COST)	110.00	KS	0.00	0	120	XE	55.00	6600	6600
TOTAL DIRECT					0				6600	6600
OVERHEAD				46.01%	0			25.37%	1674	1674
TOTAL					0	120			8274	8274

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.1.3 CONST MGMT & SUPPORT, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 66 MK-F INDIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 01.1.3A MK-F INDIRECTS ON FP
 Discipline ..... 0 Other
 B/M Title ..... MK-F INDIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number 0.2.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F INDIRECTS ON FP (12% OF FP)	110.00	K\$	120.00	13200	0		0.00	0	13200
TOTAL INDIRECT OVERHEAD				8.70%	1148			8.70%	0	1148
TOTAL					14348	0			0	14348

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.1.3 CONST MGMT & SUPPORT, 3506		Building/Area 3506
Cost Code 6200	D & D IMPLEMENTATION	Plant Site X
Participant 67	MK-F DIRECTS ON FP	Level of Estimate ..... P
Contracting Type .. G		Funding Type ..... EXPENSE
B/M Attribute 01.1.3B	MK-F DIRECTS ON FP	Source Site X-10
Discipline ..... 0 Other		Discipline Estimator ... WCK
B/M Title ..... MK-F DIRECTS ON FP		Quantity Take-Off By ... WCK
Receiving Site X-10		Trace Number 0.2.2 0
Standard Value File ORER193.val		Expiration Date: 04/20/94
Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p		

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F ADMIN SUPPORT	335.00	HR	0.00	0	335	MK	51.70	17320	17320
2	MK-F IH/HP SUPPORT	160.00	HR	0.00	0	160	MK	51.70	8272	8272
3	PICKUP TRUCK	160.00	HR	1.75	280	0		0.00	0	280
TOTAL DIRECT					280				25592	25872
TOTAL INDIRECT				14.00%	39			14.00%	3583	3622
OVERHEAD				8.70%	28			8.70%	2538	2566
TOTAL					347	495			31713	32060

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.1.4 TITLE III ENGINEERING, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 13 MMES TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X1.1.4A MMES TITLE III
 Discipline ..... X Engineering
 B/M Title ..... MMES TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES TITLE III ENGINEERING (1-1/2 FTE)	1.50	MO	0.00	0	390	XE	55.00	21450	21450
2	MATERIALS & EXPENSES (5% OF LABOR)	1.50	MO	715.00	1073	0		0.00	0	1073
TOTAL DIRECT					1073				21450	22523
OVERHEAD				46.01%	494			25.37%	5442	5936
TOTAL					1567	390			26892	28459

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.1.4 TITLE III ENGINEERING, 3506 Cost Code ..... 5200 D & D DESIGN Participant ..... 19 A-E TITLE III ENGR. Contracting Type .. G B/M Attribute ..... X1.1.48 A-E TITLE III Discipline ..... X Engineering B/M Title ..... A-E TITLE III Receiving Site .... X-10 Standard Value File ORER193.val Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p	Building/Area ..... 3506 Plant Site ..... X Level of Estimate ..... P Funding Type ..... EXPENSE Source Site ..... X-10 Discipline Estimator ... WGK Quantity Take-Off By ... WGK Trace Number ..... X.1.6 0 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	A-E TITLE III ENGINEERING (1/2 FTE)	1.50	MO	0.00	0	130	0	55.00	7150	7150
TOTAL DIRECT		0				7150				7150
OVERHEAD										0
TOTAL		0				130			7150	7150

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2 BUILDING 3506 D & D, PARTIAL
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 41 MMES FIELD MAINTENANCE
 Contracting Type .. G
 B/M Attribute ..... C1.2A 3506, CONST SUPPORT, MMES FM
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, MMES FM
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	MISC									
1	BOUNDARY CONTROL STATION	1.00	LS	50000.00	50000	24	XE	37.69	905	50905
2	DRUMS FOR LIQUIDS	10.00	EA	40.00	400	0		0.00	0	400
3	8-25 ST BOXES (10,000 LB CAPACITY)	36.00	EA	362.00	13032	0		0.00	0	13032
4	8-12 ST BOXES (10,000 LB CAPACITY)	2.00	EA	375.00	750	0		0.00	0	750
****	SUBTOTAL ****				64182	24			905	65087
	MEDICAL/PPE									
5	URINALYSIS (ENTRANCE & EXIT)	10.00	EA	225.00	2250	0		0.00	0	2250
6	PPE (LEVEL C)	103.00	HR	21.00	2163	0		0.00	0	2163
7	PPE (LEVEL D)	686.00	HR	3.61	2476	0		0.00	0	2476
****	SUBTOTAL ****				6889	0			0	6889
TOTAL DIRECT					71071				905	71976
TAX				8.25%	5863					5863
SUBTOTAL					76934				905	77839
OVERHEAD				46.01%	35397			46.01%	416	35813
TOTAL					112331	24			1321	113652

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2 BUILDING 3506 D & D, PARTIAL
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2 3506, FPC CONST SUPPORT
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, FPC
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WCK
 Quantity Take-Off By ...
 Trace Number C.3.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	HEALTH & SAFETY PLAN	1.00	LS	0.00	0	60	0	75.00	4500	4500
2	COMPREHENSIVE WORK PLAN	1.00	LS	0.00	0	50	0	75.00	3750	3750
****	SUBTOTAL ****				0	110			8250	8250
	MISC									
3	MISC TOOLS & EQUIPMENT	1.00	LS	3000.00	3000	0		0.00	0	3000
4	PLASMA TORCH	1.00	EA	4000.00	4000	0		0.00	0	4000
5	HYD SHEARS, HAND HELD	2.00	EA	500.00	1000	0		0.00	0	1000
6	TEMPORARY POWER	1.00	LS	2000.00	2000	40	E	22.95	918	2918
****	SUBTOTAL ****				10000	40			918	10918
	TRAINING/PHYSICALS/ETC									
7	40 HOUR SARA/OSHA TRAINING	10.00	EA	750.00	7500	400	0	25.00	10000	17500
8	SUBCONTRACTOR ORIENTATION, "GET" TRAINING (EVERY 2 YEARS)	10.00	EA	0.00	0	30	0	25.00	750	750
9	RAD WORKER TRAINING (EVERY 2 YEARS)	10.00	EA	250.00	2500	240	0	25.00	6000	8500
10	PHYSICAL EXAM (ENTRANCE & EXIT)	10.00	EA	300.00	3000	40	0	25.00	1000	4000
11	URINALYSIS (ENTRANCE & EXIT)	10.00	EA	0.00	0	10	0	25.00	250	250
12	RESPIRATOR FIT (ANNUAL)	3.00	EA	105.00	315	3	0	25.00	75	390
13	DOSIMETERS (1 PER WORKER PER QTR)	5.00	EA	15.00	75	0		0.00	0	75
****	SUBTOTAL ****				13390	723			18075	31465
TOTAL DIRECT					23390				27243	50633
TAX					8.25%	1930				1930

D & D BLDG 3506, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
SUBTOTAL					25320				27243	52563
TOTAL INDIRECT				20.00%	5064			20.00%	5449	10513
OVERHEAD				8.70%	2643			8.70%	2844	5487
TOTAL					33027	873			35536	68563

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2.1 INITIAL CHARACTERIZATION, 3506		Building/Area 3506
Cost Code 6200	D & D IMPLEMENTATION	Plant Site X
Participant 51	FIXED PRICE CONSTRUCTION	Level of Estimate ..... P
Contracting Type .. G		Funding Type ..... EXPENSE
B/M Attribute C1.2.1	3506, INITIAL CHARACTERIZATION	Source Site X-10
Discipline ..... C Civil and Site		Discipline Estimator ... WGK
B/M Title ..... INITIAL CHARACTERIZATION, 3506		Quantity Take-Off By ...
Receiving Site X-10		Trace Number C.3.3 0
Standard Value File ORER193.val		Expiration Date: 04/20/94
Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p		

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
CHARACTERIZATION										
1	SURFACE REMOVAL SAMPLES	20.00	EA	70.00	1400	45	0	30.00	1350	2750
2	SHIPPING & HANDLING	20.00	EA	3.00	60	0		0.00	0	60
3	SURVEY & SWIPE SAMPLES	2610.00	SF	0.00	0	96	0	30.00	2880	2880
****	SUBTOTAL ****				1460	141			4230	5690
MISC										
4	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	141.00	HR	0.00	0	14	0	30.00	420	420
****	SUBTOTAL ****				0	14			420	420
5	MOBILIZATION & DEMOBILIZATION	1.00	LOT	146.00	146	16	ZZ	30.00	480	626
TOTAL DIRECT					1606				5130	6736
TAX				8.25%	132					132
SUBTOTAL					1738				5130	6868
TOTAL INDIRECT				20.00%	348			20.00%	1026	1374
OVERHEAD				8.70%	181			8.70%	536	717
TOTAL					2267	171			6692	8959

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2.2 EQUIPMENT REMOVAL, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.2 3506, EQUIP REMOVAL
 Discipline ..... C Civil and Site
 B/M Title ..... EQUIPMENT REMOVAL, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGX
 Quantity Take-Off By ...
 Trace Number C.3.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
LIQUIDS										
1	REMOVE & DRUM LIQUIDS	500.00	GAL	0.00	0	25	L	15.45	386	386
****	SUBTOTAL ****				0	25			386	386
HVAC REMOVE, CUT UP & PLACE IN B25 BOX										
2	HVAC EQUIPMENT	0.64	TN	0.00	0	5	1W	23.65	118	118
3	WBOC	0.64	TN	0.00	0	5	L	15.45	77	77
****	SUBTOTAL ****				0	10			195	195
PIPING REMOVE, CUT UP & PLACE IN B25 BOX										
4	1-1/4" TO 2" PIPING	100.00	LF	0.00	0	8	L	15.45	124	124
5	36" DIA X 48" TANK	0.26	TN	0.00	0	2	1W	23.65	47	47
6	WBOC	0.26	TN	0.00	0	2	L	15.45	31	31
7	PROCESS SUPPORT STEEL	0.40	TN	0.00	0	3	1W	23.65	71	71
8	WBOC	0.40	TN	0.00	0	3	L	15.45	46	46
****	SUBTOTAL ****				0	18			319	319
INSIDE ELECTRICAL REMOVE, CUT UP & PLACE IN B25 BOX										
9	100 A SAFETY SWITCH	1.00	EA	0.00	0	1	L	15.45	15	15
10	LIGHTING PANEL	1.00	EA	0.00	0	3	L	15.45	46	46

D & D BLDG 3506, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
11	WIREWAY, 4"X4"X45'	1.00	EA	0.00	0	5	L	15.45	77	77
12	VAPOR PROOF LIGHTS	4.00	EA	0.00	0	4	L	15.45	62	62
13	120V RECEPTACLE & BOX	4.00	EA	0.00	0	1	L	15.45	15	15
14	3/4" STAINLESS STEEL CONDUIT	50.00	LF	0.00	0	3	L	15.45	46	46
15	2" STAINLESS STEEL CONDUIT	20.00	LF	0.00	0	2	L	15.45	31	31
16	JUNCTION BOX, 30"X4"X4"	1.00	EA	0.00	0	1	L	15.45	15	15
17	WIRE TROUGH, 16 GA, 4"X4"X8"	1.00	EA	0.00	0	1	L	15.45	15	15
18	1C #12 CABLE, THW	1.00	LOT	0.00	0	3	L	15.45	46	46
****	SUBTOTAL ****				0	24			368	368
	OUTSIDE ELECTRICAL REMOVE, CUT UP & PLACE IN B25 BOX									
19	JUNCTION BOX, 16"X16"X4"	1.00	EA	0.00	0	1	L	15.45	15	15
20	WIRE WAY 4"X4"X10'	1.00	EA	0.00	0	1	L	15.45	15	15
21	2" CONDUIT W/ 3 #2 RH CABLES, EMBEDDED	50.00	LF	0.00	0	5	L	15.45	77	77
22	480V RECEPTACLE W/ DISCONNECT	1.00	EA	0.00	0	2	L	15.45	31	31
****	SUBTOTAL ****				0	9			138	138
	MISC									
23	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	86.00	HR	0.00	0	9	O	16.21	146	146
****	SUBTOTAL ****				0	9			146	146
24	MOBILIZATION & DEMOBILIZATION	0.00		0.00	0	5	ZZ	16.34	82	82
TOTAL DIRECT					0				1634	1634
TAX				8.25%	0					0
SUBTOTAL					0				1634	1634
TOTAL INDIRECT				20.00%	0			20.00%	327	327
OVERHEAD				8.70%	0			8.70%	171	171
TOTAL					0	100			2132	2132

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2.3 DECONTAMINATION, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.3 3506, DECONTAMINATION
 Discipline ..... C Civil and Site
 B/M Title ..... DECONTAMINATION, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
SCABBLE 50% OF BELOW GRADE CONCRETE (ASSUME 1/4" DEPTH REMOVED)										
1	CONCRETE WALLS & SLAB (LEVEL C)	411.00	SF	0.00	0	82	L	15.45	1267	1267
2	DRUMS FOR CONCRETE SCABBLES	3.00	EA	28.00	84	0		0.00	0	84
3	LOAD & TRANSPORT DRUMS TO SOLIDIFICATION SUBCONTRACTOR (ASSUME 2 HR ROUND TRIP) (NO PPE REQUIRED)	3.00	EA	15.55	47	4	TD	16.80	67	114
4	WBOC	3.00	EA	0.00	0	1	L	15.45	15	15
****	SUBTOTAL ****				131	87			1349	1480
MISC										
5	VACUUM PAC FOR SCABBLE EQUIP (BASED ON COST SPREAD OVER 1 YR) (INCLUDES 25% DOWN TIME)	52.00	HR	10.00	520	0		0.00	0	520
6	CUTTERS W/ EXTRA CUTTING HEADS (BASED ON COST SPREAD OVER 1 YR)	52.00	HR	5.28	275	0		0.00	0	275
7	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	82.00	HR	0.00	0	21	L	15.45	324	324
****	SUBTOTAL ****				795	21			324	1119
8	MOBILIZATION & DEMOBILIZATION	1.00	LOT	46.00	46	5	22	15.49	77	123
TOTAL DIRECT					972				1750	2722
TAX				8.25%	80					80
SUBTOTAL					1052				1750	2802
TOTAL INDIRECT				20.00%	210			20.00%	350	560

D & D BLDG 3506, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
OVERHEAD				8.70%	110			8.70%	183	293
TOTAL					1372	113			2283	3655

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2.4 DISMANTLE STRUCTURE, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.4 3506, DISMANTLE STRUCTURE
 Discipline ..... C Civil and Site
 B/M Title ..... DISMANTLE STRUCTURE, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... W GK
 Quantity Take-Off By ...
 Trace Number C.3.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
DISMANTLE STRUCTURE & PLACE IN BOXES FOR DISPOSAL ***BUILT UP ROOF***										
1	3 PLY ROOF	272.00	SF	0.35	95	5	L	15.45	77	172
2	GRAVEL 3" DEPTH	272.00	SF	0.15	41	3	L	15.45	46	87
****	SUBTOTAL ****				136	8			123	259
WOOD DEMO.										
3	WOOD DOORS	3.00	EA	0.00	0	3	L	15.45	46	46
****	SUBTOTAL ****				0	3			46	46
*** MISC STEEL*** REMOVE, CUT UP & PLACE IN B25 BOX										
4	MISC STEEL	1.50	TN	0.00	0	12	1W	23.65	284	284
5	WBOC	1.50	TN	0.00	0	12	L	15.45	185	185
6	STAIRS & PLATFORM	1.00	TN	0.00	0	8	1W	23.65	189	189
7	WBOC	1.00	TN	0.00	0	8	L	15.45	124	124
8	1/2" STEEL PLATE	7.35	TN	0.00	0	59	1W	23.65	1395	1395
9	WBOC	7.35	TN	0.00	0	59	L	15.45	912	912
****	SUBTOTAL ****				0	158			3089	3089
MASONRY										
10	DISMANTLE MASONRY	650.00	SF	0.18	117	32	OP	22.30	714	831

D & D BLDG 3506, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
11	PLACE MASONRY IN B-25 BOXES	20.50	CY	2.02	41	2	OP	22.30	45	86
****	SUBTOTAL ****				158	34			759	917
	ABOVE GROUND CONCRETE									
12	CONCRETE WALLS	116.00	CY	23.60	2738	58	OP	22.30	1293	4031
13	WBOC	116.00	CY	0.00	0	116	L	15.45	1792	1792
14	BACKFILL & COMPACT PIT WITH CONCRETE RUBBLE (75 HP FE LOADER & VIBRATING ROLLER)	36.00	CY	0.46	17	1	OP	22.30	22	39
15	PLACE REMAINING CONCRETE RUBBLE IN B-25 BOXES	80.00	CY	2.02	162	7	OP	22.30	156	318
****	SUBTOTAL ****				2917	182			3263	6180
	MISC									
16	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	387.00		0.00	0	39	0	18.86	736	736
****	SUBTOTAL ****				0	39			736	736
17	MOBILIZATION & DEMOBILIZATION	1.00	LOT	161.00	161	21	ZZ	18.91	397	558
TOTAL DIRECT					3372				8413	11785
TAX				8.25%	273					278
SUBTOTAL					3650				8413	12063
TOTAL INDIRECT				20.00%	730			20.00%	1683	2413
OVERHEAD				8.70%	381			8.70%	878	1259
TOTAL					4761	445			10974	15735

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.2.5 CLOSURE, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.5 3506, CLOSURE
 Discipline ..... C Civil and Site
 B/M Title ..... CLOSURE, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.7 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED UNLESS NOTED OTHERWISE										
SOIL & LINER COVER										
1	60 MIL HDPE LINER (LEVEL D)	158.00	SY	6.30	995	9	L	15.45	139	1134
2	EXCAVATE @ BORROW AREA (3 CY BACKHOE)	96.00	CY	1.33	128	1	OP	22.30	22	150
3	HAUL & DUMP (10 MILE ROUND TRIP W/ 12 CY DUMP)	116.00	CY	3.18	369	19	TD	16.80	319	688
4	BACKFILL, SPREAD & COMPACT (75 HP FE LOADER & VIBRATING ROLLER)	116.00	CY	1.84	213	9	OP	22.30	201	414
5	SEED & MULCH	158.00	SY	0.39	62	4	L	15.45	62	124
****	SUBTOTAL ****				1767	42			743	2510
MISC										
6	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	9.00	HR	0.00	0	1	L	15.45	15	15
****	SUBTOTAL ****				0	1			15	15
7	MOBILIZATION & DEMOBILIZATION	1.00	LOT	177.00	177	4	ZZ	17.63	71	248
TOTAL DIRECT					1944				829	2773
TAX				8.25%	160					160
SUBTOTAL					2104				829	2933
TOTAL INDIRECT				20.00%	421			20.00%	166	587
OVERHEAD				8.70%	220			8.70%	87	307
TOTAL					2745	47			1082	3827

D & D BLDG 3506, PARTIAL

HBS ..... 1.1.3.1 TREATMENT, 3506
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.3.1 3506, TREATMENT
 Discipline ..... C Civil and Site
 B/M Title ..... TREATMENT, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.8 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	SOLIDIFY CONCRETE FINES	16.44	CF	200.00	3288	0		0.00	0	3288
2	LOAD & TRANSPORT DRUMS TO DISPOSAL FACILITY (ASSUME 2 HR ROUND TRIP) (NO PPE REQUIRED)	3.00	EA	15.55	47	4	TD	16.80	67	114
3	WBOC	3.00	EA	0.00	0	1	L	15.45	15	15
4	WBOC	3.00	EA	1.80	5	1	OP	22.30	22	27
****	SUBTOTAL ****				3340	6			104	3444
TOTAL DIRECT					3340				104	3444
TAX				8.25%	276					276
SUBTOTAL					3616				104	3720
TOTAL INDIRECT				20.00%	723			20.00%	21	744
OVERHEAD				8.70%	377			8.70%	11	388
TOTAL					4716	6			136	4852

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.3.2 PACK/TRANSF TO MMES WM, 3506
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.3.2 3506, PACK/TRANSF TO MMES WM
 Discipline ..... C Civil and Site
 B/M Title ..... PACK/TRANSF TO MMES WM, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.9 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L		
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total			
NOTE: NO PPE REQUIRED												
1	LOAD & TRANSPORT B-25 & B-12 BOXES TO DISPOSAL FACILITY (ASSUME 3 PER LOAD, 1 HR ROUND TRIP)	38.00	EA	8.00	304	6	OP	22.30	134	438		
2	WBOC	38.00	EA	0.00	0	13	L	15.45	201	201		
3	WBOC	38.00	EA	10.00	380	19	TD	16.80	319	699		
4	LOAD & TRANSPORT DRUMS TO PWTF (ASSUME 1 HR ROUND TRIP)	10.00	EA	0.54	5	1	OP	22.30	22	27		
5	WBOC	10.00	EA	0.00	0	1	L	15.45	15	15		
6	WBOC	10.00	EA	3.00	30	2	TD	16.80	34	64		
**** SUBTOTAL ****					719	42			725	1444		
7	MOBILIZATION & DEMOBILIZATION	1.00	LOT	36.00	36	2	ZZ	17.26	35	71		
TOTAL DIRECT					755					760	1515	
TAX					8.25%	62					62	
SUBTOTAL					817					760	1577	
TOTAL INDIRECT					20.00%	163	20.00%				152	315
OVERHEAD					8.70%	85	8.70%				79	164
TOTAL					1065	44				991	2056	

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 92 WASTE MANAGEMENT
 Contracting Type .. G
 B/M Attribute ..... C1.3.3A DISPOSAL LIQUID WASTE, 3506
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL LIQUID WASTE, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.10 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	TREATMENT/DISPOSAL OF LIQUIDS @ PMTF	500.00	GAL	0.11	55	0		0.00	0	55
	TOTAL DIRECT				55				0	55
	OVERHEAD			46.01%	25			46.01%	0	25
	TOTAL				80	0			0	80

D & D BLDG 3506, PARTIAL

WBS ..... 1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L		Building/Area 3506
Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL		Plant Site X
Participant ..... 99 SPECIAL		Level of Estimate ..... P
Contracting Type .. G		Funding Type ..... EXPENSE
B/M Attribute ..... C1.3.3B DISPOSAL OF BLDG 3506 MAT'L		Source Site X-10
Discipline ..... C Civil and Site		Discipline Estimator ... WGK
B/M Title ..... DISPOSAL OF BLDG 3506 MAT'L		Quantity Take-Off By ...
Receiving Site X-10		Trace Number C.3.11 0
Standard Value File ORER193.val		Expiration Date: 04/20/94
Estimate File: D:\AES52C\X10\3506P.est 11-10-93 4:45p		

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	DISPOSAL OF SOLID MATERIALS IN B-25 & B12 BOXES	3811.00	CF	85.00	323935	0		0.00	0	323935
2	DISPOSAL OF SOLIDIFIED MATERIALS IN DRUMS	22.05	CF	85.00	1874	0		0.00	0	1874
TOTAL DIRECT					325809				0	325809
OVERHEAD										0
TOTAL					325809	0			0	325809

D & D BLDG 3506, PARTIAL

Disciplines
 C: Civil and Site
 X: Engineering
 O: Other

Total Labor Hours: 3778

COST SUMMARY

	MATERIAL	LABOR	TOTAL COST
Line Item Cost	434385	160160	594545
Total Tax	8781	0	8781
SUBTOTAL	443166	160160	603326
Total Indirect	20898	12757	33655
SUBTOTAL	464064	172917	636981
Overhead	41419	25066	66485
SUBTOTAL	505483	197983	703466
Contingency	151370	59287	210657
SUBTOTAL	656853	257270	914123
Market Adjustment			0
TOTAL			914123

Appendix B.

**Cost Estimate for
Complete Dismantlement of Building 3506**

SUMMARY REPORT

Project Number: 930031.1
D & D BLDG 3506

Project ESD Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant

Approved by:

Heary Keneson
Project Estimator

11-12-93
Date

Charles Lin for Dan Dudek
Estimating Manager

11/10/93
Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3506.est 11/10/93
SCHEDULE FILE: 3506
REPORT FILE : D:\AES52C\X10\3506S.out 11/10/93 16:50:00

D & D BLDG 3506

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: WBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material	Labor	Total	Material	Labor	Total
	\$	\$	\$	\$	\$	\$
1.1.1.1 PROJECT INTEGRATION, 3506						
49 MMES PROJECT SERVICES	0	18	18	0	19	19
90 ER DIVISION	1	21	22	1	21	22
TOTAL PROJECT INTEGRATION, 3506	1	39	40	1	40	41
1.1.1.2 TITLE I & II ENGINEERING, 3506						
18 A-E TITLE I & II ENGR.	0	24	24	0	24	24
48 MMES A-E SUPPORT	0	8	8	0	8	8
TOTAL TITLE I & II ENGINEERING, 3506	0	32	32	0	32	32
1.1.1.3 CONST MGMT & SUPPORT, 3506						
66 MK-F INDIRECTS ON FP	15	0	15	15	0	15
67 MK-F DIRECTS ON FP	0	32	32	0	32	32
TOTAL CONST MGMT & SUPPORT, 3506	15	32	47	15	32	47
1.1.1.4 TITLE III ENGINEERING, 3506						
13 MMES TITLE III ENGR.	2	27	29	2	28	30
19 A-E TITLE III ENGR.	0	7	7	0	7	7
TOTAL TITLE III ENGINEERING, 3506	2	34	36	2	35	37
1.1.2 BUILDING 3506 D & D						
41 MMES FIELD MAINTENANCE	130	1	131	134	1	135
51 FIXED PRICE CONSTRUCTION	33	36	69	34	37	71
TOTAL BUILDING 3506 D & D	163	37	200	168	38	206
1.1.2.1 INITIAL CHARACTERIZATION, 3506						
51 FIXED PRICE CONSTRUCTION	2	7	9	2	7	9
TOTAL INITIAL CHARACTERIZATION, 3506	2	7	9	2	7	9

D & D BLDG 3506

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: WBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material	Labor	Total	Material	Labor	Total
	\$	\$	\$	\$	\$	\$
1.1.2.2 EQUIPMENT REMOVAL, 3506						
51 FIXED PRICE CONSTRUCTION	0	2	2	0	2	2
TOTAL EQUIPMENT REMOVAL, 3506	0	2	2	0	2	2
1.1.2.3 DECONTAMINATION, 3506						
51 FIXED PRICE CONSTRUCTION	0	0	0	0	0	0
TOTAL DECONTAMINATION, 3506	0	0	0	0	0	0
1.1.2.4 DISMANTLE STRUCTURE, 3506						
51 FIXED PRICE CONSTRUCTION	9	15	24	9	16	25
TOTAL DISMANTLE STRUCTURE, 3506	9	15	24	9	16	25
1.1.2.5 CLOSURE, 3506						
51 FIXED PRICE CONSTRUCTION	3	1	4	3	1	4
TOTAL CLOSURE, 3506	3	1	4	3	1	4
1.1.3.1 TREATMENT, 3506						
51 FIXED PRICE CONSTRUCTION	0	0	0	0	0	0
TOTAL TREATMENT, 3506	0	0	0	0	0	0
1.1.3.2 PACK/TRANSF TO MMES WM, 3506						
51 FIXED PRICE CONSTRUCTION	2	1	3	2	2	4
TOTAL PACK/TRANSF TO MMES WM, 3506	2	1	3	2	2	4
1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L						
92 WASTE MANAGEMENT	0	0	0	0	0	0
99 SPECIAL	639	0	639	657	0	657
TOTAL DISPOSAL OF BLDG 3506 MAT'L	639	0	639	657	0	657

D & F BLDG 3506

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

SUB - TOTAL
CONTINGENCY

GRAND TOTAL

----- Unescalated -----			----- Escalated -----		
Material	Labor	Total	Material	Labor	Total
\$	\$	\$	\$	\$	\$
836	200	1036	859	205	1064
251	60	311	258	62	320
1087	260	1347	1117	267	1384

DETAIL REPORT

Project Number: 930031.1
D & D BLDG 3506

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant
3. B/M Attribute

Approved by:

<u>Heary Keneson</u>	<u>11-12-93</u>
Project Estimator	Date
<u>Speshi Lin for Dan Dudak</u>	<u>11/12/93</u>
Estimating Manager	Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3506.est 11/10/93
SCHEDULE FILE: 3506
REPORT FILE : D:\AES52C\X10\3506D.out 11/10/93 16:48:25

D & D BLDG 3506

Creation Date 08/18/93
Revision Number ... 0

Estimating Job Number .. 4225.420

Project Estimator.. G KENESON
WBS ..... 1.1.1.1 PROJECT INTEGRATION, 3506
Cost Code ..... 9100 PROJECT INTEGRATION
Participant ..... 49 MMES PROJECT SERVICES
Contracting Type .. G
B/M Attribute ..... X1.1.1B MMES PROJECT SERVICES
Discipline ..... X Engineering
B/M Title ..... MMES PROJECT SERVICES
Receiving Site X-10
Standard Value File ORER193.val
Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Project Engineer ..... SNEDAKER
Building/Area 3506
Plant Site X
Level of Estimate ..... P
Funding Type ..... EXPENSE
Source Site X-10
Discipline Estimator ... WGK
Quantity Take-Off By ... WGK
Trace Number X.1.2 0
Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES PROJECT SERVICES (8% OF CONST COSTS)	112.00	KS	0.00	0	163	XE	55.00	8965	8965
2	DIVISIONAL SUPPORT (5% OF CONST COST) INCLUDES IH, HP, HSEA,WM & ESD	112.00	KS	0.00	0	102	XE	55.00	5610	5610
TOTAL DIRECT					0				14575	14575
OVERHEAD				46.01%	0			25.37%	3698	3698
TOTAL					0	265			18273	18273

AIIM

Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

Centimeter

Inches

MANUFACTURED TO AIIM STANDARDS
BY APPLIED IMAGE, INC.

2 of 3

WBS ..... 1.1.1.1 PROJECT INTEGRATION, 3506
 Cost Code ..... 9100 PROJECT INTEGRATION
 Participant ..... 90 ER DIVISION
 Contracting Type .. G
 B/M Attribute ..... X1.1.1A MMES PROJECT MANAGEMENT
 Discipline ..... X Engineering
 B/M Title ..... PROJECT MANAGEMENT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number X.1.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	PROJECT MANAGEMENT (1/2 FTE)	3.00	MO	0.00	0	260	EV	55.00	14300	14300
2	MATERIALS & EXPENSES (5% OF LABOR)	3.00	MO	239.25	718	0		0.00	0	718
TOTAL DIRECT					718				14300	15018
OVERHEAD				46.01%	330			46.01%	6579	6909
TOTAL					1048	260			20879	21927

D & D BLDG 3506

WBS ..... 1.1.1.2 TITLE I & II ENGINEERING, 3506
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 18 A-E TITLE I & II ENGR.
 Contracting Type .. G
 B/M Attribute ..... X1.1.2A A-E TITLE I & II
 Discipline ..... X Engineering
 B/M Title ..... A-E TITLE I & II
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.3 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	D & D DESIGN	1.00	LS	0.00	0	300	ER	80.00	24000	24000
TOTAL DIRECT					0				24000	24000
OVERHEAD										0
TOTAL					0	300			24000	24000

D & D BLDG 3506

WBS ..... 1.1.1.2 TITLE I & II ENGINEERING, 3506
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 48 MMES A-E SUPPORT
 Contracting Type .. G
 B/M Attribute ..... X1.1.2B MMES A-E SUPPORT
 Discipline ..... X Engineering
 B/M Title ..... MMES A-E SUPPORT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES A-E SUPPORT (6% OF CONST COST)	112.00	KS	0.00	0	122	XE	55.00	6710	6710
TOTAL DIRECT					0					6710
OVERHEAD					0	25.37%				1702
TOTAL					0	122			8412	8412

D & D BLDG 3506

WBS ..... 1.1.1.3 CONST MGMT & SUPPORT, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 66 MK-F INDIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 01.1.3A MK-F INDIRECTS ON FP
 Discipline ..... 0 Other
 B/M Title ..... MK-F INDIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AESS2C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number 0.2.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F INDIRECTS ON FP (12% OF FP)	112.00	KS	120.00	13440	0		0.00	0	13440
TOTAL INDIRECT OVERHEAD				8.70%	1169			8.70%	0	1169
TOTAL					14609	0			0	14609

D & D BLDG 3506

WBS ..... 1.1.1.3 CONST MGMT & SUPPORT, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 67 MK-F DIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 01.1.3B MK-F DIRECTS ON FP
 Discipline ..... 0 Other
 B/M Title ..... MK-F DIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number 0.2.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F ADMIN SUPPORT	335.00	HR	0.00	0	335	MK	51.70	17320	17320
2	MK-F IH/HP SUPPORT	160.00	HR	0.00	0	160	MK	51.70	8272	8272
3	PICKUP TRUCK	160.00	HR	1.75	280	0		0.00	0	280
TOTAL DIRECT					280				25592	25872
TOTAL INDIRECT				14.00%	39			14.00%	3583	3622
OVERHEAD				8.70%	28			8.70%	2538	2566
TOTAL					347	495			31713	32060

D & D BLDG 3506

WBS ..... 1.1.1.4 TITLE III ENGINEERING, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 13 MMES TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X1.1.4A MMES TITLE III
 Discipline ..... X Engineering
 B/M Title ..... MMES TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AESS2C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES TITLE III ENGINEERING (1-1/2 FTE)	1.50	MO	0.00	0	390	XE	55.00	21450	21450
2	MATERIALS & EXPENSES (5% OF LABOR)	1.50	MO	715.00	1073	0		0.00	0	1073
TOTAL DIRECT					1073				21450	22523
OVERHEAD				46.01%	494			25.37%	5442	5936
TOTAL					1567	390			26892	28459

D & D BLDG 3506

WBS ..... 1.1.1.4 TITLE III ENGINEERING, 3506
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 19 A-E TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X1.1.48 A-E TITLE III
 Discipline ..... X Engineering
 B/M Title ..... A-E TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	A-E TITLE III ENGINEERING (1/2 FTE)	1.50	MO	0.00	0	130	0	55.00	7150	7150
TOTAL DIRECT		0				7150				7150
OVERHEAD										0
TOTAL		0				130			7150	7150

D & D BLDG 3506

WBS ..... 1.1.2 BUILDING 3506 D & D

Cost Code ..... 6200 D & D IMPLEMENTATION

Participant ..... 41 MMES FIELD MAINTENANCE

Contracting Type .. G

B/M Attribute ..... C1.2A 3506, CONST SUPPORT, MMES FM

Discipline ..... C Civil and Site

B/M Title ..... CONST SUPPORT, MMES FM

Receiving Site X-10

Standard Value File ORER193.val

Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506

Plant Site X

Level of Estimate ..... P

Funding Type ..... EXPENSE

Source Site X-10

Discipline Estimator ... WGG

Quantity Take-Off By ...

Trace Number C.3.1 0

Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	MISC									
1	BOUNDRY CONTROL STATION	1.00	LS	50000.00	50000	24	XE	37.69	905	50905
2	DRUMS FOR LIQUIDS	10.00	EA	40.00	400	0		0.00	0	400
3	B-25 ST BOXES (10,000 LB CAPACITY)	72.00	EA	362.00	26064	0		0.00	0	26064
4	B-12 ST BOXES (10,000 LB CAPACITY)	2.00	EA	375.00	750	0		0.00	0	750
****	SUBTOTAL ****				77214	24			905	78119
	MEDICAL/PPE									
5	URINALYSIS (ENTRANCE & EXIT)	10.00	EA	225.00	2250	0		0.00	0	2250
6	PPE (LEVEL D)	836.00	HR	3.61	3018	0		0.00	0	3018
****	SUBTOTAL ****				5268	0			0	5268
TOTAL DIRECT					82482				905	83387
TAX				8.25%	6805					6805
SUBTOTAL					89287				905	90192
OVERHEAD				46.01%	41081			46.01%	416	41497
TOTAL					130368	24			1321	131689

D & D BLDG 3506

WBS ..... 1.1.2 BUILDING 3506 D & D
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2 3506, FPC CONST SUPPORT
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, FPC
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	HEALTH & SAFETY PLAN	1.00	LS	0.00	0	60	0	75.00	4500	4500
2	COMPREHENSIVE WORK PLAN	1.00	LS	0.00	0	50	0	75.00	3750	3750
****	SUBTOTAL ****				0	110			8250	8250
	MISC									
3	MISC TOOLS & EQUIPMENT	1.00	LS	3000.00	3000	0		0.00	0	3000
4	PLASMA TORCH	1.00	EA	4000.00	4000	0		0.00	0	4000
5	HYD SHEARS, HAND HELD	2.00	EA	500.00	1000	0		0.00	0	1000
6	TEMPORARY POWER	1.00	LS	2000.00	2000	40	E	22.95	918	2918
****	SUBTOTAL ****				10000	40			918	10918
	TRAINING/PHYSICALS/ETC									
7	40 HOUR SARA/OSHA TRAINING	10.00	EA	750.00	7500	400	0	25.00	10000	17500
8	SUBCONTRACTOR ORIENTATION, "GET" TRAINING (EVERY 2 YEARS)	10.00	EA	0.00	0	30	0	25.00	750	750
9	RAD WORKER TRAINING (EVERY 2 YEARS)	10.00	EA	250.00	2500	240	0	25.00	6000	8500
10	PHYSICAL EXAM (ENTRANCE & EXIT)	10.00	EA	300.00	3000	40	0	25.00	1000	4000
11	URINALYSIS (ENTRANCE & EXIT)	10.00	EA	0.00	0	10	0	25.00	250	250
12	RESPIRATOR FIT (ANNUAL)	3.00	EA	105.00	315	3	0	25.00	75	390
13	DOSIMETERS (1 PER WORKER PER QTR)	5.00	EA	15.00	75	0		0.00	0	75
****	SUBTOTAL ****				13390	723			18075	31465
TOTAL DIRECT					23390	27243				50633
TAX					8.25%	1930				1930

D & D BLDG 3506

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
SUBTOTAL					25320				27243	52563
TOTAL INDIRECT				20.00%	5064			20.00%	5449	10513
OVERHEAD				8.70%	2643			8.70%	2844	5487
TOTAL					33027	873			35536	68563

D & D BLDG 3506

WBS ..... 1.1.2.1 INITIAL CHARACTERIZATION, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.1 3506, INITIAL CHARACTERIZATION
 Discipline ..... C Civil and Site
 B/M Title ..... INITIAL CHARACTERIZATION, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.3 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
CHARACTERIZATION										
1	SURFACE REMOVAL SAMPLES	20.00	EA	70.00	1400	45	0	30.00	1350	2750
2	SHIPPING & HANDLING	20.00	EA	3.00	60	0		0.00	0	60
3	SURVEY & SWIPE SAMPLES	2610.00	SF	0.00	0	96	0	30.00	2880	2880
****	SUBTOTAL ****				1460	141			4230	5690
MISC										
4	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	141.00	HR	0.00	0	14	0	30.00	420	420
****	SUBTOTAL ****				0	14			420	420
5	MOBILIZATION & DEMOBILIZATION	1.00	LOT	146.00	146	16	22	30.00	480	626

TOTAL DIRECT					1606				5130	6736
TAX		8.25%			132					132

SUBTOTAL					1738				5130	6868
TOTAL INDIRECT		20.00%			348	20.00%			1026	1374
OVERHEAD		8.70%			181	8.70%			536	717

TOTAL					2267	171			6692	8959

D & D BLDG 3506

WBS ..... 1.1.2.2 EQUIPMENT REMOVAL, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.2 3506, EQUIP REMOVAL
 Discipline ..... C Civil and Site
 B/M Title ..... EQUIPMENT REMOVAL, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE									
	LIQUIDS									
1	REMOVE & DRUM LIQUIDS	500.00	GAL	0.00	0	25	L	15.45	386	386
****	SUBTOTAL ****				0	25			386	386
	HVAC REMOVE, CUT UP & PLACE IN B25 BOX									
2	HVAC EQUIPMENT	0.64	TN	0.00	0	5	1W	23.65	118	118
3	WBOC	0.64	TN	0.00	0	5	L	15.45	77	77
****	SUBTOTAL ****				0	10			195	195
	PIPING REMOVE, CUT UP & PLACE IN B25 BOX									
4	1-1/4" TO 2" PIPING	100.00	LF	0.00	0	8	L	15.45	124	124
5	36" DIA X 48" TANK	0.26	TN	0.00	0	2	1W	23.65	47	47
6	WBOC	0.26	TN	0.00	0	2	L	15.45	31	31
7	PROCESS SUPPORT STEEL	0.40	TN	0.00	0	3	1W	23.65	71	71
8	WBOC	0.40	TN	0.00	0	3	L	15.45	46	46
****	SUBTOTAL ****				0	18			319	319
	INSIDE ELECTRICAL REMOVE, CUT UP & PLACE IN B25 BOX									
9	100 A SAFETY SWITCH	1.00	EA	0.00	0	1	L	15.45	15	15
10	LIGHTING PANEL	1.00	EA	0.00	0	3	L	15.45	46	46

D & D BLDG 3506

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
11	WIREWAY, 4"X4"X45'	1.00	EA	0.00	0	5	L	15.45	77	77
12	VAPOR PROOF LIGHTS	4.00	EA	0.00	0	4	L	15.45	62	62
13	120V RECEPTACLE & BOX	4.00	EA	0.00	0	1	L	15.45	15	15
14	3/4" STAINLESS STEEL CONDUIT	50.00	LF	0.00	0	3	L	15.45	46	46
15	2" STAINLESS STEEL CONDUIT	20.00	LF	0.00	0	2	L	15.45	31	31
16	JUNCTION BOX, 30"X4"X4"	1.00	EA	0.00	0	1	L	15.45	15	15
17	WIRE TROUGH, 16 GA, 4"X4"X8"	1.00	EA	0.00	0	1	L	15.45	15	15
18	1C #12 CABLE, THW	1.00	LOT	0.00	0	3	L	15.45	46	46
****	SUBTOTAL ****				0	24			368	368
	OUTSIDE ELECTRICAL REMOVE, CUT UP & PLACE IN #25 BOX									
19	JUNCTION BOX, 16"X16"X4"	1.00	EA	0.00	0	1	L	15.45	15	15
20	WIRE WAY 4"X4"X10'	1.00	EA	0.00	0	1	L	15.45	15	15
21	2" CONDUIT W/ 3 #2 RH CABLES, EMBEDDED	50.00	LF	0.00	0	5	L	15.45	77	77
22	480V RECEPTACLE W/ DISCONNECT	1.00	EA	0.00	0	2	L	15.45	31	31
****	SUBTOTAL ****				0	9			138	138
	MISC									
23	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	86.00	HR	0.00	0	9	O	16.21	146	146
****	SUBTOTAL ****				0	9			146	146
24	MOBILIZATION & DEMOBILIZATION	0.00		0.00	0	5	ZZ	16.34	82	82
TOTAL DIRECT					0				1634	1634
TAX				8.25%	0					0
SUBTOTAL					0				1634	1634
TOTAL INDIRECT				20.00%	0			20.00%	327	327
OVERHEAD				8.70%	0			8.70%	171	171
TOTAL					0	100			2132	2132

D & D BLDG 3506

WBS ..... 1.1.2.3 DECONTAMINATION, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.3 3506, DECONTAMINATION
 Discipline ..... C Civil and Site
 B/M Title ..... DECONTAMINATION, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... W GK
 Quantity Take-Off By ...
 Trace Number C.3.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	ASSUMED NO DECONTAMINATION FOR THIS BUILDING									
	TOTAL DIRECT				0				0	0
	TAX			8.25%	0					0
	SUBTOTAL				0				0	0
	TOTAL INDIRECT			20.00%	0			20.00%	0	0
	OVERHEAD			8.70%	0			8.70%	0	0
	TOTAL				0	0			0	0

D & D BLDG 3506

WBS ..... 1.1.2.4 DISMANTLE STRUCTURE, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.4 3506, DISMANTLE STRUCTURE
 Discipline ..... C Civil and Site
 B/M Title ..... DISMANTLE STRUCTURE, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE									
	DISMANTLE STRUCTURE & PLACE IN BOXES FOR DISPOSAL ***BUILT UP ROOF***									
1	3 PLY ROOF	272.00	SF	0.35	95	5	L	15.45	77	172
2	GRAVEL 3" DEPTH	272.00	SF	0.15	41	3	L	15.45	46	87
****	SUBTOTAL ****				136	8			123	259
	WOOD DEMO.									
3	WOOD DOORS	3.00	EA	0.00	0	3	L	15.45	46	46
****	SUBTOTAL ****				0	3			46	46
	*** MISC STEEL*** REMOVE, CUT UP & PLACE IN B25 BOX									
4	MISC STEEL	1.50	TN	0.00	0	12	IW	23.65	284	284
5	WBOC	1.50	TN	0.00	0	12	L	15.45	185	185
6	STAIRS & PLATFORM	1.00	TN	0.00	0	8	IW	23.65	189	189
7	WBOC	1.00	TN	0.00	0	8	L	15.45	124	124
8	1/2" STEEL PLATE	7.35	TN	0.00	0	59	IW	23.65	1395	1395
9	WBOC	7.35	TN	0.00	0	59	L	15.45	912	912
****	SUBTOTAL ****				0	158			3089	3089
	MASONRY									
10	DISMANTLE MASONRY	650.00	SF	0.18	117	32	OP	22.30	714	831

D & D BLDG 3506

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
11	PLACE MASONRY IN B-25 BOXES	20.50	CY	2.02	41	2	OP	22.30	45	86
****	SUBTOTAL ****				158	34			759	917
	ABOVE GROUND CONCRETE									
12	CONCRETE WALLS	116.00	CY	23.60	2738	58	OP	22.30	1293	4031
13	WBOC	116.00	CY	0.00	0	116	L	15.45	1792	1792
14	PLACE CONCRETE RUBBLE IN B-25 BOXES	116.00	CY	2.02	234	10	OP	22.30	223	457
****	SUBTOTAL ****				2972	184			3308	6280
	BELOW GRADE CONCRETE									
15	EXCAVATE AREA AROUND FOUNDATION FOR ACCESS (BACKHOE)	100.00	CY	0.95	95	4	OP	22.30	89	184
16	CONCRETE PIT & FOUNDATION	73.00	CY	23.60	1723	37	OP	22.30	825	2548
17	WBOC	73.00	CY	0.00	0	73	L	15.45	1128	1128
18	PLACE CONCRETE RUBBLE IN B-25 BOXES	73.00	CY	2.02	147	6	OP	22.30	134	281
19	WBOC	73.00	CY	0.00	0	6	L	15.45	93	93
20	BACKFILL WITH EXCAVATED SOIL (BACKHOE)	100.00	CY	0.95	95	4	OP	22.30	89	184
21	EXCAVATE @ BORROW AREA (3 CY BACKHOE) (NO PPE REQUIRED)	112.80	CY	1.33	150	1	OP	22.30	22	172
22	HAUL & DUMP (10 MILE ROUND TRIP W/ 12 CY DUMP) (NO PPE REQUIRED)	135.40	CY	3.18	431	22	TD	16.80	370	801
23	BACKFILL WITH BORROW SOIL (BACKHOE)	135.40	CY	1.19	161	7	OP	22.30	156	317
****	SUBTOTAL ****				2802	160			2906	5708
	MISC									
24	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	524.00	HR	0.00	0	52	O	18.69	972	972
****	SUBTOTAL ****				0	52			972	972
25	MOBILIZATION & DEMOBILIZATION	1.00	LOT	303.00	303	30	ZZ	18.70	561	864
TOTAL DIRECT					6371				11764	18135
TAX				8.25%	526					526

D & D BLDG 3506

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	SUBTOTAL				6897				11764	18661
	TOTAL INDIRECT			20.00%	1379			20.00%	2353	3732
	OVERHEAD			8.70%	720			8.70%	1228	1948
	TOTAL				8996	629			15345	24341

D & D BLDG 3506

WBS ..... 1.1.2.5 CLOSURE, 3506
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... S1 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.2.5 3506, CLOSURE
 Discipline ..... C Civil and Site
 B/M Title ..... CLOSURE, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.7 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED UNLESS NOTED OTHERWISE										
SOIL & LINER COVER										
1	60 MIL HDPE LINER (LEVEL D)	158.00	SY	6.30	995	9	L	15.45	139	1134
2	EXCAVATE @ BORROW AREA (3 CY BACKHOE)	146.00	CY	1.33	194	1	OP	22.30	22	216
3	HAUL & DUMP (10 MILE ROUND TRIP W/ 12 CY DUMP)	175.00	CY	3.18	557	29	TD	16.80	487	1044
4	BACKFILL, SPREAD & COMPACT (75 HP FE LOADER & VIBRATING ROLLER)	175.00	CY	1.84	322	14	OP	22.30	312	634
5	SEED & MULCH	158.00	SY	0.39	62	4	L	15.45	62	124
****	SUBTOTAL ****				2130	57			1022	3152
MISC										
6	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	9.00	HR	0.00	0	1	L	15.45	15	15
****	SUBTOTAL ****				0	1			15	15
7	MOBILIZATION & DEMOBILIZATION	1.00	LOT	107.00	107	3	ZZ	17.88	54	161
TOTAL DIRECT					2237				1091	3328
TAX				8.25%	185					185
SUBTOTAL					2422				1091	3513
TOTAL INDIRECT				20.00%	484			20.00%	218	702
OVERHEAD				8.70%	253			8.70%	114	367
TOTAL					3159	61			1423	4582

D & D BLDG 3506

WBS ..... 1.1.3.1 TREATMENT, 3506
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C1.3.1 3506, TREATMENT
 Discipline ..... C Civil and Site
 B/M Title ..... TREATMENT, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.8 0
 Expiration Date: 04/20/94

=====										
ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	

ASSUMED NO TREATED MATERIALS FOR THIS BUILDING										

TOTAL DIRECT		0				0				0
TAX		8.25%				0				0

SUBTOTAL		0				0				0
TOTAL INDIRECT		20.00%				20.00%				0
OVERHEAD		8.70%				8.70%				0

TOTAL		0				0		0		0
=====										

D & D BLDG 3506

WBS ..... 1.1.3.2 PACK/TRANSF TO MMES WM, 3506
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 51 FIXED PRICE CONSTRUCTION

Contracting Type .. G
 B/M Attribute ..... C1.3.2 3506, PACK/TRANSF TO MMES WM

Discipline ..... C Civil and Site
 B/M Title ..... PACK/TRANSF TO MMES WM, 3506
 Receiving Site X-10

Standard Value File ORER193.val

Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.9 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED										
1	LOAD & TRANSPORT B-25 & B-12 BOXES TO DISPOSAL FACILITY (ASSUME 3 PER LOAD, 1 HR ROUND TRIP)	58.00	EA	8.00	464	10	OP	22.30	223	687
2	WBOC	58.00	EA	0.00	0	19	L	15.45	294	294
3	WBOC	58.00	EA	10.00	580	29	TD	16.80	487	1067
4	LOAD & TRANSPORT DRUMS (LIQUIDS) TO PMTF (ASSUME 1 HR ROUND TRIP)	10.00	EA	0.54	5	1	OP	22.30	22	27
5	WBOC	10.00	EA	0.00	0	1	L	15.45	15	15
6	WBOC	10.00	EA	3.00	30	2	TD	16.80	34	64
****	SUBTOTAL ****				1079	62			1075	2154
7	MOBILIZATION & DEMOBILIZATION	1.00	LOT	54.00	54	3	ZZ	17.34	52	106

TOTAL DIRECT					1133				1127	2260
TAX				8.25%	93					93

SUBTOTAL					1226				1127	2353
TOTAL INDIRECT				20.00%	245			20.00%	225	470
OVERHEAD				8.70%	128			8.70%	118	246

TOTAL					1599	65			1470	3069

WBS ..... 1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 92 WASTE MANAGEMENT
 Contracting Type .. G
 B/M Attribute ..... C1.3.3A DISPOSAL LIQUID WASTE, 3506
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL LIQUID WASTE, 3506
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.10 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	TREATMENT/DISPOSAL OF LIQUIDS @ PWTF	500.00	GAL	0.11	55	0		0.00	0	55
TOTAL DIRECT					55				0	55
OVERHEAD				46.01%	25			46.01%	0	25
TOTAL					80	0			0	80

D & D BLDG 3506

WBS ..... 1.1.3.3 DISPOSAL OF BLDG 3506 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 99 SPECIAL
 Contracting Type .. G
 B/M Attribute ..... C1.3.3B DISPOSAL OF BLDG 3506 MAT'L
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL OF BLDG 3506 MAT'L
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3506.est 11-10-93 4:45p

Building/Area 3506
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.11 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	DISPOSAL OF SOLID MATERIALS IN B-25 & B12 BOXES	7519.00	CF	85.00	639115	0		0.00	0	639115
TOTAL DIRECT					639115				0	639115
OVERHEAD										0
TOTAL					639115	0			0	639115

D & D BLDG 3506

Disciplines
 C: Civil and Site
 X: Engineering
 O: Other

Total Labor Hours: 3885

COST SUMMARY

	MATERIAL	LABOR	TOTAL COST
Line Item Cost	758460	162671	921131
Total Tax	9671	0	9671
SUBTOTAL	768131	162671	930802
Total Indirect	20999	13181	34180
SUBTOTAL	789130	175852	964982
Overhead	47052	25386	72438
SUBTOTAL	836182	201238	1037420
Contingency	250539	60229	310768
SUBTOTAL	1086721	261467	1348188
Market Adjustment			0
TOTAL			1348188

Appendix C.

**Cost Estimate for
Complete Dismantlement of Building 3515**

SUMMARY REPORT

Project Number: 930031.1
D & D BLDG 3515

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant

Approved by:

<u>Heary Keneson</u>	<u>11-12-93</u>
Project Estimator	Date
<u>Yoshi Lin for Dan Dudek</u>	<u>11/10/93</u>
Estimating Manager	Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3515.est 11/10/93
SCHEDULE FILE: 3515
REPORT FILE : D:\AES52C\X10\3515s.out 11/10/93 16:54:27

D & D BLDG 3515

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.2.1.1 PROJECT INTEGRATION, 3515						
49 MMES PROJECT SERVICES	0	131	131	0	136	136
90 ER DIVISION	4	84	88	4	86	90
TOTAL PROJECT INTEGRATION, 3515	4	215	219	4	222	226
1.2.1.2 TITLE I & II ENGINEERING, 3515						
18 A-E TITLE I & II ENGR.	0	121	121	0	122	122
48 MMES A-E SUPPORT	0	61	61	0	61	61
TOTAL TITLE I & II ENGINEERING, 3515	0	182	182	0	183	183
1.2.1.3 CONST MGMT & SUPPORT, 3515						
66 MK-F INDIRECTS ON F ²	105	0	105	110	0	110
67 MK-F DIRECTS ON FF	3	222	225	3	230	233
TOTAL CONST MGMT & SUPPORT, 3515	108	222	330	113	230	343
1.2.1.4 TITLE III ENGINEERING, 3515						
13 MMES TITLE III ENGR.	9	161	170	10	169	179
19 A-E TITLE III ENGR.	0	43	43	0	45	45
TOTAL TITLE III ENGINEERING, 3515	9	204	213	10	214	224
1.2.2 BUILDING 3515 D & D						
41 MMES FIELD MAINTENANCE	299	1	300	314	1	315
51 FIXED PRICE CONSTRUCTION	76	51	357	322	53	375
TOTAL BUILDING 3515 D & D	605	52	657	636	54	690
1.2.2.1 INITIAL CHARACTERIZATION, 3515						
51 FIXED PRICE CONSTRUCTION	6	24	30	6	25	31
TOTAL INITIAL CHARACTERIZATION, 3515	6	24	30	6	25	31

D & D BLDG 3515

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: WBS / Participant

	Unescalated			Escalated		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.2.2.2 EQUIPMENT REMOVAL, 3515						
51 FIXED PRICE CONSTRUCTION	113	154	267	118	161	279
TOTAL EQUIPMENT REMOVAL, 3515	113	154	267	118	161	279
1.2.2.3 DECONTAMINATION, 3515						
51 FIXED PRICE CONSTRUCTION	0	0	0	0	0	0
TOTAL DECONTAMINATION, 3515	0	0	0	0	0	0
1.2.2.4 DISMANTLE STRUCTURE, 3515						
51 FIXED PRICE CONSTRUCTION	48	90	138	51	95	146
TOTAL DISMANTLE STRUCTURE, 3515	48	90	138	51	95	146
1.2.2.5 CLOSURE, 3515						
51 FIXED PRICE CONSTRUCTION	6	3	9	6	3	9
TOTAL CLOSURE, 3515	6	3	9	6	3	9
1.2.3.1 TREATMENT, 3515						
51 FIXED PRICE CONSTRUCTION	0	0	0	0	0	0
TOTAL TREATMENT, 3515	0	0	0	0	0	0
1.2.3.2 PACK/TRANSF TO MMES WM, 3515						
51 FIXED PRICE CONSTRUCTION	2	2	4	2	2	4
TOTAL PACK/TRANSF TO MMES WM, 3515	2	2	4	2	2	4
1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L						
92 WASTE MANAGEMENT	0	0	0	0	0	0
99 SPECIAL	629	0	629	661	0	661
TOTAL DISPOSAL OF BLDG 3515 MAT'L	629	0	629	661	0	661

D & D BLDG 3515

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: WBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material	Labor	Total	Material	Labor	Total
	\$	\$	\$	\$	\$	\$
SUB - TOTAL	1530	1148	2678	1607	1189	2796
CONTINGENCY	503	393	896	529	408	937
GRAND TOTAL	2033	1541	3574	2136	1597	3733

DETAIL REPORT

Project Number: 930031.1
D & D BLDG 3515

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant
3. B/M Attribute

Approved by:

Geary Kenison
Project Estimator

11/12/93
Date

Yusufin Lim for Dan Dudak
Estimating Manager

11/12/93
Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3515.est 11/10/93
SCHEDULE FILE: 3515
REPORT FILE : D:\AES52C\X10\3515D.out 11/10/93 16:49:15

D & D BLDG 3515

Creation Date 08/18/93
Revision Number ... 0

Estimating Job Number .. 4225.420

Project Estimator.. G KENESON
WBS ..... 1.2.1.1 PROJECT INTEGRATION, 3515
Cost Code ..... 9100 PROJECT INTEGRATION
Participant ..... 49 MMES PROJECT SERVICES
Contracting Type .. G
B/M Attribute ..... X2.1.1B MMES PROJECT SERVICES
Discipline ..... X Engineering
B/M Title ..... MMES PROJECT SERVICES
Receiving Site X-10
Standard Value File ORER193.val
Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Project Engineer ..... SNEDAKER
Building/Area 3515
Plant Site X
Level of Estimate ..... P
Funding Type ..... EXPENSE
Source Site X-10
Discipline Estimator ... WGK
Quantity Take-Off By ... WGK
Trace Number X.1.2 0
Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES PROJECT SERVICES (8% OF CONST COSTS)	806.00	K\$	0.00	0	1173	XE	55.00	64515	64515
2	DIVISIONAL SUPPORT (5% OF CONST COST) INCLUDES IN, HP, HSEA,WM & ESD	806.00	K\$	0.00	0	733	XE	55.00	40315	40315
TOTAL DIRECT					0				104830	104830
OVERHEAD				46.01%	0			25.37%	26595	26595
TOTAL					0	1906			131425	131425

D & D BLDG 3515

WBS ..... 1.2.1.1 PROJECT INTEGRATION, 3515
 Cost Code ..... 9100 PROJECT INTEGRATION
 Participant ..... 90 ER DIVISION
 Contracting Type .. G
 B/M Attribute ..... X2.1.1A MMES PROJECT MANAGEMENT
 Discipline ..... X Engineering
 B/M Title ..... PROJECT MANAGEMENT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number X.1.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	PROJECT MANAGEMENT (1/2 FTE)	12.00	MO	0.00	0	1040	EV	55.00	57200	57200
2	MATERIALS & EXPENSES (5% OF LABOR)	12.00	MO	239.25	2871	0		0.00	0	2871
TOTAL DIRECT					2871				57200	60071
OVERHEAD				46.01%	1321			46.01%	26318	27639
TOTAL					4192	1040			83518	87710

D & D BLDG 3515

WBS ..... 1.2.1.2 TITLE I & II ENGINEERING, 3515
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 18 A-E TITLE I & II ENGR.
 Contracting Type .. G
 B/M Attribute ..... X2.1.2A A-E TITLE I & II
 Discipline ..... X Engineering
 B/M Title ..... A -E TITLE I & II
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.3 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	D & D DESIGN (15% OF CONST COSTS)	806.00	K\$	0.00	0	1511	ER	80.00	120880	120880
TOTAL DIRECT					0				120880	120880
OVERHEAD										0
TOTAL					0	1511			120880	120880

D & D BLDG 3515

WBS ..... 1.2.1.2 TITLE I & II ENGINEERING, 3515
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 48 MMES A-E SUPPORT
 Contracting Type .. G
 B/M Attribute ..... X2.1.2B MMES A-E SUPPORT
 Discipline ..... X Engineering
 B/M Title ..... MMES A-E SUPPORT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES A-E SUPPORT (6% OF CONST COST)	806.00	K\$	0.00	0	879	XE	55.00	48345	48345
TOTAL DIRECT					0				48345	48345
OVERHEAD				46.01%	0			25.37%	12265	12265
TOTAL					0	879			60610	60610

D & D BLDG 3515

WBS ..... 1.2.1.3 CONST MGMT & SUPPORT, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 66 MK-F INDIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 02.1.3A MK-F INDIRECTS ON FP
 Discipline ..... 0 Other
 B/M Title ..... MK-F INDIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... W GK
 Quantity Take-Off By ... W GK
 Trace Number 0.2.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F INDIRECTS ON FP (12% OF FP)	806.00	KS	120.00	96720	0		0.00	0	96720
TOTAL INDIRECT OVERHEAD				8.70%	8415			8.70%	0	8415
TOTAL					105135	0			0	105135

D & D BLDG 3515

WBS ..... 1.2.1.3 CONST MGMT & SUPPORT, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 67 MK-F DIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 02.1.3B MK-F DIRECTS ON FP
 Discipline ..... O Other
 B/M Title ..... MK-F DIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number 0.2.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F ADMIN SUPPORT	2080.00	HR	0.00	0	2080	MK	51.70	107536	107536
2	MK-F IH/HP SUPPORT	1380.00	HR	0.00	0	1380	MK	51.70	71346	71346
3	PICKUP TRUCK	1380.00	HR	1.75	2415	0		0.00	0	2415
TOTAL DIRECT					2415				178882	181297
TOTAL INDIRECT				14.00%	338			14.00%	25043	25381
OVERHEAD				8.70%	240			8.70%	17741	17981
TOTAL					2993	3460			221666	224659

D & D BLDG 3515

WBS ..... 1.2.1.4 TITLE III ENGINEERING, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 13 MMES TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X2.1.4A MMES TITLE III
 Discipline ..... X Engineering
 B/M Title ..... MMES TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AB852C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES TITLE III ENGINEERING (1-1/2 FTE)	9.00	MO	0.00	0	2340	XE	55.00	128700	128700
2	MATERIALS & EXPENSES (5% OF LABOR)	9.00	MO	715.00	6435	0		0.00	0	6435
TOTAL DIRECT					6435				128700	135135
OVERHEAD				46.01%	2961			25.37%	32651	35612
TOTAL					9396	2340			161351	170747

D & D BLDG 3515

WBS ..... 1.2.1.4 TITLE III ENGINEERING, 3515
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 19 A-E TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X2.1.4B A-E TITLE III
 Discipline ..... X Engineering
 B/M Title ..... A-E TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WCK
 Quantity Take-Off By ... WCK
 Trace Number X.1.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	A-E TITLE III ENGINEERING (1/2 FTE)	9.00	MO	0.00	0	780	0	55.00	42900	42900
TOTAL DIRECT					0	42900				42900
OVERHEAD										0
TOTAL					0	780			42900	42900

D & D BLDG 3515

WBS ..... 1.2.2 BUILDING 3515 D & D
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 41 MMES FIELD MAINTENANCE
 Contracting Type .. G
 B/M Attribute ..... C2.2A 3515, CONST SUPPORT, MMES FM
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, MMES FM
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
MISC										
1	BOUNDRY CONTROL STATION	1.00	LS	50000.00	50000	24	XE	37.69	905	50905
2	DRUMS FOR LIQUIDS	2.00	EA	40.00	80	0		0.00	0	80
3	B-25 ST BOXES (10,000 LB CAPACITY)	69.00	EA	362.00	24978	0		0.00	0	24978
4	2'6"X2'6"X5' BOXES WITH 2" STEEL SHIELDING	8.00	EA	4131.75	33054	0		0.00	0	33054
5	14"X14"X14" (1/2" THICK CS) CONTAINER FOR LEAD BRICKS	20.00	EA	185.81	3716	0		0.00	0	3716
MEDICAL/PPE										
6	WHOLE BODY COUNT (ENTRANCE, EXIT, & ANNUAL	16.00	EA	250.00	4000	0		0.00	0	4000
7	URINALYSIS (QUARTERLY)	40.00	EA	225.00	9000	0		0.00	0	9000
8	PPE (LEVEL C)	2112.00	HR	21.00	44352	0		0.00	0	44352
9	PPE (LEVEL D)	5483.00	HR	3.61	19794	0		0.00	0	19794
**** SUBTOTAL ****					188974	24			905	189879
TOTAL DIRECT					188974				905	189879
TAX					8.25%					15590
SUBTOTAL					204564				905	205469
OVERHEAD					46.01%			46.01%	416	94536
TOTAL					298684	24			1321	300005

D & D BLDG 3515

WBS ..... 1.2.2 BUILDING 3515 D & D
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2 3515, FPC CONST SUPPORT
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, FPC
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	HEALTH & SAFETY PLAN	1.00	LS	0.00	0	60	0	75.00	4500	4500
2	COMPREHENSIVE WORK PLAN	1.00	LS	0.00	0	75	0	75.00	5625	5625
****	SUBTOTAL ****				0	135			10125	10125
	MISC									
3	REMOTE MANIPULATORS	1.00	LS	100000.00	100000	0		0.00	0	100000
4	35 TON CRANE (RENTAL)	8.00	MO	6000.00	48000	0		0.00	0	48000
5	HEPA FILTER SYSTEM FOR USE DURING DEMO ACTIVITIES (INCLUDES MOB/DEMOS)	1.00	LS	25000.00	25000	0		0.00	0	25000
6	MISC TOOLS & EQUIP	1.00	LS	2500.00	2500	0		0.00	0	2500
7	HYD SHEARS, REMOTE OPERATED	1.00	LS	7500.00	7500	0		0.00	0	7500
8	TEMPORARY POWER	1.00	LS	4500.00	4500	80	E	22.95	1836	6336
9	OFFICE TRAILER	1.00	LS	5000.00	5000	0		0.00	0	5000
****	SUBTOTAL ****				192500	80			1836	194336
	TRAINING/PHYSICALS/ETC ASSUME 50% OF WORKERS PREVIOUSLY TRAINED									
10	40 HOUR SARA/OSHA TRAINING	8.00	EA	750.00	6000	320	0	25.00	8000	14000
11	8 HOUR SARA/OSHA REFRESHER TRAINING (ANNUAL)	8.00	EA	750.00	6000	320	0	25.00	8000	14000
12	SUBCONTRACTOR ORIENTATION, "GET" TRAINING (EVERY 2 YEARS)	8.00	EA	0.00	0	24	0	25.00	600	600
13	RAD WORKER TRAINING (EVERY 2 YEARS)	8.00	EA	250.00	2000	192	0	25.00	4800	6800
14	PHYSICAL EXAM (ENTRANCE, EXIT, & ANNUAL)	32.00	EA	300.00	9600	128	0	25.00	3200	12800

D & D 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
15	WHOLE BODY COUNT (ENTRANCE, EXIT, & ANNUAL)	16.00	EA	0.00	0	48	0	25.00	1200	1200
16	URINALYSIS (QUARTERLY)	40.00	EA	0.00	0	40	0	25.00	1000	1000
17	RESPIRATOR FIT (ANNUAL)	4.00	EA	105.00	420	4	0	25.00	100	520
18	DOSIMETERS (1 PER WORKER PER QTR)	36.00	EA	15.00	540	0		0.00	0	540
**** SUBTOTAL ****					24560	1076			26900	51460
TOTAL DIRECT					217060				38861	255921
TA					8.25%	17907				17907
SUBTOTAL					234967				38861	273828
TOTAL INDIRECT					20.00%	46993		20.00%	7772	54765
OVERHEAD					8.70%	24531		8.70%	4057	28588
TOTAL					306491	1291			50690	357181

D & D BLDG 3515

WBS ..... 1.2.2.1 INITIAL CHARACTERIZATION, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.1 3515, INITIAL CHARACTERIZATION
 Discipline ..... C Civil and Site
 B/M Title ..... INITIAL CHARACTERIZATION, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.3 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
TEMPORARY COVER & STAIRWAY										
1	BUILD TEMPORARY COVER ON ROOF	100.00	SF	15.00	1500	48	C	22.15	1063	2563
2	WBOC	100.00	SF	5.00	500	5	E	22.95	115	615
3	STAIRWAY SCAFFOLD	1.00	LS	1500.00	1500	24	C	22.15	532	2032
****	SUBTOTAL ****				3500	77			1710	5210
ROOF PENETRATIONS 4 FOR HEPA SYSTEM & 6 FOR MANIPULATORS										
4	CUT 10" DIA HOLE IN STAINLESS ROOF (LEVEL C)	10.00	EA	0.00	0	5	L	15.45	77	77
5	CORE DRILL 8" HOLE 2' DEPTH (LEVEL C)	10.00	EA	54.02	540	38	L	15.45	587	1127
****	SUBTOTAL ****				540	43			664	1204
HEPA SYSTEM										
6	SET UP HEPA FILTER SYSTEM (8 HRS LEVEL C)	1.00	LS	0.00	0	40	L	15.45	618	618
7	WBOC	1.00	LS	0.00	0	16	E	22.95	367	367
****	SUBTOTAL ****				0	56			985	985
MANIPULATORS										
8	SET UP CAMERA/DETECTOR REMOTE MANIPULATOR @ 1ST LOCATION ON ROOF	1.00	LS	0.00	0	36	RO	30.00	1080	1080
9	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
10	TEST MANIPULATOR	1.00	LS	0.00	0	16	RO	30.00	48	480
11	RELOCATE CAMERA/DETECTOR REMOTE MANIPULATOR TO 2ND LOCATION ON ROOF	1.00	LS	0.00	0	8	RO	30.00	240	240
****	SUBTOTAL ****				0	64			1889	1889
	CHARACTERIZATION									
12	INTERIOR SURVEY BY CAMERA & DETECTOR (REMOTE OPERATION)	3000.00	CF	0.00	0	364	RO	30.00	10920	10920
****	SUBTOTAL ****				0	364			10920	10920
	MISC									
13	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	51.00	HR	0.00	0	13	L	15.45	201	201
14	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	553.00	HR	0.00	0	55	O	26.80	1474	1474
****	SUBTOTAL ****				0	68			1675	1675
15	MOBILIZATION & DEMOBILIZATION	0.00		0.00	0	27	ZZ	26.55	717	717
TOTAL DIRECT					4040				18560	22600
TAX				8.25%	333					333
SUBTOTAL					4373				18560	22933
TOTAL INDIRECT				20.00%	875			20.00%	3712	4587
OVERHEAD				8.70%	457			8.70%	1938	2395
TOTAL					5705	699			24210	29915

D & D BLDG 3515

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2A 3515, SITE PREP
 Discipline ..... P Engineering Mechanics (Piping)
 B/M Title ..... SITE PREP, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number P.5.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED UNLESS OTHERWISE NOTED										
REROUTE EXISTING STEAM & AIR LINES										
PIPE SUPPORTS										
1	REMOVE EXISTING PIPE SUPPORTS (LEVEL D)	16.00	EA	0.00	0	32	PF	22.90	733	733
2	WBOC	16.00	EA	48.00	768	16	OP	22.30	357	1125
3	NEW 20' PIPE SUPPORT	2.00	EA	360.00	720	4	PF	22.90	92	812
4	WBOC	2.00	EA	48.00	96	2	OP	22.30	45	141
5	NEW 4' PIPE SUPPORT	13.00	EA	72.00	936	26	PF	22.90	595	1531
6	WBOC	2.00	EA	48.00	96	2	OP	22.30	45	141
****	SUBTOTAL ****				2616	82			1867	4483
AIR LINE										
7	CUT & REMOVE 4" CS AIR LINE (20' LONG PIECES) (LEVEL D)	140.00	LF	0.00	0	8	PF	22.90	183	183
8	WBOC	140.00	LF	1.39	195	4	OP	22.30	89	284
9	CAP EXISTING AIR LINE (LEVEL D)	1.00	EA	7.51	8	2	PF	22.90	46	54
10	CUT & PREP EXISTING LINE FOR TIE IN (LEVEL D)	1.00	EA	0.00	0	1	PF	22.90	23	23
11	4" SCH 40 CS PIPE	300.00	LF	6.71	2013	18	PF	22.90	412	2425
12	WBOC	300.00	LF	1.44	432	9	OP	22.30	201	633
13	4" TEE, BW ENDS (LEVEL D)	2.00	EA	35.63	71	11	PF	22.90	252	323
14	4" 90 DEG ELBOW, BW ENDS	6.00	EA	19.48	117	23	PF	22.90	527	644

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
15	CAP ONE END OF NEW TEE (WELD TIME INCLUDED IN TEE COST)	1.00	EA	7.51	8	0		0.00	0	8
****	SUBTOTAL ****				2844	76			1733	4577
	STEAM LINE									
16	REMOVE PIPE INSULATION & PLACE IN ONE B-25 BOX (LEVEL C)	180.00	LF	0.00	0	36	AW	25.45	916	916
17	CUT & REMOVE 8" CS STEAM LINE (20' LONG PIECES) (LEVEL D)	180.00	LF	0.00	0	20	PF	22.90	458	458
18	WBOC	180.00	LF	2.64	475	10	OP	22.30	223	698
19	CAP EXISTING STEAM LINE (LEVEL D)	1.00	EA	20.43	20	4	PF	22.90	92	112
20	CUT & PREP EXISTING LINE FOR TIE IN (LEVEL D)	1.00	EA	0.00	0	1	PF	22.90	23	23
21	8" SCH 40 CS PIPE	300.00	LF	17.16	5148	33	PF	22.90	756	5904
22	WBOC	300.00	LF	2.64	792	17	OP	22.30	379	1171
23	8" TEE, BW ENDS (LEVEL D)	2.00	EA	121.13	242	22	PF	22.90	504	746
24	8" 90 DEG ELBOW, BW ENDS	6.00	EA	87.40	524	43	PF	22.90	985	1509
25	CAP ONE END OF NEW TEE (WELD TIME INCLUDED IN TEE COST)	1.00	EA	20.43	20	0		0.00	0	20
26	2" FIBERGLASS INSULATION (LEVEL C)	310.00	LF	8.25	2558	62	AW	25.45	1578	4136
27	.016" ALUM JACKET	1071.00	SF	0.54	578	142	AW	25.45	3614	4192
****	SUBTOTAL ****				10357	390			9528	19885
	MISC									
28	WELDING MACHINE	80.00	HR	7.50	600	0		0.00	0	600
29	FIRE WATCH (50% LEVEL D)	100.00	HR	0.00	0	100	L	15.45	1545	1545
30	PIPE CLEANING	1.00	LS	0.00	0	12	PF	22.90	275	275
31	PIPE TESTING	12.00	HR	35.00	420	12	PF	22.90	275	695
32	PIPE IDENTIFICATION	12.00	EA	6.00	72	3	PF	22.90	69	141
33	AERIAL WORK PLATFORM	40.00	HR	31.25	1250	0		0.00	0	1250

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
34	TRUCK & TRAILER	16.00	HR	45.00	720	16	TD	16.80	269	989
****	SUBTOTAL ****				3062	143			2433	5495
35	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	240.00	HR	0.00	0	60	AW	25.45	1527	1527
36	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	151.00	HR	0.00	0	15	PF	22.90	344	344
****	SUBTOTAL ****				0	75			1871	1871
37	MOBILIZATION & DEMOBILIZATION	1.00	LOT	378.00	378	15	ZZ	22.76	341	719
TOTAL DIRECT					19257				17773	37030
TAX				8.25%	1589					1589
SUBTOTAL					20846				17773	38619
TOTAL INDIRECT				20.00%	4169			20.00%	3555	7724
OVERHEAD				8.70%	2176			8.70%	1856	4032
TOTAL					27191	781			23184	50375

D & D BLDG 3515

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2A 3515, SITE PREP
 Discipline ..... E Electrical
 B/M Title ..... SITE PREP, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number E.4.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
PPE NOT REQUIRED										
REROUTE EXISTING POWER POLES										
1	40' CREOSOTED WOOD POLE	2.00	EA	515.00	1030	18	E	22.95	413	1443
2	RELOCATE TELEPHONE & ELECTRIC LINES & EQUIPMENT TO NEW POLES	2.00	EA	400.00	800	48	E	22.95	1102	1902
3	ALLOWANCE FOR LINE/AUGER TRUCK	19.00	HR	29.00	551	0		0.00	0	551
****	SUBTOTAL	****			2381	66			1515	3896
4	MOBILIZATION & DEMOBILIZATION	1.00	LOT	238.00	238	7	Z2	22.95	161	399
TOTAL DIRECT					2619				1676	4295
TAX					8.25%	216				216
SUBTOTAL					2835				1676	4511
TOTAL INDIRECT					20.00%	567				902
OVERHEAD					8.70%	296				471
TOTAL					3698	73				5884

D & D BLDG 3515

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2A 3515, SITE PREP
 Discipline ..... C Civil and Site
 B/M Title ..... SITE PREP, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
PIPE SUPPORT FOUNDATIONS										
1	EXCAVATE FOR FOOTING (15 EA) (NO PPE REQUIRED)	25.00	CY	18.73	468	8	OP	22.30	178	646
2	CONCRETE FOOTING (NO PPE REQUIRED)	5.00	CY	75.90	380	13	O	20.00	260	640
3	ANCHOR BOLTS (NO PPE REQUIRED)	60.00	EA	1.25	75	6	C	22.15	133	208
4	BACKFILL (NO PPE REQUIRED)	20.00	CY	14.06	281	5	OP	22.30	112	393
****	SUBTOTAL ****				1204	32			683	1887
STAGING & ACCESS AREA										
5	REGRADE	205.00	SY	0.62	127	3	OP	22.30	67	194
6	SPREAD & COMPACT CRUSHED STONE (75 HP FE LOADER & VIBRATING ROLLER)	91.00	CY	30.67	2791	8	OP	22.30	178	2969
7	GRADE CHECKER	1.00	LS	0.00	0	8	OP	22.30	178	178
****	SUBTOTAL ****				2918	19			423	3341
SHIELDED ACCESS STRUCTURE										
8	PURCHASE FABRICATED SHEILDING STRUCTURE & ACCESS DOORS	1.00	LS	40700.00	40700	0		0.00	0	40700
9	INSTALL ACCESS DOOR FRAME (LEVEL C)	2.00	EA	0.00	0	16	1W	23.65	378	378
10	WBOC (CRANE)	2.00	EA	0.00	0	2	OP	22.30	45	45
11	SET UP STRUCTURE & ACCESS DOORS	1.00	LS	0.00	0	170	1W	23.65	4021	4021
12	WBOC (CRANE)	1.00	LS	0.00	0	85	OP	22.30	1895	1895

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
****	SUBTOTAL ****				40700	273			6339	47039
	MISC									
13	DECON EQUIPMENT (LEVEL C)	1.00	LS	200.00	200	4	L	15.45	62	262
14	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	20.00	HR	0.00	0	5	0	23.00	115	115
15	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	272.00	HR	0.00	0	27	0	23.69	640	640
****	SUBTOTAL ****				200	36			817	1017
16	MOBILIZATION & DEMOBILIZATION	1.00	LOT	900.00	900	36	22	22.95	826	1726
TOTAL DIRECT					45922				9088	55010
TAX				8.25%	3789					3789
SUBTOTAL					49711				9088	58799
TOTAL INDIRECT				20.00%	9942			20.00%	1818	11760
OVERHEAD				8.70%	5190			8.70%	949	6139
TOTAL					64843	396			11855	76698

D & D BLDG 3515

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.8 3515, EQUIP REMOVAL
 Discipline ..... C Civil and Site
 B/M Title ..... EQUIPMENT REMOVAL, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AESS2C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE									
	MANIPULATORS									
1	SET UP REMAINING REMOTE MANIPULATORS @ 1ST LOCATION ON ROOF	1.00	LS	0.00	0	60	RO	30.00	1800	1800
2	WBOC (CRANE)	1.00	LS	0.00	0	6	OP	22.30	134	134
3	TEST MANIPULATORS	1.00	LS	0.00	0	32	RO	30.00	960	960
4	RELOCATE REMOTE MANIPULATORS TO 2ND LOCATION ON ROOF	1.00	LS	0.00	0	16	RO	30.00	480	480
****	SUBTOTAL ****				0	114			3374	3374
	ACCESS HOLES CUT ACCESS HOLES IN WALL W/ DIAMOND WIRE SAW									
5	DIAMOND WIRE	20.00	LF	140.00	2800	0		0.00	0	2800
6	WIRE SAW RENTAL (INCLUDES 25% DOWN TIME)	849.00	HR	6.73	5714	0		0.00	0	5714
7	DRILL & BITS	1.00	LS	750.00	750	0		0.00	0	750
8	DRILL HOLES FOR WIRE SAW & LIFTING EYES (LEVEL C)	28.00	LF	0.00	0	7	L	15.45	108	108
9	SETUP WIRE SAW (LEVEL C)	2.00	LS	0.00	0	8	L	15.45	124	124
10	WBOC (MANIPULATOR OPERATORS)	2.00	LS	0.00	0	32	RO	30.00	960	960
11	CUT CONCRETE (SF OF CUT) (LEVEL C)	80.50	SF	0.00	0	16	L	15.45	247	247
12	REMOVE CONCRETE BLOCK & PLACE IN B-25 BOX PLACE IN B-25 BOX	2.00	EA	0.00	0	2	OP	22.30	45	45

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
13	WBOC (LEVEL C)	2.00	EA	0.00	0	8	L	15.45	124	124
14	PLACE ROLLER CONVEYOR IN OPENING & ANCHOR TO CONCRETE SLAB (LEVEL C)	2.00	EA	1200.00	2400	8	1W	23.65	189	2589
15	WBOC	2.00	EA	0.00	0	4	OP	22.30	89	89
16	WBOC (REMOTE MANIPULATOR CREW)	2.00	EA	0.00	0	16	RO	30.00	480	480
****	SUBTOTAL ****				11664	101			2366	14030
	BUILDING INTERNALS DEMO MATERIALS WILL BE CUT UP & PLACED IN SHIELDED B-25 BOXES BY 4 MAN REMOTE OPERATION CREW **LEAD BRICKS**									
17	PLACE CONTAINERS INSIDE BUILDING (CRANE)	8.00	EA	0.00	0	1	OP	22.30	22	22
18	WBOC	8.00	EA	0.00	0	1	L	15.45	15	15
19	PLACE LEAD BRICKS IN CONTAINER (8 CONTAINERS)	8.00	CF	0.00	0	115	RO	30.00	3450	3450
20	MIX EPOXY MIXTURE FOR CONTAINER VOID SPACES	8.00	EA	84.00	672	1	L	15.45	15	687
21	PLACE EPOXY MIXTURE INSIDE BUILDING (CRANE)	8.00	EA	0.00	0	1	OP	22.30	22	22
22	WBOC	8.00	EA	0.00	0	1	L	15.45	15	15
23	FILL VOID SPACES IN CONTAINERS WITH EPOXY (.42 CF PER CONTAINER)	8.00	EA	0.00	0	5	RO	30.00	150	150
24	REMOVE CONTAINER FROM BUILDING (CRANE)	8.00	EA	0.00	0	1	OP	22.30	22	22
25	WBOC (LEVEL C)	8.00	EA	0.00	0	1	L	15.45	15	15
26	PLACE COVER ON CONTAINER (LEVEL C)	8.00	EA	0.00	0	16	L	15.45	247	247
****	SUBTOTAL ****				672	143			3973	4645
	LIQUIDS									
27	SET UP & ATTACH PUMP	5.00	LS	0.00	0	60	RO	30.00	1800	1800
28	REMOVE & DRUM LIQUIDS	100.00	GAL	0.00	0	8	RO	30.00	240	240

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
29	DRUM HANDLING (LEVEL C)	2.00	EA	0.00	0	2	L	15.45	31	31
30	SPILL PROTECTION	1.00	LS	50.00	50	4	L	15.45	62	112
****	SUBTOTAL ****				50	74			2133	2183
	***HVAC** REMOVE & CUT UP									
31	HVAC EQUIPMENT	0.80	TN	0.00	0	166	RO	30.00	4980	4980
****	SUBTOTAL ****				0	166			4980	4980
	***PIPING** REMOVE & CUT UP									
32	1-1/2" TO 2" PIPING	330.00	LF	0.00	0	343	RO	30.00	10290	10290
33	1/2" TO 3/4" TUBING	600.00	LF	0.00	0	192	RO	30.00	5760	5760
34	3/8" TO 1/2" ROD STOCK (SS)	880.00	LF	0.00	0	451	RO	30.00	13530	13530
35	TANKS (REMOVED IN 1 PIECE)	5.00	EA	0.00	0	50	RO	30.00	1500	1500
36	GLASS FLASK	11.00	EA	0.00	0	44	RO	30.00	1320	1320
37	MISC PROCESS EQUIPMENT & SUPPORT STEEL	0.75	TN	0.00	0	156	RO	30.00	4680	4680
38	WATER HEATER	1.00	EA	0.00	0	32	RO	30.00	960	960
****	SUBTOTAL ****				0	1268			38040	38040
	***ELECTRICAL** REMOVE & CUT UP									
39	100 AMP SAFETY SWITCH	1.00	EA	0.00	0	20	RO	30.00	600	600
40	100 AMP LIGHTING PANEL	1.00	EA	0.00	0	32	RO	30.00	960	960
41	VAPOR PROOF LIGHTS	8.00	EA	0.00	0	96	RO	30.00	2880	2880
42	120V RECEPTACLE & BOX	4.00	EA	0.00	0	8	RO	30.00	240	240
43	TOGGLE SWITCH & BOX	4.00	EA	0.00	0	8	RO	30.00	240	240
44	TELEPHONE & BOX	1.00	EA	0.00	0	2	RO	30.00	60	60
45	PAR-36 LAMP & SOCKET	6.00	EA	0.00	0	72	RO	30.00	2160	2160

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
46	1" & 3/4" CONDUIT	1.00	LOT	0.00	0	104	RO	30.00	3120	3120
47	CABLE	1.00	LOT	0.00	0	104	RO	30.00	3120	3120
****	SUBTOTAL ****				0	446			13380	13380
	BOX CUT UP MAT'L									
48	PLACE SHIELDED BOX IN BUILDING (CRANE)	8.00	EA	0.00	0	8	OP	22.30	178	178
49	WBOC	8.00	EA	0.00	0	16	L	15.45	247	247
50	WBOC (REMOTE MANIPULATOR CREW)	8.00	EA	0.00	0	32	RO	30.00	960	960
51	PLACE MATERIAL IN SHIELDED BOX	8.00	EA	0.00	0	256	RO	30.00	7680	7680
52	REMOVE SHIELDED BOX FROM BUILDING	8.00	EA	0.00	0	8	OP	22.30	178	178
53	WBOC (LEVEL C)	8.00	EA	0.00	0	16	L	15.45	247	247
54	WBOC (REMOTE MANIPULATOR CREW)	8.00	EA	0.00	0	32	RO	30.00	960	960
55	PLACE COVER ON SHIELDED BOX (CRANE)	8.00	EA	0.00	0	8	OP	22.30	178	178
56	WBOC (LEVEL C)	8.00	EA	0.00	0	32	L	15.45	494	494
****	SUBTOTAL ****				0	408			11122	11122
	MISC									
57	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	38.00	HR	0.00	0	10	L	15.45	155	155
58	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	2753.00	HR	0.00	0	275	O	29.60	8140	8140
****	SUBTOTAL ****				0	285			8295	8295
59	MOBILIZATION & DEMOBILIZATION	0.00		0.00	0	60	ZZ	29.17	1750	1750
TOTAL DIRECT					12386				89413	101799
TAX				8.25%	1022					1022
SUBTOTAL					13408				89413	102821
TOTAL INDIRECT				20.00%	2682			20.00%	17883	20565
OVERHEAD				8.70%	1400			8.70%	9335	10735
TOTAL					17490	3065			116631	134121

D & D BLDG 3515

WBS ..... 1.2.2.3 DECONTAMINATION, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.3 3515, DECONTAMINATION
 Discipline ..... C Civil and Site
 B/M Title ..... DECONTAMINATION, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	ASSUMED NO DECONTAMINATION EFFORT FOR THIS BUILDING									
	TOTAL DIRECT				0				0	0
	TAX			8.25%	0					0
	SUBTOTAL				0				0	0
	TOTAL INDIRECT			20.00%	0			20.00%	0	0
	OVERHEAD			8.70%	0			8.70%	0	0
	TOTAL				0	0			0	0

D & D BLDG 3515

WBS ..... 1.2.2.4 DISMANTLE STRUCTURE, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.4 3515, DISMANTLE STRUCTURE
 Discipline ..... C Civil and Site
 B/M Title ..... DISMANTLE STRUCTURE, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WCK
 Quantity Take-Off By ...
 Trace Number C.3.7 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
***SHIELDING STRUCTURE										
1	REMOVE SHIELDING STRUCTURE & ACCESS DOORS & LOAD ON TRUCK FOR TRANSPORT TO ORNL STORAGE AREA	37.80	TN	0.00	0	47	1W	23.65	1112	1112
2	WBOC (CRANE)	37.80	TN	0.00	0	24	OP	22.30	535	535
3	WBOC (PPE NOT REQUIRED)	37.80	TN	36.25	1370	24	TD	16.80	403	1773
4	TRANSPORT TO ORNL STORAGE AREA (PPE NOT REQUIRED)	37.80	TN	4.58	173	3	TD	16.80	50	223
5	UNLOAD SHIELDING STRUCTURE & ACCESS DOORS @ ORNL STORAGE AREA	37.80	TN	0.00	0	12	1W	23.65	284	284
6	WBOC (CRANE) (PPE NOT REQUIRED)	37.80	TN	0.00	0	6	OP	22.30	134	134
7	WBOC (PPE NOT REQUIRED)	37.80	TN	9.22	349	6	TD	16.80	101	450
****	SUBTOTAL ****				1892	122			2619	4511
DEMO STRUCTURE										
8	REMOVE STAINLESS STEEL ROOF, CUT UP & PLACE IN B-25 BOXES (LEVEL C)	2.50	TN	0.00	0	20	1W	23.65	473	473
9	WBOC (LEVEL C)	2.50	TN	0.00	0	20	L	15.45	309	309
****	SUBTOTAL ****				0	40			782	782
RELOCATE MANIPULATORS										
10	REMOVE REMOTE MANIPULATORS AFTER 50% OF ROOF IS REMOVED	1.00	LS	0.00	0	16	RO	30.00	480	480
11	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
12	SET UP REMOTE MANIPULATORS ON BUILDING SLAB	1.00	LS	0.00	0	36	RD	30.00	1080	1080
13	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89
14	TEST MANIPULATORS	1.00	LS	0.00	0	32	RD	30.00	960	960
15	REMOVE REMOTE MANIPULATORS AFTER WALLS ARE REMOVED	1.00	LS	0.00	0	16	RD	30.00	480	480
16	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89
17	COVER MANIPULATORS IN PLASTIC	1.00	LS	25.00	25	8	L	15.45	124	149
18	LOAD & TRANSPORT MANIPULATORS TO ORNL STORAGE FACILITY (PPE NOT REQUIRED)	1.00	LS	21.60	22	2	OP	22.30	45	67
19	WBOC (PPE NOT REQUIRED)	1.00	LS	0.00	0	4	L	15.45	62	62
20	WBOC (PPE NOT REQUIRED)	1.00	LS	60.00	60	3	TD	16.80	50	110
21	UNLOAD MANIPULATORS @ ORNL STORAGE FACILITY (PPE NOT REQUIRED)	1.00	LS	10.80	11	1	OP	22.30	22	33
22	WBOC (PPE NOT REQUIRED)	1.00	LS	0.00	0	2	L	15.45	31	31
23	WBOC (PPE NOT REQUIRED)	1.00	LS	20.00	20	1	TD	16.80	17	37
****	SUBTOTAL ****				138	133			3618	3756
	CONCRETE WALLS & ROOF									
24	DIAMOND WIRE	120.00	LF	140.00	16800	0		0.00	0	16800
25	WIRE SAW RENTAL (INCLUDES 25% DOWN TIME)	488.00	HR	6.73	3284	0		0.00	0	3284
26	DRILL & BITS	1.00	LS	1500.00	1500	0		0.00	0	1500
27	DRILL HOLES FOR WIRE SAW & LIFTING EYES (LEVEL C)	436.00	LF	0.00	0	109	L	15.45	1684	1684
28	SETUP WIRE SAW (LEVEL C)	67.00	LS	0.00	0	268	L	15.45	4141	4141
29	WBOC (MANIPULATOR OPERATORS)	67.00	LS	0.00	0	804	RD	30.00	24120	24120
30	CUT CONCRETE (SF OF CUT) (LEVEL C)	2013.00	SF	0.00	0	403	L	15.45	6226	6226
****	SUBTOTAL ****				21584	1584			36171	57755

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
CONCRETE SLAB										
31	CONCRETE SAW RENTAL (54") (INCLUDES 25% DOWN TIME)	101.00	HR	7.31	738	0		0.00	0	738
32	SAW BLADES (54" & 24")	1.00	LS	5950.00	5950	0		0.00	0	5950
33	SETUP CONCRETE SAW (LEVEL C)	12.00	LS	0.00	0	96	L	15.45	1483	1483
34	CUT CONCRETE (8 PASSES REQUIRED) (LEVEL C)	323.00	LF	0.00	0	65	L	15.45	1004	1004
35	DRILL HOLES FOR WIRE SAW & LIFTING EYES (LEVEL C)	80.00	LF	0.00	0	20	L	15.45	309	309
****	SUBTOTAL ****				6688	181			2796	9484
PACKAGE CONCRETE BLOCKS										
36	LIFTING EYES	1.00	LS	750.00	750	0		0.00	0	750
37	INSTALL LIFTING EYE FOR CONCRETE PIECES (LEVEL C)	252.00	EA	0.00	0	38	L	15.45	587	587
38	PLACE CONCRETE PIECES INTO B-25 BOXES FOR DISPOSAL (68 BOXES REQUIRED)	126.00	PC	12.00	1512	32	OP	22.30	714	2226
39	WBOC (LEVEL C)	126.00	PC	0.00	0	63	L	15.45	973	973
40	PLACE COVER ON BOX	68.00	EA	0.00	0	34	OP	22.30	758	758
41	WBOC (LEVEL C)	68.00	EA	0.00	0	204	L	15.45	3152	3152
****	SUBTOTAL ****				2262	371			6184	8446
LEAD BRICKS										
42	PLACE LEAD BRICKS IN CONTAINER (MANIPULATOR OPERATORS)	12.00	CF	0.00	0	173	RO	30.00	5190	5190
43	MIX EPOXY MIXTURE FOR CONTAINER VOID SPACES (.42 CF PER CONTAINER)	12.00	EA	84.00	1008	2	L	15.45	31	1039
44	FILL VOID SPACES IN CONTAINERS WITH EPOXY (MANIPULATOR OPERATORS)	12.00	EA	0.00	0	8	RO	30.00	240	240
45	PLACE COVER ON CONTAINER (LEVEL C)	12.00	EA	0.00	0	24	L	15.45	371	371
****	SUBTOTAL ****				1008	207			5832	6840

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
MISC										
46	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	1330.00	HR	0.00	0	333	0	15.83	5271	5271
47	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	1256.00	HR	0.00	0	126	0	29.71	3743	3743
48	MOBILIZATION & DEMOBILIZATION	1.00	LOT	671.00	671	93	22	21.64	2012	2683
TOTAL DIRECT		34243				69028				103271
TAX		8.25% 2825								2825
SUBTOTAL		37068				69028				106096
TOTAL INDIRECT		20.00% 7414				20.00% 13806				21220
OVERHEAD		8.70% 3870				8.70% 7207				11077
TOTAL		48352				3190	90041			138393

D & D BLDG 3515

WBS ..... 1.2.2.5 CLOSURE, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.5 3515, CLOSURE
 Discipline ..... C Civil and Site
 B/M Title ..... CLOSURE, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... W GK
 Quantity Take-Off By ...
 Trace Number C.3.8 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED UNLESS NOTED OTHERWISE										
SOIL & LINER COVER										
1	60 MIL HDPE LINER (LEVEL D)	189.00	SY	6.30	1191	11	L	15.45	170	1361
2	EXCAVATE @ BORROW AREA (3 CY BACKHOE)	333.33	CY	1.33	443	3	OP	22.30	67	510
3	HAUL & DUMP (10 MILE ROUND TRIP W/ 12 CY DUMP)	400.00	CY	3.18	1272	65	TD	16.80	1092	2364
4	BACKFILL, SPREAD & COMPACT (75 HP FE LOADER & VIBRATING ROLLER)	400.00	CY	1.84	736	32	OP	22.30	714	1450
5	SEED & MULCH	189.00	SY	0.39	74	5	L	15.45	77	151
6	SILT FENCE	200.00	LF	1.10	220	4	L	15.45	62	282
****	SUBTOTAL ****				3936	120			2182	6118
MISC										
7	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	11.00	HR	0.00	0	1	L	15.45	15	15
8	MOBILIZATION & DEMOBILIZATION	1.00	LOT	394.00	394	12	ZZ	18.16	218	612
TOTAL DIRECT					4330				2415	6745
TAX				8.25%	357					357
SUBTOTAL					4687				2415	7102
TOTAL INDIRECT				20.00%	937			20.00%	483	1420
OVERHEAD				8.70%	489			8.70%	252	741
TOTAL					6113	133			3150	9263

D & D BLDG 3515

WBS ..... 1.2.3.1 TREATMENT, 3515

Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL

Participant ..... 51 FIXED PRICE CONSTRUCTION

Contracting Type .. G

B/M Attribute ..... C2.3.1 3515, TREATMENT

Discipline ..... C Civil and Site

B/M Title ..... TREATMENT, 3515

Receiving Site X-10

Standard Value File ORER193.val

Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515

Plant Site X

Level of Estimate ..... P

Funding Type ..... EXPENSE

Source Site X-10

Discipline Estimator ... WGK

Quantity Take-Off By ...

Trace Number C.3.9 0

Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	ASSUMED NO TREATED MATERIALS FOR THIS BUILDING									
	TOTAL DIRECT				0				0	0
	TAX			8.25%	0					0
	SUBTOTAL				0				0	0
	TOTAL INDIRECT			20.00%	0			20.00%	0	0
	OVERHEAD			8.70%	0			8.70%	0	0
	TOTAL				0	0			0	0

D & D BLDG 3515

WBS ..... 1.2.3.2 PACK/TRANSF TO MMES WM, 3515
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.3.2 3515, PACK/TRANSF TO MMES WM
 Discipline ..... C Civil and Site
 B/M Title ..... PACK/TRANSF TO MMES WM, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AESS2C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WCK
 Quantity Take-Off By ...
 Trace Number C.3.10 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED										
1	LOAD & TRANSPORT CONTAINERS OF LEAD BRICKS TO MMES WM (ASSUME 2 LOADS, 1 HR ROUND TRIP)	20.00	EA	0.86	17	2	OP	22.30	45	62
2	WBOC	20.00	EA	0.00	0	3	L	15.45	46	46
3	WBOC	20.00	EA	2.40	48	2	TD	16.80	34	82
4	LOAD & TRANSPORT SHIELDED BOXES TO DISPOSAL FACILITY (ASSUME 3 PER LOAD, 1 HR ROUND TRIP)	8.00	EA	8.00	64	1	OP	22.30	22	86
5	WBOC	8.00	EA	0.00	0	3	L	15.45	46	46
6	WBOC	8.00	EA	10.00	80	4	TD	16.80	67	147
7	LOAD & TRANSPORT B-25 BOXES (ASBESTOS & CONCRETE) TO DISP FAC (ASSUME 3 PER LOAD, 1 HR ROUND TRIP)	69.00	EA	8.00	552	12	OP	22.30	268	820
8	WBOC	69.00	EA	0.00	0	23	L	15.45	355	355
9	WBOC	69.00	EA	10.00	690	35	TD	16.80	588	1278
10	LOAD & TRANSPORT DRUMS (LIQUIDS) TO PWTF (ASSUME 1 HR ROUND TRIP)	2.00	EA	0.54	1	1	OP	22.30	22	23
11	WBOC	2.00	EA	0.00	0	1	L	15.45	15	15
12	WBOC	2.00	EA	10.00	20	1	TD	16.80	17	37
****	SUBTOTAL ****				1472	88			1525	2997
13	MOBILIZATION & DEMOBILIZATION	1.00	LOT	147.00	147	9	ZZ	17.33	156	303
TOTAL DIRECT					1619				1681	3300
TAX				8.25%	134					134

D & D BLDG 3515

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	SUBTOTAL				1753				1681	3434
	TOTAL INDIRECT			20.00%	351			20.00%	336	687
	OVERHEAD			8.70%	183			8.70%	175	358
	TOTAL				2287	97			2192	4479

D & D BLDG 3515

WBS ..... 1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 92 WASTE MANAGEMENT
 Contracting Type .. G
 B/M Attribute ..... C2.3.3A DISPOSAL OF LIQUID WASTE, 3515
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL OF LIQUID WASTE, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.11 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	TREATMENT OF LIQUIDS @ PWTF	100.00	GAL	0.11	11	0		0.00	0	11
****	SUBTOTAL ****				11	0			0	11
TOTAL DIRECT					11				0	11
OVERHEAD				46.01%	5			46.01%	0	5
TOTAL					16	0			0	16

D & D BLDG 3515

WBS ..... 1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 99 SPECIAL
 Contracting Type .. G
 B/M Attribute ..... C2.3.3B DISPOSAL OF BLDG 3515 MAT'L
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL OF BLDG 3515 MAT'L
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515.est 11-10-93 4:46p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.12 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	DISPOSAL OF CONCRETE/BLOCK MATERIALS IN 8-25 BOXES	7004.00	CF	85.00	595340	0		0.00	0	595340
2	DISPOSAL OF PIPE INSULATION IN 8-25 BOXES	103.00	CF	85.00	8755	0		0.00	0	8755
3	DISPOSAL OF SOLID MATERIALS IN SHIELDED BOXES	250.00	CF	85.00	21250	0		0.00	0	21250
4	TRANSPORT LEAD BRICKS TO COMMERCIAL MIXED WASTE DISPOSAL FACILITY	1.00	LOAD	2500.00	2500	0		0.00	0	2500
5	DISPOSAL OF LEAD BRICKS	31.75	CF	45.00	1429	0		0.00	0	1429
****	SUBTOTAL ****				629274	0			0	629274
TOTAL DIRECT					629274				0	629274
OVERHEAD										0
TOTAL					629274	0			0	629274

D & D BLDG 3515

Disciplines

C: Civil and Site
 E: Electrical
 P: Engineering Mechanics (Piping)
 X: Engineering
 O: Other

Total Labor Hours: 21665

COST SUMMARY

	MATERIAL	LABOR	TOTAL COST
Line Item Cost	1171456	931137	2102593
Total Tax	43762	0	43762
SUBTOTAL	1215218	931137	2146355
Total Indirect	170988	74743	245731
SUBTOTAL	1386206	1005880	2392086
Overhead	145654	141930	287584
SUBTOTAL	1531860	1147810	2679670
Contingency	503335	392852	896187
SUBTOTAL	2035195	1540662	3575857
Market Adjustment			0
TOTAL			3575857

Appendix D.

**Cost Estimate for
Partial Dismantlement of Building 3515**

SUMMARY REPORT

Project Number: 930031.1
D & D BLDG 3515, PARTIAL

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant

Approved by:

<u>Geary Keneason</u>	<u>11-12-93</u>
Project Estimator	Date
<u>Spencer Lim for Dan Dudek</u>	<u>11/12/93</u>
Estimating Manager	Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3515P.est 11/10/93
SCHEDULE FILE: 3515P
REPORT FILE : D:\AES52C\X10\3515PS.out 11/10/93 16:54:57

D & D BLDG 3515, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: MBS / Participant

	----- Unescalated -----		----- Escalated -----			
Material	Labor	Total	Material	Labor	Total	
\$	\$	\$	\$	\$	\$	
1.2.1.1 PROJECT INTEGRATION, 3515						
49 MMES PROJECT SERVICES	0	143	143	0	148	148
90 ER DIVISION	4	84	88	4	86	90
TOTAL PROJECT INTEGRATION, 3515	4	227	231	4	234	238
1.2.1.2 TITLE I & II ENGINEERING, 3515						
18 A-E TITLE I & II ENGR.	0	132	132	0	133	133
48 MMES A-E SUPPORT	0	66	66	0	67	67
TOTAL TITLE I & II ENGINEERING, 3515	0	198	198	0	200	200
1.2.1.3 CONST MGMT & SUPPORT, 3515						
66 MK-F INDIRECTS ON FP	115	0	115	120	0	120
67 MK-F DIRECTS ON FP	3	234	237	3	243	246
TOTAL CONST MGMT & SUPPORT, 3515	118	234	352	123	243	366
1.2.1.4 TITLE III ENGINEERING, 3515						
13 MMES TITLE III ENGR.	9	161	170	10	169	179
19 A-E TITLE III ENGR.	0	43	43	0	45	45
TOTAL TITLE III ENGINEERING, 3515	9	204	213	10	214	224
1.2.2 BUILDING 3515 D & D, PARTIAL						
41 MMES FIELD MAINTENANCE	334	1	335	350	1	351
51 FIXED PRICE CONSTRUCTION	306	51	357	322	53	375
TOTAL BUILDING 3515 D & D, PARTIAL	640	52	692	672	54	726
1.2.2.1 INITIAL CHARACTERIZATION, 3515						
51 FIXED PRICE CONSTRUCTION	6	24	30	6	25	31
TOTAL INITIAL CHARACTERIZATION, 3515	6	24	30	6	25	31

D & D BLDG 3515, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: WBS / Participant

	----- Unescalated -----			----- Escalated -----		
	Material \$	Labor \$	Total \$	Material \$	Labor \$	Total \$
1.2.2.2 EQUIPMENT REMOVAL, 3515						
51 FIXED PRICE CONSTRUCTION	113	154	267	118	161	279
TOTAL EQUIPMENT REMOVAL, 3515	113	154	267	118	161	279
1.2.2.3 DECONTAMINATION, 3515						
51 FIXED PRICE CONSTRUCTION	22	23	45	23	24	47
TOTAL DECONTAMINATION, 3515	22	23	45	23	24	47
1.2.2.4 DISMANTLE STRUCTURE, 3515						
51 FIXED PRICE CONSTRUCTION	38	85	123	40	89	129
TOTAL DISMANTLE STRUCTURE, 3515	38	85	123	40	89	129
1.2.2.5 CLOSURE, 3515						
51 FIXED PRICE CONSTRUCTION	6	3	9	6	3	9
TOTAL CLOSURE, 3515	6	3	9	6	3	9
1.2.3.1 TREATMENT, 3515						
51 FIXED PRICE CONSTRUCTION	43	1	44	45	1	46
TOTAL TREATMENT, 3515	43	1	44	45	1	46
1.2.3.2 PACK/TRANSF TO MHES WM, 3515						
51 FIXED PRICE CONSTRUCTION	2	2	4	2	2	4
TOTAL PACK/TRANSF TO MHES WM, 3515	2	2	4	2	2	4
1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L						
92 WASTE MANAGEMENT	19	0	19	20	0	20
99 SPECIAL	467	0	467	491	0	491
TOTAL DISPOSAL OF BLDG 3515 MAT'L	486	0	486	511	0	511

D & D BLDG 3515, PARTIAL

SUMMARY REPORT

\$1 = \$1000

11/10/93

Arranged By: WBS / Participant

	----- Unescalated -----		----- Escalated -----			
Material	Labor	Total	Material	Labor	Total	
\$	\$	\$	\$	\$	\$	
SUB - TOTAL	1487	1207	2694	1560	1250	2810
CONTINGENCY	492	414	906	517	430	947
GRAND TOTAL	1979	1621	3600	2077	1680	3757

DETAIL REPORT

Project Number: 930031.1
D & D BLDG 3515, PARTIAL

Project ESO Number.....
Revision Number.....0
Last Update.....11/10/93

Sort Order
1. WBS
2. Participant
3. B/M Attribute

Approved by:

<u>Heary Keneson</u>	<u>11-12-93</u>
Project Estimator	Date
<u>Yoshi Tera for Dan Dudek</u>	<u>11/10/93</u>
Estimating Manager	Date

AES Version 5.2c
Base Fiscal Year/Quarter: 93/4
STANDARD VALUE: ORER193.val EXPIRES: 04/20/94
ESTIMATE FILE: D:\AES52C\X10\3515P.est 11/10/93
SCHEDULE FILE: 3515P
REPORT FILE : D:\AES52C\X10\3515PD.out 11/10/93 16:49:38

D & D BLDG 3515, PARTIAL

Creation Date 08/18/93
Revision Number ... 0

Estimating Job Number .. 4225.420

Project Estimator.. G KENESON
WBS ..... 1.2.1.1 PROJECT INTEGRATION, 3515
Cost Code ..... 9100 PROJECT INTEGRATION
Participant ..... 49 MMES PROJECT SERVICES
Contracting Type .. G
B/M Attribute ..... X2.1.1B MMES PROJECT SERVICES
Discipline ..... X Engineering
B/M Title ..... MMES PROJECT SERVICES
Receiving Site X-10
Standard Value File ORER193.val
Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:43p

Project Engineer ..... SNEDAKER
Building/Area 3515
Plant Site X
Level of Estimate ..... P
Funding Type ..... EXPENSE
Source Site X-10
Discipline Estimator ... WGK
Quantity Take-Off By ... WGK
Trace Number X.1.2 0
Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES PROJECT SERVICES (8% OF CONST COSTS)	878.00	K\$	0.00	0	1277	XE	55.00	70235	70235
2	DIVISIONAL SUPPORT (5% OF CONST COST) INCLUDES IH, HP, HSEA,WM & ESD	878.00	K\$	0.00	0	798	XE	55.00	43890	43890
TOTAL DIRECT					0				114125	114125
OVERHEAD				46.01%	0			25.37%	28954	28954
TOTAL					0	2075			143079	143079

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.1 PROJECT INTEGRATION, 3515
 Cost Code ..... 9100 PROJECT INTEGRATION
 Participant ..... 90 ER DIVISION
 Contracting Type .. G
 B/M Attribute ..... X2.1.1A MMES PROJECT MANAGEMENT
 Discipline ..... X Engineering
 B/M Title ..... PROJECT MANAGEMENT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number X.1.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	PROJECT MANAGEMENT (1/2 FTE)	12.00	MO	0.00	0	1040	EV	55.00	57200	57200
2	MATERIALS & EXPENSES (5% OF LABOR)	12.00	MO	239.25	2871	0		0.00	0	2871
TOTAL DIRECT					2871				57200	60071
OVERHEAD				46.01%	1321			46.01%	26318	27639
TOTAL					4192	1040			83518	87710

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.2 TITLE I & II ENGINEERING, 3515
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 18 A-E TITLE I & II ENGR.
 Contracting Type .. G
 B/M Attribute ..... X2.1.2A A-E TITLE I & II
 Discipline ..... X Engineering
 B/M Title ..... A -E TITLE I & II
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.3 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	D & D DESIGN (15% OF CONST COSTS)	878.00	K\$	0.00	0	1646	ER	80.00	131680	131680
TOTAL DIRECT					0				131680	131680
OVERHEAD										0
TOTAL					0	1646			131680	131680

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.2 TITLE I & II ENGINEERING, 3515
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 48 MMES A-E SUPPORT
 Contracting Type .. G
 B/M Attribute ..... X2.1.2B MMES A-E SUPPORT
 Discipline ..... X Engineering
 B/M Title ..... MMES A-E SUPPORT
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES A-E SUPPORT (6% OF CONST COST)	878.00	K\$	0.00	0	958	XE	55.00	52690	52690
TOTAL DIRECT					0				52690	52690
OVERHEAD				46.01%	0			25.37%	13367	13367
TOTAL					0	958			66057	66057

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.3 CONST MGMT & SUPPORT, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 66 MK-F INDIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 02.1.3A MK-F INDIRECTS ON FP
 Discipline ..... O Other
 B/M Title ..... MK-F INDIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number 0.2.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F INDIRECTS ON FP (12% OF FP)	878.00	K\$	120.00	105360	0		0.00	0	105360
TOTAL INDIRECT OVERHEAD				8.70%	9166			8.70%	0	9166
TOTAL					114526	0			0	114526

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.3 CONST MGMT & SUPPORT, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 67 MK-F DIRECTS ON FP
 Contracting Type .. G
 B/M Attribute ..... 02.1.38 MK-F DIRECTS ON FP
 Discipline ..... 0 Other
 B/M Title ..... MK-F DIRECTS ON FP
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number 0.2.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MK-F ADMIN SUPPORT	2277.00	HR	0.00	0	2277	MK	51.70	117721	117721
2	MK-F IH/HP SUPPORT	1380.00	HR	0.00	0	1380	MK	51.70	71346	71346
3	PICKUP TRUCK	1380.00	HR	1.75	2415	0		0.00	0	2415
TOTAL DIRECT					2415				189067	191482
TOTAL INDIRECT				14.00%	338			14.00%	26469	26807
OVERHEAD				8.70%	240			8.70%	18752	18992
TOTAL					2993	3657			234288	237281

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.4 TITLE III ENGINEERING, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 13 MMES TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X2.1.4A MMES TITLE III
 Discipline ..... X Engineering
 B/M Title ..... MMES TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	MMES TITLE III ENGINEERING (1-1/2 FTE)	9.00	MO	0.00	0	2340	XE	55.00	128700	128700
2	MATERIALS & EXPENSES (5% OF LABOR)	9.00	MO	715.00	6435	0		0.00	0	6435
TOTAL DIRECT					6435				128700	135135
OVERHEAD				46.01%	2961			25.37%	32651	35612
TOTAL					9396	2340			161351	170747

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.1.4 TITLE III ENGINEERING, 3515
 Cost Code ..... 5200 D & D DESIGN
 Participant ..... 19 A-E TITLE III ENGR.
 Contracting Type .. G
 B/M Attribute ..... X2.1.4B A-E TITLE III
 Discipline ..... X Engineering
 B/M Title ..... A-E TITLE III
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ... WGK
 Trace Number X.1.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	A-E TITLE III ENGINEERING (1/2 FTE)	9.00	MO	0.00	0	780	0	55.00	42900	42900
TOTAL DIRECT		0				42900				42900
OVERHEAD										0
TOTAL		0				780			42900	42900

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2 BUILDING 3515 D & D, PARTIAL
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 41 MMES FIELD MAINTENANCE
 Contracting Type .. G
 B/M Attribute ..... C2.2A 3515, CONST SUPPORT, MMES FM
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, MMES FM
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
MISC										
1	BOUNDARY CONTROL STATION	1.00	LS	50000.00	50000	24	XE	37.69	905	50905
2	DRUMS FOR LIQUIDS	2.00	EA	40.00	80	0		0.00	0	80
3	8-25 ST BOXES FOR ASBESTOS & CONCRETE (10,000 LB CAPACITY)	49.00	EA	362.00	17738	0		0.00	0	17738
4	2'6"X2'6"X5' BOXES WITH 2" STEEL SHIELDING	8.00	EA	4131.75	33054	0		0.00	0	33054
5	14"X14"X14" (1/2" THICK CS) CONTAINER FOR LEAD BRICKS	20.00	EA	185.81	3716	0		0.00	0	3716
MEDICAL/PPE										
6	WHOLE BODY COUNT (ENTRANCE, EXIT, & ANNUAL	16.00	EA	250.00	4000	0		0.00	0	4000
7	URINALYSIS (QUARTERLY)	40.00	EA	225.00	9000	0		0.00	0	9000
8	PPE (LEVEL C)	3509.00	HR	21.00	73689	0		0.00	0	73689
9	PPE (LEVEL D)	5469.00	HR	3.61	19743	0		0.00	0	19743
****	SUBTOTAL ****				211020	24			905	211925
TOTAL DIRECT					211020				905	211925
TAX				8.25%	17409					17409
SUBTOTAL					228429				905	229334
OVERHEAD				46.01%	105100			46.01%	416	105516
TOTAL					333529	24			1321	334850

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2 BUILDING 3515 D & D, PARTIAL
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2 3515, FPC CONST SUPPORT
 Discipline ..... C Civil and Site
 B/M Title ..... CONST SUPPORT, FPC
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.2 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	HEALTH & SAFETY PLAN	1.00	LS	0.00	0	60	0	75.00	4500	4500
2	COMPREHENSIVE WORK PLAN	1.00	LS	0.00	0	75	0	75.00	5625	5625
****	SUBTOTAL ****				0	135			10125	10125
	MISC									
3	REMOTE MANIPULATORS	1.00	LS	100000.00	100000	0		0.00	0	100000
4	35 TON CRANE (RENTAL)	8.00	MO	6000.00	48000	0		0.00	0	48000
5	HEPA FILTER SYSTEM FOR USE DURING DEMO ACTIVITIES (INCLUDES MOB/DEMOS)	1.00	LS	25000.00	25000	0		0.00	0	25000
6	MISC TOOLS & EQUIP	1.00	LS	2500.00	2500	0		0.00	0	2500
7	HYD SHEARS, REMOTE OPERATED	1.00	LS	7500.00	7500	0		0.00	0	7500
8	TEMPORARY POWER	1.00	LS	4500.00	4500	80	E	22.95	1836	6336
9	OFFICE TRAILER	1.00	LS	5000.00	5000	0		0.00	0	5000
****	SUBTOTAL ****				192500	80			1836	194336
	TRAINING/PHYSICALS/ETC ASSUME 50% OF WORKERS PREVIOUSLY TRAINED									
10	40 HOUR SARA/OSHA TRAINING	8.00	EA	750.00	6000	320	0	25.00	8000	14000
11	8 HOUR SARA/OSHA REFRESHER TRAINING (ANNUAL)	8.00	EA	750.00	6000	320	0	25.00	8000	14000
12	SUBCONTRACTOR ORIENTATION, "GET" TRAINING (EVERY 2 YEARS)	8.00	EA	0.00	0	24	0	25.00	600	600
13	RAD WORKER TRAINING (EVERY 2 YEARS)	8.00	EA	250.00	2000	192	0	25.00	4800	6800
14	PHYSICAL EXAM (ENTRANCE, EXIT, & ANNUAL)	32.00	EA	300.00	9600	128	0	25.00	3200	12800

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
15	WHOLE BODY COUNT (ENTRANCE, EXIT, & ANNUAL	16.00	EA	0.00	0	48	0	25.00	1200	1200
16	URINALYSIS (QUARTERLY)	40.00	EA	0.00	0	40	0	25.00	1000	1000
17	RESPIRATOR FIT (ANNUAL)	4.00	EA	105.00	420	4	0	25.00	100	520
18	DOSIMETERS (1 PER WORKER PER QTR)	36.00	EA	15.00	540	0		0.00	0	540
****	SUBTOTAL ****				24560	1076			26900	51460
TOTAL DIRECT					217060				38861	255921
TAX				8.25%	17907					17907
SUBTOTAL					234967				38861	273828
TOTAL INDIRECT				20.00%	46993			20.00%	7772	54765
OVERHEAD				8.70%	24531			8.70%	4057	28588
TOTAL					306491	1291			50690	357181

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.1 INITIAL CHARACTERIZATION, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.1 3515, INITIAL CHARACTERIZATION
 Discipline ..... C Civil and Site
 B/M Title ..... INITIAL CHARACTERIZATION, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WCK
 Quantity Take-Off By ...
 Trace Number C.3.3 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
TEMPORARY COVER & STAIRWAY										
1	BUILD TEMPORARY COVER ON ROOF	100.00	SF	15.00	1500	48	C	22.15	1063	2563
2	WBOC	100.00	SF	5.00	500	5	E	22.95	115	615
3	STAIRWAY SCAFFOLD	1.00	LS	1500.00	1500	24	C	22.15	532	2032
****	SUBTOTAL ****				3500	77			1710	5210
ROOF PENETRATIONS 4 FOR HEPA SYSTEM & 6 FOR MANIPULATORS										
4	CUT 10" DIA HOLE IN STAINLESS ROOF (LEVEL C)	10.00		0.00	0	5	L	15.45	77	77
5	CORE DRILL 8" HOLE 2' DEPTH (LEVEL C)	10.00	EA	54.02	540	38	L	15.45	587	1127
****	SUBTOTAL ****				540	43			664	1204
HEPA SYSTEM										
6	SET UP HEPA FILTER SYSTEM (8 HRS LEVEL C)	1.00	LS	0.00	0	40	L	15.45	618	618
7	WBOC	1.00	LS	0.00	0	16	E	22.95	367	367
****	SUBTOTAL ****				0	56			985	985
MANIPULATORS										
8	SET UP CAMERA/DETECTOR REMOTE MANIPULATOR @ 1ST LOCATION ON ROOF	1.00	LS	0.00	0	36	RO	30.00	1080	1080
9	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
10	TEST MANIPULATOR	1.00	LS	0.00	0	16	RO	30.00	480	480
11	RELOCATE CAMERA/DETECTOR REMOTE MANIPULATOR TO 2ND LOCATION ON ROOF	1.00	LS	0.00	0	8	RO	30.00	240	240
****	SUBTOTAL ****				0	64			1889	1889
	CHARACTERIZATION									
12	INTERIOR SURVEY BY CAMERA & DETECTOR (REMOTE OPERATION)	3000.00	CF	0.00	0	364	RO	30.00	10920	10920
****	SUBTOTAL ****				0	364			10920	10920
	MISC									
13	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	51.00	HR	0.00	0	13	L	15.45	201	201
14	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	553.00	HR	0.00	0	55	O	26.80	1474	1474
****	SUBTOTAL ****				0	68			1675	1675
15	MOBILIZATION & DEMOBILIZATION	0.00		0.00	0	27	ZZ	26.55	717	717
TOTAL DIRECT					4040				18560	22600
TAX				8.25%	333					333
SUBTOTAL					4373				18560	22933
TOTAL INDIRECT				20.00%	875			20.00%	3712	4587
OVERHEAD				8.70%	457			8.70%	1938	2395
TOTAL					5705	699			24210	29915

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2A 3515, SITE PREP
 Discipline ..... P Engineering Mechanics (Piping)
 B/M Title ..... SITE PREP, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number P.5.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED UNLESS OTHERWISE NOTED										
REROUTE EXISTING STEAM & AIR LINES										
PIPE SUPPORTS										
1	REMOVE EXISTING PIPE SUPPORTS (LEVEL D)	16.00	EA	0.00	0	32	PF	22.90	733	733
2	WBOC	16.00	EA	48.00	768	16	OP	22.30	357	1125
3	NEW 20' PIPE SUPPORT	2.00	EA	360.00	720	4	PF	22.90	92	812
4	WBOC	2.00	EA	48.00	96	2	OP	22.30	45	141
5	NEW 4' PIPE SUPPORT	13.00	EA	72.00	936	26	PF	22.90	595	1531
6	WBOC	2.00	EA	48.00	96	2	OP	22.30	45	141
****	SUBTOTAL ****				2616	82			1867	4483
AIR LINE										
7	CUT & REMOVE 4" CS AIR LINE (20' LONG PIECES) (LEVEL D)	140.00	LF	0.00	0	8	PF	22.90	183	183
8	WBOC	140.00	LF	1.39	195	4	OP	22.30	89	284
9	CAP EXISTING AIR LINE (LEVEL D)	1.00	EA	7.51	8	2	PF	22.90	46	54
10	CUT & PREP EXISTING LINE FOR TIE IN (LEVEL D)	1.00	EA	0.00	0	1	PF	22.90	23	23
11	4" SCH 40 CS PIPE	300.00	LF	6.71	2013	18	PF	22.90	412	2425
12	WBOC	300.00	LF	1.44	432	9	OP	22.30	201	633
13	4" TEE, BW ENDS (LEVEL D)	2.00	EA	35.63	71	11	PF	22.90	252	323
14	4" 90 DEG ELBOW, BW ENDS	6.00	EA	19.48	117	23	PF	22.90	527	644

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
15	CAP ONE END OF NEW TEE (WELD TIME INCLUDED IN TEE COST)	1.00	EA	7.51	8	0		0.00	0	8
****	SUBTOTAL ****				2844	76			1733	4577
	STEAM LINE									
16	REMOVE PIPE INSULATION & PLACE IN B-25 BOX (LEVEL C)	180.00	LF	0.00	0	36	AW	25.45	916	916
17	CUT & REMOVE 8" CS STEAM LINE (20' LONG PIECES) (LEVEL D)	180.00	LF	0.00	0	20	PF	22.90	458	458
18	WBOC	180.00	LF	2.64	475	10	OP	22.30	223	698
19	CAP EXISTING STEAM LINE (LEVEL D)	1.00	EA	20.43	20	4	PF	22.90	92	112
20	CUT & PREP EXISTING LINE FOR TIE IN (LEVEL D)	1.00	EA	0.00	0	1	PF	22.90	23	23
21	8" SCH 40 CS PIPE	300.00	LF	17.16	5148	33	PF	22.90	756	5904
22	WBOC	300.00	LF	2.64	792	17	OP	22.30	379	1171
23	8" TEE, BW ENDS (LEVEL D)	2.00	EA	121.13	242	22	PF	22.90	504	746
24	8" 90 DEG ELBOW, BW ENDS	6.00	EA	87.40	524	43	PF	22.90	985	1509
25	CAP ONE END OF NEW TEE (WELD TIME INCLUDED IN TEE COST)	1.00	EA	20.43	20	0		0.00	0	20
26	2" FIBERGLASS INSULATION (LEVEL C)	310.00	LF	8.25	2558	62	AW	25.45	1578	4136
27	.016" ALUM JACKET	1071.00	SF	0.54	578	142	AW	25.45	3614	4192
****	SUBTOTAL ****				10357	390			9528	19885
	MISC									
28	WELDING MACHINE	80.00	HR	7.50	600	0		0.00	0	600
29	FIRE WATCH (50% LEVEL D)	100.00	HR	0.00	0	100	L	15.45	1545	1545
30	PIPE CLEANING	1.00	LS	0.00	0	12	PF	22.90	275	275
31	PIPE TESTING	12.00	HR	35.00	420	12	PF	22.90	275	695
32	PIPE IDENTIFICATION	12.00	EA	6.00	72	3	PF	22.90	69	141
33	AERIAL WORK PLATFORM	40.00	HR	31.25	1250	0		0.00	0	1250

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
34	TRUCK & TRAILER	16.00	HR	45.00	720	16	TD	16.80	269	989
35	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	240.00	HR	0.00	0	60	AW	25.45	1527	1527
36	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	151.00	HR	0.00	0	15	PF	22.90	344	344
****	SUBTOTAL ****				3062	218			4304	7366
37	MOBILIZATION & DEMOBILIZATION	1.00	LOT	378.00	378	15	ZZ	22.76	341	719
TOTAL DIRECT					19257				17773	37030
TAX				8.25%	1589					1589
SUBTOTAL					20846				17773	38619
TOTAL INDIRECT				20.00%	4169			20.00%	3555	7724
OVERHEAD				8.70%	2176			8.70%	1856	4032
TOTAL					27191	781			23184	50375

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2A 3515, SITE PREP
 Discipline ..... E Electrical
 B/M Title ..... SITE PREP, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number E.4.1 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	PPE NOT REQUIRED									
	REROUTE EXISTING POWER POLES									
1	40' CREOSOTED WOOD POLE	2.00	EA	515.00	1030	18	E	22.95	413	1443
2	RELOCATE TELEPHONE & ELECTRIC LINES & EQUIPMENT TO-NEW POLES	2.00	EA	400.00	800	48	E	22.95	1102	1902
3	ALLOWANCE FOR LINE/AUGER TRUCK	19.00	HR	29.00	551	0		0.00	0	551
****	SUBTOTAL ****				2381	66			1515	3896
4	MOBILIZATION & DEMOBILIZATION	1.00	LOT	238.00	238	7	ZZ	22.95	161	399
TOTAL DIRECT					2619				1676	4295
TAX				8.25%	216					216
SUBTOTAL					2835				1676	4511
TOTAL INDIRECT				20.00%	567			20.00%	335	902
OVERHEAD				8.70%	296			8.70%	175	471
TOTAL					3698	73			2186	5884

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2A 3515, SITE PREP
 Discipline ..... C Civil and Site
 B/M Title ..... SITE PREP, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.4 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
PIPE SUPPORT FOUNDATIONS										
1	EXCAVATE FOR FOOTING (15 EA) (NO PPE REQUIRED)	25.00	CY	18.73	468	8	OP	22.30	178	646
2	CONCRETE FOOTING (NO PPE REQUIRED)	5.00	CY	75.90	380	13	O	20.00	260	640
3	ANCHOR BOLTS (NO PPE REQUIRED)	60.00	EA	1.25	75	6	C	22.15	133	208
4	BACKFILL (NO PPE REQUIRED)	20.00	CY	14.06	281	5	OP	22.30	112	393
****	SUBTOTAL ****				1204	32			683	1887
STAGING & ACCESS AREA										
5	REGRADE	205.00	SY	0.62	127	3	OP	22.30	67	194
6	SPREAD & COMPACT CRUSHED STONE (75 HP FE LOADER & VIBRATING ROLLER)	91.00	CY	30.67	2791	8	OP	22.30	178	2969
7	GRADE CHECKER	1.00	LS	0.00	0	8	OP	22.30	178	178
****	SUBTOTAL ****				2918	19			423	3341
SHIELDED ACCESS STRUCTURE										
8	PURCHASE FABRICATED SHEILDING STRUCTURE & ACCESS DOORS	1.00	LS	40700.00	40700	0		0.00	0	40700
9	INSTALL ACCESS DOOR FRAME (LEVEL 2)	2.00	EA	0.00	0	16	1W	23.65	378	378
10	WBOC (CRANE)	2.00	EA	0.00	0	2	OP	22.30	45	45
11	SET UP STRUCTURE & ACCESS DOORS	1.00	LS	0.00	0	170	1W	23.65	4021	4021
12	WBOC (CRANE)	1.00	LS	0.00	0	85	OP	22.30	1895	1895

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
****	SUBTOTAL ****				40700	273			6339	47039
	MISC									
13	DECON EQUIPMENT (LEVEL C)	1.00	LS	200.00	200	4	L	15.45	62	262
14	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	20.00	HR	0.00	0	5	O	23.00	115	115
15	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	272.00	HR	0.00	0	27	O	23.69	640	640
****	SUBTOTAL ****				200	36			817	1017
16	MOBILIZATION & DEMOBILIZATION	1.00	LOT	900.00	900	36	ZZ	22.95	826	1726
TOTAL DIRECT					45922				9088	55010
TAX				8.25%	3789					3789
SUBTOTAL					49711				9088	58799
TOTAL INDIRECT				20.00%	9942			20.00%	1818	11760
OVERHEAD				8.70%	5190			8.70%	949	6139
TOTAL					64843	396			11855	76698

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.2 EQUIPMENT REMOVAL, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.2B 3515, EQUIP REMOVAL
 Discipline ..... C Civil and Site
 B/M Title ..... EQUIPMENT REMOVAL, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.5 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE									
	MANIPULATORS									
1	SET UP REMAINING REMOTE MANIPULATORS @ 1ST LOCATION ON ROOF	1.00	LS	0.00	0	60	RO	30.00	1800	1800
2	WBOC (CRANE)	1.00	LS	0.00	0	6	OP	22.30	134	134
3	TEST MANIPULATORS	1.00	LS	0.00	0	32	RO	30.00	960	960
4	RELOCATE REMOTE MANIPULATORS TO 2ND LOCATION ON ROOF	1.00	LS	0.00	0	16	RO	30.00	480	480
****	SUBTOTAL ****				0	114			3374	3374
	ACCESS HOLES CUT ACCESS HOLES IN WALL W/ DIAMOND WIRE SAW									
5	DIAMOND WIRE	20.00	LF	140.00	2800	0		0.00	0	2800
6	WIRE SAW RENTAL (INCLUDES 25% DOWN TIME)	849.00	HR	6.73	5714	0		0.00	0	5714
7	DRILL & BITS	1.00	LS	750.00	750	0		0.00	0	750
8	DRILL HOLES FOR WIRE SAW & LIFTING EYES (LEVEL C)	28.00	LF	0.00	0	7	L	15.45	108	108
9	SETUP WIRE SAW (LEVEL C)	2.00	LS	0.00	0	8	L	15.45	124	124
10	WBOC (MANIPULATOR OPERATORS)	2.00	LS	0.00	0	32	RO	30.00	960	960
11	CUT CONCRETE (SF OF CUT) (LEVEL C)	80.50	SF	0.00	0	16	L	15.45	247	247
12	REMOVE CONCRETE BLOCK & PLACE IN 8-25 BOX PLACE IN 8-25 BOX	2.00	EA	0.00	0	2	OP	22.30	45	45

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
13	WBOC (LEVEL C)	2.00	EA	0.00	0	8	L	15.45	124	124
14	PLACE ROLLER CONVEYOR IN OPENING & ANCHOR TO CONCRETE SLAB (LEVEL C)	2.00	EA	1200.00	2400	8	1W	23.65	189	2589
15	WBOC	2.00	EA	0.00	0	4	OP	22.30	89	89
16	WBOC (REMOTE MANIPULATOR CREW)	2.00	EA	0.00	0	16	RO	30.00	480	480
****	SUBTOTAL ****				11664	101			2366	14030
	BUILDING INTERNALS DEMO MATERIALS WILL BE CUT UP & PLACED IN SHIELDED B-25 BOXES BY 4 MAN REMOTE OPERATION CREW **LEAD BRICKS**									
17	PLACE CONTAINERS INSIDE BUILDING (CRANE)	8.00	EA	0.00	0	1	OP	22.30	22	22
18	WBOC	8.00	EA	0.00	0	1	L	15.45	15	15
19	PLACE LEAD BRICKS IN CONTAINER (8 CONTAINERS)	8.00	CF	0.00	0	115	RO	30.00	3450	3450
20	MIX EPOXY MIXTURE FOR CONTAINER VOID SPACES	8.00	EA	84.00	672	1	L	15.45	15	687
21	PLACE EPOXY MIXTURE INSIDE BUILDING (CRANE)	8.00	EA	0.00	0	1	OP	22.30	22	22
22	WBOC	8.00	EA	0.00	0	1	L	15.45	15	15
23	FILL VOID SPACES IN CONTAINERS WITH EPOXY (.42 CF PER CONTAINER)	8.00	EA	0.00	0	5	RO	30.00	150	150
24	REMOVE CONTAINER FROM BUILDING (CRANE)	8.00	EA	0.00	0	1	OP	22.30	22	22
25	WBOC (LEVEL C)	8.00	EA	0.00	0	1	L	15.45	15	15
26	PLACE COVER ON CONTAINER (LEVEL C)	8.00	EA	0.00	0	16	L	15.45	247	247
****	SUBTOTAL ****				672	143			3973	4645
	LIQUIDS									
27	SET UP & ATTACH PUMP	5.00	LS	0.00	0	60	RO	30.00	1800	1800
28	REMOVE & DRUM LIQUIDS	100.00	GAL	0.00	0	8	RO	30.00	240	240

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
29	DRUM HANDLING (LEVEL C)	2.00	EA	0.00	0	2	L	15.45	31	31
30	SPILL PROTECTION	1.00	LS	50.00	50	4	L	15.45	62	112
****	SUBTOTAL ****				50	74			2133	2183
	***HVAC** REMOVE & CUT UP									
31	HVAC EQUIPMENT	0.80	TN	0.00	0	166	RO	30.00	4980	4980
****	SUBTOTAL ****				0	166			4980	4980
	***PIPING** REMOVE & CUT UP									
32	1-1/2" TO 2" PIPING	330.00	LF	0.00	0	343	RO	30.00	10290	10290
33	1/2" TO 3/4" TUBING	600.00	LF	0.00	0	192	RO	30.00	5760	5760
34	3/8" TO 1/2" ROD STOCK (SS)	880.00	LF	0.00	0	451	RO	30.00	13530	13530
35	TANKS (REMOVED IN 1 PIECE)	5.00	EA	0.00	0	50	RO	30.00	1500	1500
36	GLASS FLASK	11.00	EA	0.00	0	44	RO	30.00	1320	1320
37	MISC PROCESS EQUIPMENT & SUPPORT STEEL	0.75	TN	0.00	0	156	RO	30.00	4680	4680
38	WATER HEATER	1.00	EA	0.00	0	32	RO	30.00	960	960
****	SUBTOTAL ****				0	1268			38040	38040
	***ELECTRICAL** REMOVE & CUT UP									
39	100 AMP SAFETY SWITCH	1.00	EA	0.00	0	20	RO	30.00	600	600
40	100 AMP LIGHTING PANEL	1.00	EA	0.00	0	32	RO	30.00	960	960
41	VAPOR PROOF LIGHTS	8.00	EA	0.00	0	96	RO	30.00	2880	2880
42	120V RECEPTACLE & BOX	4.00	EA	0.00	0	8	RO	30.00	240	240
43	TOGGLE SWITCH & BOX	4.00	EA	0.00	0	8	RO	30.00	240	240
44	TELEPHONE & BOX	1.00	EA	0.00	0	2	RO	30.00	60	60
45	PAR-36 LAMP & SOCKET	6.00	EA	0.00	0	72	RO	30.00	2160	2160

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
46	1" & 3/4" CONDUIT	1.00	LOT	0.00	0	104	RO	30.00	3120	3120
47	CABLE	1.00	LOT	0.00	0	104	RO	30.00	3120	3120
****	SUBTOTAL ****				0	446			13380	13380
	BOX CUT UP MAT'L									
48	PLACE SHIELDED BOX IN BUILDING (CRANE)	8.00	EA	0.00	0	8	OP	22.30	178	178
49	WBOC	8.00	EA	0.00	0	16	L	15.45	247	247
50	WBOC (REMOTE MANIPULATOR CREW)	8.00	EA	0.00	0	32	RO	30.00	960	960
51	PLACE MATERIAL IN SHIELDED BOX	8.00	EA	0.00	0	256	RO	30.00	7680	7680
52	REMOVE SHIELDED BOX FROM BUILDING	8.00	EA	0.00	0	8	OP	22.30	178	178
53	WBOC (LEVEL C)	8.00	EA	0.00	0	16	L	15.45	247	247
54	WBOC (REMOTE MANIPULATOR CREW)	8.00	EA	0.00	0	32	RO	30.00	960	960
55	PLACE COVER ON SHIELDED BOX (CRANE)	8.00	EA	0.00	0	8	OP	22.30	178	178
56	WBOC (LEVEL C)	8.00	EA	0.00	0	32	L	15.45	494	494
****	SUBTOTAL ****				0	408			11122	11122
	MISC									
57	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	38.00	HR	0.00	0	10	L	15.45	155	155
58	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	2753.00	HR	0.00	0	275	O	29.60	8140	8140
****	SUBTOTAL ****				0	285			8295	8295
59	MOBILIZATION & DEMOBILIZATION	0.00		0.00	0	60	ZZ	29.17	1750	1750
TOTAL DIRECT					12386				89413	101799
TAX				8.25%	1022					1022
SUBTOTAL					13408				89413	102821
TOTAL INDIRECT				20.00%	2682			20.00%	17883	20565
OVERHEAD				8.70%	1400			8.70%	9335	10735
TOTAL					17490	3065			116631	134121

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.3 DECONTAMINATION, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.3 3515, DECONTAMINATION
 Discipline ..... C Civil and Site
 B/M Title ..... DECONTAMINATION, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.6 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
SCABBLE CONCRETE FOUNDATION (ASSUME 1" AVERAGE DEPTH REMOVED & 100% FLUFF FACTOR)										
1	CONCRETE FOUNDATION (LEVEL C)	907.00	SF	0.00	0	726	L	15.45	11217	11217
2	DRUMS FOR CONCRETE SCABBLES	21.00	EA	28.00	588	0		0.00	0	588
3	LOAD & TRANSPORT DRUMS TO SOLIDIFICATION SUBCONTRACTOR (ASSUME 2 HR ROUND TRIP) (NO PPE REQUIRED)	21.00	EA	15.55	327	25	TD	16.80	420	747
4	WBOC (NO PPE REQUIRED)	21.00	EA	0.00	0	4	L	15.45	62	62
****	SUBTOTAL ****				915	755			11699	12614
MISC										
5	VACUUM PAC FOR SCABBLE EQUIP (BASED ON COST SPREAD OVER 1 YR) (INCLUDES 25% DOWN TIME)	908.00	HR	10.00	9080	0		0.00	0	9080
6	CUTTERS W/ EXTRA CUTTING HEADS (BASED ON COST SPREAD OVER 1 YR)	908.00	HR	5.28	4794	0		0.00	0	4794
7	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	1452.00	HR	0.00	0	363	L	15.45	5608	5608
****	SUBTOTAL ****				13874	363			5608	19482
8	MOBILIZATION & DEMOBILIZATION	1.00	LOT	739.00	739	11	ZZ	15.48	170	909
TOTAL DIRECT					15528				17477	33005
TAX				8.25%	1281					1281
SUBTOTAL					16809				17477	34286
TOTAL INDIRECT				20.00%	3362			20.00%	3495	6857

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
OVERHEAD				8.70%	1755			8.70%	1825	3580
TOTAL					21926	1129			22797	44723

AIM

Association for Information and Image Management

1100 Wayne Avenue, Suite 1100

Silver Spring, Maryland 20910

301/587-8202

Centimeter

Inches

MANUFACTURED TO AIM STANDARDS
BY APPLIED IMAGE, INC.

3 of 3

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.4 DISMANTLE STRUCTURE, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.4 3515, DISMANTLE STRUCTURE
 Discipline ..... C Civil and Site
 B/M Title ..... DISMANTLE STRUCTURE, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.7 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: ALL ACTIVITIES REQUIRE LEVEL D PROTECTION UNLESS NOTED OTHERWISE										
***SHIELDING STRUCTURE										
1	REMOVE SHIELDING STRUCTURE & ACCESS DOORS & LOAD ON TRUCK FOR TRANSPORT TO ORNL STORAGE AREA	37.80	TN	0.00	0	47	1W	23.65	1112	1112
2	WBOC (CRANE)	37.80	TN	0.00	0	24	OP	22.30	535	535
3	WBOC (PPE NOT REQUIRED)	37.80	TN	36.25	1370	24	TD	16.80	403	1773
4	TRANSPORT TO ORNL STORAGE AREA (PPE NOT REQUIRED)	37.80	TN	4.58	173	3	TD	16.80	50	223
5	UNLOAD SHIELDING STRUCTURE & ACCESS DOORS @ ORNL STORAGE AREA	37.80	TN	0.00	0	12	1W	23.65	284	284
6	WBOC (CRANE) (PPE NOT REQUIRED)	37.80	TN	0.00	0	6	OP	22.30	134	134
7	WBOC (PPE NOT REQUIRED)	37.80	TN	9.22	349	6	TD	16.80	101	450
****	SUBTOTAL ****				1892	122			2619	4511
DEMO STRUCTURE										
8	REMOVE STAINLESS STEEL ROOF, CUT UP & PLACE IN B-25 BOXES (LEVEL C)	2.50	TN	0.00	0	20	1W	23.65	473	473
9	WBOC (LEVEL C)	2.50	TN	0.00	0	20	L	15.45	309	309
****	SUBTOTAL ****				0	40			782	782
RELOCATE MANIPULATORS										
10	REMOVE REMOTE MANIPULATORS AFTER 50% OF ROOF IS REMOVED	1.00	LS	0.00	0	16	RO	30.00	480	480
11	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
12	SET UP REMOTE MANIPULATORS ON BUILDING SLAB	1.00	LS	0.00	0	36	RO	30.00	1080	1080
13	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89
14	TEST MANIPULATORS	1.00	LS	0.00	0	32	RO	30.00	960	960
15	REMOVE REMOTE MANIPULATORS AFTER WALLS ARE REMOVED	1.00	LS	0.00	0	16	RO	30.00	480	480
16	WBOC (CRANE)	1.00	LS	0.00	0	4	OP	22.30	89	89
17	COVER MANIPULATORS IN PLASTIC	1.00	LS	25.00	25	8	L	15.45	124	149
18	LOAD & TRANSPORT MANIPULATORS TO ORNL STORAGE FACILITY (PPE NOT REQUIRED)	1.00	LS	21.60	22	2	OP	22.30	45	67
19	WBOC (PPE NOT REQUIRED)	1.00	LS	0.00	0	4	L	15.45	62	62
20	WBOC (PPE NOT REQUIRED)	1.00	LS	60.00	60	3	TD	16.80	50	110
21	UNLOAD MANIPULATORS @ ORNL STORAGE FACILITY (PPE NOT REQUIRED)	1.00	LS	10.80	11	1	OP	22.30	22	33
22	WBOC (PPE NOT REQUIRED)	1.00	LS	0.00	0	2	L	15.45	31	31
23	WBOC (PPE NOT REQUIRED)	1.00	LS	20.00	20	1	TD	16.80	17	37
****	SUBTOTAL ****				138	133			3618	3756
	CONCRETE WALLS & ROOF									
24	DIAMOND WIRE	120.00	LF	140.00	16800	0		0.00	0	16800
25	WIRE SAW RENTAL (INCLUDES 25% DOWN TIME)	488.00	HR	6.73	3284	0		0.00	0	3284
26	DRILL & BITS	1.00	LS	1500.00	1500	0		0.00	0	1500
27	DRILL HOLES FOR WIRE SAW & LIFTING EYES (LEVEL C)	436.00	LF	0.00	0	109	L	15.45	1684	1684
28	SETUP WIRE SAW (LEVEL C)	67.00	LS	0.00	0	268	L	15.45	4141	4141
29	WBOC (MANIPULATOR OPERATORS)	67.00	LS	0.00	0	804	RO	30.00	24120	24120
30	CUT CONCRETE (SF OF CUT) (LEVEL C)	2013.00	SF	0.00	0	403	L	15.45	6226	6226
****	SUBTOTAL ****				21584	1584			36171	57755

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
PACKAGE CONCRETE BLOCKS										
31	LIFTING EYES	1.00	LS	750.00	750	0		0.00	0	750
32	INSTALL LIFTING EYE FOR CONCRETE PIECES (LEVEL C)	172.00	EA	0.00	0	26	L	15.45	402	402
33	PLACE CONCRETE PIECES INTO B-25 BOXES FOR DISPOSAL (48 BOXES REQUIRED)	86.00	PC	12.00	1032	22	OP	22.30	491	1523
34	WBOC (LEVEL C)	86.00	PC	0.00	0	43	L	15.45	664	664
35	PLACE COVER ON BOX	48.00	EA	0.00	0	24	OP	22.30	535	535
36	WBOC (LEVEL C)	48.00	EA	0.00	0	144	L	15.45	2225	2225
****	SUBTOTAL ****				1782	259			4317	6099
LEAD BRICKS										
37	PLACE LEAD BRICKS IN CONTAINER (MANIPULATOR OPERATORS)	12.00	CF	0.00	0	173	RO	30.00	5190	5190
38	MIX EPOXY MIXTURE FOR CONTAINER VOID SPACES (.42 CF PER CONTAINER)	12.00	EA	84.00	1008	2	L	15.45	31	1039
39	FILL VOID SPACES IN CONTAINERS WITH EPOXY (MANIPULATOR OPERATORS)	12.00	EA	0.00	0	8	RO	30.00	240	240
40	PLACE COVER ON CONTAINER (LEVEL C)	12.00	EA	0.00	0	24	L	15.45	371	371
****	SUBTOTAL ****				1008	207			5832	6840
MISC										
41	LOST TIME DUE TO LEVEL C CONDITIONS (25%)	1057.00	HR	0.00	0	264	O	22.74	6003	6003
42	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	1233.00	HR	0.00	0	123	O	29.71	3654	3654
43	MOBILIZATION & DEMOBILIZATION	1.00	LOT	528.00	528	82	ZZ	23.06	1891	2419
TOTAL DIRECT					26932				64887	91819
TAX				8.25%	2222					2222
SUBTOTAL					29154				64887	94041
TOTAL INDIRECT				20.00%	5831			20.00%	12977	18808

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
OVERHEAD				8.70%	3044			8.70%	6774	9818
TOTAL					38029	2814			84638	122667

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.2.5 CLOSURE, 3515
 Cost Code ..... 6200 D & D IMPLEMENTATION
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.2.5 3515, CLOSURE
 Discipline ..... C Civil and Site
 B/M Title ..... CLOSURE, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.8 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED UNLESS NOTED OTHERWISE										
SOIL & LINER COVER										
1	60 MIL HDPE LINER (LEVEL D)	189.00	SY	6.30	1191	11	L	15.45	170	1361
2	EXCAVATE @ BORROW AREA (3 CY BACKHOE)	333.33	CY	1.33	443	3	OP	22.30	67	510
3	HAUL & DUMP (10 MILE ROUND TRIP W/ 12 CY DUMP)	400.00	CY	3.18	1272	65	TD	16.80	1092	2364
4	BACKFILL, SPREAD & COMPACT (75 HP FE LOADER & VIBRATING ROLLER)	400.00	CY	1.84	736	32	OP	22.30	714	1450
5	SEED & MULCH	189.00	SY	0.39	74	5	L	15.45	77	151
6	SILT FENCE	200.00	LF	1.10	220	4	L	15.45	62	282
****	SUBTOTAL ****				3936	120			2182	6118
MISC										
7	LOST TIME DUE TO LEVEL D CONDITIONS (10%)	11.00	HR	0.00	0	1	L	15.45	15	15
****	SUBTOTAL ****				0	1			15	15
8	MOBILIZATION & DEMOBILIZATION	1.00	LOT	197.00	197	12	ZZ	18.16	218	415
TOTAL DIRECT					4133				2415	6548
TAX				8.25%	341					341
SUBTOTAL					4474				2415	6889
TOTAL INDIRECT				20.00%	895			20.00%	483	1378
OVERHEAD				8.70%	467			8.70%	252	719
TOTAL					5836	133			3150	8986

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.3.1 TREATMENT, 3515

Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL

Participant ..... 51 FIXED PRICE CONSTRUCTION

Contracting Type .. G

B/M Attribute ..... C2.3.1 3515, TREATMENT

Discipline ..... C Civil and Site

B/M Title ..... TREATMENT, 3515

Receiving Site X-10

Standard Value File QRE193.val

Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515

Plant Site X

Level of Estimate ..... P

Funding Type ..... EXPENSE

Source Site X-10

Discipline Estimator ... WGK

Quantity Take-Off By ...

Trace Number C.3.9 0

Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	SOLIDIFY CONCRETE FINES	150.56	CF	200.00	30112	0		0.00	0	30112
2	LOAD & TRANSPORT DRUMS TO DISPOSAL FACILITY (ASSUME 2 HR ROUND TRIP) (NO PPE REQUIRED)	21.00	EA	15.55	327	25	TD	16.80	420	747
3	WBOC -	21.00	EA	0.00	0	4	L	15.45	62	62
4	WBOC	21.00	EA	1.80	38	4	OP	22.30	89	127
****	SUBTOTAL ****				30477	33			571	31048
TOTAL DIRECT					30477				571	31048
TAX				8.25%	2514					2514
SUBTOTAL					32991				571	33562
TOTAL INDIRECT				20.00%	6598			20.00%	114	6712
OVERHEAD				8.70%	3444			8.70%	60	3504
TOTAL					43033	33			745	43778

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.3.2 PACK/TRANSF TO MMES WM, 3515
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 51 FIXED PRICE CONSTRUCTION
 Contracting Type .. G
 B/M Attribute ..... C2.3.2 3515, PACK/TRANSF TO MMES WM
 Discipline ..... C Civil and Site
 B/M Title ..... PACK/TRANSF TO MMES WM, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.10 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
NOTE: NO PPE REQUIRED										
1	LOAD & TRANSPORT CONTAINERS OF LEAD BRICKS TO MMES WM (ASSUME 2 LOADS, 1 HR ROUND TRIP)	20.00	EA	0.86	17	2	OP	22.30	45	62
2	WBOC	20.00	EA	0.00	0	3	L	15.45	46	46
3	WBOC	20.00	EA	2.40	48	2	TD	16.80	34	82
4	LOAD & TRANSPORT SHIELDED BOXES TO DISPOSAL FACILITY (ASSUME 3 PER LOAD, 1 HR ROUND TRIP)	8.00	EA	8.00	64	1	OP	22.30	22	86
5	WBOC	8.00	EA	0.00	0	3	L	15.45	46	46
6	WBOC	8.00	EA	10.00	80	4	TD	16.80	67	147
7	LOAD & TRANSPORT B-25 BOXES (INSULATION & CONCRETE) TO DISP FAC (ASSUME 3 PER LOAD, 1 HR ROUND TRIP)	49.00	EA	8.00	392	8	OP	22.30	178	570
8	WBOC	49.00	EA	0.00	0	16	L	15.45	247	247
9	WBOC	49.00	EA	10.00	490	25	TD	16.80	420	910
10	LOAD & TRANSPORT DRUMS TO PWTF (ASSUME 1 HR ROUND TRIP)	2.00	EA	0.54	1	1	OP	22.30	22	23
11	WBOC	2.00	EA	0.00	0	1	L	15.45	15	15
12	WBOC	2.00	EA	10.00	20	1	TD	16.80	17	37
****	SUBTOTAL ****				1112	67			1159	2271
13	MOBILIZATION & DEMOBILIZATION	1.00	LOT	111.00	111	7	ZZ	17.30	121	232
TOTAL DIRECT					1223				1280	2503
TAX				8.25%	101					101

D & D BLDG 3515, PARTIAL

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
	SUBTOTAL				1324				1280	2604
	TOTAL INDIRECT			20.00%	265			20.00%	256	521
	OVERHEAD			8.70%	138			8.70%	134	272
	TOTAL				1727	74			1670	3397

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 92 WASTE MANAGEMENT
 Contracting Type .. G
 B/M Attribute ..... C2.3.3A DISPOSAL OF LIQUID WASTE, 3515
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL OF LIQUID WASTE, 3515
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AESS2C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.11 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	TREATMENT OF LIQUIDS @ PWTF	100.00	GAL	0.11	11	0		0.00	0	11
2	DISPOSAL OF SOLIDIFIED MATERIALS IN DRUMS	154.35	CF	85.00	13120	0		0.00	0	13120
****	SUBTOTAL ****				13131	0			0	13131
	TOTAL DIRECT				13131				0	13131
	OVERHEAD			46.01%	6042			46.01%	0	6042
	TOTAL				19173	0			0	19173

D & D BLDG 3515, PARTIAL

WBS ..... 1.2.3.3 DISPOSAL OF BLDG 3515 MAT'L
 Cost Code ..... 9300 TREATMENT, STORAGE & DISPOSAL
 Participant ..... 99 SPECIAL
 Contracting Type .. G
 B/M Attribute ..... C2.3.3B DISPOSAL OF BLDG 3515 MAT'L
 Discipline ..... C Civil and Site
 B/M Title ..... DISPOSAL OF BLDG 3515 MAT'L
 Receiving Site X-10
 Standard Value File ORER193.val
 Estimate File: D:\AES52C\X10\3515P.est 11-10-93 4:45p

Building/Area 3515
 Plant Site X
 Level of Estimate ..... P
 Funding Type ..... EXPENSE
 Source Site X-10
 Discipline Estimator ... WGK
 Quantity Take-Off By ...
 Trace Number C.3.12 0
 Expiration Date: 04/20/94

ITEM	DESCRIPTION	MATERIAL				LABOR				TOTAL COST M + L
		Qty.	Unit	Unit Pr.	Total	Hours	Cft.	Rate	Total	
1	DISPOSAL OF CONCRETE/BLOCK MATERIALS IN B-25 BOXES	4944.00	CF	85.00	420240	0		0.00	0	420240
2	DISPOSAL OF PIPE INSULATION IN B-25 BOXES	103.00	CF	85.00	8755	0		0.00	0	8755
3	DISPOSAL OF SOLID MATERIALS IN SHIELDED BOXES	250.00	CF	85.00	21250	0		0.00	0	21250
4	TRANSPORT LEAD BRICKS TO COMMERCIAL MIXED WASTE DISPOSAL FACILITY	1.00	LOAD	2500.00	2500	0		0.00	0	2500
5	DISPOSAL OF LEAD BRICKS	31.75	CF	45.00	1429	0		0.00	0	1429
6	DISPOSAL OF SOLIDIFIED MATERIALS IN DRUMS	154.35	CF	85.00	13120	0		0.00	0	13120
****	SUBTOTAL ****				467294	0			0	467294
TOTAL DIRECT					467294				0	467294
OVERHEAD										0
TOTAL					467294	0			0	467294

D & D BLDG 3515, PARTIAL

Disciplines

Total Labor Hours: 23008

C: Civil and Site
 E: Electrical
 P: Engineering Mechanics (Piping)
 X: Engineering
 O: Other

COST SUMMARY

	MATERIAL	LABOR	TOTAL COST
Line Item Cost	1082743	979268	2062011
Total Tax	48724	0	48724
SUBTOTAL	1131467	979268	2110735
Total Indirect	187877	78869	266746
SUBTOTAL	1319344	1058137	2377481
Overhead	167728	147813	315541
SUBTOTAL	1487072	1205950	2693022
Contingency	492247	413773	906020
SUBTOTAL	1979319	1619723	3599042
Market Adjustment			0
TOTAL			3599042

DISTRIBUTION

1. H. L. Boston
2. T. W. Burwinkle
3. K. Constant
4. O. W. Hale
5. J. H. Hooyman
6. G. R. Hudson
7. M. A. Johnson
8. M. R. Jugan
9. L. L. Kaiser
- 10-11. G. J. Mandry
- 12-14. D. M. Matteo
- 15-16. P. T. Owen
17. C. E. Pepper
18. P. A. Schrandt
19. W. T. Thompson
20. M. L. Whitehead
21. P. S. Wood
- 22-24. ORNL ER Document Management Center
- 25-27. Central ER Document Management Center
28. Laboratory Records Department
29. ORNL Patent Section
30. Central Research Library
31. Office of Assistant Manager for Energy Research and Development, DOE Oak Ridge Operations Office, P.O. Box 2001, Oak Ridge, TN 37831-8600
32. R. C. Sleeman, DOE Oak Ridge Operations Office, P.O. Box 2001, Oak Ridge, TN 37831-8541
33. J. T. Sweeney, DOE Oak Ridge Operations Office, P.O. Box 2001, Oak Ridge, TN 37831-8541
- 34-35. Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831

DATE

FILMED

7/27/94

END