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INTEGRAL MONITORED RETRIEVABLE STORAGE (MRS) FACILITY

CONCEPTUAL DESIGN REPORT

VOLUME V BOOK I – COST ESTIMATE SUMMARIES

Prepared for

UNITED STATES DEPARTMENT OF ENERGY
Richland Operations Office

Report No. MRS 11
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CONTENTS

COST ESTIMATE

BASIS OF COST ESTIMATE

1.0 INTRODUCTION

The cost estimate is based on the engineering performed during the Conceptual Design Phase of the MRS Facility project. Costs were developed and summarized for two concepts, Sealed Storage Cask and Field Drywell, in accordance with The Ralph M. Parsons modified CSI Coding System.

In addition, the MRS Facility Costs were summarized by the following functional areas:

Area 1. Receiving and Handling Building shielded process cells and overpack cells, their contained equipment, and utilities.

Area 2. Receiving and Handling Building canistered consolidated fuel lag storage area and its contained equipment and utilities.

Area 3. Receiving and Handling Building Category I Areas, equipment and utilities except costs noted for Areas 1 and 2.

Area 4. Receiving and Handling Building Non-Category I Areas, equipment and utilities.

Area 5. All onsite improvements and support structures containing equipment and systems required for: (a) Administration Building, (b) Security Building, (c) Main Gate/Badgehouse, (d) Protected Area Gatehouse, (e) Inspection Gatehouse, (f) Storage Area Gate Station, (g) Site Services Building, (h) Warehouse, (i) Vehicle Maintenance Building, (j) Standby Generator Building, (k) Sewage Treatment Facility, (l) Water Treatment Facility, and (m) Fire Station. Included are the improvements to land within the limited and protected areas, except waste storage. Also all structures, related systems, and handling equipment for the storage of onsite generated CHTRU waste resulting from the processing of 15,000 MTU of spent fuel.

Area 6. All onsite waste storage improvements. The sealed cask storage includes all site improvements and fencing for 15,000-MTU storage of spent fuel; storage pads for 5,000 MTU of spent fuel; cask transportation and handling equipment; and no sealed storage casks. The field drywell includes all site improvements and fencing for 15,000-MTU storage of spent fuel; transportation; and drywell

installations for 5,000 MTU of storage. The sealed storage casks, additional drywells, and additional storage pads will be added incrementally as needed and will be part of the capital costs incurred during operations.

Area 7. All offsite improvements required to interface the MRS Facility to existing infrastructures.

This estimate presents all costs associated with definitive engineering, design verification, A/E support during licensing, engineering support during construction, construction management, and a contingency factor. It does not include site characterization, operating contractor management, escalation, land acquisition, DOE and NRC costs, or financial assistance to others.

2.0 ENGINEERING AND MANAGEMENT COSTS

The enginering and management costs include costs that are required to develop the definitive design, engineering support for DOE design verification activities, provide A/E support for the licensing effort, provide A/E support for the construction activities, perform project mangement functions, and manage the construction activities.

2.1 DEFINITIVE DESIGN

The cost for this activity was based on a historical percentage of the direct constructed value, with consideration for the impact associated with a licensed facility. The estimated cost was reconciled with an estimated quantity of drawings and manpower, assuming that all structures, systems, and components, except Category I, QA Level I, will be prepared in accordance with standard A/E detailing and dimensioning practices.

2.2 DESIGN VERIFICATION

The cost for this activity was based on the assumption that the major process and storage systems will require testing to prove design assumptions and the designed throughput capability. These systems included the consolidation system, waste packaging system, secondary scrap reduction system, and testing to ensure integrity, heat transfer, and shielding of the sealed storage cask. This cost includes engineering consultation in support of design activities and testing being conducted under a DOE contract with others.

2.3 LICENSING SUPPORT

The cost for this effort was determined by estimating the manpower that may be required over the 3-1/2-year scheduled licensing effort.

2.4 SUPPORT CONSTRUCTION ACTIVITIES

The cost for this activity was based on a historical percentage of the direct and indirect constructed value, with consideration for the impact associated with a licensed facility. The estimated cost was reconciled with an estimated field staff required to perform this service.

2.5 CONSTRUCTION MANAGEMENT

The cost for this activity was based upon a historical percentage of the direct and indirect constructed value with consideration for the impact associated with a licensed facility based on the R&H Building being performed on a 2-shift/5-day week. The estimated cost was reconciled with an estimated staff required to perform this service.

3.0 CONSTRUCTION

Construction costs were developed using material and equipment takeoffs based on the Conceptual Design documents. Labor units were assigned for each commodity, using standard unit manhours. All costs were based on second quarter 1985 Oak Ridge union labor rates. It has been assumed, and allowances have been made, that the construction will be performed by a General Contractor within a 51-month construction schedule, working two shifts at 40 hours per week for the R&H Building.

3.1 EQUIPMENT AND MATERIAL COSTS

Material and equipment costs were based on second quarter 1985 costs and were obtained from the following sources:

Vendor and/or telephone quotes
Recent purchases
Catalog prices and discounts
Estimating manuals
Previous costs, escalated
Extrapolations

3.2 FIELD LABOR

Construction labor manhours were estimated separately for each type of commodity to be installed. Sources for these manhours were derived from Parsons standard unit manhours, historical data, the estimator's experience, and various literature. Oak Ridge labor rates and fringes were used (see Table 1), and these rates were converted to construction activity hourly rates by calculating the appropriate craft mix (see Table 2). No provisions were made for future rate changes. See Table 3 for Construction Craft Work Rules.

3.3 LABOR PRODUCTIVITY (OAK RIDGE)

A labor productivity of 85% was used for this estimate. This rate is estimated upon the mid-1985 Los Angeles Basic base rate of 1.00. The estimated manhours were adjusted by this factor for productivity and efficiency. Example:

$$\frac{\text{Estimated Manhours}}{\text{Productivity Adjustment}} = \frac{1,800}{0.85} = 2,117 \text{ adjusted manhours}$$

3.4 WORK WEEK

The work week for construction is based upon a standard 40-hr, single-shift work week, except for the R&H Building, which was assumed to be on a 40-hr, two-shift work week (the second shift requires a pay differential of approximately 11%). No provisions have been made for overtime or transit loss time.

3.5 FREIGHT

Overland domestic freight from the vendor to the construction site has been included.

3.6 SALES TAX

Sales tax has been excluded from this estimate.

3.7 FIELD INDIRECT COSTS

Field indirect costs have been estimated for the following categories:

Temporary construction
Unallocable labor - craft
Payroll insurance and taxes - craft
Other insurance
Field administration and office costs
Special construction equipment
Small tools
Consumables

These costs were developed by listing the detailed requirements for construction.

Table 1 - Construction Labor Rates for Cost Estimates

Craft	Oak Ridge Fixed Price ($)
AW Asbestos Worker	21.00
M Brickmason	17.10
C Carpenter	16.60
F Cement Finisher	14.70
E Electrician	17.50
IW Ironworker	18.00
L Laborer	11.30
MW Millwright	17.60
OP Operating Engineer	16.00
P Painter	16.00
PF Pipefitter	18.20
R Roofer	13.00
SM Sheetmetal Worker	18.60
SF Sprinkler Fitter	19.90
TD Truck Driver	12.50

The above Labor Rates are the effective rates for an hour of productive work. Fixed price contractor rates are based on an assumed average crew with necessary foreman, general foreman, etc. (working or nonworking). All fringes, payroll taxes, and workmen's compensation insurance are included for fixed price contractors only. All fixed price contractor rates have been rounded off to the nearest $0.10 for estimating purposes.

Table 2 - Composite Labor Rates

Description	Composite Rate* ($)
Site Work	16.08
Concrete	15.37
Masonry	16.50
Metals	18.44
Wood and Plastics	16.50
Thermal and Moisture Protection	16.50
Door and Windows	16.50
Finishes	16.32
Specialties	17.61
Equipment	18.74
Furnishings	16.50
Special Construction	18.74
Conveying Systems	18.74
Mechanical Systems	18.74
Electrical	17.85
Instrumentation	18.38

*Labor rates are for anticipated crew mix.

Table 3 - Oak Ridge Construction Craft Work Rules

Asbestos Workers: No mention of number of journeymen required before a Foreman is required.

Boilermakers: Second shift receives 8 hours pay for 7-1/2 hours work, 3rd shift receives 8 hours pay for 7 hours work. When there are 1 to 12 men on a job, there will be one Foreman. When there are 13 men on a job, there will be a Foreman and an Assistant Foreman. The Foreman will work with tools when there are 5 or less men on the job. When 5 or more, the Foreman will not work with tools. No mention of number required for a General Foreman.

Bricklayers: Second and third shifts receive 8 hours pay for 7 hours work. This work rule applies to the other 7 basic crafts. One Foreman for every 4 journeymen. No mention of the number required for General Foremen.

Carpenters: When 3 or more Carpenters are hired, one will act as Foreman; when 3 or more Carpenter Foremen are on the job, one will be a General Foreman and will not supervise more than 6 Foremen; Foreman will not have more than 16 Carpenters under his supervision. Additional $0.25 p/h payment made when Carpenters (1) work with creosoted materials, (2) use respiratory equipment, or (3) work on scaffolds over 40 feet but less than 100 feet; and $0.50 for work over 100 feet.

Cement Masons: When 3 or more Cement Masons are hired, one will be the Foreman; no rule on General Foreman. Additional $0.25 p/h paid when Cement Masons work on scaffolds 18 feet or more in height.

Electricians: Both the 2nd and 3rd shifts receive 8 hours pay for 7 hours work. 3-6 journeymen, one shall be a working Foreman, after the 6th journeyman is employed, the Foreman will not use his tools; 12 or more journeymen, there will be 2 Foremen; and 1 Foreman thereafter for 12 men; General Foreman is appointed at the discretion of employer. Respirator pay is 25% of hourly rate. The wireman and lineman receive equal pay.

Ironworkers: When 2 shifts are at work, they receive 8 hours pay for 7 hours work; when 3 shifts are at work, they receive 8 hours pay for 7 hours work. When 2 or more Ironworkers are employed, one is selected by employer to be Foreman; where 3 or more Foremen, there will be a General Foreman.

Laborers: One Foreman after the 8th man is hired, no Foreman will supervise more than 20 men, when more than 3 Foremen are required there will be a General Foreman; General Foreman cannot supervise more than 12 Foremen. An additional $0.15 p/h is paid for working in hazardous areas; additional $0.25 p/h is paid for working over 50 feet, and .10 p/h is paid for working 12 feet below ground.

Millwrights: When 5 men are employed, one must act as Foreman; a Foreman will not supervise more than 15 men; where there are 3 Foremen employed one must be a General Foreman; no General Foreman can have more than 6 Foremen under him.

Table 3 (Contd)

Operating Engineers: When 5 or more employees are employed on the job, an Equipment Foreman is required who will not supervise more than 10 men. All tunnel work $0.25 p/h more. Attachment No. 1 lists classifications in specific groups.

Painters: One Foreman for 15 Painters on one job, if two jobs then only 10 Painters. Respirator pay is $1.00/hr.

Plumbers & Steamfitters: From 2-5 journeymen, one will be Foreman and receive $0.25 per hour more than journeyman rate. If he has 6-10 journeymen under him, he receives $0.50 per hour more; when 2 or more Foremen are on the job, a General Foreman must be hird at .75 per hour more than journeyman rate. He cannot supervise over 6 Foremen. Respirator pay is $1.00/hr.

Roofers: Employer's discretion as to number of Foremen on one job. Pitch roof work is an additional $0.35 p/h.

Sheetmetal Workers: One Foreman will superviser up to 10 journeymen, the 2nd Foreman will be added after the 10th journeyman; when there are 2 Foremen, a General Foreman will be hired and another one will be added after the 4th Foreman. Respirator pay is an additonal $1.00 p/h.

Sprinkler Fitters: The hourly rate for men on 2nd and 3rd shifts shall be 15% above basic hourly rate.

Teamsters: Foreman required for three or more employees and can supervise up to 12 men. One General Foreman for 3 or more Foremen.

Classifcation

Operating Engineers: (Oak Ridge)

Group A

Backhoes, Cablesways, Ross Carrier, Clamshells, Cranes, Derricks, Draglines, Tournapulls, Pans, Scrapers, Scoops, etc., Head Tower Machines, Locomotives (over 20 tons), Shovels, Mechanics and Welders, Winch Trucks with A-Frame, Skimmer Scoops, Locomotive Cranes, Overhead Cranes, File Drivers, Skid Rigs, Side Boom Tractors, Euclid Loaders, Hoist (any size handling steel or stone), Derrick Boats, Engines used in connection with hoist material with an attached device on tower or Engine, Mucking Machines, Hi-Lifts or End Loaders, Finished Graders, Cherry-pickers, Tower Crane, Skylift, Gradall, Dozers, Earth Augers and Pole Machine Operators, Core Drill and Foundation Drills.

Group B

Tractors, Farm Type Tractors with attachments, Central Compressor Plants, Elevators used for hoisting building material, Central Mixing

Table 3 (Contd)

Plants, Hoist, Pump Crete Machines, Concrete Pumps, Trenching Machines, Backfillers (other than cranes), Crushing Plant Operators, Elevating Graders, Paving Machine Operators (Blacktop), Fork-Lift, Paving Machine (concrete), Boat Operator or Engineer (30 tons or over), Tracmobile, Maintainers, Blacktop Rollers, Switchman, Locomotive (under 20 tons).

Group C

Asphalt Plant Operators, Barber Green Type Loaders, Engine Tender other than steam, Mixers (over 2 bags not to include Central Plants), Pumps (2 not more than 3), Rollers, Sub-Grader Machine, Tractors, Farm Type without attachment, Cable Head Tower Engineman, Dredge Booster Pump Operator, Boat Operator or Engine (under 30 tons), Finishing Machine, Fireman and Oiler combination, Motor Crane Oiler and Driver, Welding Machines (2 not more than 3), Heaters (stationary or portable, to 5), Compressors (portable, 2 not more than 3), Greaser or Fuel Trucks.

Group D

Air Compressor (1 portable), Fireman, Portable Crushers, Welding Machines (1 portable), Conveyors, Pump (1), Oiler, Heater (1).

Operating Engineer - Apprentices:

1st Period - 6 months - 70% of journeyman's rate
2nd Period - 12 months - 75% of journeyman's rate
3rd Period - 12 months - 80% of journeyman's rate
4th Period - 16 months - 90% of journeyman's rate

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3.8 CONSTRUCTION EQUIPMENT AND SERVICING

Construction equipment has been included in the material portion of the unit prices for normal construction; however because of some of the unique features of this project, additional special construction equipment has been added, as required, to various units. Example: very large crane required for placing rolling doors, which weigh up to 460 tons each, during the construction phase.

3.9 HOME OFFICE COSTS

Home office costs are excluded from this estimate.

3.10 NONPRODUCTIVE TIME

Nonproductive time includes such items as show-up time, payroll disbursements on company time, coffee breaks, and portal-to-portal pay. Nonproductive time is included in direct labor manhours.

3.11 ESCALATION

The estimate is based upon second quarter 1985 material and equipment prices and labor rates. No escalation is included.

3.12 CONTRACTORS OVERHEAD AND PROFIT

Contractors overhead and profit was calculated as 26.5% of Direct Construction Costs.

3.13 CONTINGENCY

This is an allowance for undefined and unforeseeable deviations from the ideal progress of the job. This includes such items as incomplete design, unforeseen field changes within the original project scope, construction problems, strikes, delays in material deliveries, and force majeure. Changes in scope are specifically excluded.

The following contingencies have been applied:

Improvements to land	10%
R&H Building	25%
Support Buildings	10%
CHTRU Facility	10%
Storage Facility	15%
Utilities	10%

A risk analysis was performed on the direct costs only and is shown in Tables 4 and 5 and Figure 1.

3.14 QUALITY ASSURANCE

Quality assurance levels were assigned and costs applied to equipment, components, materials, and construction as required for QA Classifications I, II, and III. In general, Classification I requires control, traceability, testing, and inspection of all materials, fabrication, or construction. In general, Classification II requires less stringent control, traceability, testing, and inspection requirements. Classification III equipment, components, material, and construction require industry standards for their materials, fabrication, and construction.

3.15 EXCLUSIONS

The estimate excludes the following items:

Spare parts
Premium pay
Sales tax
Permits and licenses
Royalties
Premiums for performance bonds
Escalation

Table 4 - Risk Analysis

BASIS FOR ANALYSIS

	Parameter	Value (Thousand $)	Estimated Accuracy Range (%) From Under	To Over
1)	R&H Building	266,640	- 25	+ 25
2)	CHTRU	893	- 10	+ 10
3)	Site	43,132	- 10	+ 10
4)	On site STO (MTU)	21,591	- 15	+ 15
5)	Suppt/Util	30,243	- 10	+ 10
	Total	362,499		
Contingency at 95% prob.		85,527	or 23.6% of total	
	Grand Total	448,026		

Use for contingency in estimate = 24 pct.

Table 5 - Risk Analysis

Table of Cumulative Probabilities

Probability	Total Cost In Million $
0.00	185.993
5.00	273.865
10.00	293.084
15.00	308.362
20.00	317.724
25.00	327.334
30.00	334.712
35.00	342.486
40.00	348.654
45.00	355.532
50.00	362.114
55.00	368.555
60.00	375.615
65.00	381.127
70.00	387.932
75.00	397.661
80.00	405.673
85.00	414.239
90.00	427.792
95.00	448.026
100.00	562.133

NOTE: In this simulation there is a 5% probability that the value 448.026 will be exceeded. Conversely, there is a 95% probability that the value 448.026 will not be exceeded.

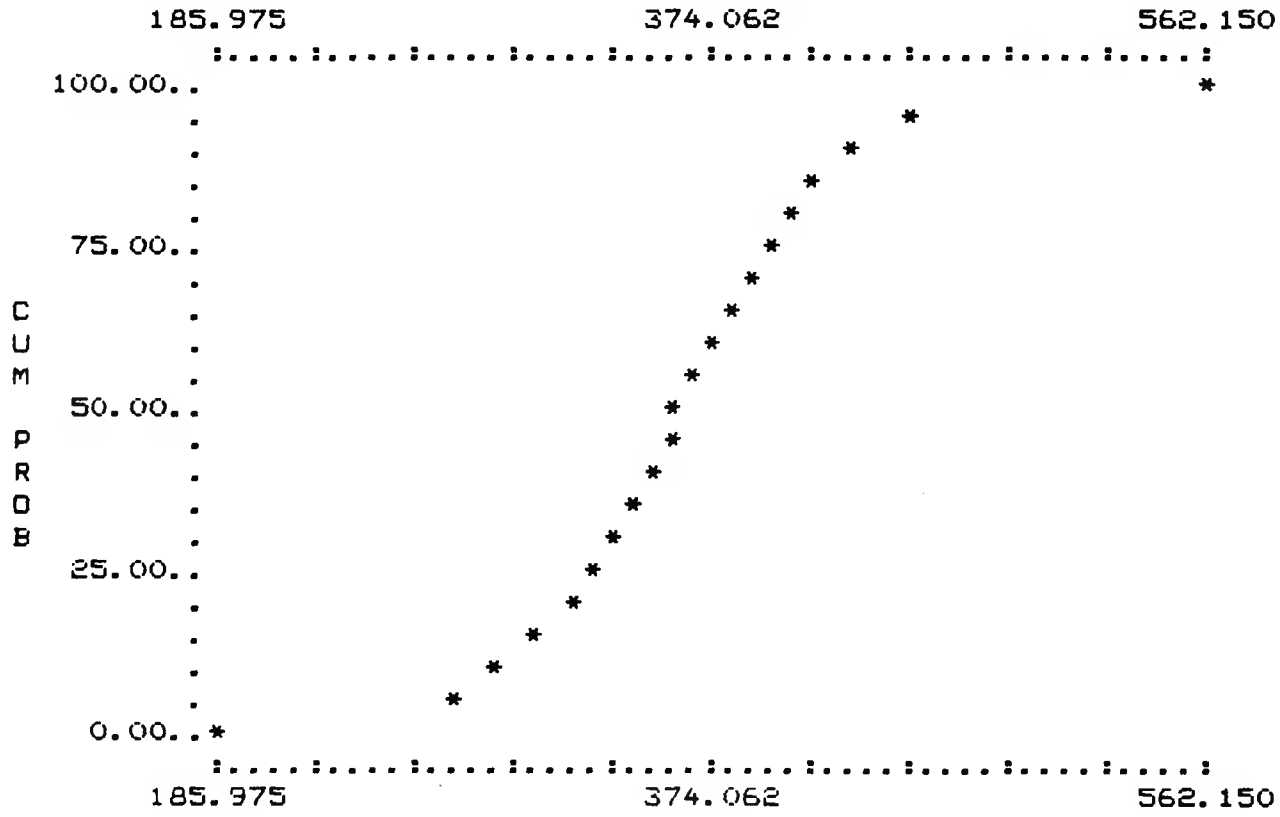

Figure 1 - Risk Analysis

4.0 CODE OF ACCOUNTS

To conform with the cost elements required for the MRS Facility, the estimate for waste handling, in particular the R&H Building, has been prepared and organized in acordance with The Ralph M. Parsons Code of Accounts based on the CSI. Refer to Table 6 for the basic Code of Accounts and to Table 7 for the expanded Code of Accounts.

Table 6 - Basic Code of Accounts

Division	Account
1	General Requirements
2	Site Work
3	Concrete
4	Masonary
5	Metal
6	Wood and Plastics
7	Thermal and Moisture Protection
8	Doors and Windows
9	Finishes
10	Specialties
11	Equipment
12	Furnishings
13	Special Construction
14	Conveying Systems
15	Mechanical
16	Electrical
17	Instrumentation

Table 7 - Code of Accounts

Code of Accounts		Description
		DIVISION 2 - SITE WORK
2010		Subsurface
2100		Clearing
	2102	Clearing and grubbing
2110		Demolition
2200		Earthwork
2210		Fine grading - earth (mach.)
	2211	Excavation including haul - earth
	2212	Embankment - compacted fill

Table 7 (Contd)

Code of Accounts		Description
2213		Rock excavation and haul - blasting
2214		Rock excavation and haul - rippable
2215		Rock embankment - compact - haul
2216		Crushing - screening and hauling
2217		Dike (earth fill) pond
2218		Earth fill at exsiting tunnel and dikes
2219A		Excavation at ponds
2219B		Import
2220		Trenching - including ditches
2221		Excavation and haul - earth
2222		Excavation and haul - rock trenches
	2222.1	1 ft deep for foundations
	2222.2	2 ft deep for foundations
	2222.5	Various depths for electrical power lines
	2222.6	6 ft deep for drain pipe, etc.
2223		Backfill
2224		Gravel bedding
2225		Shoring - earth trench walls
2226		Sand (ponds)
2500		Site drainage system
2501		Concrete headwall - reinforced
2503		Catch basin
2504		Frames and grate
2506		Concrete ditches, 4 in. thick
2507		Rip rap 12 in.
2508		Ditch check concrete
2509		Manproof barrier reinforced concrete
	2509.1	Tackwelded reinforced bar screen
	2509.2	Frames and covers (4 ft x 12 ft)
	2509.3	Filter cloth for ponds
2511		Manholes, precast concrete, 4 in. dia
	2511.1	9 ft-0 in. depth
	2511.2	10 ft-0 in. depth
	2511.3	6 ft-0 in. depth
2520		Drainage pipe

Table 7 (Contd)

Code of Accounts		Description
2521		Reinforced concrete pipe with gaskets
	2521.08	8 in. dia
	2521.15	15 in. dia
	2521.18	18 in. dia
	2521.21	21 in. dia
	2521.24	24 in. dia
	2521.30	30 in. dia
	2521.36	36 in. dia
	2521.48	48 in. dia
2522		Corregated metal pipe
	2522.15	15 in. dia
	2522.18	18 in. dia
	2522.21	21 in. dia
	2522.24	24 in. dia
	2522.30	30 in. dia
	2522.36	36 in. dia
	2522.42	42 in. dia
	2522.48	48 in. dia
	2522.54	54 in. dia
	2522.60	60 in. dia
2523		EMP end sections
	2523.15	15 in. dia
	2523.18	18 in. dia
	2523.21	21 in. dia
	2523.24	24 in. dia
	2523.30	30 in. dia
	2523.36	36 in. dia
	2523.42	42 in. dia
	2523.48	48 in. dia
2524		PVC pipe perforated
	2524.6	6 in. dia
2550		Site utilities
2551		Water system
	2551.6	6 in. PVC pipe
	2551.8	8 in. PVC pipe
	2551.10	10 in. PVC pipe
	2551.12	12 in. PVC pipe

Table 7 (Contd)

Code of Accounts		Description
	2551.99	C.I fittings
	2552.6	6 in. C.I pipe
	2552.8	8 in. ductile iron cement lined
	2552.9	Fittings
	2555.6	6 in. gate valves
	2555.8	8 in. gate valves
	2555.10	10 in. gate valves
	2555.12	12 in. gate valves
2556		Valve boxes
2557		Post indicator
2558		Concrete trust block
2559		Fire hydrants
2560		Process sewer system
	2560.01	Fiberglass pipe, 6 in. phase
	2560.02	8 in. phase
	2560.03	Cleanouts
	2560.04	Package treatment plant
	2560.05	Special equipment
2564		Water treatment plant
2565		Water storage
2566		Oily sewer system
2570		Sanitary sewage treatment plant
	2570.01	Life pump and spare
2571		PVC pipe
	2571.6	6 in. dia
	2571.8	8 in. dia
2572		G.I pipe
	2572.4	4 in. dia CS CTD/WPD
	2572.6	6 in. dia CS CTD/WPD
2573		PVC pipe perforated
	2573.4	4 in. dia
	2573.6	6 in. dia

Table 7 (Contd)

Code of Accounts		Description
2574		C.S. pipe CTD/WPD
	2574.4	4 in. dia
	2574.6	6 in. dia
2575		
	2575.1	Septic tanks 750-gal capacity
	2575.2	6250-gal capacity
	2575.9	Roofing paper 30 lb felt
		Gasoline and Diesel Fuel System
2576		C.S. pipe CTD/WPD
	2576.05	1/2-in. dia
	2576.01	1 in. dia
	2576.15	1-1/2-in. dia
	2576.2	2 in. dia
	2576.3	3 in. dia
2577		Membrane liner 1.5 mm thick
2578		Dispensing system (fuel)
2579		Fuel tank U.G.
	2579.1	5,000 gal
	2579.2	10,000 gal
2580		Natural gas system
	2580.01	CS pipe CTD/W 1-in. phase
	2580.15	CS pipe CTD/W 1-1/2-in. phase
	2580.02	CS pipe CTD/W 2-in. phase
	2580.03	CS pipe CTD/W 3-in. phase
	2580.04	CS pipe CTD/W 4-in. phase
	2580.06	CS pipe CTD/W 6-in. phase
2582		Cooling water
	2582.06	CS pipe CTD/W 6-in. phase
	2582.20	CS pipe CTD/W 20-in. phase
	2582.24	CS pipe CTD/W 24-in. phase
2584		Steam generation
	2584.03	CS pipe 3-in. phase
	2584.14	CS pipe 14-in. phase with insulation

Table 7 (Contd)

Code of Accounts		Description
2586		Deionized water
	2586.15	SS pipe 1-1/2-in. phase
2590		Air distribution system
	2590.75	C/S pipe CTD/W 3/4-in. phase galvanized
2600		Roads and Paving
2612		Asphalt Concrete Paving
	2612.03	3-in. thick
	2612.05	5-in. thick
2613		Concrete Paving
	2613.04	4-in. thick
	2613.08	8-in. thick
	2613.09	9-in. thick
	2613.12	12-in. thick
2615		Compacted Gravel Base
	2615.02	2-in. thick
	2615.09	9-in. thick
	2615.12	12-in. thick
	2615.13	13-in. thick
2616		Compacted Gravel Subbase
	2615.06	6-in. thick
	2615.22	22-in. thick
2617		Subgrade Preparation
	2617.06	6-in. thick
	2617.12	22-in. thick
2618		Concrete Curbs
2619		Concrete curb and gutters
2620		Concrete stairs
2622		Pavement striping

Table 7 (Contd)

Code of Accounts		Description
2623		Pavement markings
2626		Signs
2628		Precast concrete bumpers
	2628.8	8 ft long
	2628.12	12 ft long
2700		Site improvements
2710		Fences - chain link w/3 str b/u
	2710.8	8 ft high
	2710.6	6 ft high
2711		Fence - barb wire 4 ft-6 in. high
2714		Gates - motorized, 8 ft high
	2714.24	24 ft-0 in.
	2714.30	30 ft-0 in.
	2714.40	40 ft-0 in.
2715		Gates - double swing, 8 ft high
	2715.24	24 ft-0 in.
	2715.30	30 ft-0 in.
	2715.40	40 ft-0 in.
2716		Gates - single swing, 8 ft high
	2716.12	12 ft-0 in.
	2716.20	20 ft-0 in.
2717		Gate - personnel, 8 ft high
	2717.1	3 ft-6 in.
2780		Pipe railing, 1-1/2 dia
2790		Concrete, miscellaneous
2793		Cask support pads
2794		Transportable metal cask fans
	2794.1	Concrete, reinforced
	2794.2	1/2 in. stainless steel liner w/nelson studs

Table 7 (Contd)

Code of Accounts		Description
2795		Drywells
	2795.1	Hole drilling for 16 or 18-in. dia
	2795.2	Hole drilling for 30-in. dia
	2795.3	Hole drilling for 36-in. dia
	2795.4	
	2795.5	Disposal earth on rock from hole drilling
	2795.6	Drywell hole liner for 16 or 18-in. dia
	2795.7	Drywell hole liner for 30-in. dia
	2795.8	Drywell hole liner for 36-in. dia
	2795.9	Drywell liner grout
	2795.10	Excavation for concrete collar and disposal
	2795.11	Concrete/reform for collar
2796		Concrete trench (steam line)
2797		Check plate cover, 1/2 in.
2798		Retaining wall at loading dock
2800		Landscape and irrigation
2801		Landscaping and irrigation
2802		Grass seeding
2850		Railroad work
2851		Rail
2852		Ties
	2852.1	Railroad bridge
	2852.2	Refurbish existing railroad tracks
2853		Ballast
2854		Sub-ballast
2855		Subgrade preparation 6 in.
2856		Switch
2857		Rail crossing (rail)
2858		Rail crossing (road) 9 ft-0 in. w
2859		Wheel stops
2860		Tunnels and bridges

Table 7 (Contd)

Code of Accounts		Description
		DIVISION 3 - CONCRETE
3300		CIP concrete (3,000 psi) complete
	3311	Footing, isolated
	3312	Footing, continuous
	3313	Equipment foundations
	3314	Support pads for concrete casks (see 2793 or 3341)
	3320	Columns
	3331	Walls, 1 ft-0 in. through 2 ft-0 in.
	3332	Walls, 2 ft-6 in. through 3 ft-6 in.
	3333	Walls, 4 ft-0 in. through 10 ft-0 in.
	3334	Concrete tunnel
	3341	Slab on grade
	3342	Sub slab (3 ft-0 in.)
	3351	Slab, suspended, 12 in. or less
	3352	Slab, suspended, over 12 in.
	3355	Stairs and landings
	3360	Beams
3600		Grout
	3601	Grout 1 in.
	3602	Grout 2 in.
3990		Miscellaneous
	3998	Increase psc to 4,000
	3999	Increase psc to 5,000

Table 7 (Contd)

Code of Accounts		Description
		DIVISION 4 - MASONRY
4200		Masonry - CMU
	4202.08	CMU - 8 ft (reinforced)
4250		Veneer
	4251.08	Veneer, 8 in. split face

Table 7 (Contd)

Code of Accounts		Description
		DIVISION 5 - METALS
5100		Structural metal framing
5120		Structural steel
	5121	Structural steel light (0 to 20 lb/ft)
	5122	Structural steel medium (21 to 40 lb/ft)
	5123	Structural steel heavy (over 40 lb/ft)
5300		Metal decking
	5310	Roof deck, 1-1/2 in.-20 gauge
5500		Metal fabrication
5510		Metal stairs/ladders
	5511	Ladders without cage
	5512	Ladders with cage
	5513	Cement-filled metal pan stair
	5515	Checkered floor plate
5520		Handrail and railings
	5521	Single pipe handrails with double pipe brackets
	5522	Pipe railing (3 rail, 3 ft-6 in. high with toe plate)
5530		Gratings
5540		Lag storage racks
5550		Metal stack
5560		Metal liners
	5561	Liner PL SS shielding, 3/16 in.
	5563	Liner PL CS shielding, 4 in. to 8 in.
5900		Miscellaneous
	5901	Rails, crane (ton)

Table 7 (Contd)

Code of Accounts	Description
	DIVISION 6 - WOOD AND PLASTIC
6100	Rough carpentry
6110	Treated wood nailer

Table 7 (Contd)

Code of Accounts			Description
			DIVISION 7 - THERMAL/MOISTURE PROTECTION
7100			Waterproofing
	7110		Membrane waterproofing
7200			Insulation
	7210		Building insulation (perimeter foundation)
	7241		Wall fiberglass insulation
	7242		Roof deck insulation
	7243		Wall cavity insulation
7400			Preform roof/siding
	7411		Field assembly No. 1 metal siding, 1-1/2 in. x 22 GA ribbed with 3 in. FG insulation on structural steel framing
		7411.01	Add insulation, 1-1/2 in. FG
	7412		Field assembly No. 2 on concrete building
7500			Membrane roof
7510			Roofing system
	7511		Single plywood roof system on level deck
	7512		Single plywood roof system on sloped deck
7600			Flashing/sheet metal
7620			Flashing/trim
	7621		Flashing, parapet coping, .032 aluminum
	7622		Flashing, 30 in.
	7623		Flashing, reglet, counterflash
	7624		Fascia, metal panel
7800			Roof accessories
	7801		Roof drain
	7802		Overflow drain

Table 7 (Contd)

Code of Accounts		Description
		DIVISION 8
		Doors and windows (including hardware)
8100		Metal doors and frames
	8110	Aluminum entrance doors and frames
	8120	Hollow metal doors and frames
	8130	Hollow metal door w/s tract stl frame
	8140	S.S. clad hollow metal door and frames
	8150	Hollow metal elevator doors w/std stl frames
8200		Wood/plastic doors
8300		Special doors and frames (see acct. Div. 11)
	8360	Tornado doors (pressure and seismic)
	8370	tornado doors (pressure, missile
	8380	and seismic)
8500		Metal windows
8650		Special windows (see acct Div. 11)

Table 7 (Contd)

Code of Accounts		Description
		DIVISION 9
		Finishes
9100		Lath and plaster (complete)
9250		Gypsum wallboard
9260		Gypsum wallboard system
	9261	GWB on metal studs (1 face)
	9262	GWB on metal studs (2 face)
	9263	GWB ceiling (incl. susp)
9300		Tile
9310		Ceramic tile
	9311	Ceramic tile floor (unglazed)
	9312	Ceramic tile wall (glazed)
9500		Acoustic treatment
9510		Acoustic ceiling (incl. susp)
9650		Resilient flooring
9660		Resilient tile flooring
	9661	Vinyl asbestos tile
	9662	Base, 4 in. rubber
	9663	Seamless vinyl sheet flooring
9900		Painting
	9901	Painting masonry/concrete
	9902	Painting struct stl & misc. metal
	9903	Painting doors/windows
	9904	Painting GWB
	9905	Painting metal decking
	9906	Painting concrete floor (spec cort)
	9911	Sealer, clear, floors, base, walls
9920		Special coatings
	9921	Special coating floors
	9922	Special coating (walls/mains/ceiling)

Table 7 (Contd)

	Code of Accounts		Description
			DIVISION 10 - SPECIALTIES
1010	10100	10110	Chalkboards/tackboards
	10160		Toilet part/urinal screen
		10161	Toilet partitions
		10162	Urinal screens
1020	10200		Louvers and vent
1027	10270		Access flooring
1040	10400		Identifying devices
	10440		Room ID directory
	10450		Room ID plaques
1050	10500		Lockers
	10501		
1053	10530		Sun control devices
	10531		
1067	10670		Storage shelving
1080	10800		Toilet room accessories
	10850		Dock facilities

Table 7 (Contd)

	Code of Accounts		Description
			DIVISION 11 - EQUIPMENT
1155	11550		Industrial equip.
1160	11600		Laboratory equip.
1163	11630		Laundry equip.
1186	11860		Waste handling equip.
	11866		Waste handling hot cell equip.
	11868		Master slave manipulators
	11869		Special bridge manufactured manipulator and crane
	11870		Radiation shielding windows
		11870.1	Lead glass
		11870.2	Oil filled
		11870.3	Bullet resist
	11880		Radiation shielding doors

Table 7 (Contd)

	Code of Accounts	Description
		DIVISION 12- FURNISHINGS
1230	12300	Cabinets and storage
1260	12600	Furniture

Table 7 (Contd)

Code of Accounts			Description
			DIVISION 13 - SPECIAL CONSTRUCTION
1360	13600		Prefabricated structures
		13601	Air tight enclosures (glove boxes)
		13602	Hatch covers
	13650		Storage casks (for fuel)
		13651	Spent fuel casks
		13652	Non-fuel bearing casks
		13653	West valley high level waste casks
		13653	Onsite generated waste casks
	13660		Canisters/drums
		13661	Spent fuel canisters
		13662	Non-fuel bearing drums
	13670		Drywell construction (see acct. 2795)

Table 7 (Contd)

	Code of Accounts		Description
			DIVISION 14 - CONVEYING SYSTEMS
1420	14200		Elevators
		14210	Passenger
		14230	Freight
1430	14300		Hoists and cranes (other than Div 11)
1455	14550		Matl. handling systems (other than Div 11)
		14550	Conveyors and chutes
		14551	Transfer carts
		14552	Filter transfer containers
1470	14700		Pneumatic tube system
1480	14800		Wood Platforms

Table 7 (Contd)

	Code of Accounts		Description
			DIVISION 15 - MECHANICAL
1506	15060		Pipe, valves, ftgs, etc. w/in buildings
		15061	CS pipe, valves, ftgs, etc.
		15063A	Stn stl pipe, valves, ftgs, etc.
		15063B	Hasteloy pipe, valves, ftgs, etc.
		15068	Poly Prop pipe, valves, ftgs, etc.
	15070		Insulation
		15071	Insulation pipe
		15072	Tanks eq. etc.
1514	15140 -	15170	Pumps-tanks-misc. equip.
		15141	Pumps (excluding vacuum pumps)
		15142	Agitators
		15143	Blowers
		15144	Boilers
		15145	Compressors
		15146	Cooling towers
		15147	Dryers
		15148	Ejectors
		15149	Evaporators
		15150	Hepa filters
		15151	Filters
		15152	Cleaning package
		15153	Heat exchangers
		15154	Heaters
		15155	Ion exchange columns
		15156	Special mechanical equip.
		15157	Mixers
		15158	Breathing air station
		15159	Separators
		15160	Sumps
		15161	Tanks
		15162	Vacuum Pumps
		15163	Vessels
		15164	Washers
		15165	Breathing air system

Table 7 (Contd)

	Code of Accounts		Description
1550	15500		Fire protection (pipe-sprinklers-hoses-connections, etc.)
	15501		Portable sprinklers, etc.
1580	15800		Air distribution (HVAC)
		15801	Auto control valves
		15802	Ducts/supports
		15803	A/C equipment
		15804	HEPA/prefilters
		15805	Grills diffusers
		15806	HWS/HWR/CW/Glycol piping
1590		15900	Pneumatic tube system

Table 7 (Contd)

Code of Accounts			Description
			DIVISION 16 - ELECTRICAL
1610	16100		Basic material/methods
		16105	Power Distr. A.B. (conduit, wire power controls, etc.)
		16110	Power Distr. B.G. (complete)
1620	16200		Power generation (diesel gen-UPS system, etc.)
	16300		Power transmission (pole lines, etc.)
	16350		Power line demolition
	16400		Service distribution (SW gear, MCC, etc.)
	16500		Lighting (cond. wire, fixt., etc., controls, receptacles)
	16550		Grounding
	16600		Special systems
		16601	Cathodic protection
		16602	Lightning protection
		16603	Fire protection
		16604	Security alarm (wire conduit, etc.)
		16605	Seismic monitoring syst.
	16700		Communications (cond., wire, eq., etc.)
	16800		Heat tracing
	16900		Instrumentation/controls (cond. wire, terminations, etc.)

Table 7 (Contd)

	Code of Accounts	Description
		DIVISION 17 - INSTRUMENTATION
1701	17010	Data acquisition systems
1702	17020	Control valves
1706	17060	Flow/diff. pressure instr.
1710	17110	Electrical switches
1712	17120	Analyzers
1714	17140	Misc. instruments
1715	17150	Office plates/meter runs
1717	17170	Safeguard/surveillance
1718	17180	Instrument installation
1719	17190	Calibration

Note: Conduit and wire for instrumentation is in electrical account 16900.

ES-1(1-79)

PREPARED BY:
MRS Facility Clinch River Site - Primary (Cask) - Schedule II

PROJECT COST ESTIMATE SUMMARY

TITLE	PREPARED FOR	PREPARED BY	CHECKED BY	PROJECT NO.	DATE
Project Cost Estimate (Cask Storage)	PNL/DOE	V. Mesec	CCE	6440-11	August 85

	TITLE I	TITLE II	TITLE III	($ TOTAL X 1000)
A. ENGINEERING				
ARCHITECT - ENGINEER	NA	49,500	23,600	73,100
OTHER ENGINEERING - SPECIFY	NA	4,800	0	4,800
SUBTOTAL	NA	54,300	23,600	77,900
ESCALATION (I: NA %, II: NA %, III: NA %)	NA	0	0	0
CONTINGENCY (I: NA %, II: 20 %, III: 20 %)	NA	10,700	4,400	15,100
SUBTOTAL ENGINEERING	NA	65,000	28,000	93,000
OPERATING CONTRACTOR				0
TOTAL A				93,000
B. CONSTRUCTION				
(1) IMPROVEMENTS TO LAND				53,068
(2) BUILDINGS				0
BUILDING NO. R&H Bldg 709,025 SQ. FT.				337,300
BUILDING NO. Suppt. Bldgs SQ. FT.				35,266
(3) OTHER (DETACHED) STRUCTURES CHTRU Bldg.				1,163
(4) SPECIAL FACILITIES AND INSTAL. Storage Area				27,313
(5) UTILITIES				4,453
(6) OPERATING EXPENSE CHARGES NA				0
(7) CONTRACT ADMINISTRATION NA				0
(8) Construction Management				45,240
SUBTOTAL				503,803
ESCALATION NA % @ NA YEARS				0
CONTINGENCY Varies %				104,607
TOTAL B				608,410
C. STANDARD EQUIPMENT				0
TOTAL C				0
D. TRANSFERRED CAPITAL PROP. OR EQUIPMENT NA				0

CURRENT ENR. COST INDEX — BUILDING _____ CONSTRUCTION _____

TOTAL PROJECT ESTIMATE: $ 701,410

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
ENGINEERING		
PROCUREMENT		
CONSTRUCTION		
ESCALATION		
CONTINGENCY		
TCP/TCE		
WASH. STATE TAX		
TOTAL		

TYPE OF ESTIMATE:

APPROVALS	DATE
ESTIMATING	
PROJECT MANAGER	
CLIENT ENGINEER	

REMARKS:
(1) All cost 2nd quarter 1985.
(2) 85% productivity on labor is included in the estimate. Productivity factor furnished by DOE Oak Ridge.
(3) Escalation not included in estimate.
(4) NA = Not applicable

ESTIMATE SHEET ___ OF ___

CLINCH RIVER - BASE CASE

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY – PRICED BY DATE AUG. 85 SHEET ____ OF ____

JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	CONTINGENCY FACTORS											
	R&D BUILDING (AREAS 1, 2, 3 & 4)	25%		337	300	K						84 330 000
	STORAGE (AREA 6)	15%		27	313	K						4 097 000
	SUPPORT BUILDING (PART AREA 5)			35	266	K						
	CAFETERIA "			1	163	K						
	UTILITIES "			4	453	K						
	IMPROVEMENTS TO LAND (" & AREA 7)			53	068	K						
		10%		93	950	K						9 394 000
	SUB-TOTAL											97 821 000
	CONTRUCTION MANAGEMENT	15%		45	240	K						6 786 000
	TOTAL											104 607 000
	ROUND OFF ADJUST											
	USE											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY ENGINEERING PRICED BY V. MESER DATE AUG. 85 SHEET ____ OF ____

JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM 35% CHECKED BY LH

UNIT/AREA MRS.

DESCRIPTION

CAPACITY ACCELERATED SCHEDULE

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	AREA #1-7		(WORK SHEET - REF ONLY)									
	TOTAL SUMMARY WITHOUT CONTINGENCIES -											
	R&H BUILDING - AREA I											121 224 000
	II											23 261 000
	III											161 004 000
	IV											31 811 000
(B)(2)	R&H TOTAL R&H	TOTAL W/O CONTINGENCY -										337 300 000 +
(B)(2)	SUPPORT BUILDINGS (PART OF AREA 5)			26935	+	PRODUCTIVITY (943) + OH&P				(7388)		35 266 000 +
(B)(3)	CISTRY (do)			893	+			(20)		(244)		1 163 000 +
(B)(4)	STORAGE AREA 6											27 313 000 +
(B)(5)	UTILITIES (PART OF AREA 5)			3308	+			(212)		(933)		445 3000 +
	AREA 5 (SITE) 7											42 722 000
(B)(1)	TOTAL IMPROVE TO LAND											10 346 000
												53 068 000 +
	TOTAL											458 563 000 +

CES-2000-0 (4/81)

BY V. MESEC THE RALPH M. PARSONS COMPANY

DATE AUG. '85

SUBJECT Summary Sheet MAT. & LABOR JOB NO. 6490-11

R & M Bldg.

CLINCH RIVER BASE CASE

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)	CONSTR MGMT	TOTAL CONSTR.
2	SITE WORK	676	7	666	49	25473	10261	5867	42999		
3	CONCRETE	12882	4143	28004	5982		2491		53,502		
4	MASONRY	–	–	–	34				34		
5	METALS	4955	4650	1195	3036				13836		
6	WOOD / PLASTICS	–	–	7	9				16		
7	THERMAL/MOIST PROTECTION	–	–	940	1592				2532		
8	DOORS / WINDOWS	3921	–	4475	278				8674		
9	FINISHES	–	215	1920	605				2740		
10	SPECIALTIES	–	–	11	189				200		
11	EQUIPMENT	61871	2262	20,570	1087	21.	6342		92123		
12	FURNISHINGS	–	–	–	244				244		
13	SPECIAL CONSTRUCTION	–	–	3574	1035		38		4647		
14	CONVEYING SYSTEMS	–	–	1013	708				1721		
15	MECHANICAL	4829	4659	37631	5446				52565		
16	ELECTRICAL	2959	1256	9176	2933	6872	1886	1955	26977		
17	INSTRUMENTATION	1560	–	11525	–	235			13320		
	S/TOTAL	93653	17192	120,677	23,227	32601	20758	7822	316130		
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	2352	633	357	12043		
	SHIFT DIFFERENTIAL	584	321	1770	515	–	–		3190		
	S/TOTAL	95829	18388	127276	25147	34953	21571	8179	331363		
	CNTRL FACILITY	–	–	–	–	893	–	–	893		
	SUPPORT FACILITIES	–	–	–	–	26935	–	–	26935		
	UTILITIES	–	–	–	–	3308	–	–	3308		
	TOTAL DIRECT COST	95829	18388	127276	25147	66089	21571	8179	362499		
	CONTRACTOR OH & PROFIT	25395	4873	33728	6666	17515	5722	2167	96064		
	S/TOTAL	121224	23261	161,004	31811	83604	27313	10346	458563	45240	503803
	CONTINGENCY	30308	5816	40253	7953	8360	4097	1034	97821	6786	104607
	TOTAL	151532	29077	201257	39764	91964	31410	11380	556384	52026	608410

BY V. MEJIA THE RALPH M. PARSONS COMPANY DATE AUG. '85

SUBJECT Summary Sheet MATERIAL JOB NO. 6490-11
R & M Bldg

DIVISION	TITLE	AREA #1 MATL # (X1000)	AREA #2 MATL # (X1000)	AREA #3 MATL # (X1000)	AREA #4 MATL # (X1000)	AREA #5 MATL # (X1000)	AREA #6 MATL # (X1000)	AREA #7 MATL # (X1000)	TOTAL MATL # (X1000)
2	SITE WORK	600	5	585	39	20350	8375	4445	34397
3	CONCRETE	9287	3011	19602	3344		1773		37017
4	MASONRY	–	–	–	13				13
5	METALS	3525	3444	766	2264				9999
6	WOOD / PLASTICS	–	–	1	2				3
7	THERMAL/MOIST PROTECTION	–	–	707	1161				1868
8	DOORS / WINDOWS	3792	–	4331	243				8366
9	FINISHES	–	117	965	293				1375
10	SPECIALTIES	–	–	10	161				171
11	EQUIPMENT	60497	2155	19519	972	21	5812		88976
12	FURNISHINGS	–	–	–	239				239
13	SPECIAL CONSTRUCTION	–	–	3430	856		24		4310
14	CONVEYING SYSTEMS	–	–	837	657				1494
15	MECHANICAL	2982	23773	26706	3197				36658
16	ELECTRICAL	2539	1126	5704	1826	5390	1371	1356	18626
17	INSTRUMENTATION	1107	–	10150	–	199			11756
	S/TOTAL	84629	12231	93313	15267	25960	17353	5801	254554
CNTRCT FACILITY		–	–	–	–	743	–	–	743
SUPPORT FACILITIES		–	–	–	–	21591	–	–	21591
UTILITIES		–	–	–	–	2106	–	–	2106
	TOTAL DIRECT COST	84629	12231	93313	15267	50400	17353	5801	278994
CONTRACTORS OH-PROFIT									
	S/TOTAL								
CONTINGENCY									
	TOTAL								

THE RALPH M. PARSONS COMPANY

BY V. MESEC DATE AUG. '85

SUBJECT Summary Sheet LABOR (CONSTRUCTION) JOB NO. 6490-11

R & N Bldg

DIVISION	TITLE	AREA #1 LABOR $ (x1000)	AREA #2 LABOR $ (x1000)	AREA #3 LABOR $ (x1000)	AREA #4 LABOR $ (x1000)	AREA #5 LABOR $ (x1000)	AREA #6 LABOR $ (x1000)	AREA #7 LABOR $ (x1000)	TOTAL LABOR $ (x1000)
2	SITE WORK	76	2	81	10	5123	1888	1422	8602
3	CONCRETE	3595	1132	8402	2638		718		16485
4	MASONRY	-	-	-	21				21
5	METALS	1430	1206	429	772				3837
6	WOOD / PLASTICS	-	-	6	7				13
7	THERMAL/MOIST PROTECTION	-	-	233	431				664
8	DOORS / WINDOWS	129	-	144	35				308
9	FINISHES	-	98	955	312				1365
10	SPECIALTIES	-	-	1	28				29
11	EQUIPMENT	1374	107	1021	115	-	530		3147
12	FURNISHINGS	-	-	-	5				5
13	SPECIAL CONSTRUCTION	-	-	146	179		14		337
14	CONVEYING SYSTEMS	-	-	176	51				227
15	MECHANICAL	1847	2286	10925	2249				17307
16	ELECTRICAL	470	130	3472	1107	1482	455	599	7605
17	INSTRUMENTATION	153	-	1375	-	36			1564
	S/TOTAL	9224	4961	27364	7960	6641	36005	2021	61576
	PRODUCTIVITY OH LABOR	1592	875	4859	1405	2352	633	357	12043
	SHIFT DIFFERENTIAL	584	321	1770	515	-		-	3190
	S/TOTAL	11200	6157	33963	9880	8993	4238	2378	76809
	CNTRL FACILITY	-	-			150	-	-	150
	SUPPORT FACILITIES	-	-		-	5344	-	-	5344
	UTILITIES	-	-		-	1202	-	-	1202
	TOTAL DIRECT COST	11200	6157	33963	9880	15689	4238	2378	83505
	CONTRACTORS OH-PROFIT S/TOTAL								
	CONTINGENCY TOTAL								

THE RALPH M. PARSONS COMPANY

BY V. MESEC

SUBJECT Summary Sheet R & H Bldg

CONSTRUCTION LABOR MAN HOURS

DATE AUG. '85

JOB NO. 6490-11

DIVISION	TITLE	AREA #1 LABOR MH	AREA #2 LABOR MH	AREA #3 LABOR MH	AREA #4 LABOR MH	AREA #5 LABOR MH	AREA #6 LABOR MH	AREA #7 LABOR MH	TOTAL LABOR MH
2	SITE WORK	4711	106	5031	396	318568	117431	88436	534879
3	CONCRETE	233887	73636	546643	71627		46710		1072503
4	MASONRY	—	—	—	1301				1301
5	METALS	77574	65395	23262	41840				208071
6	WOOD / PLASTICS	—	—	346	397				743
7	THERMAL/MOIST PROTECTION	—	—	14121	26144				40265
8	DOORS / WINDOWS	7824	—	8707	2143				18674
9	FINISHES	—	6008	58490	19125				83623
10	SPECIALTIES	—	—	35	1616				1651
11	EQUIPMENT	73300	5705	54484	6119	16	28260		167904
12	FURNISHINGS	—	—	—	328				328
13	SPECIAL CONSTRUCTION	—	—	7690	9550		768		18008
14	CONVEYING SYSTEMS	—	—	9415	2695				12110
15	MECHANICAL	98543	122006	582957	119990				923496
16	ELECTRICAL	23533	1237	144520	61993	83005	25505	33566	467359
17	INSTRUMENTATION	6300	—	74812	—	1925			85037
	S/TOTAL	527674	280113	1580513	465464	403514	218674	122002	3597952
	CNTRL FACILITY					9086			9086
	SUPPORT FACILITIES					323845			323845
	UTILITIES					64133			64133
	TOTAL DIRECT MHRS	527674	280113	1580513	465464	800578	218674	122002	3995016
	PRODUCTIVITY	93117	49435	378914	82141	141276	38570	21530	705005
	TOTAL MAN HOURS CONSTRUCTION.	620791	329548	1859427	547605	941854	257244	143532	4700021

OBM 4MP 310

THE RALPH M. PARSONS COMPANY

BY V. ESEC DATE 16. '85

SUBJECT Summary Sheet MATL. & LABOR JOB NO. 6490-11

R & H Bldg

BASE CASE

FOR REFERENCE ONLY

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)
2	SITE WORK	676	7	666	49	—	—	—	1398
3	CONCRETE	12882	4143	28054	5982	—	—	—	51011
4	MASONRY	0	0	0	34	—	—	—	34
5	METALS	4955	4650	1195	3036	—	—	—	13836
6	WOOD / PLASTICS	0	0	7	9	—	—	—	16
7	THERMAL/MOIST PROTECTION	0	0	940	1592	—	—	—	2532
8	DOORS / WINDOWS	3921	0	4475	278	—	—	—	8674
9	FINISHES	0	215	1920	605	—	—	—	2740
10	SPECIALTIES	0	0	11	189	—	—	—	200
11	EQUIPMENT	61871	2262	20540	1087	—	—	—	85760
12	FURNISHINGS	0	0	0	244	—	—	—	244
13	SPECIAL CONSTRUCTION	0	0	3574	1035	—	—	—	4609
14	CONVEYING SYSTEMS	0	0	1013	708	—	—	—	1721
15	MECHANICAL	4829	4659	37631	5446	—	—	—	52565
16	ELECTRICAL	2959	1256	9176	2933	—	—	—	16324
17	INSTRUMENTATION	1560	0	11525	0	—	—	—	13085
	S/TOTAL	93668	17192	120677	23227	—	—	—	254749
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	—	—	—	8701
	SHIFT DIFFERENTIAL	584	321	1770	515	—	—	—	3190
	S/TOTAL	95829	18388	127276	25147	—	—	—	266640
	CNTRL FACILITY	—	—	—	—	—	—	—	—
	SUPPORT FACILITIES	—	—	—	—	—	—	—	—
	UTILITIES	—	—	—	—	—	—	—	—
	TOTAL DIRECT COST	95829	18388	127276	25147	—	—	—	266640
	CONTRACTORS OH & PROFIT	25395	4873	33728	6664	—	—	—	70660
	S/TOTAL	121224	23261	161004	31811	—	—	—	337700
	CONTINGENCY	30308	5816	40253	7953	—	—	—	84330
	TOTAL	151532	29077	201257	39764		—	—	421.630

FORM AMP 310

BY [illegible] 7/25/80 THE RALPH M. PARSONS COMPANY DATE UG. '85

SUBJECT Summary Sheet MATERIAL JOB NO. 6490-11

R & H Bldg BASE CASE

FOR REFERENCE ONLY

DIVISION	TITLE	AREA #1 MATL # (X1000)	AREA #2 MATL # (X1000)	AREA #3 MATL # (X1000)	AREA #4 MATL # (X1000)	AREA #5 MATL # (X1000)	AREA #6 MATL # (X1000)	AREA #7 MATL # (X1000)	TOTAL MATL # (X1000)
2	SITE WORK	600	5	585	39	—	—	—	1229
3	CONCRETE	9287	3011	19602	3344	—	—	—	35244
4	MASONRY	0	0	0	13	—	—	—	13
5	METALS	3525	3444	766	2264	—	—	—	9999
6	WOOD / PLASTICS	0	0	1	2	—	—	—	3
7	THERMAL/MOIST PROTECTION	0	0	707	1161	—	—	—	1868
8	DOORS / WINDOWS	3792	0	4331	243	—	—	—	8366
9	FINISHES	0	117	965	293	—	—	—	1375
10	SPECIALTIES	0	0	10	161	—	—	—	171
11	EQUIPMENT	60497	2155	19519	972	—	—	—	83143
12	FURNISHINGS	0	0	0	239	—	—	—	239
13	SPECIAL CONSTRUCTION	0	0	3430	856	—	—	—	4286
14	CONVEYING SYSTEMS	0	0	837	657	—	—	—	1494
15	MECHANICAL	2982	2373	26706	3197	—	—	—	35258
16	ELECTRICAL	2539	1126	5704	1826	—	—	—	11195
17	INSTRUMENTATION	1407	0	10150	0	—	—	—	11557
	S/TOTAL	84629	12231	93313	15267	—	—	—	205440
	CNTRCT FACILITY	—	—	—	—	—	—	—	—
	SUPPORT FACILITIES	—	—	—	—	—	—	—	—
	UTILITIES	—	—	—	—	—	—	—	—
	TOTAL DIRECT COST	84629	12231	93313	15267	—	—	—	205440
	CONTRACTORS OH-PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

FORM R1-P 310

THE RALPH M. PARSONS COMPANY

BY V.. SEC

DATE 6. '85

SUBJECT Summary Sheet LABOR (CONSTRUCTION) R & H Bldg

JOB NO. 6490-11

BASE CASE

FOR REFERENCE ONLY

DIVISION	TITLE	AREA #1 LABOR $ (x1000)	AREA #2 LABOR $ (x1000)	AREA #3 LABOR $ (x1000)	AREA #4 LABOR $ (x1000)	AREA #5 LABOR $ (x1000)	AREA #6 LABOR $ (x1000)	AREA #7 LABOR $ (x1000)	TOTAL LABOR $ (x1000)
2	SITE WORK	76	2	81	10	—	—	—	169
3	CONCRETE	3595	1132	3402	2638	—	—	—	15767
4	MASONRY	0	0	0	21	—	—	—	21
5	METALS	1430	1206	429	772	—	—	—	3837
6	WOOD / PLASTICS	0	0	6	7	—	—	—	13
7	THERMAL/MOIST PROTECTION	0	0	233	431	—	—	—	664
8	DOORS / WINDOWS	129	0	144	35	—	—	—	308
9	FINISHES	0	98	955	312	—	—	—	1365
10	SPECIALTIES	0	0	1	28	—	—	—	29
11	EQUIPMENT	1374	107	1021	115	—	—	—	2617
12	FURNISHINGS	0	0	0	5	—	—	—	5
13	SPECIAL CONSTRUCTION	0	0	144	179	—	—	—	323
14	CONVEYING SYSTEMS	0	0	176	51	—	—	—	227
15	MECHANICAL	1807	2286	10925	2249	—	—	—	17307
16	ELECTRICAL	420	130	3472	1107	—	—	—	5129
17	INSTRUMENTATION	153	0	1375	0	—	—	—	1528
	S/TOTAL	7424	4961	27364	7960	—	—	—	49309
	PRODUCTIVITY OH LABOR	1592	875	4829	1405	—	—	—	8701
	SHIFT DIFFERENTIAL	584	321	1770	515	—	—	—	3190
	S/TOTAL	11200	6157	33963	9880	—	—	—	61200
	CNTRL FACILITY	—	—	—	—	—	—	—	—
	SUPPORT FACILITIES	—	—	—	—	—	—	—	—
	UTILITIES	—	—	—	—	—	—	—	—
	TOTAL DIRECT COST	11200	6157	33963	9880	—	—	—	61200
	CONTRACTORS OH PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

THE RALPH M. PARSONS COMPANY

BY J. ESEC DATE UG. '85

SUBJECT Summary Sheet R & H Bldg — CONSTRUCTION LABOR MAN HOURS — BASE CASE

JOB NO. 6490-11

FOR REFERENCE ONLY

DIVISION	TITLE	AREA #1 LABOR MH	AREA #2 LABOR MH	AREA #3 LABOR MH	AREA #4 LABOR MH	AREA #5 LABOR MH	AREA #6 LABOR MH	AREA #7 LABOR MH	TOTAL LABOR MH
2	SITE WORK	4711	106	5031	596	—	—	—	10444
3	CONCRETE	233887	73656	546645	171627	—	—	—	1025793
4	MASONRY	0	0	0	1301	—	—	—	1301
5	METALS	77574	65395	23262	41840	—	—	—	208071
6	WOOD / PLASTICS	0	0	346	397	—	—	—	743
7	THERMAL/MOIST PROTECTION	0	0	14121	26144	—	—	—	40265
8	DOORS / WINDOWS	7824	0	8707	2143	—	—	—	18674
9	FINISHES	0	6008	58490	19125	—	—	—	83623
10	SPECIALTIES	0	0	35	1616	—	—	—	1651
11	EQUIPMENT	73300	5725	54484	6119	—	—	—	139628
12	FURNISHINGS	0	0	0	328	—	—	—	328
13	SPECIAL CONSTRUCTION	0	0	7690	9550	—	—	—	17240
14	CONVEYING SYSTEMS	0	0	9415	2695	—	—	—	12110
15	MECHANICAL	98543	127006	582957	114990	—	—	—	923496
16	ELECTRICAL	23533	7237	194520	61993	—	—	—	287283
17	INSTRUMENTATION	8300	0	74812	0	—	—	—	83112
	S/TOTAL	527672	280113	1580513	465464	—	—	—	2853762
	CNTRL FACILITY	—	—	—	—	—	—	—	—
	SUPPORT FACILITIES	—	—	—	—	—	—	—	—
	UTILITIES	—	—	—	—	—	—	—	—
	TOTAL DIRECT MHRS								
	PRODUCTIVITY	93119	49435	278914	82141	—	—	—	503609
	TOTAL MAN HOURS CONSTRUCTION.	620791	329548	1859427	547605	—	—	—	3357371

ES-1(1-79)

PREPARED BY:

MRS Facility Alternate Case Clinch River

PROJECT COST ESTIMATE SUMMARY

TITLE	PREPARED FOR	PREPARED BY	CHECKED BY	PROJECT NO.	DATE
Project Cost Estimate (Drywells)	PNL/DOE	V. Mesec	CCE	6440-11	August 85

	TITLE I	TITLE II	TITLE III	($ TOTAL X 1000)
A. ENGINEERING				
ARCHITECT - ENGINEER	NA	49,500	23,600	73,100
OTHER ENGINEERING - SPECIFY	NA	4,800	0	4,800
SUBTOTAL	NA	54,300	23,600	77,900
ESCALATION (I: NA %, II: NA %, III: NA %)	NA	0	0	0
CONTINGENCY (I: NA %, II: 20 %, III: 20 %)	NA	10,700	4,400	15,100
SUBTOTAL ENGINEERING	NA	65,000	28,000	93,000
OPERATING CONTRACTOR				0
TOTAL A				93,000
B. CONSTRUCTION				
(1) IMPROVEMENTS TO LAND				52,825
(2) BUILDINGS				0
BUILDING NO. R&H Bldg 709,025 SQ. FT.				337,300
BUILDING NO. Suppt. Bldgs SQ. FT.				35,248
(3) OTHER (DETACHED) STRUCTURES CHTRU Bldg.				1,163
(4) SPECIAL FACILITIES AND INSTAL. Storage Area				111,240
(5) UTILITIES				3,360
(6) OPERATING EXPENSE CHARGES NA				0
(7) CONTRACT ADMINISTRATION NA				0
(8) Construction Management				45,240
SUBTOTAL				536,105
ESCALATION NA % @ NA YEARS				0
CONTINGENCY Varies %				117,064
TOTAL B				703,440
C. STANDARD EQUIPMENT				0
TOTAL C				0
D. TRANSFERRED CAPITAL PROP. OR EQUIPMENT NA				0

CURRENT ENR. COST INDEX — BUILDING _____ CONSTRUCTION _____

TOTAL PROJECT ESTIMATE $ 796,440

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
ENGINEERING		
PROCUREMENT		
CONSTRUCTION		
ESCALATION		
CONTINGENCY		
TCP/TCE		
WASH. STATE TAX		
TOTAL		

TYPE OF ESTIMATE:

APPROVALS	DATE
ESTIMATING	
PROJECT MANAGER	
CLIENT ENGINEER	

REMARKS:

(1) All cost 2nd quarter 1985.
(2) 85% productivity on labor is included in the estimate. Productivity factor furnished by DOE Oak Ridge.
(3) Escalation not included in estimate.
(4) NA = Not applicable

ESTIMATE SHEET ___ OF ___

PARSONS

CLINCH RIVER - ALTERNATE CASE

ESTIMATE WORKSHEET

M.T.O. BY — PRICED BY — DATE AUG. 85 — SHEET ____ OF ____

JOB NO.: 6440-11 — CLIENT: DOE/PNL — TYPE OF ESTIMATE ROM — CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	CONTINGENCY FACTORS											
	RTH BUILDING (AREAS 1, 2, 3 & 4)	25%		337	300	K						84 320 000
	STORAGE (AREA 6)	15%		111	240	K						16 686 000
	SUPPORT BUILDING (PART AREA 5)			35	248	K						
	CHTRU "			1	163	K						
	UTILITIES "			9	360	K						
	IMPROVEMENTS TO LAND (" & AREA 7)			52	825	K						
		10%		92	596	K						9 260 000
	SUB-TOTAL											110 276 000
	CONTRUCTION MANAGEMENT	15%		45	240	K						6 786 000
	TOTAL											117 062 000
	ROUND OFF ADJUST											+ 2 000
	USE											117 064 000

CES-2000-0 (4/81)

PARSONS

CLINCH RIVER - ALTERNATE CASE

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE AUG. 85 | SHEET ____ OF ____

JOB NO.: 6440-11 | CLIENT: DOE IDAHO | TYPE OF ESTIMATE ROM | CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	TOTAL SUMMARY BY AREAS											
	R & D BUILDING - AREA 1											121 224 000
	" 2											23 261 000
	" 3											161 004 000
	" 4											31 811 000
	R & D											337 300 000
	SUPPORT BUILDING (PART OF AREA 5)			26922 +	PRODUCTIVITY (942) + OH & P (7384)							35 248 000
	CHTRU (")			893			(26)		(244)			1 163 000
	STORAGE (AREA 6)											111 240 000
	UTILITIES (PART OF AREA 5)			2512			(144)		(704)			3 360 000
	AREA 5 SITE											43 707 000
	" 7 "											9 118 000
	TOTAL IMPROVE TO LAND											52 825 000
	TOTAL											541 136 000

CES-2000-0 (4/81)

THE RALPH M. PARSONS COMPANY

BY ESEC DATE 06.'85

SUBJECT Summary Sheet MAT. & LABOR JOB NO. 6490-11

DM

ALTERNATE CASE CLINCH RIVER

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)	CONST MGMT $	TOTAL $
2	SITE WORK	676	7	666	49	26363	72393	4933	105087		
3	CONCRETE	12802	4103	28004	5982		—		51011		
4	MASONRY				34				34		
5	METALS	4955	4650	1195	3036				13836		
6	WOOD / PLASTICS			7	9				16		
7	THERMAL/MOIST PROTECTION			940	1992				2932		
8	DOORS / WINDOWS	3921		4475	278				8670		
9	FINISHES		245	1920	605				2190		
10	SPECIALTIES			11	189				200		
11	EQUIPMENT	61871	2262	20940	1087	21.3	7377		93158.3		
12	FURNISHINGS				244				244		
13	SPECIAL CONSTRUCTION			3574	1035		38		4647		
14	CONVEYING SYSTEMS			1013	708				1721		
15	MECHANICAL	4829	4659	37631	5446				52565		
16	ELECTRICAL	2959	1256	9176	2933	6804.4	5136	1955	30219.4		
17	INSTRUMENTATION	1560		11525		234.4			13319.4		
	S/TOTAL	93653	17192	120677	23227	33423	84944	6888	380004		
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	2240	2989	380	14250		
	SHIFT DIFFERENTIAL	584	321	1770	515	-		-	8190		
	S/TOTAL	95829	18388	127276	25147	35663	87933	7208	397444		
	CNTRL FACILITY					893			893		
	SUPPORT FACILITIES					26972			26972		
	UTILITIES					2512			2512		
	TOTAL DIRECT COST	95829	18388	127276	25147	65990	87933	7208	427771		
	CONTRACTOR OH & PROFIT	25795	4873	33728	6664	17489	23307	1911	113365		
	S/TOTAL	121224	23261	161004	31811	83479	111240	9119	541136	45240	586376
	CONTINGENCY	30308	5816	40251	7953	8348	16686	912	110278	6786	117064
	TOTAL	151532	29077	201251	39764	91825	127926	10031	651414	52026	703440

THE RALPH M. PARSONS COMPANY

BY TEXEO DATE UG. '85

SUBJECT Summary Sheet MATERIAL JOB NO. 6490-11

ALTERNATE CASE CLINCH RIVER

DIVISION	TITLE	AREA #1 MATL $ (X1000)	AREA #2 MATL $ (X1000)	AREA #3 MATL $ (X1000)	AREA #4 MATL $ (X1000)	AREA #5 MATL $ (X1000)	AREA #6 MATL $ (X1000)	AREA #7 MATL $ (X1000)	TOTAL MATL $ (X1000)
2	SITE WORK	600	5	585	39	21458	51522	3721	83930
3	CONCRETE	9287	3011	19608	33144		—		55244
4	MASONRY				13				13
5	METALS	3525	34444	766	22611				9999
6	WOOD / PLASTICS			1	2				3
7	THERMAL/MOIST PROTECTION			707	1161				1868
8	DOORS / WINDOWS	3792		4331	243				8366
9	FINISHES		117	965	293				1376
10	SPECIALTIES			10	161				171
11	EQUIPMENT	60497	2155	19519	972	21	7339		90503
12	FURNISHINGS				239				239
13	SPECIAL CONSTRUCTION			3490	856		24		4310
14	CONVEYING SYSTEMS			837	657				1494
15	MECHANICAL	2982	2373	26706	3197				35258
16	ELECTRICAL	2539	1126	5704	1826	5334	3125	1356	21010
17	INSTRUMENTATION	1407		10160		199			11756
	S/TOTAL	81629	12231	93813	15267	27012	68010	5077	305539
	CNTRCT FACILITY					743			743
	SUPPORT FACILITIES					21584			21584
	UTILITIES					1699			1699
	TOTAL DIRECT COST	81629	12231	93813	15267	51038	68010	5077	329565
	CONTRACTORS OH-PROFIT S/TOTAL								
	CONTINGENCY TOTAL								

THE RALPH M. PARSONS COMPANY

BY V. ..SEC DATE 16.'85

SUBJECT Summary Sheet LABOR (CONSTRUCTION) JOB NO. 6490-11

ALTERNATE CASE CLINCH RIVER

DIVISION	TITLE	AREA #1 LABOR $ (x1000)	AREA #2 LABOR $ (x1000)	AREA #3 LABOR $ (x1000)	AREA #4 LABOR $ (x1000)	AREA #5 LABOR $ (x1000)	AREA #6 LABOR $ (x1000)	AREA #7 LABOR $ (x1000)	TOTAL LABOR $ (x1000)
2	SITE WORK	76	2	81	10	4905	14871	1212	21157
3	CONCRETE	3595	1132	8402	2638		-		15767
4	MASONRY				21				21
5	METALS	1430	1206	429	772				3837
6	WOOD / PLASTICS			6	7				13
7	THERMAL/MOIST PROTECTION			233	431				664
8	DOORS / WINDOWS	129		144	35				308
9	FINISHES		98	955	312				1365
10	SPECIALTIES			1	28				29
11	EQUIPMENT	1374	107	1021	115	.3	98		2655.3
12	FURNISHINGS				5				5
13	SPECIAL CONSTRUCTION			144	179		14		337
14	CONVEYING SYSTEMS			176	51				227
15	MECHANICAL	1847	2286	10926	2249				17307
16	ELECTRICAL	420	130	3472	1107	1470.4	2011	599	9209.4
17	INSTRUMENTATION	153		1575		35.4			1563.4
	S/TOTAL	9024	4961	27864	7960	6411	16934	1811	74465
	PRODUCTIVITY OH LABOR	1592	855	4829	1405	2210	2989	320	14250
	SHIFT DIFFERENTIAL	584	321	1170	515	-	-	-	3190
	S/TOTAL	11200	6157	33963	9880	8651	19923	2131	91905
	CNTRL FACILITY					150			150
	SUPPORT FACILITIES					5338			5338
	UTILITIES					813			813
	TOTAL DIRECT COST	11200	6157	33963	9880	14952	19923	2131	98206
	CONTRACTORS OH/PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

THE RALPH M. PARSONS COMPANY

BY: ISEC DATE: 06.'85

SUBJECT: Summary Sheet CONSTRUCTION LABOR MAN HOURS JOB NO. 6490-11

ALTERNATE CASE CLINCH RIVER

DIVISION	TITLE	AREA #1 LABOR MH	AREA #2 LABOR MH	AREA #3 LABOR MH	AREA #4 LABOR MH	AREA #5 LABOR MH	AREA #6 LABOR MH	AREA #7 LABOR MH	TOTAL LABOR MH
2	SITE WORK	4711	106	5031	596	305015	921 813	75359	1315631
3	CONCRETE	233887	73636	546643	171627		—		1025793
4	MASONRY				1301				1301
5	METALS	77574	65395	23262	41810				208071
6	WOOD / PLASTICS			346	397				743
7	THERMAL/MOIST PROTECTION			14121	26144				40265
8	DOORS / WINDOWS	7824		8707	2143				18674
9	FINISHES		6008	58490	19125				83623
10	SPECIALTIES			35	1616				1651
11	EQUIPMENT	78300	5785	54484	6119		2010		141638
12	FURNISHINGS				328				328
13	SPECIAL CONSTRUCTION			740	9550		768		18008
14	CONVEYING SYSTEMS			9415	2695				12110
15	MECHANICAL	98543	122006	582957	119990				923496
16	ELECTRICAL	23533	7237	194520	61993	82377	112663	33566	515889
17	INSTRUMENTATION	8300		74812		1925			85037
	S/TOTAL	527672	280113	1580513	465464	389317	1040254	108925	4392258
CNTRL FACILITY						9086			9086
SUPPORT FACILITIES						323507			323507
UTILITIES						43381			43381
	TOTAL DIRECT MHRS	527672	280113	1580513	465464	765291	1040254	108925	4768232
PRODUCTIVITY		93119	49435	278914	82141	135063	183574	19222	841458
	TOTAL MAN HOURS CONSTRUCTION	620791	329548	1859427	547605	900344	1223828	128147	5609690

ES-1(1-79)

PREPARED BY:

MRS Facility Oak Ridge Base Case (Cask Storage)

PROJECT COST ESTIMATE SUMMARY

TITLE	PREPARED FOR	PREPARED BY	CHECKED BY	PROJECT NO.	DATE
Project Cost Estimate	PNL/DOE	V. Mesec	CCE	6440-11	August 85

	TITLE I	TITLE II	TITLE III	($ TOTAL X 1000)
A. ENGINEERING				
ARCHITECT - ENGINEER	NA	49,500	23,600	73,100
OTHER ENGINEERING - SPECIFY	NA	4,800	0	4,800
SUBTOTAL	NA	54,300	23,600	77,900
ESCALATION (I: NA %, II: NA %, III: NA %)	NA	0	0	0
CONTINGENCY (I: NA %, II: 20 %, III: 20 %)	NA	10,700	4,400	15,100
SUBTOTAL ENGINEERING	NA	65,000	28,000	93,000
OPERATING CONTRACTOR				0
TOTAL A				93,000
B. CONSTRUCTION				
(1) IMPROVEMENTS TO LAND				43,519
(2) BUILDINGS				0
BUILDING NO. R&H Bldg 709,025 SQ. FT.				337,300
BUILDING NO. Suppt. Bldgs SQ. FT.				35,266
(3) OTHER (DETACHED) STRUCTURES CHTRU Bldg.				1,163
(4) SPECIAL FACILITIES AND INSTAL. Storage Area				26,693
(5) UTILITIES				4,453
(6) OPERATING EXPENSE CHARGES NA				0
(7) CONTRACT ADMINISTRATION NA				0
(8) Construction Management				45,240
SUBTOTAL				493,634
ESCALATION NA % @ NA YEARS				0
CONTINGENCY Varies %				103,566
TOTAL B				597,200
C. STANDARD EQUIPMENT				0
TOTAL C				0
D. TRANSFERRED CAPITAL PROP. OR EQUIPMENT NA				0

CURRENT ENR. COST INDEX — BUILDING _____ CONSTRUCTION _____

TOTAL PROJECT ESTIMATE $ 690,200

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
ENGINEERING		
PROCUREMENT		
CONSTRUCTION		
ESCALATION		
CONTINGENCY		
TCP/TCE		
WASH. STATE TAX		
TOTAL		

TYPE OF ESTIMATE:

APPROVALS	DATE
ESTIMATING	
PROJECT MANAGER	
CLIENT ENGINEER	

REMARKS:

(1) All cost 2nd quarter 1985.
(2) 85% productivity on labor is included in the estimate. Productivity factor furnished by DOE Oak Ridge.
(3) Escalation not included in estimate.
(4) NA = Not applicable

ESTIMATE SHEET ___ OF ___

OAKRIDGE - BASE CASE

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY — PRICED BY — DATE AUG. 85 — SHEET ____ OF ____

JOB NO.: 6440-11 — CLIENT: DOE/PNL — TYPE OF ESTIMATE ROM — CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	CONTINGENCY FACTORS											
	R&H BUILDING (AREAS 1, 2, 3 & 4)	25%		337	300	K						84 320 000
	STORAGE (AREA 6)	15%		26	693	K						4 006 000
	SUPPORT BUILDING (PART AREA 5)			35	266	K						
	CHTRU "			1	163	K						
	UTILITIES "			4	453	K						
	IMPROVEMENTS TO LAND (" & AREA 7)			43	519	K						
		10%		84	401	K						8 440 000
	SUB-TOTAL											96 776 000
	CONTRUCTION MANAGEMENT	15%		45	240	K						6 790 000
	TOTAL											103 566 000
	ROUND OFF ADJUST											
	USE											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY: ENGINEERING | PRICED BY: V. MESER | DATE: AUG. 85 | SHEET ____ OF ____

JOB NO.: 6440-11 | CLIENT: DOE/PNL | TYPE OF ESTIMATE: ROM 35% | CHECKED BY

UNIT/AREA: MRS.

DESCRIPTION

CAPACITY: ACCELERATED SCHEDULE

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	AREA #1-7 (WORK SHEET - REF ONLY)											
	TOTAL SUMMARY WITHOUT CONTINGENCIES.											
	R&H BUILDING - AREA I											12,224,000
	II											2,326,000
	III											16,100,000
	IV											3,181,000
(B)(2)	R&H TOTAL R&H	TOTAL		W/o CONTINGENCY -								33,730,000 +
(B)(2)	SUPPORT BUILDINGS (PART OF AREA 5)			26935	+ PRODUCTIVITY			(943)	+ OVER	(7388)		3,526,000 +
(B)(3)	CNTRG do			893	+			(26)		(244)		116,300 +
(B)(4)	STORAGE AREA 6											2,693,000 +
(B)(5)	UTILITIES (PART OF AREA 5)			3308	+			(213)		(933)		445,300 +
	AREA 5 (SITE) 7											3,598,800
												753,100
(B)(1)	TOTAL IMPROVE TO LAND											43,519,000 +
	TOTAL											44,839,400

CES 2000.0 (4/91)

THE RALPH M. PARSONS COMPANY

BY L. ESEC DATE UG. '85

SUBJECT Summary Sheet MAT. & LABOR JOB NO. 6490-11

BASE CASE - RIVERSIDE SITE

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)	CONSTR MGMT	TOTAL CONSTR
2	SITE WORK	676	7	666	49	20238	9841	4235	35712		
3	CONCRETE	12882	4143	28004	5982		2491		53502		
4	MASONRY				34				34		
5	METALS	4955	4650	1195	2036				13036		
6	WOOD / PLASTICS			7	9				16		
7	THERMAL/MOIST. PROTECTION			940	1592				2532		
8	DOORS / WINDOWS	3921		4475	278				8674		
9	FINISHES		215	1920	605				2740		
10	SPECIALTIES			11	189				200		
11	EQUIPMENT	61871	2262	20540	1087	21	6342		92123		
12	FURNISHINGS				244				244		
13	SPECIAL CONSTRUCTION			3514	1035		38		4647		
14	CONVEYING SYSTEMS			1013	708				1721		
15	MECHANICAL	4827	4669	37631	5446				52565		
16	ELECTRICAL	2959	1256	9176	2933	6806	1770	1441	26421		
17	INSTRUMENTATION	1560		11525					13085		
						234			234		
	S/TOTAL	93653	17192	120677	23227	27379	20482	5676	308286		
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	2251	619	277	11848		
	SHIFT DIFFERENTIAL	584	321	1770	515			-	3190		
	S/TOTAL	95829	18388	127276	25147	29630	21101	5953	323324		
	CNTRL FACILITY					893			893		
	SUPPORT FACILITIES					26935			26935		
	UTILITIES					3308			3308		
	TOTAL DIRECT COST	95829	18388	127276	25147	60766	21101	5953	354460		
	CONTRACTOR OH & PROFIT	25395	4873	33728	6664	16104	5592	1578	93934		
	S/TOTAL	121224	23261	161004	31811	76870	26693	7531	448394	45240	493634
	CONTINGENCY	30308	5816	40253	7953	7687	4006	753	96776	6790	103566
	TOTAL	151532	29077	201257	39764	84557	30699	8284	545170	52030	597200

THE RALPH M. PARSONS COMPANY

BY J. TEIKO DATE AUG. '85

SUBJECT Summary Sheet MATERIAL JOB NO. 6490-11

BASE CASE - OAKRIDGE SITE

DIVISION	TITLE	AREA #1 MATL # (X1000)	AREA #2 MATL # (X1000)	AREA #3 MATL # (X1000)	AREA #4 MATL # (X1000)	AREA #5 MATL # (X1000)	AREA #6 MATL # (X1000)	AREA #7 MATL # (X1000)	TOTAL MATL # (X1000)
2	SITE WORK	600	5	585	39	15180	8036	3117	28162
3	CONCRETE	9287	3011	19602	3344		1773		37017
4	MASONRY				13				13
5	METALS	3525	3441	766	2264				9999
6	WOOD / PLASTICS			1	2				3
7	THERMAL/MOIST PROTECTION			707	1161				1868
8	DOORS / WINDOWS	3792		4331	243				8366
9	FINISHES		117	965	293				1375
10	SPECIALTIES			10	161				171
11	EQUIPMENT	60497	2155	19519	972	21	5812		88976
12	FURNISHINGS				239				239
13	SPECIAL CONSTRUCTION			3430	856		24		4310
14	CONVEYING SYSTEMS			837	657				1494
15	MECHANICAL	2982	2373	26706	3197				35258
16	ELECTRICAL	2539	1126	5704	1826	5317	1830	989	18831
17	INSTRUMENTATION	1407		10150		199			11756
	S/TOTAL	84629	12231	93313	15267	21317	16975	4106	247838
	CHTRD FACILITY					743			743
	SUPPORT FACILITIES					21591			21591
	UTILITIES					2106			2106
	TOTAL DIRECT COST	84629	12231	93313	15267	45757	16975	4106	272278
	CONTRACTORS OH-PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

FORM JMP 310

THE RALPH M. PARSONS COMPANY

BY V. SEC DATE 16. '85

SUBJECT Summary Sheet LABOR (CONSTRUCTION) JOB NO. 6490-11

BASE CASE - OAKRIDGE CITE

DIVISION	TITLE	AREA #1 LABOR $ (X1000)	AREA #2 LABOR $ (X1000)	AREA #3 LABOR $ (X1000)	AREA #4 LABOR $ (X1000)	AREA #5 LABOR $ (X1000)	AREA #6 LABOR $ (X1000)	AREA #7 LABOR $ (X1000)	TOTAL LABOR $ (X1000)
2	SITE WORK	76	2	81	10	4458	1805	1118	7550
3	CONCRETE	3595	1132	8102	2638		718		16485
4	MASONRY				21				21
5	METALS	1130	1206	429	772				3837
6	WOOD / PLASTICS			6	7				13
7	THERMAL/MOIST PROTECTION			233	431				664
8	DOORS / WINDOWS	129		144	35				308
9	FINISHES		98	955	312				1365
10	SPECIALTIES			1	28				29
11	EQUIPMENT	1314	107	1021	115		530		3147
12	FURNISHINGS				5				5
13	SPECIAL CONSTRUCTION			144	179		14		337
14	CONVEYING SYSTEMS			176	51				227
15	MECHANICAL	1847	2286	10985	2249				17307
16	ELECTRICAL	420	130	3472	1107		1140	452	6021
17	INSTRUMENTATION	153		1375		1569			3097
						35			35
	S/TOTAL	9024	4961	27364	7960	6062	3507	1570	60448
PRODUCTIVITY ON LABOR		1592	875	4829	1405	2251	619	277	11848
SHIFT DIFFERENTIAL		584	321	1770	515			-	3190
	S/TOTAL	11200	6157	33963	9880	8313	4126	1847	75486
CNTRL FACILITY						150			150
SUPPORT FACILITIES						5344			5344
UTILITIES						1202			1202
	TOTAL DIRECT COST	11200	6157	33963	9880	15009	4126	1847	82182
CONTRACTORS OH & PROFIT									
	S/TOTAL								
CONTINGENCY									
	TOTAL								

THE RALPH M. PARSONS COMPANY

BY JESEC DATE AUG. '85

SUBJECT Summary Sheet CONSTRUCTION LABOR MAN HOURS JOB NO. 6490-11

BASE CASE - CHILDRESS SITE

DIVISION	TITLE	AREA #1 LABOR MH	AREA #2 LABOR MH	AREA #3 LABOR MH	AREA #4 LABOR MH	AREA #5 LABOR MH	AREA #6 LABOR MH	AREA #7 LABOR MH	TOTAL LABOR MH
2	SITE WORK	4711	106	5031	596	277207	112258	64540	469449
3	CONCRETE	233887	73636	546643	171627		46710		1072503
4	MASONRY				1301				1301
5	METALS	77574	65395	23262	41840				208071
6	WOOD / PLASTICS			346	397				743
7	THERMAL/MOIST PROTECTION			14121	26144				40265
8	DOORS / WINDOWS	7824		8707	2143				18674
9	FINISHES		6008	58490	19125				83623
10	SPECIALTIES			35	1616				1651
11	EQUIPMENT	73300	5725	54484	6119	16	28260		167904
12	FURNISHINGS				328				328
13	SPECIAL CONSTRUCTION			7690	9550		768		18008
14	CONVEYING SYSTEMS			9415	2695				12110
15	MECHANICAL	98643	122006	582957	119990				923496
16	ELECTRICAL	23533	7237	194520	61993	81872	24673	25340	425168
17	INSTRUMENTATION	8300		74812		1925			85037
	S/TOTAL	527672	280113	1580513	465464	361020	212669	94880	3528331
	CNTRC FACILITY					9086			9086
	SUPPORT FACILITIES					323845			323845
	UTILITIES					64133			64133
	TOTAL DIRECT MHRS	527672	280113	1580513	465464	764084	212669	94880	3925395
	PRODUCTIVITY	93119	49432	278914	82101	134838	37530	16744	692718
	TOTAL MAN HOURS CONSTRUCTION.	620791	329545	1859427	547565	898922	250199	111624	4618113

ES-1(1-79)

PREPARED BY:

MRS Facility Oak Ridge Alternate Case (Drywells)

PROJECT COST ESTIMATE SUMMARY

TITLE	PREPARED FOR	PREPARED BY	CHECKED BY	PROJECT NO.	DATE
Project Cost Estimate	PNL/DOE	V. Mesec	CCE	6440-11	August 85

	TITLE I	TITLE II	TITLE III	($ TOTAL X 1000)
A. ENGINEERING				
ARCHITECT - ENGINEER	NA	49,500	23,600	73,100
OTHER ENGINEERING - SPECIFY	NA	4,800	0	4,800
SUBTOTAL	NA	54,300	23,600	77,900
ESCALATION	NA	0	0	0
CONTINGENCY	NA	10,700	4,400	15,100
SUBTOTAL ENGINEERING	NA	65,000	28,000	93,000
OPERATING CONTRACTOR				0
TOTAL A				93,000
B. CONSTRUCTION				
(1) IMPROVEMENTS TO LAND				38,191
(2) BUILDINGS				0
BUILDING NO. R&H Bldg 709,025 SQ. FT.				337,300
BUILDING NO. Suppt. Bldgs SQ. FT.				35,248
(3) OTHER (DETACHED) STRUCTURES CHTRU Bldg.				1,163
(4) SPECIAL FACILITIES AND INSTAL. Storage Area				112,561
(5) UTILITIES				3,360
(6) OPERATING EXPENSE CHARGES NA				0
(7) CONTRACT ADMINISTRATION NA				0
(8) Construction Management				45,240
SUBTOTAL				573,063
ESCALATION NA % @ NA YEARS				0
CONTINGENCY Varies %				115,797
TOTAL B				688,860
C. STANDARD EQUIPMENT				0
TOTAL C				0
D. TRANSFERRED CAPITAL PROP. OR EQUIPMENT NA				0

CURRENT ENR. COST INDEX — BUILDING _____ CONSTRUCTION _____

TOTAL PROJECT ESTIMATE $ 781,860

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
ENGINEERING		
PROCUREMENT		
CONSTRUCTION		
ESCALATION		
CONTINGENCY		
TCP/TCE		
WASH. STATE TAX		
TOTAL		

TYPE OF ESTIMATE:

APPROVALS	DATE
ESTIMATING	
PROJECT MANAGER	
CLIENT ENGINEER	

REMARKS:

(1) All cost 2nd quarter 1985.
(2) 85% productivity on labor is included in the estimate. Productivity factor furnished by DOE Oak Ridge.
(3) Escalation not included in estimate.
(4) NA = Not applicable

ESTIMATE SHEET ___ OF ___

PARSONS

OAKRIDGE - ALTERNATE CASE

ESTIMATE WORKSHEET

M.T.O. BY — PRICED BY DATE AUG. 85 SHEET ____ OF ____

JOB NO.: 6440 - 11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	CONTINGENCY FACTORS											
	R & H BUILDING (AREAS 1, 2, 3 & 4)	25%		337	300	K						84 320 000
	STORAGE (AREA 6)	15%		112	561	K						16 884 000
	SUPPORT BUILDING (PART AREA 5)			35	248	K						
	CAFTRU "			1	163	K						
	UTILITIES "			3	360	K						
	IMPROVEMENTS TO LAND (" & AREA 7)			38	191	K						
		10%		77	962	K						7 800 000
	SUB-TOTAL											109 014 000
	CONTRUCTION MANAGEMENT	15%		45	240	K						6 786 000
	TOTAL											115 800 000
	ROUND OFF ADJUST											(3 000)
	USE											115 797 000

CES-2000-0 (4/81)

PARSONS

OAKRIDGE. ALTERNATE CASE — ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE AUG. 85 | SHEET ____ OF ____

JOB NO.: 6440-11 | CLIENT: DOE/PNL | TYPE OF ESTIMATE ROM | CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	TOTAL Summary BY AREAS											
	R & H BUILDING - AREA 1											121 224 000
	" 2											23 261 000
	" 3											161 004 000
	" 4											31 811 000
	R & H											337 300 000
	SUPPORT BUILDING (PART OF AREA 5)			26922 +			PRODUCTIVITY (942) + OH & P (7384)					35 248 000
	CHTRU (")			893			(26)		(244)			1 163 000
	STORAGE (AREA 6)											112 561 000
	UTILITIES (PART OF AREA 5)			2512			(1442)		(704)			3 360 000
	AREA 5 SITE											30 660 000
	" 7 "											7 531 000
	TOTAL IMPROVE TO LAND											38 191 000
	TOTAL											527 823 000

CES-2000-0 (4/81)

THE RALPH M. PARSONS COMPANY

BY V. SEC DATE 6.85

SUBJECT Summary Sheet MAT. & LABOR JOB NO. 6490-11

ALTERNATE CASE - OAKRIDGE SITE

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)	CONSTR MGMT	TOTAL CONSTR
2	SITE WORK	676	7	666	19	16269	73087	4235	94989		
3	CONCRETE	12882	4143	28004	5982				51011		
4	MASONRY				34				34		
5	METALS	4955	4650	1195	3036				13836		
6	WOOD / PLASTICS			7	9				16		
7	THERMAL/MOIST PROTECTION			940	1992				2932		
8	DOORS / WINDOWS	3921		4475	278				8674		
9	FINISHES		216	1920	605				2740		
10	SPECIALTIES			11	189				200		
11	EQUIPMENT	61871	2262	20540	1087	21	7377		93158		
12	FURNISHINGS				244				244		
13	SPECIAL CONSTRUCTION			3578	1085		38		4647		
14	CONVEYING SYSTEMS			1013	708				1721		
15	MECHANICAL	4829	14659	37631	5446				62565		
16	ELECTRICAL	2959	1256	9116	2933	6805	5348	1441	29918		
17	INSTRUMENTATION	1560		11525		234			13319		
	S/TOTAL	93653	17192	120677	23227	23329	85850	5676	367604		
	PRODUCTIVITY ON LABOR	1692	875	4829	1405	2020	3131	277	14129		
	SMAT DIFFERENTIAL	584	321	1770	515	-			3190		
	S/TOTAL	95829	18388	127276	25147	25349	88981	5953	386723		
	CNTRL FACILITY					893			893		
	SUPPORT FACILITIES					26922			26922		
	UTILITIES					2512			2512		
	TOTAL DIRECT COST	95829	18388	127276	25147	55676	88981	5953	417750		
	CONTRACTOR OH & PROFIT	25395	4873	33728	6664	14755	23580	1578	110573		
	S/TOTAL	121224	23261	161004	31811	70431	112561	7531	527823	45240	573063
	CONTINGENCY	30308	5816	40253	7953	17544	16884	753	109011	6786	115797
	TOTAL	151532	29077	201257	39764	87975	129445	8284	636834	52026	688860

THE RALPH M. PARSONS COMPANY

BY NEJEB DATE AUG. '85

SUBJECT SUMMARY SHEET MATERIAL JOB NO. 6490-11

ALTERNATE CASE - OAKRIDGE SITE

DIVISION	TITLE	AREA #1 MATL $ (X1000)	AREA #2 MATL $ (X1000)	AREA #3 MATL $ (X1000)	AREA #4 MATL $ (X1000)	AREA #5 MATL $ (X1000)	AREA #6 MATL $ (X1000)	AREA #7 MATL $ (X1000)	TOTAL MATL $ (X1000)
2	SITE WORK	600	5	585	39	12631	57413	8117	74390
3	CONCRETE	9287	3011	19602	3344		—		35244
4	MASONRY				13				13
5	METALS	3525	3444	766	2264				9999
6	WOOD / PLASTICS			1	2				3
7	THERMAL/MOIST PROTECTION			707	1161				1868
8	DOORS / WINDOWS	3792		4331	243				8366
9	FINISHES		117	965	293				1375
10	SPECIALTIES			10	161				171
11	EQUIPMENT	60497	2155	19519	972	21	7339		90503
12	FURNISHINGS				299				239
13	SPECIAL CONSTRUCTION			3430	856		24		4310
14	CONVEYING SYSTEMS			837	657				1494
15	MECHANICAL	2982	2373	26706	3197				35258
16	ELECTRICAL	2539	1126	5704	1826	5334	3332	989	20850
17	INSTRUMENTATION	1407		10150		199			11756
	S/TOTAL	84629	12231	93313	15267	18185	68108	4106	295839
	CMTRF FACILITY					743			743
	SUPPORT FACILITIES					21584			21584
	UTILITIES					1699			1699
	TOTAL DIRECT COST	84629	12231	93313	15267	42211	68108	4106	319865
	CONTRACTORS OH-PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

THE RALPH M. PARSONS COMPANY

BY V. SEC DATE AUG. '85

SUBJECT SUMMARY SHEET: LABOR (CONSTRUCTION) JOB NO. 6990-11

ALTERNATE CASE - OAKRIDGE SITE

DIVISION	TITLE	AREA #1 LABOR $ (X1000)	AREA #2 LABOR $ (X1000)	AREA #3 LABOR $ (X1000)	AREA #4 LABOR $ (X1000)	AREA #5 LABOR $ (X1000)	AREA #6 LABOR $ (X1000)	AREA #7 LABOR $ (X1000)	TOTAL LABOR $ (X1000)
2	SITE WORK	76	2	81	10	3638	15674	1118	20599
3	CONCRETE	3595	1132	8402	2638		-		15767
4	MASONRY				21				21
5	METALS	1430	1206	429	772				3837
6	WOOD / PLASTICS			6	7				13
7	THERMAL/MOIST PROTECTION			233	431				664
8	DOORS / WINDOWS	129		144	35				308
9	FINISHES		98	955	312				1365
10	SPECIALTIES			1	28				29
11	EQUIPMENT	1374	107	1021	116		38		2655
12	FURNISHINGS				6				6
13	SPECIAL CONSTRUCTION			144	179		14		337
14	CONVEYING SYSTEMS			176	51				227
15	MECHANICAL	1847	3286	10925	2249				17307
16	ELECTRICAL	420	180	3472	1107	1471	2016	452	9068
17	INSTRUMENTATION	153		1375		35			1563
	S/TOTAL	9024	4961	27364	7960	5144	17742	1570	73765
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	2020	3131	277	14129
	SHIFT DIFFERENTIAL	584	321	1770	515			-	3190
	S/TOTAL	11200	6157	33963	9880	7164	20873	1847	91084
	CNTRC FACILITY					150			150
	SUPPORT FACILITIES					5338			5338
	UTILITIES					813			813
	TOTAL DIRECT COST	11200	6157	33963	9880	13465	20873	1847	97385
	CONTRACTORS OH/PROFIT S/TOTAL								
	CONTINGENCY TOTAL								

THE RALPH M. PARSONS COMPANY

BY IESEC DATE AUG. '85

SUBJECT Summary Sheet CONSTRUCTION LABOR MAN HOURS JOB NO. 6990-11

ALTERNATE CASE - OAK RIDGE SITE

DIVISION	TITLE	AREA #1 LABOR MH	AREA #2 LABOR MH	AREA #3 LABOR MH	AREA #4 LABOR MH	AREA #5 LABOR MH	AREA #6 LABOR MH	AREA #7 LABOR MH	TOTAL LABOR MH
2	SITE WORK	4711	106	5031	596	286253	974768	69540	1281005
3	CONCRETE	273887	73686	546643	171627				1025793
4	MASONRY				1301				1301
5	METALS	77674	65395	23262	41840				208071
6	WOOD / PLASTICS			346	397				743
7	THERMAL/MOIST PROTECTION			14121	26144				40265
8	DOORS / WINDOWS	7824		8707	2143				18674
9	FINISHES		6008	58490	19125				83623
10	SPECIALTIES			35	1616				1651
11	EQUIPMENT	78300	5725	54484	6119	11	2010		141649
12	FURNISHINGS				328				328
13	SPECIAL CONSTRUCTION			7690	9650		768		18008
14	CONVEYING SYSTEMS			9415	2695				12110
15	MECHANICAL	98543	122006	582957	119990				923496
16	ELECTRICAL	23533	7237	194520	61993	82377	118947	25340	507947
17	INSTRUMENTATION	8300		74812		1925			85037
	S/TOTAL	527672	280113	1580513	465466	810566	1090493	94880	4349701
	CNTRL FACILITY					9086			9086
	SUPPORT FACILITIES					323507			323507
	UTILITIES					43381			43381
	TOTAL DIRECT MHRS	527672	280113	1580513	1465466	686540	1090493	94880	4725675
	PRODUCTIVITY	93119	49435	278914	221111	121154	192440	16744	833947
	TOTAL MAN HOURS CONSTRUCTION.	620791	329548	1859427	547605	807694	1282933	111624	5559622

EB-1(1-79)

PREPARED BY:

MRS Facility Hartsville Base Case - Cask Storage

PROJECT COST ESTIMATE SUMMARY

TITLE	PREPARED FOR	PREPARED BY	CHECKED BY	PROJECT NO.	DATE
Project Cost Estimate	PNL/DOE	V. Mesec	CCE	6440-11	August 85

		TITLE I	TITLE II	TITLE III	($ TOTAL X 1000)
A. ENGINEERING					
ARCHITECT - ENGINEER		NA	49,500	23,600	73,100
OTHER ENGINEERING - SPECIFY		NA	4,800	0	4,800
SUBTOTAL		NA	54,300	23,600	77,900
ESCALATION	I NA % II NA % III NA %	NA	0	0	0
CONTINGENCY	I NA % II 20 % III 20 %	NA	10,700	4,400	15,100
SUBTOTAL ENGINEERING		NA	65,000	28,000	93,000
OPERATING CONTRACTOR					0
TOTAL A					93,000
B. CONSTRUCTION					
(1) IMPROVEMENTS TO LAND					61,754
(2) BUILDINGS					0
BUILDING NO.	R&H Bldg 709,025 SQ. FT.				337,300
BUILDING NO.	Suppt. Bldgs SQ. FT.				35,266
(3) OTHER (DETACHED) STRUCTURES	CHTRU Bldg.				1,163
(4) SPECIAL FACILITIES AND INSTAL.	Storage Area				25,053
(5) UTILITIES					4,453
(6) OPERATING EXPENSE CHARGES	NA				0
(7) CONTRACT ADMINISTRATION	NA				0
(8)	Construction Management				45,240
SUBTOTAL					510,229
ESCALATION	NA % @ NA YEARS				0
CONTINGENCY	Varies %				105,141
TOTAL B					615,370
C. STANDARD EQUIPMENT					0
TOTAL C					0
D. TRANSFERRED CAPITAL PROP. OR EQUIPMENT	NA				0

CURRENT ENR. COST INDEX — BUILDING _____ CONSTRUCTION _____

TOTAL PROJECT ESTIMATE $ 708,370

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
ENGINEERING		
PROCUREMENT		
CONSTRUCTION		
ESCALATION		
CONTINGENCY		
TCP/TCE		
WASH. STATE TAX		
TOTAL		

TYPE OF ESTIMATE:

APPROVALS	DATE
ESTIMATING	
PROJECT MANAGER	
CLIENT ENGINEER	

REMARKS:

(1) All cost 2nd quarter 1985.
(2) 85% productivity on labor is included in the estimate. Productivity factor furnished by DOE Oak Ridge.
(3) Escalation not included in estimate.
(4) NA = Not applicable

ESTIMATE SHEET ___ OF ___

PARSONS

HARTSVILLE- BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY – PRICED BY DATE AUG. 85 SHEET ____ OF ____

JOB NO.: 6440 - 11 CLIENT: TVA/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	CONTINGENCY FACTORS											
	R & H BUILDING (AREAS 1, 2, 3 & 4)	25%		337	300	K						84 320 000
	STORAGE (AREA 6)	15%		25	053	K						3 757 000
	SUPPORT BUILDING (PART AREA 5)			35	266	K						
	CH TRU "			1	163	K						
	UTILITIES "			4	453	K						
	IMPROVEMENTS TO LAND (" & AREA 7)			61	711	K						
		10%		102	636	K						10 264 000
	SUB-TOTAL											98 351 000
	CONTRUCTION MANAGEMENT	15%		45	240	K						6 790 000
	TOTAL											105 141 000
	ROUND OFF ADJUST											
	USE											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY: ENGINEERING | PRICED BY: V. MESER | DATE: AUG. 85 | SHEET ___ OF ___

JOB NO.: 6440-11 | CLIENT: DOE/PNL | TYPE OF ESTIMATE: ROM 35% | CHECKED BY: DJ

UNIT/AREA: MRS.

DESCRIPTION

CAPACITY: ACCELERATED SCHEDULE

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS	
	AREA #1-7 (WORK SHEET - REF ONLY)												
	TOTAL SUMMARY WITHOUT CONTINGENCIES -												
	R&H BUILDING - AREA I											121 224 000	
	II											23 261 000	
	III											161 004 000	
	IV											31 811 000	
(B)(2)	R&H TOTAL R&H	TOTAL W/O CONTINGENCY -										337 300 000	+
(B)(2)	SUPPORT BUILDINGS (PART OF AREA 5)			26 935	+	PRODUCTIVITY	(943)	+ OHEP	(7388)			35 266 000	+
(B)(3)	CNTRY do			893	+		(26)		(244)			1 163 000	+
(B)(4)	STORAGE AREA 6											25 053 000	+
(B)(5)	UTILITIES (PART OF AREAS)			3308	+		(212)		(933)			445 3000	+
	AREA 7 (SITE)											48 446 000	
												13 308 000	
(B)(1)	TOTAL IMPROVE TO LAND											61 754 000	+
	TOTAL											464 969 000	

CES-2000-0 (4/81)

THE RALPH M. PARSONS COMPANY

BY J. ESEC DATE 16.'85

SUBJECT Summary Sheet MAT. & LABOR JOB NO. 6490-11

HARTSVILLE - BASE CASE

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)	CONST MGMT $	TOTAL
2	SITE WORK	676	7	666	49	29168	8432	C214	45212		
3	CONCRETE	12882	4143	28004	5982		2491		53502		
4	MASONRY				34				34		
5	METALS	4955	4650	1195	3036				13836		
6	WOOD / PLASTICS			7	9				16		
7	THERMAL/MOIST. PROTECTION			940	1592				2532		
8	DOORS / WINDOWS	3921		4475	278				8674		
9	FINISHES		215	1920	605				2740		
10	SPECIALTIES			11	189				200		
11	EQUIPMENT	61811	2262	30540	1087	21	6382		98123		
12	FURNISHINGS				244				244		
13	SPECIAL CONSTRUCTION			3574	1036		38		4647		
14	CONVEYING SYSTEMS			1013	708				1721		
15	MECHANICAL	4829	4659	37631	5446				52565		
16	ELECTRICAL	2959	1256	9176	2933	7338	1945	3843	29450		
17	INSTRUMENTATION	1560		11525		234			13319		
	S/TOTAL	93653	17192	120677	23227	36761	19248	10057	320815		
	PRODUCTIVITY ON LABOR	1512	816	4829	1405	2717	557	463	12438		
	SHIFT DIFFERENTIAL	584	321	1770	615	-			3190		
	S/TOTAL	95829	18388	127276	25147	39478	17805	10520	336443		
	CNTRL FACILITY					893			893		
	SUPPORT FACILITIES					26735			26735		
	UTILITIES					3308			3308		
	TOTAL DIRECT COST	95829	18388	127276	25147	70604	19805	10520	367579		
	CONTRACTORS OH & PROFIT	25395	4873	33728	6664	18714	5248	2788	97410		
	S/TOTAL	121224	23261	161004	31811	89328	25053	13308	464989	45240	510229
	CONTINGENCY	30308	5816	40253	7953	8933	3757	1331	98351	6790	105141
	TOTAL	151532	29077	201257	39764	98261	28810	14639	563340	52030	615370

THE RALPH M. PARSONS COMPANY

BY TEJEO DATE AUG. '85

SUBJECT Summary Sheet MATERIAL JOB NO. 6490-11

HUNTSVILLE - BASE CASE

DIVISION	TITLE	AREA #1 MATL # (X1000)	AREA #2 MATL # (X1000)	AREA #3 MATL # (X1000)	AREA #4 MATL # (X1000)	AREA #5 MATL # (X1000)	AREA #6 MATL # (X1000)	AREA #7 MATL # (X1000)	TOTAL MATL # (X1000)
2	SITE WORK	600	5	585	39	22106	7019	4499	34853
3	CONCRETE	9287	3011	19602	3344		1773		37017
4	MASONRY				13				13
5	METALS	3525	3444	766	2264				9999
6	WOOD / PLASTICS			1	2				3
7	THERMAL/MOIST PROTECTION			707	1161				1868
8	DOORS / WINDOWS	3792		4331	243				8366
9	FINISHES		117	965	293				1375
10	SPECIALTIES			10	161				171
11	EQUIPMENT	60497	2155	19519	972	21	5812		88976
12	FURNISHINGS				239				239
13	SPECIAL CONSTRUCTION			3430	856		24		4310
14	CONVEYING SYSTEMS			837	657				1494
15	MECHANICAL	2982	2373	26706	3197				35258
16	ELECTRICAL	2539	1126	5704	1826	5736	1466	2934	21331
17	INSTRUMENTATION	1407		10150		199			11756
	S/TOTAL	84629	12231	93313	15267	28062	160094	7433	257029
	CNTRL FACILITY					743			743
	SUPPORT FACILITIES					21591			21591
	UTILITIES					2106			2106
	TOTAL DIRECT COST	84629	12231	93313	15267	52502	160094	7433	281469
	CONTRACTORS OH-PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

FORM RMP 310

THE RALPH M. PARSONS COMPANY

BY I SEC DATE UG. '85

SUBJECT Summary Sheet LABOR (CONSTRUCTION) JOB NO. 6490-11

HARTSVILLE - EDSE CASE

D4

DIVISION	TITLE	AREA #1 LABOR $ (x1000)	AREA #2 LABOR $ (x1000)	AREA #3 LABOR $ (x1000)	AREA #4 LABOR $ (x1000)	AREA #5 LABOR $ (x1000)	AREA #6 LABOR $ (x1000)	AREA #7 LABOR $ (x1000)	TOTAL LABOR $ (x1000)
2	SITE WORK	16	2	81	10	7062	1413	1715	10359
3	CONCRETE	3595	1132	8402	2638		718		16485
4	MASONRY				21				21
5	METALS	1430	1206	429	772				3837
6	WOOD / PLASTICS			6	7				13
7	THERMAL/MOIST PROTECTION			233	431				664
8	DOORS / WINDOWS	129		144	35				308
9	FINISHES		98	955	312				1365
10	SPECIALTIES			1	28				29
11	EQUIPMENT	1374	107	1021	115		530		3147
12	FURNISHINGS				5				5
13	SPECIAL CONSTRUCTION			144	179		14		337
14	CONVEYING SYSTEMS			176	51				227
15	MECHANICAL	1847	2286	10925	2249				17307
16	ELECTRICAL	420	130	3472	1107	1602	479	909	8119
17	INSTRUMENTATION	153		1375		35			1563
	S/TOTAL	9024	4961	27364	7960	8699	3154	2624	63786
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	2717	557	463	12438
	SHIFT DIFFERENTIAL	584	321	1770	515	-			3190
	S/TOTAL	11200	6157	33963	9880	11416	3711	3087	79414
	CNTRL FACILITY					150			150
	SUPPORT FACILITIES					5344			5344
	UTILITIES					1202			1202
	TOTAL DIRECT COST	11200	6157	33963	9880	18112	3711	3087	86110
	CONTRACTORS OH-PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

ORM RMP 310

THE RALPH M. PARSONS COMPANY

BY ESEC DATE AUG. '85

SUBJECT Summary Sheet CONSTRUCTION LABOR MAN HOURS JOB NO. 6990-11

HARTSVILLE - BASE CASE

DH

DIVISION	TITLE	AREA #1 LABOR MH	AREA #2 LABOR MH	AREA #3 LABOR MH	AREA #4 LABOR MH	AREA #5 LABOR MH	AREA #6 LABOR MH	AREA #7 LABOR MH	TOTAL LABOR MH
2	SITE WORK	4711	106	5031	596	429205	87882	106649	644180
3	CONCRETE	233887	73636	546643	171627		46710		1072503
4	MASONRY				1301				1301
5	METALS	77514	65395	23262	41840				208071
6	WOOD / PLASTICS			346	397				743
7	THERMAL/MOIST PROTECTION			14121	26144				40265
8	DOORS / WINDOWS	7824		8707	2143				18674
9	FINISHES		6008	58490	19125				83623
10	SPECIALTIES			35	1616				1651
11	EQUIPMENT	73300	5725	54484	6119	16	28260		167904
12	FURNISHINGS				328				328
13	SPECIAL CONSTRUCTION			7690	9550		768		18008
14	CONVEYING SYSTEMS			9415	2695				12110
15	MECHANICAL	98543	122006	582957	119990				923496
16	ELECTRICAL	23533	7237	194520	61993	89720	26850	50930	454783
17	INSTRUMENTATION	8300		74812		1925			85037
	S/TOTAL	527672	280113	1580513	465464	530866	190470	157579	3732677
	CNTRL FACILITY					9086			9086
	SUPPORT FACILITIES					323845			323845
	UTILITIES					64133			64133
	TOTAL DIRECT MHRS	527672	280113	1580513	465464	927730	190470	157579	4127741
	PRODUCTIVITY	93119	49435	278914	82141	163752	33612	27808	728781
	TOTAL MAN HOURS CONSTRUCTION.	620791	329548	1859427	547605	1091482	224082	185387	4858522

ES-1(1-79)

PREPARED BY:
MRS Facility Hartsville Alternate Case (Drywells)

PROJECT COST ESTIMATE SUMMARY

TITLE	PREPARED FOR	PREPARED BY	CHECKED BY	PROJECT NO.	DATE
Project Cost Estimate	PNL/DOE	V. Mesec	CCE	6440-11	August 85

	TITLE I	TITLE II	TITLE III	($ TOTAL X 1000)
A. ENGINEERING				
ARCHITECT - ENGINEER	NA	49,500	23,600	73,100
OTHER ENGINEERING - SPECIFY	NA	4,800	0	4,800
SUBTOTAL	NA	54,300	23,600	77,900
ESCALATION (I: NA %, II: NA %, III: NA %)	NA	0	0	0
CONTINGENCY (I: NA %, II: 20 %, III: 20 %)	NA	10,700	4,400	15,100
SUBTOTAL ENGINEERING	NA	65,000	28,000	93,000
OPERATING CONTRACTOR				0
TOTAL A				93,000
B. CONSTRUCTION				
(1) IMPROVEMENTS TO LAND				60,748
(2) BUILDINGS				0
BUILDING NO. R&H Bldg 709,025 SQ. FT.				337,300
BUILDING NO. Suppt. Bldgs SQ. FT.				35,248
(3) OTHER (DETACHED) STRUCTURES CHTRU Bldg.				1,163
(4) SPECIAL FACILITIES AND INSTAL. Storage Area				83,140
(5) UTILITIES				3,360
(6) OPERATING EXPENSE CHARGES NA				0
(7) CONTRACT ADMINISTRATION NA				0
(8) Construction Management				45,240
SUBTOTAL				566,199
ESCALATION NA % @ NA YEARS				0
CONTINGENCY Varies %				113,641
TOTAL B				679,840
C. STANDARD EQUIPMENT				0
TOTAL C				0
D. TRANSFERRED CAPITAL PROP. OR EQUIPMENT NA				0

CURRENT ENR. COST INDEX — BUILDING _____ CONSTRUCTION _____

TOTAL PROJECT ESTIMATE $ 772,840

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
ENGINEERING		
PROCUREMENT		
CONSTRUCTION		
ESCALATION		
CONTINGENCY		
TCP/TCE		
WASH. STATE TAX		
TOTAL		

TYPE OF ESTIMATE:

APPROVALS	DATE
ESTIMATING	
PROJECT MANAGER	
CLIENT ENGINEER	

REMARKS:
(1) All cost 2nd quarter 1985.
(2) 85% productivity on labor is included in the estimate. Productivity factor furnished by DOE Oak Ridge.
(3) Escalation not included in estimate.
(4) NA = Not applicable

ESTIMATE SHEET ___ OF ___

HARTSVILLE ALTERNATE CASE

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY _____ PRICED BY _____ DATE AUG. 85 SHEET _____ OF _____

JOB NO.: 6440-11 CLIENT: TVA/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA _____

DESCRIPTION MRS FACILITY

CAPACITY _____

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	CONTINGENCY FACTORS											
	R3H BUILDING (AREAS 1, 2, 3 & 4)	25%		337	300	K						84 330 000
	STORAGE (AREA 6)	15%		83	140	K						12 471 000
	SUPPORT BUILDING (PART AREA 5)			35	248	K						
	CATRU "			1	163	K						
	UTILITIES "			9	360	K						
	IMPROVEMENTS TO LAND (" & AREA 7)			60	148	K						
		10%		100	519	K						10 052 000
	SUB-TOTAL											106 853 000
	CONTRUCTION MANAGEMENT	15%		45	240	K						6 786 000
	TOTAL											113 639 000
	ROUND OFF ADJUST											+ 2 000
	USE											113 641 000

CES-2000-0 (4/81)

PARSONS

HARTSVILLE - ALTERNATE CASE

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE AUG. 85 | SHEET ____ OF ____

JOB NO.: 6440-11 | CLIENT: DOE/PNL | TYPE OF ESTIMATE ROM | CHECKED BY

UNIT/AREA

DESCRIPTION MRS FACILITY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	TOTAL SUMMARY BY AREAS											
	R & H BUILDING - AREA 1											121 224 000
	" 2											23 261 000
	" 3											161 004 000
	" 4											31 811 000
	R & H											337 300 000
	SUPPORT BUILDING (PART OF AREA 5)			26922 +		PRODUCTIVITY	(942) + OH & P		(7384)			35 248 000
	CHTRU "			893			(26)		(244)			1 163 000
	STORAGE (AREA 6)											83 140 000
	UTILITIES (PART OF AREA 5)			2512			(144)		(704)			3 360 000
	AREA 5 SITE											47 440 000
	" 7 "											13 308 000
	TOTAL IMPROVE TO LAND											60 748 000
	TOTAL											520 959 000

CES-2000-0 (4/81)

THE RALPH M. PARSONS COMPANY

BY VILLESCA DATE 16. '85

SUBJECT Summary Sheet MAT. & LABOR JOB NO. 6490-11

HARTSVILLE - ALTERNATE 1 ACE

DIVISION	TITLE	AREA #1 TOTAL M&L $ (X 1000)	AREA #2 TOTAL M&L $ (X 1000)	AREA #3 TOTAL M&L $ (X 1000)	AREA #4 TOTAL M&L $ (X 1000)	AREA #5 TOTAL M&L $ (X 1000)	AREA #6 TOTAL M&L $ (X 1000)	AREA #7 TOTAL M&L $ (X 1000)	TOTAL M&L $ (X 1000)	CONSTR. MGMT	TOTAL CONSTR.
2	SITE WORK	676	7	666	49	28915	50869	6211	87396		
3	CONCRETE	12882	4143	28004	5982				51011		
4	MASONRY				34				34		
5	METALS	4955	4650	1195	3036				13836		
6	WOOD / PLASTICS			7	9				16		
7	THERMAL/MOIST PROTECTION			940	1592				2532		
8	DOORS / WINDOWS	3921		4475	278				8674		
9	FINISHES		215	1920	605				2740		
10	SPECIALTIES			11	189				200		
11	EQUIPMENT	61811	2262	20540	1087	21	7377		93158		
12	FURNISHINGS				244				244		
13	SPECIAL CONSTRUCTION			3574	1035		38		4647		
14	CONVEYING SYSTEMS			1013	708				1721		
15	MECHANICAL	4829	4659	37631	5446				52565		
16	ELECTRICAL	2959	1256	9176	2933	6815	5107	3843	32089		
17	INSTRUMENTATION	1560		11525		234			13319		
	S/TOTAL	93653	17192	120677	23227	35985	63391	10057	364182		
	PRODUCTIVITY ON LABOR	1592	816	4829	1405	2629	2333	463	14126		
	SHIFT DIFFERENTIAL	584	321	1770	515	-			3190		
	S/TOTAL	95829	18388	127276	25147	38614	65724	10520	381498		
	CNTRL FACILITY					893			893		
	SUPPORT FACILITIES					26922			26922		
	UTILITIES					2512			2512		
	TOTAL DIRECT COST	95829	18388	127276	25147	68941	65724	10520	411825		
	CONTRACTOR OH & PROFIT	25395	4873	33728	6664	18270	17416	2788	109134		
	S/TOTAL	121224	23261	161004	31811	87211	83140	13308	520959	45240	566199
	CONTINGENCY	30308	5816	40252	7954	8722	12471	1331	106854	6787	113641
	TOTAL	151532	29077	201256	39765	95933	95611	14639	627813	52027	679840

BY: ?EZEO — THE R. M. PARSONS CO. — DATE: UG. 85

SUBJECT: Summary Sheet MATERIAL — JOB NO. 6490-11

HARTSVILLE - ALTERNATE CASE

Division	Title	Area #1 MAT'L $ (X1000)	Area #2 MAT'L $ (X1000)	Area #3 MAT'L $ (X1000)	Area #4 MAT'L $ (X1000)	Area #5 MAT'L $ (X1000)	Area #6 MAT'L $ (X1000)	Area #7 MAT'L $ (X1000)	Total MAT'L $ (X1000)
2	SITE WORK	600	5	585	39	21825	37675	4499	67228
3	CONCRETE	9287	3011	19602	3344				35244
4	MASONRY				13				13
5	METALS	3525	3444	766	2264				9999
6	WOOD / PLASTICS			1	2				3
7	THERMAL/MOIST PROTECTION			707	1161				1868
8	DOORS / WINDOWS	3792		4331	243				8366
9	FINISHES		117	965	293				1375
10	SPECIALTIES			10	161				171
11	EQUIPMENT	60497	2155	19519	972	21	7339		90503
12	FURNISHINGS				239				239
13	SPECIAL CONSTRUCTION			3430	856		24		4310
14	CONVEYING SYSTEMS			837	657				1494
15	MECHANICAL	2982	2373	26706	3197				35258
16	ELECTRICAL	2539	1126	5704	1826	5344	3131	2934	22604
17	INSTRUMENTATION	1407		10150		199			11756
	S/TOTAL	84629	12231	93313	15267	27389	50169	7433	290431
	CHTRU FACILITY					743			743
	SUPPORT FACILITIES					21584			21584
	UTILITIES					1699			1699
	TOTAL DIRECT COST	84629	12231	93313	15267	51415	50169	7433	314457
	CONTRACTORS OH-PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

DH

SEC

Summary Sheet LABOR (CONSTRUCTION) JOB NO. 6490-11

HARTSVILLE - ELECTRIC CASE

DIVISION	TITLE	AREA #1 LABOR $ (X1000)	AREA #2 LABOR $ (X1000)	AREA #3 LABOR $ (X1000)	AREA #4 LABOR $ (X1000)	AREA #5 LABOR $ (X1000)	AREA #6 LABOR $ (X1000)	AREA #7 LABOR $ (X1000)	TOTAL LABOR $ (X1000)
2	SITE WORK	76	2	81	10	7090	11194	1715	20168
3	CONCRETE	3595	1132	8402	2638		—		15767
4	MASONRY				21				21
5	METALS	1430	1206	429	772				3837
6	WOOD / PLASTICS			6	7				13
7	THERMAL/MOIST PROTECTION			233	431				664
8	DOORS / WINDOWS	129		144	35				308
9	FINISHES		90	955	312				1365
10	SPECIALTIES			1	28				29
11	EQUIPMENT	1374	107	1021	115		38		2655
12	FURNISHINGS				5				5
13	SPECIAL CONSTRUCTION			144	179		14		337
14	CONVEYING SYSTEMS			176	51				227
15	MECHANICAL	1847	2286	10925	2249				17307
16	ELECTRICAL	420	130	3472	1107	1471	1976	909	9486
17	INSTRUMENTATION	153		1375		35			1563
	S/TOTAL	9024	4961	27364	7960	8596	13222	2624	73751
	PRODUCTIVITY ON LABOR	1592	875	4829	1405	2629	2333	463	14126
	SHIFT DIFFERENTIAL	584	321	1770	515	-			3190
	S/TOTAL	11200	6157	33963	9880	11225	15555	3087	91067
	CNTRL FACILITY					150			150
	SUPPORT FACILITIES					5338			5338
	UTILITIES					813			813
	TOTAL DIRECT COST	11200	6157	33963	9880	17526	15555	3087	97368
	CONTRACTORS OH & PROFIT								
	S/TOTAL								
	CONTINGENCY								
	TOTAL								

BY ESEC DATE 06.95

SUBJECT Summary Sheet CONSTRUCTION LABOR MAN HOURS JOB NO. 6490-11

DH

HARTSVILLE - ALTERNATE CASE

DIVISION	TITLE	AREA #1 Labor MH	AREA #2 Labor MH	AREA #3 Labor MH	AREA #4 Labor MH	AREA #5 Labor MH	AREA #6 Labor MH	AREA #7 Labor MH	TOTAL Labor MH
2	SITE WORK	4711	106	5031	596	440885	696148	106649	1254126
3	CONCRETE	233887	73636	546443	171627		—		1025773
4	MASONRY				1301				1301
5	METALS	77574	65345	23262	41840				208071
6	WOOD / PLASTICS			346	397				743
7	THERMAL/MOIST PROTECTION			14121	26144				40265
8	DOORS / WINDOWS	7824		8707	2143				18674
9	FINISHES		6008	58490	19125				83623
10	SPECIALTIES			35	1616				1651
11	EQUIPMENT	78300	5126	54484	6119	11	2010		141609
12	FURNISHINGS				328				328
13	SPECIAL CONSTRUCTION			7690	9550		760		18000
14	CONVEYING SYSTEMS			9415	2695				12110
15	MECHANICAL	98543	122006	582957	119990				923496
16	ELECTRICAL	23533	7257	194520	61993	82377	110680	50430	531270
17	INSTRUMENTATION	8300		74812		1925			85037
	S/TOTAL	527672	280113	1980513	465464	525198	809606	157579	4346145
	CNTRC FACILITY					9086			9086
	SUPPORT FACILITIES					323507			323507
	UTILITIES					43381			43381
	TOTAL DIRECT MHRS	527672	280113	1980513	465464	901172	809606	157979	4722119
	PRODUCTIVITY	93119	49435	278914	82141	159031	142872	27808	833320
	TOTAL MAN HOURS CONSTRUCTION.	620791	329548	1059427	547605	1060203	952478	185387	5555439