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**INTEGRAL
MONITORED RETRIEVABLE STORAGE (MRS)
FACILITY**

CONCEPTUAL DESIGN REPORT

VOLUME V BOOK IV – COST ESTIMATE

Prepared for

**UNITED STATES DEPARTMENT OF ENERGY
Richland Operations Office**

Report No. MRS 11

Contract No. DE-AC06-84RL 10436

September 1985

**THE RALPH M. PARSONS COMPANY OF DELAWARE
Westinghouse Electric Corporation
Golder Associates**

MASTER

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ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY V. MESSER DATE Aug 95 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT	DIV. 15 MECHANICAL AREA # 3												
15060	SUMMARY PIPING VALVES ETC												
15061	P.P. VALVES ETC.	CONTAMINATED LIQUID	1	LOT				7000				820	
15063	"	"	1	LOT				34400				2150	
15061	"	"	1	LOT				1500				320	
15063	"	"	1	LOT				76700				2560	
15061	"	"	1	LOT				7100				180	
15063	"	"	1	LOT				41200				1310	
15061	"	"	1	LOT				7400				1380	
15063	"	"	1	LOT				32500				2460	
15063	"	"	1	LOT				138200				9200	
15067	"	"	1	LOT				4800				160	
15061	"	"	1	LOT				9800				1580	
15061	"	"	1	LOT				6000				1130	
15063	"	"	1	LOT				136600				5590	
15061	"	"	1	LOT				10800				1930	
15063	"	"	1	LOT				34400				3090	
15068	"	"	1	LOT				17700				560	
15061	"	"	1	LOT				1200				300	
15063	"	"	1	LOT				60800				6400	
15061	"	"	1	LOT				46400				6590	
15063	"	"	1	LOT				86900				65160	
15068	"	"	1	LOT				107900				3090	
			1	LOT									
		S/TOTAL P.P. VALVES	1	LOT				2001100				175360	
		INSULATION	1	LOT				160500				7689	
		HEADER SYST. SUPPORTS	1	LOT				162600				6504	
		OILY SEWER SYST	1	LOT				3300				450	
		PROCESS SEWER SYST	1	LOT				16500				1530	
								2344000				191533	
		DEDUCT 10% CONTINGENCY IN PIPING/VALVES (10% OF 2001100)						2001100					
		NEW TOTAL						2144000					

CLINTON RIVER BRIDGE

ESTIMATE SUMMARY

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>RCM</i>			DATE <i>AUG 1986</i>			SHEET <i>1</i> OF <i>1</i>						
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>			TYPE OF ESTIMATE: <i>ROM</i>			CKD BY: <i>TD</i>						
UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
CAPACITY				MATL	M/H	LAB \$			M/HRS	DOLLARS	M/HRS	DOLLARS		
<i>ACQNT</i> <i>4200</i>	<i>15 MECHANICAL</i> Pipe, Valves and Fittings-Aboveground													
<i>15061</i>	<i>CARBON STEEL</i>													
<i>4201</i>	Pipe - Carbon Steel	<i>390</i>	LF				<i>1900</i>							
<i>4202</i>	Pipe - Alloy and Special		LF											
<i>4211</i>	Valves - Carbon Steel	<i>17</i>	EA				<i>2000</i>							
<i>4212</i>	Valves - Alloy and Special		EA											
<i>4221</i>	Fittings - Carbon Steel	<i>95</i>	EA				<i>2000</i>							
<i>4222</i>	Fittings - Alloy and Special		EA											
<i>4225</i>	Hangers, Shoes, etc.	<i>1</i>	LOT				<i>400</i>							
<i>4231</i>	Outside Shop - Carbon Steel		LF											
<i>4232</i>	Outside Shop - Alloy and Specialty		LF											
<i>4241</i>	Field Shop Fabr.		LF											
<i>4251</i>	Install Screwed Piping		LF+											
<i>4252</i>	Install Socket Weld Piping	<i>390</i>	LF+								<i>640</i>			
<i>4253</i>	Install Weld or Flanged Piping		LF+											
<i>4257</i>	Scaffolding	<i>1</i>	LOT								<i>100</i>			
<i>4258</i>	Firelines		LF+											
<i>4261</i>	Install Steam Tracing		LF											
<i>4264</i>	X-Ray and Stress Relieve	<i>1 Lot</i>	EA				<i>400</i>				<i>10</i>			
<i>4265</i>	Testing and Cleaning	<i>390</i>	LF				<i>100</i>				<i>70</i>			
<i>4266</i>	Pickling and Chem. Cleaning		LF											
<i>4267</i>	Freight		TONS				<i>200</i>							
	<i>3.2" ø</i> SUBTOTAL	<i>390</i>	LF+				<i>7000</i>				<i>820</i>			
	Productivity at		PCT.											
	TOTAL		LF+											

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>RCM</i>			DATE <i>AUG 1985</i>			SHEET <u>1</u> OF <u>1</u>			
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>			TYPE OF ESTIMATE: <i>ROM</i>			CKD BY: <i>RS</i>			
UNIT/AREA <i>MRS FACILITY</i>		QUANTITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>CONTAMINATED LAUNDRY</i>				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY <i>AREA # 3 ROOM # 1056, 1057</i>											
<i>ACB DIV. 4200</i>	<i>15 MECHANICAL</i> Pipe, Valves and Fittings-Aboveground										
<i>15063</i>	<i>STAINLESS STEEL</i>										
<i>4201</i>	Pipe - Carbon Steel		LF								
<i>4202</i>	Pipe - Alloy and Special	<i>690</i>	LF			<i>11 800</i>					
<i>4211</i>	Valves - Carbon Steel		EA								
<i>4212</i>	Valves - Alloy and Special	<i>40</i>	EA			<i>12 300</i>					
<i>4221</i>	Fittings - Carbon Steel	<i>-</i>	EA			<i>300</i>					
<i>4222</i>	Fittings - Alloy and Special	<i>169</i>	EA			<i>7 000</i>					
<i>4225</i>	Hangers, Shoes, etc.	<i>1</i>	LOT			<i>700</i>					
<i>4231</i>	Outside Shop - Carbon Steel		LF								
<i>4232</i>	Outside Shop - Alloy and Specialty		LF								
<i>4241</i>	Field Shop Fabr.		LF								
<i>4251</i>	Install Screwed Piping		LF+								
<i>4252</i>	Install Socket Weld Piping	<i>690</i>	LF+						<i>1660</i>		
<i>4253</i>	Install Weld or Flanged Piping		LF+								
<i>4257</i>	Scaffolding	<i>1</i>	LOT						<i>270</i>		
<i>4258</i>	Firelines		LF+								
<i>4261</i>	Install Steam Tracing		LF								
<i>4264</i>	X-Ray and Stress Relieve	<i>1 LOT</i>	EA			<i>1200</i>			<i>30</i>		
<i>4265</i>	Testing and Cleaning	<i>690</i>	LF			<i>100</i>			<i>190</i>		
<i>4266</i>	Pickling and Chem. Cleaning		LF								
<i>4267</i>	Freight		TONS			<i>1000</i>					
	<i>2.4"φ</i> SUBTOTAL	<i>690</i>	LF+			<i>34 400</i>			<i>2150</i>		
	Productivity at		PCT.								
	TOTAL		LF+								

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 1 OF 11
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.	CS-PIPING - SCRD												
15060	MECHANICAL PIPING												
15061													
4201	PIPE-ERW STL GALV ASTM A102												
	T & C												
	XS 3/4 30 LF .90 .25												
	TOTAL .75" φ 30 LF .90 .25												
4211	VALVE- 40												
	GATE VALVE-200# WOG SCRD												
	BRONZE BODY & TRIM CRANE #430UB												
	3/4 1 EA 13 1.0												
	TOTAL 1 EA 13.0 1.0												
4221	FLANGES-STL RF GALV ASTM A105												
	150# SCRD 3/4 1 EA 8 .5												
	FITTINGS- 300# GALV M.I.												
	ASTM A197												
	90° ELBOW 3/4 6 EA 3 .5												
	TEE 3/4 1 EA 4 .5												
	UNION 3/4 2 EA 2 .5												
	PLUG- ROUND SOLID STL SCRD												
	TO ANSI B16.5												
	3/4 4 EA 1 .5												
	TOTAL 14 EA 2.70 .5												
	18												

CLINTON RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 2 OF 11
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
ACCNT														
DIV.	<u>C.S. PIPING.</u>													
<u>15060</u>	<u>MECHANICAL PIPING</u>													
<u>15061</u>														
<u>4201</u>	<u>FIELD FAB. S.KI.</u>													
	<u>PIPE</u>													
	<u>SMLS. STL. ASTM A53, X.S. PLAIN</u>													
	<u>ENDS.</u>	<u>3/4</u>	<u>7</u>	<u>LF</u>	<u>1.30</u>	<u>.25</u>								
		<u>1</u>	<u>40</u>	<u>✓</u>	<u>1.60</u>	<u>.25</u>								
		<u>1/2</u>	<u>35</u>	<u>✓</u>	<u>2.40</u>	<u>.3</u>								
		<u>2</u>	<u>85</u>	<u>✓</u>	<u>2.90</u>	<u>.35</u>								
	<u>TOTAL</u>	<u>1.6"Ø</u>	<u>177</u>	<u>LF</u>	<u>2.14</u>	<u>.31</u>			<u>500.</u>			<u>70</u>		
			<u>220</u>											
<u>4211</u>	<u>VALVES</u>													
	<u>800" SKI ENDS GATE VA. C.S.</u>													
	<u>SMITH FIG. 800 OR EQUAL</u>													
		<u>1</u>	<u>1</u>	<u>EA</u>	<u>29</u>	<u>1.9</u>								
		<u>1/2</u>	<u>3</u>	<u>✓</u>	<u>54</u>	<u>2.5</u>								
		<u>2</u>	<u>3</u>	<u>✓</u>	<u>68</u>	<u>3.4</u>								
	<u>DITTO (SKI/SCRD ENDS)</u>	<u>3/4</u>	<u>4</u>	<u>✓</u>	<u>24</u>	<u>1.7</u>								
	<u>TOTAL</u>		<u>11</u>	<u>EA</u>	<u>44.60</u>	<u>2.4</u>			<u>600.</u>			<u>30</u>		
<u>4221</u>	<u>SPECIALS</u>													
	<u>STM TRAP. 600" SCRD ENDS.</u>													
	<u>THERMODYNAMIC TYPE, JINTEGRAL</u>													
	<u>STRAINER & BLOW OFF VA.</u>													
	<u>YARWAY FIG. 730A</u>													
		<u>3/4</u>	<u>1</u>	<u>✓</u>	<u>136</u>	<u>1.5</u>								
	<u>WYE STRAINER FOR STM 600"</u>													
	<u>SKI ENDS, ARMSTRONG FIG. BISKI</u>													
		<u>3/4</u>	<u>1</u>	<u>✓</u>	<u>63</u>	<u>1.7</u>								
	<u>TOTAL</u>		<u>2</u>	<u>EA</u>	<u>99.50</u>	<u>1.6</u>			<u>300.</u>					
			<u>3</u>											

PARSONS
ESTIMATE WORKSHEET

CLINTON RIVER - BRIDGE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 3 OF 11					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY					
UNIT/AREA MRS. FACILITY		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CONTAMINATED LAUNDRY				MATL	M/H	LAB \$			M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 3 ROOM# 1056/1057													
ACCNT													
DIV.	C.S. PIPING.												
15060	MECHANICAL PIPING												
15061	FILED FAP. BUTT WELDING.												
4211	VALVES												
	150# RF. FLGD. GATE VALVE, C.S.												
	12/CR. PACIFIC FIG. 160-1 3"	1	EA	323	4.5								
	150# RF. FLGD CHECK VA. C.S.												
	12 CR. TRIM, MISSION NO 155PF	12	✓	1035	15.5								
	TOTAL	2	EA	679.00	10.0			1400			20		
-	INSTRUMENTS												
	PRESSURE CONTROL VA. 300# FLGD.												
	1 1/2	1	✓	-	4.5								
	2	1	-	-	5.9								
	3	1	-	-	7.7								
	PRESSURE SAFETY VA. 300# X 150#												
	1 X 1 1/2	1	✓	-	3.9								
	TOTAL	5	EA	-	5.5			-			30		
15063	WELDS												
	BUTT WELD 304 SS. SCH. 40S.												
	3	6	-	-	4.3								
	4	1	-	-	6.0								
15061	C.S. BUTT WELD, STD. WT. (TOTAL 3.5")	8	EA	-	4.5						40		
	12	3	✓	-	6.8								
	TOTAL	12	EA	-	6.8			-			20		

CUNCE RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 4 OF 11

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

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
UNIT/AREA	<u>MRS. FACILITY</u>												
	<u>CONTAMINATED LAUNDRY</u>												
	<u>AREA# 3 ROOM# 1056/57</u>												
ACCNT													
<u>DIV.</u>	<u>C.S. PIPING</u>												
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u>	<u>FIELD FAB. S.W. CONT.</u>												
<u>4221</u>	<u>FLANGES</u>												
	<u>150# SWI, R.F, C.S. A105, X.S. BORE</u>												
	<u>3/4</u>		<u>1</u>	<u>GA</u>	<u>7</u>	<u>1.3</u>							
	<u>1</u>		<u>1</u>	<u>✓</u>	<u>7</u>	<u>1.4</u>							
	<u>1 1/2</u>		<u>2</u>	<u>✓</u>	<u>7</u>	<u>2.0</u>							
	<u>2</u>		<u>5</u>	<u>✓</u>	<u>7</u>	<u>2.3</u>							
	<u>DITTO (300#)</u>		<u>2</u>	<u>✓</u>	<u>9</u>	<u>2.0</u>							
	<u>FITTINGS</u>												
	<u>300# C.S. S.W. X S. BORE, A105</u>												
	<u>90° ELL</u>		<u>1</u>		<u>7</u>	<u>1.9</u>							
	<u>1 1/2</u>		<u>6</u>		<u>7</u>	<u>2.0</u>							
	<u>2</u>		<u>8</u>		<u>11</u>	<u>2.3</u>							
	<u>TEE</u>		<u>1</u>		<u>4</u>	<u>1.3</u>							
	<u>1 x 3/4</u>		<u>1</u>		<u>8</u>	<u>1.4</u>							
	<u>1 1/2 x 3/4</u>		<u>2</u>		<u>15</u>	<u>2.0</u>							
	<u>2</u>		<u>1</u>		<u>15</u>	<u>2.3</u>							
	<u>REDUCER</u>		<u>1</u>		<u>9</u>	<u>2.3</u>							
	<u>UNION</u>		<u>2</u>		<u>5</u>	<u>1.3</u>							
	<u>1</u>		<u>2</u>		<u>6</u>	<u>1.4</u>							
	<u>TOTAL</u>		<u>42</u>	<u>EA</u>	<u>7.60</u>	<u>1.9</u>		<u>400</u>			<u>100</u>		
	<u>INSTRUMENTS</u>		<u>53</u>										
	<u>LEVEL CONTROL VALVE C.S. 1"</u>		<u>1</u>		<u>-</u>	<u>2.9</u>							
	<u>800# SWI. 1 1/2</u>		<u>1</u>		<u>-</u>	<u>3.8</u>							
	<u>PRESSURE SAFETY VA. C.S.</u>												
	<u>S.W. BIDS. 3/4 x 1-</u>		<u>1</u>		<u>-</u>	<u>2.6</u>							
	<u>TOTAL</u>		<u>3</u>	<u>EA</u>	<u>-</u>	<u>3.1</u>		<u>-</u>			<u>10</u>		

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>3</u> OF <u>11</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>CONTAMINATED LAUNDRY</u>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 105661057</u>												
ACCNT DIV.	<u>CS - PIPING - SHOP</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>												
<u>4201</u>	<u>PIPE - SMLS STL ASTM A53 GR B</u>											
	<u>STD WT</u>	<u>3</u>	<u>65</u>	<u>LF</u>	<u>3.60</u>	<u>.35</u>						
		<u>12</u>	<u>45</u>	<u>LF</u>	<u>21.50</u>	<u>1.2</u>						
	<u>TOTAL</u>	<u>15</u>	<u>110</u>	<u>LF</u>	<u>10.92</u>	<u>.70</u>	<u>1400</u>			<u>90</u>		
<u>4221</u>	<u>FLANGES - STL RF ASTM A105</u>											
	<u>150# SLIP-ON</u>	<u>3</u>	<u>1</u>	<u>EA</u>	<u>8</u>	<u>-</u>						
		<u>12</u>	<u>2</u>	<u>EA</u>	<u>78</u>	<u>-</u>						
	<u>FITTINGS - STL BW ASTM A234</u>											
	<u>GR WPB</u>											
	<u>90° L.R. ELL STD WT</u>	<u>3</u>	<u>6</u>	<u>EA</u>	<u>4</u>	<u>-</u>						
		<u>12</u>	<u>7</u>	<u>EA</u>	<u>96</u>	<u>-</u>						
	<u>TEE</u>	<u>12</u>	<u>1</u>	<u>EA</u>	<u>141</u>	<u>-</u>						
	<u>3000# S.O.L. ASTM A105</u>	<u>1 1/2</u>	<u>1</u>	<u>EA</u>	<u>5</u>	<u>-</u>						
	<u>TOTAL</u>	<u>18</u>	<u>18</u>	<u>EA</u>	<u>55.92</u>	<u>-</u>	<u>1200</u>			<u>-</u>		
<u>-</u>	<u>CS WELDS</u>	<u>21</u>										
	<u>CS BUTTWELD STD WT</u>	<u>3</u>	<u>13</u>	<u>EA</u>	<u>-</u>	<u>2.0</u>						
		<u>12</u>	<u>14</u>	<u>EA</u>	<u>-</u>	<u>6.8</u>						
	<u>3000# OLET WELDS</u>	<u>1 1/2</u>	<u>1</u>	<u>EA</u>	<u>-</u>	<u>3.4</u>						
	<u>TOTAL</u>	<u>28</u>	<u>28</u>	<u>EA</u>	<u>-</u>	<u>4.5</u>	<u>-</u>			<u>140</u>		
		<u>32</u>										

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 6 OF 11
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
ACCNT DIV.	STALS STL-PIPING-SHOP													
15060	MECHANICAL PIPING													
15063														
4202	PIPE-SMLS STALS STL ASTM A312 GR TP304L 3/40s		3	BS	LF	25.20	.35							
	DITTO EXCEPT TP304 5/40s		3		LF	21.20	.35							
			4			30.30	.55							
	TOTAL	3.6"	245	LF	27.79	.46		7,800.			130			
4212	VALVE-		280											
	GATE VALVE- 150# BW 316LSS BODY & 316SS TRIM 3/40s ALOYCO # 116		3	1	EA	528	4.5							
	TOTAL		1	EA	528.00	4.5		500.			-			
4222	FLANGES-STALS STL RF ASTM A182 GR TP304L													
	150# WN 3/40s		3	5	EA	55	-							
	DITTO EXCEPT TP304													
	150# WN 5/40s		3	26	EA	53	-							
			4	7		81	-							

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER PSE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>7</u> OF <u>11</u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>					
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>CONTAMINATED LAUNDRY</u>				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY <u>AREA# 3 ROOM#1054 & 1057</u>													
ACCNT DIV.	STAILS STL-PIPING- SHOP												
15060	MECHANICAL PIPING												
15063													
4222	FITTINGS-STAILS STL BWI												
	ASTM A403 GR TP304L												
	90° L.R. ELL 3/40s	3	8	EA	25	-							
	TEE 3/40s	3	2	EA	68	-							
	DITTO EXCEPT TP304												
	90° L.R. ELL 3/40s	3	14	EA	25	-							
		4	11	EA	50	-							
	TEE 3/40s	3	4	EA	68	-							
		4	2	EA	101	-							
	ECC REDUCER 3/40s 4x1 1/2	1	EA	130	-								
		2	EA	53	-								
	3000# S.O.L. ASTM A182 3/4	2	EA	15	-								
		1	EA	28	-								
	TOTAL		9885	EA	4970	-		4900					
-	WELDS-												
	TP304LSS BWI 3/40s	3	25	EA	-	4.3							
	TP304 BWI 3/40s	3	40	EA	-	4.3							
		4	33	EA	-	6.0							
	3000# OLET WELDS TP304 3/4	2	EA	-	4.3								
		1	EA	-	5.1								
	TOTAL	3.3"	101	EA	-	4.9					570		
			116										

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY DATE AUG 1985 SHEET B OF 11
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY		AREA# 3 ROOM# 1056/57										
ACCNT												
DIV.	S.S. PIPING.											
15060	MECHANICAL PIPING											
15063	FIELD FAB.											
4212	VALVES											
	150# RF. FLG'D GATE VA. 316 SS											
	BODY & TRIM, PACIFIC S-150-12H											
		3	B	CA	528	4.5						
		4	2	✓	758	6.7						
	150# RF FLG'D CHECK VA 316 SS,											
	SKIING TYPE, PACIFIC S-150-12H											
		3"	3	✓	577	4.5						
	TOTAL		12	EA	574.75	4.8		8600			70	
			15									
15061												
4221	BOLT-UPS FOR CS FLGS 150# 3/4"											
		1"	2	EA	2	.8						
		1"	1	✓	2	.8						
		1 1/2"	2	✓	2	.9						
		2"	5	✓	2	1.2						
		3"	1	✓	3	1.5						
		12"	2	✓	16	4.7						
		300# 1 1/2"	2	✓	3	1.0						
	TOTAL		NIT	15	EA	4.10	1.5		100		30	
			17									
15063												
4221	BOLT-UPS FOR SS FLGS 150#											
		1"	4	EA	3	.8						
		1 1/2"	3	✓	3	.9						
		2"	7	✓	4	1.2						
		3"	31	✓	4	1.5						
		4"	7	✓	7	2.0						
	TOTAL		NIT	50	EA	4.30	1.4		300		80	
			60									

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>9</u> OF <u>11</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>CONTAMINATED LAUNDRY</u>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA# 3 ROOM#1056/157</u>												
ACCNT												
DIV.	<u>S.S. PIPING.</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15063</u>	<u>S.S. FIELD FAB S.W.</u>											
<u>A202</u>	<u>PIPE</u>											
	<u>SMCS S.S. PIPE, SCH. 40S, ASTM</u>											
	<u>A312 TP 304 3/4</u>	<u>80</u>	<u>LF</u>	<u>5.20</u>	<u>.45</u>							
	<u>1</u>	<u>25</u>	<u>✓</u>	<u>6.60</u>	<u>.5</u>							
	<u>1 1/2</u>	<u>45</u>	<u>✓</u>	<u>10.00</u>	<u>.6</u>							
	<u>2</u>	<u>175</u>	<u>✓</u>	<u>12.20</u>	<u>.7</u>							
	<u>TOTAL 1.6" φ</u>	<u>325</u>	<u>LF</u>	<u>9.74</u>	<u>.61</u>		<u>4000</u>			<u>250</u>		
<u>A212</u>	<u>VALVES</u>	<u>410</u>										
	<u>800# SWI. GATE VA. 316L SS.</u>											
	<u>BODY & TRIM, SMITH FIG. 800</u>											
	<u>3/4</u>	<u>5</u>	<u>EA</u>	<u>77</u>	<u>3.4</u>							
	<u>1</u>	<u>3</u>	<u>✓</u>	<u>105</u>	<u>3.8</u>							
	<u>2</u>	<u>6</u>	<u>✓</u>	<u>238</u>	<u>6.8</u>							
	<u>DITTO (SWI/SCRD)</u>	<u>5/4</u>	<u>5</u>	<u>✓</u>	<u>77</u>	<u>3.4</u>						
	<u>TOTAL</u>	<u>2479</u>	<u>EA</u>	<u>132.30</u>	<u>4.5</u>		<u>3200</u>			<u>110</u>		
<u>A222</u>	<u>FLANGES</u>											
	<u>150# RF SWI, SS, A182 F304</u>											
	<u>SCH. 40S</u>											
	<u>1"</u>	<u>4</u>	<u>EA</u>	<u>19</u>	<u>2.8</u>							
	<u>1 1/2</u>	<u>3</u>	<u>✓</u>	<u>22</u>	<u>1.0</u>							
	<u>2</u>	<u>7</u>	<u>✓</u>	<u>28</u>	<u>4.6</u>							

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY		DATE <i>AUG 1985</i>				SHEET <i>10</i> OF <i>11</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>				CHECKED BY				
UNIT/AREA <i>MRS. FACILITY</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>CONTAMINATED LAUNDRY</i>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <i>AREA # 3 ROOM # 1056/57</i>												
ACCNT <i>DIV.</i>												
<i>15060</i>	<i>MECHANICAL PIPING</i>											
<i>15063</i>	<i>SS PIPING, SKI CONT.</i>											
<i>4222</i>	<i>FITTINGS</i>											
	<i>3000# SKI SS, A182 F304</i>											
	<i>90° ELL 3/4</i>	<i>7</i>	<i>EA</i>	<i>7</i>	<i>2.6</i>							
	<i>1</i>	<i>2</i>	<i>✓</i>	<i>11</i>	<i>2.8</i>							
	<i>1/2</i>	<i>8</i>	<i>✓</i>	<i>28</i>	<i>4.0</i>							
	<i>2</i>	<i>15</i>	<i>✓</i>	<i>46</i>	<i>4.6</i>							
	<i>TEE 3/4</i>	<i>2</i>	<i>✓</i>	<i>9</i>	<i>2.6</i>							
	<i>1</i>	<i>2</i>	<i>✓</i>	<i>13</i>	<i>2.8</i>							
	<i>1/2 x 3/4</i>	<i>3</i>	<i>✓</i>	<i>84</i>	<i>4.0</i>							
	<i>2</i>	<i>1</i>	<i>✓</i>	<i>60</i>	<i>4.6</i>							
	<i>UNION 1/2</i>	<i>2</i>	<i>✓</i>	<i>21</i>	<i>4.0</i>							
	<i>THREADED PLUG 3/4</i>	<i>1</i>	<i>✓</i>	<i>2</i>	<i>1.0</i>							
	<i>TOTAL</i>	<i>57</i>	<i>EA</i>	<i>30.20</i>	<i>3.8</i>		<i>2100</i>			<i>270</i>		
		<i>71</i>										

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BBE CASE

M.T.O. BY *P. GOMEZ* PRICED BY DATE *AUG 1985* SHEET *11* OF *11*
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *ROM* CHECKED BY

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$			M/HR	DOLLARS	M/HR	DOLLARS	
UNIT/AREA <i>MRS FACILITY</i>													
DESCRIPTION <i>CONTAMINATED LAUNDRY</i>													
CAPACITY <i>AREA # 3 ROOM #1056,1057</i>													
ACCNT													
<i>DIV</i>													
<i>15060</i>	<i>MECHANICAL PIPING</i>												
<i>15061</i>	<i>CS ADDS</i>												
<i>4225</i>	<i>HANGERS/SUPPORTS</i>	<i>1</i>	<i>Lot</i>				<i>400</i>			<i>80</i>			
<i>4264</i>	<i>FIELD X-RAY</i>	<i>1</i>	<i>Lot</i>				<i>400</i>			<i>10</i>			
<i>4265</i>	<i>TEST/CLEAN</i>	<i>390</i>	<i>LF</i>				<i>100</i>			<i>70</i>			
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			<i>100</i>			
<i>15063</i>	<i>SS ADDS</i>												
<i>4225</i>	<i>HANGERS/SUPPORTS</i>	<i>1</i>	<i>Lot</i>				<i>700</i>			<i>140</i>			
<i>4264</i>	<i>FIELD X-RAY</i>	<i>1</i>	<i>Lot</i>				<i>1200</i>			<i>30</i>			
<i>4265</i>	<i>TEST/CLEAN</i>	<i>690</i>	<i>LF</i>				<i>100</i>			<i>190</i>			
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			<i>270</i>			
<i>15067</i>	<i>HASTELLOY ADDS</i>												
<i>4225</i>	<i>HANGERS/SUPPORTS</i>	<i>1</i>	<i>Lot</i>				-			-			
<i>4264</i>	<i>FIELD X-RAY</i>	<i>1</i>	<i>Lot</i>				-			-			
<i>4265</i>	<i>TEST/CLEAN</i>		<i>LF</i>				-			-			
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			-			
<i>15068</i>	<i>PPL LINED CS ADDS</i>												
<i>4225</i>	<i>HANGERS/SUPPORTS</i>	<i>1</i>	<i>Lot</i>				-			-			
<i>4265</i>	<i>TEST/CLEAN</i>		<i>LF</i>				-			-			
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			-			

CUNY RIVER - BRSE CASE

ESTIMATE SUMMARY

M.T.O. BY *P. GOMEZ* PRICED BY *RCM* DATE *AUG 1985* SHEET *1* OF *1*

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

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
<i>MRS FACILITY</i>	<i>VACUUM PUMP MEZZ</i>	<i>AREA # 3 ROOM # 1099</i>											
<i>15061</i>	<i>CARBON STEEL</i>												
<i>4201</i>	<i>Pipe - Carbon Steel</i>		<i>240</i>	<i>LF</i>				<i>400</i>					
<i>4202</i>	<i>Pipe - Alloy and Special</i>			<i>LF</i>									
<i>4211</i>	<i>Valves - Carbon Steel</i>		<i>10</i>	<i>EA</i>				<i>400</i>					
<i>4212</i>	<i>Valves - Alloy and Special</i>			<i>EA</i>									
<i>4221</i>	<i>Fittings - Carbon Steel</i>		<i>41</i>	<i>EA</i>				<i>500</i>					
<i>4222</i>	<i>Fittings - Alloy and Special</i>			<i>EA</i>									
<i>4225</i>	<i>Hangers, Shoes, etc.</i>		<i>1</i>	<i>LOT</i>				<i>200</i>					
<i>4231</i>	<i>Outside Shop - Carbon Steel</i>			<i>LF</i>									
<i>4232</i>	<i>Outside Shop - Alloy and Specialty</i>			<i>LF</i>									
<i>4241</i>	<i>Field Shop Fabr.</i>			<i>LF</i>									
<i>4251</i>	<i>Install Screwed Piping</i>			<i>LF+</i>									
<i>4252</i>	<i>Install Socket Weld Piping</i>		<i>240</i>	<i>LF+</i>							<i>250</i>		
<i>4253</i>	<i>Install Weld or Flanged Piping</i>			<i>LF+</i>									
<i>4257</i>	<i>Scaffolding</i>		<i>1</i>	<i>LOT</i>							<i>40</i>		
<i>4258</i>	<i>Firelines</i>			<i>LF+</i>									
<i>4261</i>	<i>Install Steam Tracing</i>			<i>LF</i>									
<i>4264</i>	<i>X-Ray and Stress Relieve</i>			<i>EA</i>									
<i>4265</i>	<i>Testing and Cleaning</i>		<i>240</i>	<i>LF</i>							<i>30</i>		
<i>4266</i>	<i>Pickling and Chem. Cleaning</i>			<i>LF</i>									
<i>4267</i>	<i>Freight</i>			<i>TONS</i>				<i>100</i>					
	<i>1.5" φ</i>		<i>240</i>	<i>LF+</i>				<i>1600</i>			<i>320</i>		
	<i>Productivity at</i>			<i>PCT.</i>									
				<i>MH</i>									
				<i>LF+</i>									
	<i>TOTAL</i>												

ESTIMATE SUMMARY

M.T.O. BY *P. GOMEZ* PRICED BY *RCM* DATE *AUG 1985* SHEET *1* OF *1*

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

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
<i>MRS FACILITY</i>	<i>VACUUM PUMP MEZZ</i>												
	<i>CAPACITY AREA # 3 ROOM # 1099</i>												
<i>MECHANICAL</i>	<i>4200 Pipe, Valves and Fittings-Aboveground</i>												
<i>15063</i>	<i>STAINLESS STEEL</i>												
<i>4201</i>	<i>Pipe - Carbon Steel</i>		LF										
<i>4202</i>	<i>Pipe - Alloy and Special</i>	<i>560</i>	LF				<i>25 500</i>						
<i>4211</i>	<i>Valves - Carbon Steel</i>		EA										
<i>4212</i>	<i>Valves - Alloy and Special</i>	<i>30</i>	EA				<i>33 000</i>						
<i>4221</i>	<i>Fittings - Carbon Steel</i>	<i>-</i>	EA				<i>100</i>						
<i>4222</i>	<i>Fittings - Alloy and Special</i>	<i>102</i>	EA				<i>12 700</i>						
<i>4223</i>	<i>Hangers, Shoes, etc.</i>	<i>1</i>	LOT				<i>600</i>						
<i>4231</i>	<i>Outside Shop - Carbon Steel</i>		LF										
<i>4232</i>	<i>Outside Shop - Alloy and Specialty</i>		LF										
<i>4241</i>	<i>Field Shop Fabr.</i>		LF										
<i>4251</i>	<i>Install Screwed Piping</i>		LF+										
<i>4252</i>	<i>Install Socket Weld Piping</i>	<i>560</i>	LF+							<i>1930</i>			
<i>4253</i>	<i>Install Weld or Flanged Piping</i>		LF+										
<i>4257</i>	<i>Scaffolding</i>	<i>1</i>	LOT							<i>330</i>			
<i>4258</i>	<i>Firelines</i>		LF+										
<i>4261</i>	<i>Install Steam Tracing</i>		LF										
<i>4264</i>	<i>X-Ray and Stress Relieve</i>	<i>1 Lot</i>	EA				<i>2 500</i>			<i>60</i>			
<i>4265</i>	<i>Testing and Cleaning</i>	<i>560</i>	LF				<i>100</i>			<i>240</i>			
<i>4266</i>	<i>Pickling and Chem. Cleaning</i>		LF										
<i>4267</i>	<i>Freight</i>		TONS				<i>2 200</i>						
	<i>4.1" φ SUBTOTAL</i>	<i>560</i>	LF+				<i>76 700</i>			<i>2 560</i>			
	<i>Productivity at</i>		PCT.										
	<i>TOTAL</i>		LF+										

PARSONS

ESTIMATE WORKSHEET

1 of 7 B

CUNCHA RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 2 OF 7				
JOB NO: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION VACUUM PUMP MEZZ				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY AREA# 3 ROOM# 1099												
ACCNT												
DIV.	CS-PIPING-SOCKETWELD											
15060	MECHANICAL PIPING											
15061												
4201	PIPE-SMLS STL ASTM A53											
	CR B PE											
	XS											
		1	96	LF	1.60	.25						
		2	78	LF	2.40	.3						
	Total		174	LF	1.96	.27	400.			60		
	VALVES-		220									
4211	GATE VALVE-800# STL SW											
	1/2 CR TRIM SMITH 800											
		1	2	EA	29	1.9						
		2	2	EA	68	2.4						
	DITTO EXCEPT SW/SCRD	1/2	4	EA	22	1.6						
	Total		8	EA	35.30	1.9	400.			20		
			10									
4221	FLANGE-150# SW ASTM A105											
	XS											
		1	2	EA	7	1.4						
		2	6	EA	7	2.3						
	FITTINGS-9000# STL SW ASTM A105											
	90° ELBOW											
		1	5	EA	3	1.4						
		2	10	EA	11	2.3						
	45° ELBOW											
		2	4	EA	12	2.3						
	TEE											
		1	1	EA	5	1.4						
		2	1	EA	15	2.3						
	Total		34	EA	8.70	2.1	300.			80		
			37									

PARSONS

ESTIMATE WORKSHEET

CUNCE RIVER, BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 21 OF 7
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV.	CS-PIPING-FIELD												
15060	MECHANICAL PIPING												
15061	BOLT UPS-												
4721	ASB GSKT / BT STUDS												
	150#		1	2	EA	2	.3						
			2	6	EA	2	1.2						
	300#		2	2	EA	5	1.3						
	Total				EA	2.60	1.1					10	
	- INSTRUMENTS (Labor Only)												
	CONTROL VALVE		2	2	EA	-	3						
	Total			2	EA	-	3.0					10	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 3 OF 7
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
DIV.	CS- PIPING- SHOP											
15060	MECHANICAL PIPING											
15061												
4201	PIPE- SMLS STL ASTM A53											
	GR & PE											
	XS	2	20	LF	2.40	.27						
	TOTAL 2" φ		20	LF	2.40	.27				10		
4221	ORIFICE FLG SET- 300# RF											
	W/ 1/2" SCRD TAPS											
	XS	2	2	EA	103	-						
	TOTAL		2	EA	103.00	-	200					
-	CS BUTTWELDS-											
	XS	2	4	EA	-	2.3						
	TOTAL 2" φ		4	EA	-	2.3				10		
			5									

PARSONS

ESTIMATE WORKSHEET

CUNIH RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985			SHEET 4 OF 7					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM			CHECKED BY					
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION VACUUM PUMP MEZZ				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT	STNLS STL-PIPING-SHOP											
DIV.	MECHANICAL PIPING											
15060												
15063												
4202	PIPE-SMLS STNLS STL ASTM											
	A312 GR TP304L											
	3/405	2	194 LF	14.50	.25							
		4	170	35.70	.55							
		6	50	63.10	.7							
		8	50	107.90	1.0							
		10	24	196.90	1.1							
	Total VALVES- 4"φ	493	LF	45.47	.52		25500			290		
		560										
4212	GATE VALVE-150# ANSI, BW											
	ENDS, 3/405, 316L SS BODY											
	& TRIM ALOYCO # 116											
		4	6 EA	758	6.7							
		6	2	1352	9.0							
		8	2	2570	12.5							
		10	2	4271	13.0							
	GLOBE VALVE-600# ANSI BW,											
	ENDS, 3/405 316 SS "Y"											
	PATTERN BODY & 316 SS TRIM,											
	KEROTEST # 9900	1/2	4 EA	364	3.0							
		3/4	6	406	3.0							
		2	4	951	4.0							
	Total	26	EA	1101.20	5.8		33000			170		
		30										

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY DATE AUG 1985 SHEET 5 OF 7
 JOB NO: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS	
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS				
ACCNT																
DIV.	STNLS STL-PIPING-SHOP															
15060	MECHANICAL PIPING															
15063																
4222	FLANGES-SS RF ASTM A182															
	GR F304L															
	150# WN	3/405	2	4	EA	37	-									
			3	2	}	55	-									
			4	6		84	-									
			6	2		156	-									
			8	2		242	-									
	ORIFICE FLG SET-300# RF WN															
	W/ 1/2" SCRD TAPS 3/405															
			2	1	EA	580	-									
	FITTINGS-SMLS STNLS STL															
	2W ASTM A403 GR WP304L															
	90° LR ELL	3/405	2	17	EA	12	-									
			4	8	}	50	-									
			6	8		144	-									
			8	8		288	-									
			10	4		518	-									
	45° ELL	3/405	2	4	EA	11	-									
	TEE	3/405	2	2	EA	33	-									
			4	5	}	101	-									
			10	2		682	-									

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 6 OF 7
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV.	STAIRS STL. PIPING - SHOP											
15060	MECHANICAL PIPING											
15063	FITTINGS CONT'D -											
4222	CONC REDUCER											
	3/4OS	6x4	2	EA	48	-						
		8x6	2	}	99	-						
		10x8	2		180	-						
	ECC REDUCER											
	3/4OS	4x3	2	EA	44	-						
	W.O.L. STAIRS STL. AETM											
	AISC GR F304L											
	3/4OS	3/4	6	EA	20	-						
	TOTAL		89	EA	124.80	-		12700				
			102									
-	WELDS -											
	304LSS BW	3/4OS	1/2	8	EA	-	1.7					
			3/4	12	}	-	1.7					
			2	53		-	3.4					
			3	2	}	-	4.3					
			4	52		-	6.0					
			6	22	}	-	7.7					
			8	22		-	9.4					
			10	18	↓	-	11.9					
	3/4OS W.O.L. WELD	304LSS	3/4	6	EA	-	4.3					
	TOTAL	4.2" φ	195	EA	-	5.9				1320		
			224									
-	INSTRUMENTS - (Labor Only)											
	CONTROL VALVE	(F/d - 300)	2	EA	-	5.9						
	TOTAL		2	EA	-	5.9				10		

CUNN RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 7 OF 7

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

UNIT/AREA MRS. FACILITY
 DESCRIPTION VACUUM PUMP MEZZ
 CAPACITY AREA# 3 ROOM# 1099

ACCNT DIV.	DESCRIPTION	QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
	<u>STAIRS STL- PIPING- FIELD</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15063</u>												
<u>421</u>	<u>BOLT-LIPS- FOR 304LSS FLGS</u>											
	<u>150#</u>	<u>4</u>	<u>EA</u>	<u>4</u>	<u>1.2</u>							
		<u>3</u>	<u>C</u>	<u>4</u>	<u>1.5</u>							
		<u>4</u>	<u>A</u>	<u>7</u>	<u>2.0</u>							
		<u>6</u>	<u>C</u>	<u>8</u>	<u>2.5</u>							
		<u>8</u>	<u>C</u>	<u>11</u>	<u>3.2</u>							
	<u>300#</u>	<u>2</u>	<u>EA</u>	<u>7</u>	<u>1.3</u>							
	<u>Total</u>	<u>75</u>	<u>EA</u>	<u>6.50</u>	<u>1.9</u>		<u>100</u>			<u>30</u>		
		<u>MT. 17</u>										

CUNCHA RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1995</u>				SHEET <u>8</u> OF <u>8</u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>RCM</u>				CHECKED BY <u>[Signature]</u>					
UNIT/AREA <u>MRS FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>VACUUM PUMP MEZZ</u>				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS			
CAPACITY <u>AREA # 3 ROOM # 1099</u>													
ACCNT													
<u>DIV</u>													
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u>	<u>CS ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>200</u>				<u>50</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>	<u>240</u>	<u>LF</u>				<u>-</u>				<u>30</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>40</u>		
<u>15063</u>	<u>SS ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>600</u>				<u>110</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>2,500</u>				<u>60</u>		
<u>4265</u>	<u>TEST/CLEAN</u>	<u>560</u>	<u>LF</u>				<u>100</u>				<u>240</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>330</u>		
<u>15067</u>	<u>HASTELLOY ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>-</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>				<u>-</u>				<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>-</u>		
<u>15068</u>	<u>PPL LINED CS ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>				<u>-</u>				<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>				<u>-</u>		

M.T.O. BY P. GOMEZ PRICED BY RCM DATE Aug 1985 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: DOE / PNL TYPE OF ESTIMATE: ROM CKD BY: AS

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
^{SCNT} 4200	MECHANICAL Pipe, Valves and Fittings-Aboveground	AREA # 3 ROOM # 110B												
15061	CARBON STEEL													
4201	Pipe - Carbon Steel		170	LF				300						
4202	Pipe - Alloy and Special			LF										
4211	Valves - Carbon Steel		5	EA				200						
4212	Valves - Alloy and Special			EA										
4221	Fittings - Carbon Steel		21	EA				300						
4222	Fittings - Alloy and Special			EA										
4225	Hangers, Shoes, etc.		/	LOT				200						
4231	Outside Shop - Carbon Steel			LF										
4232	Outside Shop - Alloy and Specialty			LF										
4241	Field Shop Fabr.			LF										
4251	Install Screwed Piping			LF+										
4252	Install Socket Weld Piping		170	LF+							140			
4253	Install Weld or Flanged Piping			LF+										
4257	Scaffolding		/	LOT							20			
4258	Firelines			LF+										
4261	Install Steam Tracing			LF										
4264	X-Ray and Stress Relieve			EA										
4265	Testing and Cleaning		170	LF				-			20			
4266	Pickling and Chem. Cleaning			LF										
4267	Freight			TONS				100						
	1.5" φ SUBTOTAL		170	LF+				1100			180			
	Productivity at	PCT.		MH										
	TOTAL			LF+										

CUNCH RIVER - BASE CASE

ESTIMATE SUMMARY

M.T.O. BY P. GOMEZ		PRICED BY RCM		DATE AUG 1985				SHEET 1 OF 1					
JOB NO.: 6440-11		CLIENT: DOE / PNL		TYPE OF ESTIMATE: ROM				CKD BY: [Signature]					
UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
	MRS FACILITY												
	VACUUM PUMP MEZZ												
	AREA # 3 ROOM # 110B												
	MECHANICAL												
4200	Pipe, Valves and Fittings-Aboveground												
15063	STAINLESS STEEL												
4201	Pipe - Carbon Steel		LF										
4202	Pipe - Alloy and Special	260	LF				14600						
4211	Valves - Carbon Steel		EA										
4212	Valves - Alloy and Special	15	EA				16000						
4221	Fittings - Carbon Steel	-	EA				100						
4222	Fittings - Alloy and Special	55	EA				7600						
4225	Hangers, Shoes, etc.	1	LOT				300						
4231	Outside Shop - Carbon Steel		LF										
4232	Outside Shop - Alloy and Specialty		LF										
4241	Field Shop Fabr.		LF										
4251	Install Screwed Piping		LF+										
4252	Install Socket Weld Piping	260	LF+							990			
4253	Install Weld or Flanged Piping		LF+										
4257	Scaffolding	1	LOT							170			
4258	Firelines		LF+										
4261	Install Steam Tracing		LF										
4264	X-Ray and Stress Relieve	1 Lot	EA				1300			30			
4265	Testing and Cleaning	260	LF				100			120			
4266	Pickling and Chem. Cleaning		LF										
4267	Freight		TONS				1200						
	4.5" φ SUBTOTAL	260	LF+				41200			1310			
	Productivity at PCT.		MH										
	TOTAL		LF+										

CUNCH RIVER BRSE CASE

PARSONS
ESTIMATE WORKSHEET

1 of 78

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 2 OF 2
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACNT													
DIV.	35- PIPING-SOCKETWELD												
15060	MECHANICAL PIPING												
15061													
4201	PIPE-SMALS STL ASTM A53 GR B												
	EX STRG		1	70	LF	1.60	.25						
			2	50	}	2.40	.35						
	Total	1.2"	120	LF	1.93	.29		300			40		
	VALVES-												
			150										
424	GATE VALVE-800# STL SW												
	1/2" CL TRIM SMITH # 800		1	1	EA	27	1.9						
			2	1	}	68	3.4						
	DITTO EXCEPT SW/SULD												
		1/2"	2	EA	22	1.6							
	Total		5	EA	35.30	2.1		200			10		
4221	FLANGE-150# SW STL ASTM												
	1105 XS		1	1	EA	7	1.4						
			2	1	}	7	2.3						
	FITTINGS-3000# SW STL ASTM 1105												
	90° ELBOW		1	4	EA	3	1.4						
			2	8	}	11	2.3						
	45° ELBOW		2	2	EA	12	2.3						
	Total		10	EA	8.60	2.0		200			40		
	- INSTRUMENTS - (Labor Only)												
			20										
	CONTROL VALVE												
			2	1	EA	-	5						
	Total		1	EA	-	5.0		-			10		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY Rcr DATE AUG 1985 SHEET 2 OF 7
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV.	CS-PIPING-WELDED												
15060	MECHANICAL PIPING												
15061													
4221	BOLT-UPS-												
	B7 STUDS/ASE GSKTS												
	150#		1	EA	2	.8							
			2	EA	2	1.2							
	300#		2	EA	5	1.3							
	Total		5	EA	3.00	1.1							

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BRSE CASE

M.T.O. BY P. GOMEZ PRICED BY RCW DATE AUG 1985 SHEET 3 OF 7

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

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV.	CS-PIPING-SHOP												
15060	MECHANICAL PIPING												
15061													
4201	PIPE-SMALLS STL ASTM A53												
	CR B	XS											
			20	LF	2.40	.27							
	TOTAL	2" φ	20	LF	2.40	.27					10		
4221	FLANGES-ORIFICE SET.												
	WN 300# W/ 1/2" SCRD TAPS												
		XS											
			1	EA	103	-							
	TOTAL		1	EA	103.00	-		100					
-	CS BUTTWELD.												
		XS											
			2	EA	-	2.3							
	TOTAL	2" φ	2	EA	-	2.3							

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASS CASE

M.T.O. BY P. GOMEZ PRICED BY ROM DATE AUG 1985 SHEET 4 OF 7
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT	STAIRS STL-PIPING-FIELD											
DIV.	MECHANICAL PIPING											
15060	150#											
15063	BOLT-LIPS FOR F304L FLGS											
4221	↓											
		2	1	EA	4	1.2						
		3	2	}	4	1.5						
		4	3		7	2.0						
		6	2		8	2.5						
		8	1		↓	11	3.2					
	<u>Total</u>		<u>2</u>	<u>EA</u>	<u>6.70</u>	<u>2.0</u>		<u>100</u>		<u>20</u>		
			<u>NT 10</u>									

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 5 OF 7
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT	STNLS STL-PIPING-SHOP											
DIV.	MECHANICAL PIPING											
15060	PIPE-SMLS STNLS STL, ASTM											
15063	A312 GR TP304L, BE											
4202	S/40S											
		2	70	LF	14.50	.25						
		3	40		25.20	.35						
		4	42		35.90	.55						
		6	25		63.10	.7						
		8	25		107.90	1.0						
		10	25		196.90	1.1						
	Total	4.5"φ	227	LF	56.07	.55	14600			140		
	VALVES-		260									
4212	GATE VALVE-150# ANSI, BW											
	ENDS S/40S, 316L SS BODY &											
	316SS TRIM ALOYCO # 116											
		3"	1	EA	528	4.5						
		4"	3		758	6.7						
		6"	1		1352	9						
		8"	1		2570	10.5						
		10"	1		4271	13						
	GLOBE VALVE-600# ANSI BW											
	ENDS S/40S, 316SS "Y" PATTERN											
	BODY & 316SS TRIM											
		1/2"	2	EA	36A	3						
		3/4"	3		406	3						
		2"	1		951	4						
	Total		15	EA	1068.00	5.9	16000			90		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 6 OF 7

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

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY		<u>AREA# 2 ROOM# 1108</u>										
ACCNT	<u>STNLS STL-PIPING-SHOP</u>											
DIV.	<u>MECHANICAL PIPING</u>											
15060	<u>15063</u>											
4222	<u>FLANGES-SS R.F. ASTM A182</u>											
	<u>GR F304L</u>											
	<u>150# WN</u>	<u>3/4OS</u>	<u>2</u>	<u>1</u>	<u>EA</u>	<u>37</u>	<u>-</u>					
			<u>3</u>	<u>2</u>	<u>}</u>	<u>55</u>	<u>-</u>					
			<u>4</u>	<u>3</u>	<u>}</u>	<u>84</u>	<u>-</u>					
			<u>6</u>	<u>2</u>	<u>}</u>	<u>156</u>	<u>-</u>					
			<u>8</u>	<u>1</u>	<u> </u>	<u>242</u>	<u>-</u>					
	<u>FITTINGS: STNLS STL BW ASTM</u>											
	<u>A403 GR WP304L</u>											
	<u>90° LR ELL</u>	<u>3/4OS</u>	<u>2</u>	<u>8</u>	<u>EA</u>	<u>12</u>	<u>-</u>					
			<u>3</u>	<u>4</u>	<u>}</u>	<u>25</u>	<u>-</u>					
			<u>4</u>	<u>4</u>	<u>}</u>	<u>50</u>	<u>-</u>					
			<u>6</u>	<u>6</u>	<u>}</u>	<u>144</u>	<u>-</u>					
			<u>8</u>	<u>4</u>	<u>}</u>	<u>288</u>	<u>-</u>					
			<u>10</u>	<u>3</u>	<u> </u>	<u>518</u>	<u>-</u>					
	<u>45° ELL</u>	<u>3/4OS</u>	<u>2</u>	<u>2</u>	<u>EA</u>	<u>11</u>	<u>-</u>					
	<u>TEE</u>	<u>3/4OS</u>	<u>10</u>	<u>1</u>	<u>EA</u>	<u>682</u>	<u>-</u>					
	<u>CONC RED</u>	<u>3/4OS</u>	<u>6 x 4</u>	<u>1</u>	<u>EA</u>	<u>48</u>	<u>-</u>					
			<u>8 x 6</u>	<u>1</u>	<u>}</u>	<u>99</u>	<u>-</u>					
			<u>10 x 8</u>	<u>1</u>	<u> </u>	<u>180</u>	<u>-</u>					
	<u>ECC RED</u>	<u>3/4OS</u>	<u>4 x 2</u>	<u>1</u>	<u>EA</u>	<u>44</u>	<u>-</u>					
			<u>6 x 4</u>	<u>1</u>	<u>}</u>	<u>95</u>	<u>-</u>					
			<u>8 x 6</u>	<u>1</u>	<u>}</u>	<u>155</u>	<u>-</u>					
			<u>10 x 4</u>	<u>1</u>	<u> </u>	<u>405</u>	<u>-</u>					
	<u>TOTAL</u>		<u>49</u>	<u>EA</u>	<u>138.50</u>	<u>-</u>		<u>2600</u>				
			<u>55</u>									

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

8

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 7 OF 7
 JOB NO: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT	STNLS STL- PIPING- SHOP												
DIV.	MECHANICAL PIPING												
15060	AREA# 3 ROOM# 1108												
15063	304SS BUTTWELDS												
-			3/4	6	EA	-	1.7						
			2	21		-	3.4						
			3	11		-	4.3						
			4	15		-	6						
			6	17		-	7.7						
			8	12		-	9.4						
			10	11		-	11.9						
			Total	4.8'	93	EA	-	6.4				680	
-	INSTRUMENTS - (Labor Only)												
					107								
	CONTROL VALVE 300*RF 2												
					1	EA	-	5					
			Total		1	EA	-	5.0				10	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>Rcn</u>		DATE <u>AUG 1985</u>				SHEET <u>8</u> OF <u>8</u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE / PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>					
UNIT/AREA <u>MRS FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>VACUUM PUMP MEZZ</u>				MATL	M/H	LAB \$			M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1108</u>													
ACCNT													
<u>DIV</u>													
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u>	<u>CS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>200</u>			<u>30</u>			
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>170</u>	<u>LF</u>				<u>-</u>			<u>20</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>20</u>			
<u>15063</u>	<u>SS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>300</u>			<u>50</u>			
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>1300</u>			<u>30</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>260</u>	<u>LF</u>				<u>100</u>			<u>120</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>170</u>			
<u>15067</u>	<u>HASTELLOY ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>15068</u>	<u>PPL LINED CS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			

THE RALPH M. PARSONS COMPANY

CUNHA RIVER - BASE CASE

ESTIMATE SUMMARY

M.T.O. BY *P. GOMEZ* PRICED BY *RCM* DATE *AUG 1985* SHEET 1 OF 1
 JOB NO.: *6440-11* CLIENT: *DOE / PNL* TYPE OF ESTIMATE: *ROM* CKD BY: *TD*

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
	<i>MRS FACILITY</i>	<i>AREA # 3</i>											
	<i>SOLID RADWASTE</i>	<i>ROOM # 1111, 1119, 1120</i>											
	<i>MECHANICAL</i>												
<i>4200</i>	Pipe, Valves and Fittings-Aboveground												
<i>1506/</i>	<i>CARBON STEEL</i>												
<i>4201</i>	Pipe - Carbon Steel		<i>970</i>	<i>LF</i>				<i>1100</i>					
<i>4202</i>	Pipe - Alloy and Special			<i>LF</i>									
<i>4211</i>	Valves - Carbon Steel		<i>77</i>	<i>EA</i>				<i>2500</i>					
<i>4212</i>	Valves - Alloy and Special			<i>EA</i>									
<i>4221</i>	Fittings - Carbon Steel		<i>257</i>	<i>EA</i>				<i>2000</i>					
<i>4222</i>	Fittings - Alloy and Special			<i>EA</i>									
<i>4225</i>	Hangers, Shoes, etc.		<i>1</i>	<i>LOT</i>				<i>1000</i>					
<i>4231</i>	Outside Shop - Carbon Steel			<i>LF</i>									
<i>4232</i>	Outside Shop - Alloy and Specialty			<i>LF</i>									
<i>4241</i>	Field Shop Fabr.			<i>LF</i>									
<i>4251</i>	Install Screwed Piping			<i>LF+</i>									
<i>4252</i>	Install Socket Weld Piping		<i>970</i>	<i>LF+</i>						<i>1050</i>			
<i>4253</i>	Install Weld or Flanged Piping			<i>LF+</i>									
<i>4257</i>	Scaffolding		<i>1</i>	<i>LOT</i>						<i>180</i>			
<i>4258</i>	Firelines			<i>LF+</i>									
<i>4261</i>	Install Steam Tracing			<i>LF</i>									
<i>4264</i>	X-Ray and Stress Relieve		<i>1 LOT</i>	<i>EA</i>				<i>500</i>		<i>20</i>			
<i>4265</i>	Testing and Cleaning		<i>970</i>	<i>LF</i>				<i>100</i>		<i>130</i>			
<i>4266</i>	Pickling and Chem. Cleaning			<i>LF</i>									
<i>4267</i>	Freight			<i>TONS</i>				<i>200</i>					
	<i>9" φ</i> SUBTOTAL		<i>970</i>	<i>LF+</i>				<i>7400</i>		<i>1380</i>			
	Productivity at			<i>MH</i>									
	TOTAL			<i>LF+</i>									

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE SUMMARY

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: DOE / PNL TYPE OF ESTIMATE: ROM CKD BY: RS

UNIT/AREA DESCRIPTION CAPACITY	MRS FACILITY SOLID RADWASTE AREA # 3 ROOM # 1111, 1119, 1120	QUANTITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ASST. DIV. 15 MECHANICAL 4200	Pipe, Valves and Fittings-Aboveground											
15063	STAINLESS STEEL											
4201	Pipe - Carbon Steel		LF									
4202	Pipe - Alloy and Special	890	LF			13 500						
4211	Valves - Carbon Steel		EA									
4212	Valves - Alloy and Special	39	EA			5 400						
4221	Fittings - Carbon Steel	-	EA			200						
4222	Fittings - Alloy and Special	221	EA			9 900						
4223	Hangers, Shoes, etc.	1	LOT			1 800						
4231	Outside Shop - Carbon Steel		LF									
4232	Outside Shop - Alloy and Specialty		LF									
4241	Field Shop Fabr.		LF									
4251	Install Screwed Piping		LF+									
4252	Install Socket Weld Piping	890	LF+							1890		
4253	Install Weld or Flanged Piping		LF+									
4257	Scaffolding	1	LOT							320		
4258	Firelines		LF+									
4261	Install Steam Tracing		LF									
4264	X-Ray and Stress Relieve	1 Lot	EA			700				20		
4265	Testing and Cleaning	890	LF			100				230		
4266	Pickling and Chem. Cleaning		LF									
4267	Freight		TONS			900						
	2.0"φ SUBTOTAL	890	LF+			32 500				2460		
	Productivity at PCT.		MH									
	TOTAL		LF+									

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER, PBASE CASE

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M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 1 OF 10
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.	<u>MRS. FACILITY</u>	<u>SOLID LADWASTE</u>											
	<u>AREA # 3</u>	<u>ROOM # 1111, 1119, 1120</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u> <u>4211</u>	<u>VALVES-</u>												
	<u>GATE VALVE-125# ANSI FF</u>												
	<u>FLGD. C.I. BODY, BRONZE TRIM</u>												
	<u>CRANE # 465-1/2</u>												
	<u>4"</u>		<u>4</u>	<u>EA</u>	<u>136</u>	<u>67</u>							
	<u>GLOBE VALVE-125# ANSI FF</u>												
	<u>FLGD. C.I. BODY, BRONZE TRIM</u>												
	<u>CRANE # 351</u>												
	<u>3"</u>		<u>1</u>	<u>EA</u>	<u>168</u>	<u>4.5</u>							
	<u>TOTAL</u>		<u>5</u>	<u>EA</u>	<u>142.00</u>	<u>6.3</u>		<u>900</u>			<u>40</u>		
			<u>6</u>										

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY RCM			DATE AUG 1985			SHEET 2 OF 76				
JOB NO.: 6440-11		CLIENT: DOE/PNL			TYPE OF ESTIMATE ROM			CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION SOLID RADWASTE				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 3 ROOM# 1111, 1119, 1120												
ACCNT DIV.	CS-PIPING-FIELD FAB											
15060	MECHANICAL PIPING											
15061 4221	ORIFICE FLG SET- 300# WN TYPE W/ 1/2" SCRD TAPS ASTM A105 EX STRG											
		2	EA	103	-							
	TOTAL	2	EA	103.00	-		200					

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER - PASE CASE

M.T.O. BY P. GOMEZ		PRICED BY RCM		DATE AUG 1985				SHEET 3 OF 16				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION SOLID RADWASTE				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA# 3 ROOM# 1111, 1112, 1120												
ACCNT DIV.	FIELD LABOR											
15060	MECHANICAL PIPING											
15061												
4221	BOLT UPS-											
	ASB GSKT / BT STUDS											
	150#	3/4	2	EA	2	.8						
		1	14	}	2	.8						
		2	2		2	1.2						
		4	12		5	2.0						
	300#	1	3		EA	2	.9					
		2	2	}	5	1.3						
		3	6		7	1.6						
	TOTAL			EA	3.80	1.3		200.			60	
15063	BOLT-UP FOR F304SS FLGS-											
4221				EA								
	150#	3/4	13	EA	3	.8						
		1	13	}	3	.8						
		2	4		4	1.2						
		3	6		4	1.5						
		6	3		8	2.5						
	300#	1	1	EA	4	.9						
		2	1	}	7	1.3						
	TOTAL				EA	3.70	1.1		200.			50

PARSONS

ESTIMATE WORKSHEET

Clinch River Base Case

M.T.O. BY P. GOMEZ		PRICED BY ROM		DATE AUG 1985				SHEET 7 OF 16				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION SOLID RADWASTE				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3 ROOM #111, 112, 112C												
ACCNT DIV.	FIELD LABOR											
15060	MECHANICAL PIPING											
15061	- WELDS-											
	CS BUTTWELD-											
	XS	2"	6	EA	-	2.3						
	STD WT	4"	4	EA	-	2.9						
		6"	2	}	-	3.8						
	TOTAL	3.3"φ	12	EA	-	2.8				40		
15063	BOASS BUTTWELD		14									
	S/40s	3	3	EA	-	4.3						
		4	2	}	-	6.0						
		6	10	}	-	7.7						
	TOTAL	5.1"φ	15	EA	-	6.8				120		
			17									

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BPSB CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>RCM</u>		DATE <u>AUG 1985</u>				SHEET <u>5</u> OF <u>10</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>SOLID RADINASTE</u>				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA# 3 ROOM# 111, 119, 120</u>												
ACCNT												
<u>DIV.</u>	<u>CS-PIPING-SOCKETWELD</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>												
<u>4201</u>	<u>PIPE-SMLS STL ASTM A23 GR B</u>											
	<u>XS</u>	<u>3/4</u>	<u>155</u>	<u>LF</u>	<u>1.30</u>	<u>.25</u>						
		<u>1</u>	<u>30</u>	<u>}</u>	<u>1.60</u>	<u>.25</u>						
	<u>TOTAL</u>	<u>.8" φ</u>	<u>185</u>	<u>LF</u>	<u>1.35</u>	<u>.25</u>	<u>300</u>			<u>60</u>		
<u>4211</u>	<u>VALVES</u>											
	<u>GATE VALVE-800# STL SW</u>											
	<u>1/2 CC TRIM SMITH# 800</u>											
		<u>3/4</u>	<u>7</u>	<u>EA</u>	<u>24</u>	<u>1.7</u>						
		<u>1</u>	<u>1</u>	<u>}</u>	<u>29</u>	<u>1.9</u>						
		<u>2</u>	<u>3</u>	<u>}</u>	<u>68</u>	<u>3.4</u>						
	<u>DITTO EXCEPT SW/SCRD</u>											
		<u>1/2</u>	<u>2</u>	<u>EA</u>	<u>22</u>	<u>1.6</u>						
		<u>3/4</u>	<u>10</u>	<u>}</u>	<u>24</u>	<u>1.7</u>						
	<u>GLOBE VALVE-800# SW STL</u>											
	<u>1/2 CC TRIM SMITH# 800</u>											
		<u>2</u>	<u>1</u>	<u>EA</u>	<u>94</u>	<u>3.4</u>						
	<u>CHECK VALVE-800# SW STL</u>											
	<u>1/2 CC TRIM SMITH# 800</u>											
		<u>3/4</u>	<u>2</u>	<u>EA</u>	<u>26</u>	<u>1.7</u>						
	<u>TOTAL</u>		<u>26</u>	<u>EA</u>	<u>32.00</u>	<u>2.0</u>	<u>100</u>			<u>70</u>		
<u>4221</u>	<u>FLANGES-STL RF ASTM A105</u>											
	<u>300# SWI FLG</u>											
	<u>XS</u>	<u>2</u>	<u>2</u>	<u>EA</u>	<u>10</u>	<u>2.3</u>						

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BPSO CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>ROM</u>		DATE <u>AUG 1985</u>				SHEET <u>6 of 12</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>SOLID RADWASTE</u>				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1111, 1119 & 1120</u>												
ACCNT <u>DIV.</u>	<u>CS- PIPING- SOCKETWELD</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>												
<u>A221</u>	<u>FITTINGS- 3000# STL SW ASTM</u>											
	<u>A105</u>											
	<u>90° ELBOW</u>	<u>3/4</u>	<u>14</u>	<u>EA</u>	<u>3</u>	<u>1.3</u>						
		<u>1</u>	<u>4</u>	<u>}</u>	<u>3</u>	<u>1.4</u>						
		<u>2</u>	<u>4</u>	<u> </u>	<u>11</u>	<u>2.3</u>						
	<u>TEE</u>	<u>3/4</u>	<u>5</u>	<u>EA</u>	<u>4</u>	<u>1.3</u>						
		<u>2</u>	<u>3</u>	<u>}</u>	<u>15</u>	<u>2.3</u>						
		<u>2 x 3/4</u>	<u>2</u>	<u> </u>	<u>22</u>	<u>2.3</u>						
	<u>REDUCER</u>	<u>1 x 3/4</u>	<u>1</u>	<u>EA</u>	<u>3</u>	<u>1.4</u>						
		<u>2 x 3/4</u>	<u>1</u>	<u> </u>	<u>9</u>	<u>2.3</u>						
	<u>UNION</u>	<u>3/4</u>	<u>6</u>	<u>EA</u>	<u>5</u>	<u>1.3</u>						
	<u>TOTAL</u>		<u>53</u>	<u>EA</u>	<u>6.40</u>	<u>1.6</u>		<u>300.</u>		<u>80</u>		
	<u>- INSTRUMENTS-</u>											
	<u>CONTROL VALVE</u>	<u>3/4</u>	<u>1</u>	<u>EA</u>	<u>-</u>	<u>2.6</u>						
	<u>TOTAL</u>		<u>1</u>	<u>EA</u>	<u>-</u>	<u>2.6</u>		<u>-</u>		<u>-</u>		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - PASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>ROM</u>		DATE <u>AUG 1985</u>				SHEET <u>7</u> OF <u>16</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>SOLID RADWASTE</u>				M/HR\$	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 111, 112, 113</u>		MATL	M/H				LAB\$					M/HR\$
ACCNT DIV.	<u>CS-PIPING-SCREWED</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>												
<u>4201</u>	<u>PIPE-ERW CS, GALV. ASTM A100</u>											
	<u>X5 T&C</u>											
	<u>3/4</u>	<u>550</u>	<u>LF</u>	<u>.90</u>	<u>.25</u>							
	<u>TOTAL</u>	<u>550</u>	<u>LF</u>	<u>.90</u>	<u>.25</u>		<u>600.</u>			<u>170</u>		
<u>4211</u>	<u>VALVES-</u>	<u>690</u>										
	<u>GATE VALVE-200# WOG, SCD.</u>											
	<u>BRONZE BODY & TRIM</u>											
	<u>CRANE # 4304B</u>											
	<u>1/2</u>	<u>8</u>	<u>EA</u>	<u>10</u>	<u>.8</u>							
	<u>3/4</u>	<u>18</u>	<u>EA</u>	<u>13</u>	<u>1.0</u>							
	<u>GLOBE VALVE-300# WOG SCD</u>											
	<u>BRONZE BODY & TRIM PLUG TYPE</u>											
	<u>DISC CRANE # 14-1/2 P</u>											
	<u>3/4</u>	<u>1</u>	<u>EA</u>	<u>27</u>	<u>1.0</u>							
	<u>CHECK VALVE-200# WOG SCD</u>											
	<u>BRONZE BODY & TRIM, Y-PATTERN</u>											
	<u>SWING TYPE CRANE # 37</u>											
	<u>3/4</u>	<u>3</u>	<u>EA</u>	<u>12</u>	<u>1.0</u>							
	<u>TOTAL</u>	<u>90</u>	<u>EA</u>	<u>12.60</u>	<u>1.0</u>		<u>500.</u>			<u>40</u>		
<u>4221</u>	<u>SPECIALS-</u>	<u>38</u>										
	<u>QUICK DISCONNECT HOSE CALL FOR</u>											
	<u>WATER</u>											
	<u>3/4</u>	<u>2</u>	<u>EA</u>	<u>10</u>	<u>1.0</u>							
	<u>SAMPLE CONN FOR RADWASTE</u>											
	<u>3/4</u>	<u>1</u>	<u>EA</u>	<u>200</u>	<u>1.0</u>							
	<u>HOSE FOR CALUSTIC SOLUTION 50%</u>											
	<u>3/4" X 5'</u>	<u>1</u>	<u>EA</u>	<u>100</u>	<u>2</u>							
	<u>TOTAL</u>	<u>5</u>	<u>EA</u>	<u>80.00</u>	<u>1.3</u>		<u>400.</u>			<u>10</u>		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY Rcm DATE AUG 1985 SHEET 8 OF 16
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT	<u>CS-PIPING-SULD</u>											
DIV.	<u>MECHANICAL PIPING</u>											
<u>15060</u>	<u>FLANGES-STL RF GALV ASTM A105</u>											
<u>15061</u>	<u>150 # SULD FLG 3/4</u>	<u>2</u>	<u>EA</u>	<u>8</u>	<u>.5</u>							
<u>4221</u>	<u>FITTINGS-300 # GALV. M. I. ASTM A197</u>											
	<u>90° ELBOW 3/4</u>	<u>85</u>	<u>EA</u>	<u>3</u>	<u>.5</u>							
	<u>TEE 3/4</u>	<u>12</u>	<u>EA</u>	<u>4</u>	<u>.5</u>							
	<u>3/4 x 1/2</u>	<u>4</u>	<u>EA</u>	<u>5</u>	<u>.5</u>							
	<u>1/2 x 3/4</u>	<u>2</u>	<u>EA</u>	<u>9</u>	<u>.9</u>							
	<u>UNION 3/4</u>	<u>9</u>	<u>EA</u>	<u>2</u>	<u>.5</u>							
	<u>PLUG ROUND SOLID STL SULD TO ANS I B16.5</u>											
	<u>3/4</u>	<u>2</u>	<u>EA</u>	<u>1</u>	<u>.5</u>							
	<u>TOTAL</u>	<u>112</u>	<u>EA</u>	<u>3.10</u>	<u>.5</u>		<u>500</u>			<u>80</u>		
	<u>CONTROL VALVE- 3/4</u>	<u>9</u>	<u>EA</u>	<u>-</u>	<u>1.5</u>							
	<u>TOTAL</u>	<u>121</u>	<u>EA</u>	<u>-</u>	<u>1.5</u>		<u>-</u>			<u>20</u>		

PARSONS
ESTIMATE WORKSHEET

CUNCHA RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY PCA		DATE AUG 1985				SHEET 9 OF 16				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION SOLID RADWASTE				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 3 ROOM# 111, 112, 113												
ACCNT DIV.	CS-PIPING-SHOP FAB											
15060	MECHANICAL PIPING											
15061												
4201	PIPE-ERW STL ASTM A53											
	GR B BE											
	STD WT	3	5	LF	3.60	.35						
		4	35		4.90	.55						
	TOTAL			40	4.77	.53	200.			30		
4221	FLANGES-STL F.F. ASTM A105											
	150# SLIP-ON	4	12	EA	11	-						
	300# SLIP-ON	3	2	EA	11	-						
	FITTINGS-STL BW ASTM A234											
	GR KIPB											
	90° LR ELL											
	STD WT	3	1	EA	4	-						
		4	9		7	-						
	TEE STD WT	4x3	2	EA	18	-						
	CONC REDUCER											
	STD WT	6x4	2	EA	15	-						
	3000# TD.L ASTM A105	1/2	2	EA	2	-						
		3/4	7		3	-						
	TOTAL		37	EA	8.40	-	400.			-		
-	WELDS -											
	CS BW STD WT	3	4	EA	-	2.0						
		4	25		-	2.9						

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 10 OF 16
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV.	CS-PIPING-SHOP												
15060	MECHANICAL PIPING												
15061													
	- WELDS CONT'D.												
	3000# OLET WELD		1/2	2	EA	-	1.7						
			3/4	7	EA	-	2.1						
	150# SLIP-ON WELD		4	12	EA	-	2.9						
	300# SLIP-ON WELD		3	2	EA	-	2.0						
	TOTAL		3.3%	52	EA	-	2.6				160		
				60									

PARSONS
ESTIMATE WORKSHEET

CUNYH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY PCM DATE AUG 1985 SHEET 12 OF 16
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				M/HR	LAB \$	M/HR		DOLLARS	M/HR	DOLLARS		
CAPACITY							MATL				M/HR	LAB \$
ACCNT DIV.	STNLS STL-PIPING-SOCKETWELD											
15060	MECHANICAL PIPING											
15063	4202 PIPE-SMALS STNLS STL, ASTM											
	A312 GR TP304											
	S/40S											
		1/2	5	LF	3.90	.35						
		3/4	405		5.20	.45						
		1	90		6.60	.5						
		2	30		12.20	.7						
	TOTAL		530	LF	5.80	.47		3800		310		
4212	VALVES-											
	GATE VALVE-800# SW 316LSS											
	BODY & 316SS TRIM SMITH#800											
		1/2	1	EA	65	3.2						
		3/4	8		77	3.4						
		1	9		105	3.8						
	DITTO EXCEPT SW/SCRD											
		1/2	6	EA	65	3.2						
		3/4	4		77	3.4						
	CHECK VALVE-800# SW, PISTON											
	TYPE, 316LSS BODY & TRIM											
	SMITH # C80											
		3/4	1	EA	105	3.4						
	TOTAL		29	EA	83.00	3.5		3000		130		
4222	SPECIALS-											
	SAMPLE CONNECTION FOR											
	DICON SOLUTION											
		3/4	1	EA	150	1.0						
	TOTAL		1	EA	150.00	1.0		200		-		

PARSONS
ESTIMATE WORKSHEET

CUNCE RWMN - PASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>per</u>			DATE <u>AUG 1985</u>				SHEET <u>13</u> OF <u>16</u>			
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>			TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>J</u>			
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>SOLID RADWASTE</u>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA#3 ROOM#1111, 1119, 1120</u>												
ACCNT	STNLS STL-PIPING-SOCKETWELD											
DIV.	15060 MECHANICAL PIPING											
15063	4222 FLANGES-STNLS STL ASTM A182											
	CL F304											
	150# SOCKETWELD											
	XS	3/4	21	EA	19	2.6						
		1	15	}	19	2.8						
		2	4		1	28	4.6					
	300# SOCKETWELD											
	XS	3/4	2	EA	24	2.6						
		2	1	}	41	4.6						
	FITTINGS-3000# STNLS STL ASTM											
	A182 F304											
	90° ELBOW											
		1/2	1	EA	5	2.2						
		3/4	50	}	7	2.6						
		1	17		1	11	2.8					
		2	4	}	46	4.6						
	TEE											
		3/4	9	EA	9	2.6						
		1	1	}	13	2.8						
		2	1		1	60	4.6					
		3/4 x 1/2	3	}	18	2.6						
		1 x 1/2	2		1	26	2.8					
		2 x 3/4	3	}	120	4.6						
	45° ELBOW											
		3/4	2	EA	10	2.6						
	REDUCER											
		1 x 3/4	2	EA	9	2.8						
	TOTAL											
			198	EA	16.40	2.8			2800		180	
			173									

PARSONS
ESTIMATE WORKSHEET

CUNCU RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY RCR DATE AUG 1985 SHEET 14 OF 16
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACNT												
DIV.	STAIRS STL - PIPING - SCREWED											
	15060 MECHANICAL PIPING											
	15063											
	4222 SPECIALS											
	SAMPLE CONNECTIONS FOR DECON SOLUTION											
		3/4	2			200						
	HOSE FOR DECON SOLUTION 5' LONG QUICK CONNECTORS											
		3/4	6	EA		200						
			8	EA		200.00					20	
			10									
	TOTAL							2000				

PARSONS
ESTIMATE WORKSHEET

CURRY RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>RCR</u>		DATE <u>AUG 1985</u>				SHEET <u>15</u> OF <u>15</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>SOLID RADWASTE</u>				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1111, 1112, 1113</u>												
ACCNT DIV.	<u>STNLS STL- PIPING-SHOP</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15063</u>												
<u>4202</u>	<u>PIPE-SMLS STNLS STL ASTM</u>											
	<u>A312 GR TP304</u>											
	<u>S/405</u>	<u>3</u>	<u>50</u>	<u>LF</u>	<u>21.20</u>	<u>.35</u>						
		<u>4</u>	<u>25</u>	<u>}</u>	<u>30.30</u>	<u>.55</u>						
		<u>6</u>	<u>125</u>	<u>}</u>	<u>53.20</u>	<u>.17</u>						
	<u>TOTAL</u>		<u>200</u>	<u>LF</u>	<u>42.34</u>	<u>.59</u>	<u>9700</u>			<u>140</u>		
<u>4222</u>	<u>FLANGES-STNLS STL RF ASTM</u>											
	<u>A182 GR F304</u>											
	<u>150# WELD NECK</u>											
	<u>S/405</u>	<u>3</u>	<u>5</u>	<u>EA</u>	<u>53</u>	<u>-</u>						
		<u>6</u>	<u>3</u>	<u>}</u>	<u>149</u>	<u>-</u>						
	<u>ORIFICE FLG SET-300# WN</u>											
	<u>TYPE W/1/2" SCD TAPS</u>											
	<u>S/405</u>	<u>3</u>	<u>1</u>	<u>EA</u>	<u>740</u>	<u>-</u>						
	<u>FITTINGS-SS BW ASTM A403</u>											
	<u>GR WP304</u>											
	<u>90° LR ELL</u>											
	<u>S/405</u>	<u>3</u>	<u>6</u>	<u>EA</u>	<u>25</u>	<u>-</u>						
		<u>4</u>	<u>3</u>	<u>}</u>	<u>50</u>	<u>-</u>						
		<u>6</u>	<u>6</u>	<u>}</u>	<u>144</u>	<u>-</u>						
	<u>TEE</u>	<u>3</u>	<u>1</u>	<u>EA</u>	<u>68</u>	<u>-</u>						
	<u>S/405</u>	<u>6 x 3</u>	<u>2</u>	<u>}</u>	<u>445</u>	<u>-</u>						
	<u>CONIC REDUCER</u>											
	<u>S/405</u>	<u>3 x 2</u>	<u>1</u>	<u>EA</u>	<u>18</u>	<u>-</u>						

PARSONS
ESTIMATE WORKSHEET

Clinch River - PIPING CASE

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>LEN</i>		DATE <i>AUG 1985</i>				SHEET <i>16</i> OF <i>16</i>					
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>				CHECKED BY <i>(Signature)</i>					
UNIT/AREA <i>MRS. FACILITY</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>SOLID RADWASTE</i>				CAPACITY <i>AREA# 3 ROOM# 1111, 1119, 1120</i>	MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS		
ACCNT	<i>STNLS STL-PIPING SHOP</i>												
DIV.	<i>MECHANICAL PIPING</i>												
<i>15060</i>	<i>3000# SOL ASTM A182</i>												
<i>15063</i>	<i>6" F304</i>												
		<i>3/4</i>	<i>1</i>	<i>EA</i>	<i>15</i>	<i>-</i>							
		<i>2</i>	<i>2</i>	<i>EA</i>	<i>47</i>	<i>-</i>							
	<i>TOTAL</i>		<i>3+ 36</i>	<i>EA</i>	<i>119.40</i>	<i>-</i>	<i>4300</i>						
	<i>- WELDS.</i>												
	<i>F304SS BW.</i>												
	<i>5/40S</i>												
		<i>1</i>	<i>1</i>	<i>EA</i>	<i>-</i>	<i>1.7</i>							
		<i>3</i>	<i>17</i>	<i>EA</i>	<i>-</i>	<i>4.3</i>							
		<i>4</i>	<i>6</i>	<i>EA</i>	<i>-</i>	<i>6.0</i>							
		<i>6</i>	<i>14</i>	<i>EA</i>	<i>-</i>	<i>7.7</i>							
	<i>3000# SS OLET WELD</i>												
		<i>3/4</i>	<i>1</i>	<i>EA</i>	<i>-</i>	<i>4.3</i>							
		<i>2</i>	<i>2</i>	<i>EA</i>	<i>-</i>	<i>7.7</i>							
	<i>TOTAL</i>		<i>47</i>	<i>EA</i>	<i>-</i>	<i>5.8</i>				<i>270</i>			

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>REM</i>		DATE <i>AUG 1985</i>		SHEET <i>17</i> OF <i>17</i>						
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE <i>RCM</i>		CHECKED BY <i>[Signature]</i>						
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT			LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS		
ACCNT												
<i>DIV</i>												
<i>15060</i>	<i>MECHANICAL PIPING</i>											
<i>15061</i>	<i>CS ADDS</i>											
<i>4225</i>	<i>HANGERS / SUPPORTS</i>	<i>1</i>	<i>Lot</i>				<i>1000</i>			<i>190</i>		
<i>4264</i>	<i>FIELD X-RAY</i> <i>15/35</i>	<i>1</i>	<i>Lot</i>				<i>500</i>			<i>20</i>		
<i>4265</i>	<i>TEST / CLEAN</i>	<i>970</i>	<i>LF</i>				<i>100</i>			<i>130</i>		
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			<i>180</i>		
<i>15063</i>	<i>SS ADDS</i>											
<i>4225</i>	<i>HANGERS / SUPPORTS</i>	<i>1</i>	<i>Lot</i>				<i>1800</i>			<i>270</i>		
<i>4264</i>	<i>FIELD X-RAY</i> <i>10/45</i>	<i>1</i>	<i>Lot</i>				<i>700</i>			<i>20</i>		
<i>4265</i>	<i>TEST / CLEAN</i>	<i>890</i>	<i>LF</i>				<i>100</i>			<i>230</i>		
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			<i>320</i>		
<i>15067</i>	<i>HASTELLOY ADDS</i>											
<i>4225</i>	<i>HANGERS / SUPPORTS</i>	<i>1</i>	<i>Lot</i>				-			-		
<i>4264</i>	<i>FIELD X-RAY</i> <i>1</i>	<i>1</i>	<i>Lot</i>				-			-		
<i>4265</i>	<i>TEST / CLEAN</i>		<i>LF</i>				-			-		
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			-		
<i>15068</i>	<i>PPL LINED CS ADDS</i>											
<i>4225</i>	<i>HANGERS / SUPPORTS</i>	<i>1</i>	<i>Lot</i>				-			-		
<i>4265</i>	<i>TEST / CLEAN</i>		<i>LF</i>				-			-		
-	<i>SCAFFOLDING</i>	<i>1</i>	<i>Lot</i>				-			-		

ESTIMATE SUMMARY

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985
 JOB NO.: 6440-11 CLIENT: DOE / PNL TYPE OF ESTIMATE: ROM CKD BY: JS

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
UNIT AREA	MRS FACILITY												
	DESCRIPTION	HIGH LEVEL RADWASTE *											
		AREA # 3 ROOM # 1113											
		MECHANICAL											
4200	Pipe, Valves and Fittings-Aboveground												
15063	STAINLESS STEEL												
4201	Pipe - Carbon Steel			LF									
4202	Pipe - Alloy and Special		1560	LF				16700					
4211	Valves - Carbon Steel			EA									
4212	Valves - Alloy and Special		62	EA				11700					
4221	Fittings - Carbon Steel		-	EA				400					
4222	Fittings - Alloy and Special		491	EA				33900					
4225	Hangers, Shoes, etc.		1	LOT				3100					
4231	Outside Shop - Carbon Steel			LF									
4232	Outside Shop - Alloy and Specialty			LF									
4241	Field Shop Fabr.			LF									
4251	Install Screwed Piping			LF+									
4252	Install Socket Weld Piping		1560	LF+							3550		
4253	Install Weld or Flanged Piping			LF+									
4257	Scaffolding		1	LOT							600		
4258	Firelines			LF+									
4261	Install Steam Tracing			LF									
4264	X-Ray and Stress Relieve		1 Lot	EA				1100			20		
4265	Testing and Cleaning		1560	LF				200			430		
4266	Pickling and Chem. Cleaning			LF									
4267	Freight			TONS				2000					
		1.5"φ											
	SUBTOTAL		1560	LF+				69100			4600		
	Productivity at	PCT.		MH									
	QA LEVEL I	USE	100%					69100			4600		
	TOTAL			LF+				138700			9200		

ESTIMATE SUMMARY

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: DOE / PNL TYPE OF ESTIMATE: ROM CKD BY: *RS*

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
<i>MRS FACILITY</i>	<i>HIGH LEVEL RADWASTE *</i>	<i>AREA # 3 ROOM # 1113</i>											
<i>MECHANICAL</i>													
4200	Pipe, Valves and Fittings-Aboveground												
15067	<i>HASTELLOY</i>												
4201	Pipe - Carbon Steel			LF									
4202	Pipe - Alloy and Special		40	LF			1700						
4211	Valves - Carbon Steel			EA									
4212	Valves - Alloy and Special			EA									
4221	Fittings - Carbon Steel			EA									
4222	Fittings - Alloy and Special		8	EA			300						
4225	Hangers, Shoes, etc.		1	LOT			100						
4231	Outside Shop - Carbon Steel			LF									
4232	Outside Shop - Alloy and Specialty			LF									
4241	Field Shop Fabr.			LF									
4251	Install Screwed Piping			LF+									
4252	Install Socket Weld Piping		40	LF+						60			
4253	Install Weld or Flanged Piping			LF+									
4257	Scaffolding		1	LOT						10			
4258	Firelines			LF+									
4261	Install Steam Tracing			LF									
4264	X-Ray and Stress Relieve		1 LOT	EA			200			-			
4265	Testing and Cleaning		40	LF			-			10			
4266	Pickling and Chem. Cleaning			LF									
4267	Freight			TONS			100						
	<i>1.0" φ</i> SUBTOTAL		40	LF+			2400			80			
	Productivity at PCT.			MH									
	<i>QA LEVEL I USE</i>		100	%			2400			80			
	TOTAL			LF+			4800			160			

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY P. GOMEZ PRICED BY Rcm DATE AUG 1985 SHEET 1 OF 8
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT	STAIRS STL-PIPING-FIELD											
DIV.	15060 MECHANICAL PIPING											
	15063											
	4212 VALVES-											
	GATE VALVE-150" RF 316SS											
	BODY & TRIM PACIFIC#5-150-1CH											
		6	3	EA	1352	8.3						
	TOTAL		3	EA	1352	8.3	4100.			20.		
4222	SPECIAL-											
	PIPING WALL PENETRATION FOR											
	CADIO ACTIVE CELLS											
		3/4	23	EA	-	1.0						
		1	2		-	1.3						
		2	3		-	2.0						
		3	1		-	2.5						
		6	3		-	4.0						
	TOTAL		32	EA	-	1.4				50.		
			37									
4212	ALLOWANCE FOR VALVE REMOTE											
	NUMBER MODIFICATIONS											
							2000.			-		

CUNCHA RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY P. GOMEZ PRICED BY pcr DATE AUG 1985 SHEET 2 OF 3
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA# 3 ROOM# 1113</u>												
ACCNT DIV.	<u>FIELD LABOR</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15063</u>	<u>BOLT UPS -</u>											
<u>4221</u>	<u>ASB GSKTS / B7 STUDS</u>											
	<u>150#</u>	<u>1</u>	<u>EA</u>	<u>2</u>	<u>.8</u>							
	<u>TOTAL</u>	<u>1</u>	<u>EA</u>	<u>2</u>	<u>.8</u>							
<u>15063</u> <u>4221</u>	<u>BOLT UPS - FOR F304SS FLGS -</u>											
	<u>150#</u>	<u>3/4</u>	<u>EA</u>	<u>3</u>	<u>.8</u>							
		<u>1</u>	<u>EA</u>	<u>3</u>	<u>.8</u>							
		<u>1/2</u>	<u>EA</u>	<u>3</u>	<u>.7</u>							
		<u>2</u>	<u>EA</u>	<u>4</u>	<u>1.2</u>							
		<u>3</u>	<u>EA</u>	<u>4</u>	<u>1.5</u>							
		<u>4</u>	<u>EA</u>	<u>7</u>	<u>2</u>							
		<u>6</u>	<u>EA</u>	<u>8</u>	<u>2.5</u>							
		<u>10</u>	<u>EA</u>	<u>48</u>	<u>6</u>							
	<u>200#</u>	<u>3/4</u>	<u>EA</u>	<u>3</u>	<u>.9</u>							
		<u>1/2</u>	<u>EA</u>	<u>5</u>	<u>.9</u>							
		<u>4</u>	<u>EA</u>	<u>10</u>	<u>2.3</u>							
	<u>TOTAL</u>	<u>79</u>	<u>EA</u>	<u>4.50</u>	<u>1.2</u>			<u>400.</u>		<u>110.</u>		
	<u>WELDS -</u>	<u>91</u>										
	<u>F304SS BW.</u>											
	<u>S/40S</u>	<u>3</u>	<u>EA</u>	<u>-</u>	<u>1.3</u>							
		<u>4</u>	<u>EA</u>	<u>-</u>	<u>6</u>							
		<u>6</u>	<u>EA</u>	<u>-</u>	<u>7.7</u>							
	<u>TOTAL</u>	<u>12</u>	<u>EA</u>	<u>-</u>	<u>6.9</u>					<u>80.</u>		
<u>15063</u>	<u>ALLOWANCE FOR REMOTE 3-BOLT FLG</u>											
<u>4221</u>	<u>JUMPER BOLT-UPS</u>											
										<u>50.</u>		

PARSONS
ESTIMATE WORKSHEET

CUNN RIVER, EPSE CASE

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 3 OF 3

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

UNIT/AREA MRS. FACILITY

DESCRIPTION HIGH LEVEL RADWASTE

CAPACITY AREA# 3 ROOM# 1113

ACCNT FIELD LABOR

DIV. MECHANICAL PIPING

15060

15063

- INSTRUMENTS-

CONTROL VALVE- 3/4 2 EA - 3.9

1 1 } - 3.9

2 1 } - 5.9

PEV 1 1/2 x 2 1 EA - 4.5

4 x 6 1 } - 11.7

TOTAL 8 EA - 5.6

7

40.

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BRBS CASE

M.T.O. BY P. GOMEZ		PRICED BY ROM		DATE AUG 1985				SHEET 4 OF 5				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION HIGH LEVEL RADWASTE				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA# 3 ROOM# 1113												
ACCNT												
DIV.	STNLS STL-PIPING-SOCKETWELD											
15060	MECHANICAL PIPING											
15063												
1202	PIPE-SMLS STNLS STL ASTM											
	A312 GR TP304											
	S/405											
		3/4	795	LF	5.20	.45						
		1	120		6.60	.5						
		1 1/2	70		10.00	.6						
		2	115		12.20	.7						
	TOTAL		1100	LF	6.37	.49			8800		680	
	VALVES-		1380									
1212	GATE VALVE-800# SW 316LSS											
	BODY & 316SS TRIM SMITH#800											
		3/4	22	EA	77	3.4						
		1	9		105	3.8						
		1 1/2	1		177	5						
		2	3		238	6.8						
	DITTO EXCEPT SW/SCAD											
		1/2	4	EA	65	3.2						
		3/4	5		77	3.4						
	GLOBE VALVE-800# SW 316LSS											
	BODY & 316SS TRIM SMITH#680											
		3/4	1	EA	86	3.4						
	CHECK VALVE-800# SW 316LSS											
	BODY & TRIM PISTON TYPE											
		3/4	2	EA	105	3.4						
			SMITH#680									
	TOTAL		59	EA	95.00	3.7			5600		220	

PARSONS
ESTIMATE WORKSHEET

CINCINNATI PIVOT - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY PAR DATE AUG 1985 SHEET 5 OF 8
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIY.	STNLS STL-PIPING-SOCKETWELD												
15060	MECHANICAL PIPING												
15063													
4222	FLANGES-STNLS STL RE ASTM A182 GR. F304												
	150# SOCKETWELD												
	3/4		35	EA	19	2.6							
	1		12		19	2.8							
	1 1/2		5		22	4							
	2		9		28	4.6							
	300# SOCKETWELD												
	3/4		4	EA	24	2.6							
	1 1/2		2		35	4							
	FITTINGS-3000# STNLS STL SVI ASTM A182 GR. F304												
	90° ELBOW												
	3/4		105	EA	7	2.6							
	1		15		11	2.8							
	1 1/2		9		28	4							
	2		27		46	4.6							
	TEE												
	3/4		14	EA	9	2.6							
	1		2		13	2.8							
	2		6		60	4.6							
	3/4 x 1/2		2		18	2.6							
	1 x 3/4		1		26	2.8							
	1 1/2 x 3/4		2		84	4							
	2 x 3/4		2		120	4.6							
	REDUCER												
	1 x 3/4		2	EA	9	2.8							
	2 x 3/4		2		30	4.6							
	2 x 1 1/2		2		30	4.6							
	TOTAL		398	EA	16.80	3.0		6700.			1190.		
			398										

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>Rcm</i>		DATE <i>AUG 1985</i>				SHEET <i>6 OF 8</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>				CHECKED BY				
UNIT/AREA <i>MRS. FACILITY</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>HIGH LEVEL RADWASTE</i>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <i>AREA# 3 ROOM# 1113</i>												
ACCNT												
<i>DIV.</i>	<i>STALS STL-PIPING-SHOP</i>											
<i>15060</i>	<i>MECHANICAL PIPING</i>											
<i>15063</i>												
<i>4202</i>	<i>PIPE-SMLS STALS STL ASTM A312</i>											
	<i>GR TP304</i>											
	<i>5/40s</i>	<i>3</i>	<i>25</i>	<i>LF</i>	<i>21.20</i>	<i>.35</i>						
		<i>4</i>	<i>28</i>	}	<i>30.30</i>	<i>.55</i>						
		<i>6</i>	<i>105</i>		<i>53.20</i>	<i>.7</i>						
	<i>TOTAL</i>	<i>5.2"φ</i>	<i>758</i>	<i>LF</i>	<i>44.08</i>	<i>.62</i>	<i>7900</i>			<i>110</i>		
<i>15067</i>	<i>PIPE-SMLS HASTELLOY B-2,</i>											
<i>4202</i>	<i>SOLUTION HEAT TREATED</i>											
	<i>5/40s</i>	<i>1</i>	<i>35</i>	<i>LF</i>	<i>42.00</i>	<i>.12</i>						
	<i>TOTAL</i>	<i>1.0"φ</i>	<i>35</i>	<i>LF</i>	<i>42.00</i>	<i>.12</i>	<i>1700</i>			<i>-</i>		
<i>15063</i>	<i>FLANGES-STALS STL R.F. ASTM</i>											
<i>4232</i>	<i>A182 GR F304</i>											
	<i>150# WN</i>	<i>5/40s</i>	<i>3</i>	<i>1</i>	<i>EA</i>	<i>53</i>	<i>-</i>					
			<i>4</i>	<i>3</i>	}	<i>81</i>	<i>-</i>					
			<i>6</i>	<i>3</i>		<i>149</i>	<i>-</i>					
			<i>16</i>	<i>1</i>	<i>900</i>	<i>-</i>						
	<i>300# WN</i>	<i>5/40s</i>	<i>4</i>	<i>2</i>	<i>EA</i>	<i>126</i>	<i>-</i>					
	<i>TOTAL</i>		<i>70</i>	<i>EA</i>	<i>189.50</i>	<i>-</i>	<i>2300</i>			<i>-</i>		
<i>15067</i>	<i>FLANGES-FORGED HASTELLOY B-2</i>											
<i>4232</i>	<i>R.F.</i>											
	<i>150# WN</i>	<i>5/40s</i>	<i>1</i>	<i>2</i>	<i>EA</i>	<i>90</i>	<i>-</i>					
	<i>TOTAL</i>		<i>2</i>	<i>EA</i>	<i>90.00</i>	<i>-</i>	<i>200</i>			<i>-</i>		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BRSE CASE

M.T.O. BY P. GOMEZ PRICED BY RW DATE AUG 1985 SHEET 7 OF 8
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT DIV.	STNLS STL-PIPING-SHOP												
15060	MECHANICAL PIPING												
15063	FITTINGS-SMLS STNLS STL BW												
4222	ASTM A403 GR F304												
	90° LR ELL	S/40S	3	7	EA	25	-						
			4	9	}	50	-						
			6	37		144	-						
	TEE	S/40S	4	1	EA	101	-						
			6	4	}	259	-						
	CONG REDUCER	S/40S	6x4	1		EA	58	-					
			10x6	3	}	270	-						
			16x10	5		880	-						
	TOTAL		69	79	EA	186.70	-	14800					
15067 4222	FITTINGS-SMLS HASTELLOY B-2												
	SOLUTION HEAT TREATED, BW												
	90° LR ELL	S/40S	1	5	EA	16	-						
	TOTAL		3	6	EA	16.00	-	100					
15063 4222	FITTINGS-SS ASTM A182 F304												
	3000# SOL		3/4	1	EA	15	-						
	W.O.L	S/40S	4	1	EA	124	-						
	TOTAL		2	2	EA	67.50	-	100					
15069 4222	ALLOWANCES FOR REMOTE JUMPER												
	3-BOLT FLGS												
								10000					

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY PCW DATE AUG 1985 SHEET 8 OF 8
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV.	STALS STL-PIPING-SHOP												
15060	MECHANICAL PIPING												
	WELDS-												
15063	F304SS BWI- 3/40S												
			3	14	EA	-	4.3						
			4	19		-	6						
			6	31		-	7.7						
			10	1		-	11.9						
			10	1		-	13.6						
	TOTAL	5.0"φ			EA	-	6.7					510	
15062	HASTELLOY B-2 BW												
			1	12	EA	-	3.4						
	TOTAL	1.0"φ			EA	-	3.4					50	
15063	3000# 304SS OLET WELD												
			3/4	1	EA	-	4.3						
	W.O.L. WELD 2/40S												
			4"	1	EA	-	15						
	TOTAL	2.4"φ		2	EA	-	9.7					20	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER. BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>Per</u>		DATE <u>AUG 1985</u>				SHEET <u>9</u> OF <u>9</u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>RCM</u>				CHECKED BY <u>[Signature]</u>					
UNIT/AREA <u>MRS FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>HIGH LEVEL RADWASTE</u>				MATL	M/H	LAB \$			M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1113</u>													
ACCNT													
<u>DIV</u>													
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u>	<u>CS ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>-</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>					<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>-</u>		
<u>15063</u>	<u>SS ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>					<u>3</u>	<u>100</u>		<u>470</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>					<u>1</u>	<u>100</u>		<u>20</u>		
<u>4265</u>	<u>TEST/CLEAN</u>	<u>1560</u>	<u>LF</u>					<u>2</u>	<u>00</u>		<u>430</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>600</u>		
<u>15067</u>	<u>HASTELLOY ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>					<u>1</u>	<u>00</u>		<u>10</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>					<u>2</u>	<u>00</u>		<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>	<u>40</u>	<u>LF</u>					<u>-</u>			<u>10</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>10</u>		
<u>15068</u>	<u>PPL LINED CS ADDS</u>												
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>					<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>					<u>-</u>			<u>-</u>		

ESTIMATE SUMMARY

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 1 OF 1

JOB NO.: 6440-11 CLIENT: DOE / PNL TYPE OF ESTIMATE: ROM CKD BY: [Signature]

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
	MRS FACILITY												
	COMPRESSOR ROOM												
	CAPACITY AREA # 3 ROOM # 1155												
	MECHANICAL												
4200	Pipe, Valves and Fittings-Aboveground												
15061	CARBON STEEL												
4201	Pipe - Carbon Steel	1540	LF				2400						
4202	Pipe - Alloy and Special		LF										
4211	Valves - Carbon Steel	116	EA				2100						
4212	Valves - Alloy and Special		EA										
4221	Fittings - Carbon Steel	418	EA				3400						
4222	Fittings - Alloy and Special		EA										
4225	Hangers, Shoes, etc.	1	LOT				1500						
4231	Outside Shop - Carbon Steel		LF										
4232	Outside Shop - Alloy and Specialty		LF										
4241	Field Shop Fabr.		LF										
4251	Install Screwed Piping		LF+										
4252	Install Socket Weld Piping	1540	LF+							1230			
4253	Install Weld or Flanged Piping		LF+										
4257	Scaffolding	1	LOT							200			
4258	Firelines		LF+										
4261	Install Steam Tracing		LF										
4264	X-Ray and Stress Relieve		EA										
4265	Testing and Cleaning	1540	LF				100			150			
4266	Pickling and Chem. Cleaning		LF										
4267	Freight		TONS				300						
	1.2" φ SUBTOTAL	1540	LF+				9800			1580			
	Productivity at PCT.		MH										
	TOTAL		LF+										

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>Rea</u>		DATE <u>AUG 1985</u>				SHEET <u>1</u> OF <u>6</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>COMPRESSOR ROOM</u>				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1155</u>												
ACCNT DIV.	<u>CS-PIPING-SCRD</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>	<u>4201 PIPE-ERW STL, GALV. ASTM A182 T&C</u>											
	<u>XS</u>	<u>3/4</u>	<u>340</u>	<u>LF</u>	<u>.90</u>	<u>.25</u>						
		<u>1</u>	<u>290</u>		<u>1.30</u>	<u>.25</u>						
		<u>1 1/2</u>	<u>605</u>		<u>2.10</u>	<u>.3</u>						
	<u>TOTAL</u>	<u>1.2" φ</u>	<u>1235</u>	<u>LF</u>	<u>1.58</u>	<u>.27</u>		<u>2400</u>			<u>420</u>	
	<u>VALVES-</u>		<u>1540</u>									
<u>4211</u>	<u>GATE VALVE-200# WOG BRONZE BODY & TRIM CRANE # 430UB</u>	<u>3/4</u>	<u>58</u>	<u>EA</u>	<u>13</u>	<u>1.0</u>						
		<u>1</u>	<u>6</u>		<u>17</u>	<u>1.2</u>						
		<u>1 1/2</u>	<u>23</u>		<u>28</u>	<u>1.8</u>						
	<u>GLOBE VALVE-300# WOG BRONZE BODY & TRIM, PLUG TYPE DISC, CRANE # H-1/2 P</u>	<u>3/4</u>	<u>1</u>	<u>EA</u>	<u>27</u>	<u>1.0</u>						
		<u>1</u>	<u>1</u>		<u>36</u>	<u>1.2</u>						
		<u>1 1/2</u>	<u>1</u>		<u>62</u>	<u>1.8</u>						
	<u>CHECK VALVE-200# WOG BRONZE BODY & TRIM, Y PATTERN SWING TYPE CRANE # 37</u>	<u>1</u>	<u>1</u>	<u>EA</u>	<u>16</u>	<u>1.2</u>						
		<u>1 1/2</u>	<u>2</u>		<u>24</u>	<u>1.8</u>						
	<u>TOTAL</u>		<u>99</u>	<u>EA</u>	<u>18.20</u>	<u>1.2</u>		<u>2100</u>			<u>140</u>	
<u>4221</u>	<u>SPECIALTIES-</u>		<u>116</u>									
	<u>TRAP-250# SUMP C.I. BODY, ASTM A278, S.S. TRIM ARMSTRONG 1-LD</u>	<u>3/4</u>	<u>4</u>	<u>EA</u>	<u>63</u>	<u>1.0</u>						

PARSONS

ESTIMATE WORKSHEET

CLINTON RIVER - BRB CMB

M.T.O. BY P. GOMEZ		PRICED BY RGM		DATE AUG 1985			SHEET 2 OF 3						
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM			CHECKED BY						
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION COMPRESSOR ROOM				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY AREA# 3 ROOM# 1155													
ACCNT													
DIV.	CS-PIPING-SCRD												
15060	MECHANICAL PIPING												
15061													
A221	SPECIALS CONT'D-												
	Y-TYPE STRAINER, 250# SCRD												
	C.I. BODY, 316SS TRIM, 304SS												
	SCREEN W/ .045" DIA PERF.												
	ARMSTRONG # AISC 3/4"	4	EA	19	1.0								
	AIR HOSE CONN, QUICK DISCONNECT												
	HOSE CPLG. FOR AIR SERVICE U.S.												
	3/4"	1	EA	10	1.0								
	FLANGES-STL FF GALV ASTM A195												
	150# SCRD FLG. 3/4"	7	EA	8	.5								
	1"	10		8	.6								
	1 1/2"	7		9	.9								
	FITTINGS-300# GALV M.I.												
	ASTM A197												
	90° ELBOW 3/4"	52	EA	3	.5								
	1"	43		4	.6								
	1 1/2"	82		7	.9								
	45° ELBOW 1 1/2"	1	EA	8	.9								
	TEE 3/4"	7	EA	4	.5								
	1"	5		5	.6								
	1 x 3/4"	14		6	.6								
	1 1/2"	15		8	.9								
	1 1/2 x 3/4"	18		9	.9								
	1 1/2 x 1"	5		9	.9								

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER - 888 CASE

M.T.O. BY P. GOMEZ		PRICED BY RCM		DATE AUG 1985				SHEET 3 OF 3			
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY			
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION COMPRESSOR ROOM				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA# 3 ROOM# 115C											
ACCNT DIV.	CE-PIPING-SCRD										
15060	MECHANICAL PIPING										
15061											
4221	FITTINGS CONT'D-										
	CAP 1 1/2	1	EA	4	.7						
	REDUCER 1 1/2 x 3/4	2	EA	6	.9						
	1 1/2 x 1	5	EA	6	.9						
	UNION 3/4	9	EA	2	.5						
	1	4	EA	2	.6						
	1 1/2	6	EA	4	.9						
	PLUG ROUND SOLID STL SCRD GALV TO B16.5	10	EA	1	.5						
	TOTAL	312	EA	6.50	.7		2500.		270		
-	INSTRUMENTS-	390									
	CONTROL VALVE- 3/4	1	EA	-	1.5						
	1	3	EA	-	1.8						
	1 1/2	3	EA	-	2.7						
	PSV 3/4 x 1	5	EA	-	1.5						
	1 x 1 1/2	1	EA	-	1.8						
	TOTAL	13	EA	-	1.9		-		30		
		16									

PARSONS
ESTIMATE WORKSHEET

Clinch River - BPSB CASES

M.T.O. BY *P. GOMEZ* PRICED BY *Rm* DATE *AUG 1985* SHEET *4* OF *5*
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *ROM* CHECKED BY *(initials)*

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
DIV.	<i>CS-PIPING-SOCKETWELD</i>											
<i>15060</i>	MECHANICAL PIPING											
<i>15061</i>												
<i>A221</i>	<i>FLANGES-STL RF ASTM A105</i>											
	<i>150# SOCKETWELD</i>											
	<i>XS</i>	<i>3/4</i>	<i>2</i>	<i>EA</i>	<i>7</i>	<i>1.3</i>						
		<i>1/2</i>	<i>1</i>	<i>EA</i>	<i>7</i>	<i>2.0</i>						
	<i>FITTINGS-3000# STL SWI ASTM</i>											
	<i>A105</i>											
	<i>90° ELBOW</i>	<i>3/4</i>	<i>12</i>	<i>EA</i>	<i>3</i>	<i>1.3</i>						
	<i>TEE</i>	<i>3/4</i>	<i>3</i>	<i>EA</i>	<i>4</i>	<i>1.3</i>						
		<i>18</i>	<i>EA</i>	<i>3.80</i>	<i>1.3</i>		<i>100.</i>			<i>30</i>		
		<i>23</i>										

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY *P. GOMEZ* PRICED BY *RLM* DATE *AUG 1985* SHEET *5* OF *5*
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE: *ROM* CHECKED BY: *[Signature]*

UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
MRS. FACILITY												
COMPRESSOR ROOM												
AREA# <i>3</i> ROOM# <i>1155</i>												
ACCNT												
<i>DIV.</i>	<i>CS- PIPING- FIELD WELDED</i>											
<i>15060</i>	MECHANICAL PIPING											
<i>15061</i>												
<i>4221</i>	SPECIALS-											
	<i>HOSE FOLK AIR, FLANGED</i>											
	<i>ONE END, SCID OTHER END</i>											
	<i>1" X 5'</i>	<i>2</i>	<i>EA</i>	<i>125</i>	<i>2.5</i>							
	<i>1 1/2" X 5'</i>	<i>2</i>	<i>EA</i>	<i>150</i>	<i>3.0</i>							
	TOTAL	<i>4</i>	<i>EA</i>	<i>137.50</i>	<i>2.8</i>			<i>700.</i>		<i>10</i>		
		<i>5</i>										
<i>4221</i>	BOLT-UP FOR 150# CS											
	<i>3/4"</i>	<i>7</i>	<i>EA</i>	<i>2</i>	<i>.8</i>							
	<i>1"</i>	<i>10</i>	<i>EA</i>	<i>2</i>	<i>.8</i>							
	<i>1 1/2"</i>	<i>8</i>	<i>EA</i>	<i>2</i>	<i>.9</i>							
	TOTAL	<i>25</i>	<i>EA</i>	<i>2.00</i>	<i>.8</i>			<i>100.</i>		<i>20</i>		
		<i>31</i>										

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY <u>RCA</u>		DATE <u>AUG 1985</u>				SHEET <u>6</u> OF <u>6</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY <u>[Signature]</u>				
UNIT/AREA <u>MRS FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>COMPRESSOR ROOM</u>				MATERIAL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1155</u>												
ACCNT												
<u>DIV</u>												
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>	<u>CS ADDS</u>											
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>1500</u>			<u>310</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>	<u>1540</u>	<u>LF</u>				<u>100</u>			<u>150</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>200</u>		
<u>15063</u>	<u>SS ADDS</u>											
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>15067</u>	<u>HASTELLOY ADDS</u>											
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>15068</u>	<u>PPL LINED CS ADDS</u>											
<u>4225</u>	<u>HANGERS/SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST/CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		

ESTIMATE SUMMARY

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>RCM</i>		DATE <i>AUG 1985</i>				SHEET <i>1</i> OF <i>1</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE: <i>ROM</i>				CKD BY: <i>TS</i>				
UNIT/AREA <i>MRS FACILITY</i>		QUANTITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>WELD TEST & DECON EQUIP</i>				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <i>AREA # 3 ROOM # 115G</i>												
<i>AG DIV 15 MECHANICAL</i>												
4200	Pipe, Valves and Fittings-Aboveground											
<i>15061</i>	<i>CARBON STEEL</i>											
4201	Pipe - Carbon Steel	690	LF				2000					
4202	Pipe - Alloy and Special		LF									
4211	Valves - Carbon Steel	34	EA				1400					
4212	Valves - Alloy and Special		EA									
4221	Fittings - Carbon Steel	141	EA				1000					
4222	Fittings - Alloy and Special		EA									
4223	Hangers, Shoes, etc.	1	LOT				700					
4231	Outside Shop - Carbon Steel		LF									
4232	Outside Shop - Alloy and Specialty		LF									
4241	Field Shop Fabr.		LF									
4251	Install Screwed Piping		LF+									
4252	Install Socket Weld Piping	690	LF+						820			
4253	Install Weld or Flanged Piping		LF+									
4257	Scaffolding	1	LOT						170			
4258	Firelines		LF+									
4261	Install Steam Tracing		LF									
4264	X-Ray and Stress Relieve	1 LOT	EA				600		20			
4265	Testing and Cleaning	690	LF				100		120			
4266	Pickling and Chem. Cleaning		LF									
4267	Freight		TONS				200					
	<i>2.3" φ</i> SUBTOTAL	690	LF+				6000		1130			
	Productivity at PCT.		MH									
	TOTAL		LF+									

ESTIMATE SUMMARY

M.T.O. BY *P. GOMEZ* PRICED BY *RCM* DATE *AUG 1985* SHEET *1* OF *1*
 JOB NO.: *6440-11* CLIENT: *DOE / PNL* TYPE OF ESTIMATE: *ROM* CKD BY: *[Signature]*

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
<i>MRS FACILITY</i>	<i>WELD TEST & DECON EQUIP</i>											
<i>AREA # 3</i>	<i>ROOM # 1156</i>											
<i>AGENCY 15</i>	<i>NICHAN 10 AC</i>											
4200	Pipe, Valves and Fittings-Aboveground											
<i>15063</i>	<i>STAINLESS STEEL</i>											
4201	Pipe - Carbon Steel		LF									
4202	Pipe - Alloy and Special	<i>1710</i>	LF				<i>25 000</i>					
4211	Valves - Carbon Steel		EA									
4212	Valves - Alloy and Special	<i>127</i>	EA				<i>82 400</i>					
4221	Fittings - Carbon Steel	<i>-</i>	EA				<i>2 00</i>					
4222	Fittings - Alloy and Special	<i>421</i>	EA				<i>12 500</i>					
4225	Hangers, Shoes, etc.	<i>1</i>	LOT				<i>3 400</i>					
4231	Outside Shop - Carbon Steel		LF									
4232	Outside Shop - Alloy and Specialty		LF									
4241	Field Shop Fabr.		LF									
4251	Install Screwed Piping		LF+									
4252	Install Socket Weld Piping	<i>1710</i>	LF+							<i>4150</i>		
4253	Install Weld or Flanged Piping		LF+									
4257	Scaffolding	<i>1</i>	LOT							<i>710</i>		
4258	Firelines		LF+									
4261	Install Steam Tracing		LF									
4264	X-Ray and Stress Relieve	<i>1 LOT</i>	EA				<i>8 900</i>			<i>220</i>		
4265	Testing and Cleaning	<i>1710</i>	LF				<i>200</i>			<i>510</i>		
4266	Pickling and Chem. Cleaning		LF									
4267	Freight		TONS				<i>4 000</i>					
	<i>1.9%</i> SUBTOTAL	<i>1710</i>	LF+				<i>136 600</i>			<i>5590</i>		
	Productivity at PCT.		MH									
	TOTAL		LF+									

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 7 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1150</u>												
ACCNT												
DIV.	<u>CS-PIPING-FIELD FAB.</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
	<u>15001 VALVES-</u>											
<u>4211</u>	<u>GATE VALVE-125# ANSI FLGD, FF, CI BODY & BRONZE TRIM CRANE # 405-1/2</u>	<u>3</u>	<u>EA</u>	<u>136</u>	<u>6.7</u>							
	<u>GLOBE VALVE-125# ANSI FF, FLGD, CI BODY & BRONZE TRIM, CONE TYPE DISC CRANE # 351</u>	<u>1</u>	<u>EA</u>	<u>168</u>	<u>4.5</u>							
	<u>Total</u>	<u>4</u>	<u>EA</u>	<u>144.8</u>	<u>6.2</u>		<u>700.</u>			<u>30</u>		
		<u>5</u>										
<u>4221</u>	<u>BOLT-LIPS.</u>											
	<u>ASB SSKT / B7 STUDS</u>											
	<u>150#</u>	<u>2</u>	<u>EA</u>	<u>2</u>	<u>.3</u>							
		<u>4</u>	<u>EA</u>	<u>2</u>	<u>1.2</u>							
		<u>4</u>	<u>EA</u>	<u>5</u>	<u>2.0</u>							
	<u>Total</u>	<u>10</u>	<u>EA</u>	<u>3.20</u>	<u>1.0</u>		<u>-</u>			<u>20</u>		
		<u>NI 12</u>										

PARSONS

CLINCH RIVER - BASE CASE ESTIMATE WORKSHEET

M.T.O. BY P. GOMEZ PRICED BY ROM DATE AUG 1985 SHEET 2 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV.	CS- PIPING-SOCKETWELD												
15060	MECHANICAL PIPING												
15061													
4201	PIPE-SMLS STL ASTM A53												
	GR B PE EX STRG	2"	86	LF	2.40	.35							
	Total	2" φ	86	LF	2.40	.35		300			40		
	VALVES.												
			110										
4211	GATE VALVE-800# STL SW												
	15 CR TRIM SMITH 800	2"	2	EA	68	3.4							
	Total		2	EA	68.00	3.4		200			10		
4221	FLANGE-150# SW STL XS												
	ASTM A105	2"	2	EA	7	2.3							
	FITTINGS-3000# STL ASTM A105												
	90° ELBOW	2"	7	EA	11	2.3							
	TEE	2"	1	EA	15	2.3							
	Total		10	EA	10.60	2.3		100			30		
			13										

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY P. GOMEZ PRICED BY Dan DATE AUG 1985 SHEET 3 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
DIV.	15- PIPING- SCREWED											
15060	MECHANICAL PIPING											
15061												
4301	PIPE- ERW STL, ASTM A100.											
	GALV T&C XS	3/4	ES	LF	.90	.25						
		1	170		1.30	.25						
		2	40		2.80	.35						
	Total	1.1" φ	265	LF	1.44	.27	500			90		
			330									
	VALVES-											
421	GATE VALVE- 200# WOG, SLD											
	BRONZE BODY & TRIM											
	CRANE# 430UB	3/4	11	EA	13	1.0						
		1	2		17	1.2						
		2	3		39	2.4						
	GLOBE VALVE- 300# WOG SLD											
	BRONZE BODY & TRIM,											
	CRANE# 1A-1/2 P	3/4"	1	EA	27	1.0						
		1"	1		36	1.2						
	CHECK VALVE - 200# WOG, SLD,											
	BRONZE BODY & TRIM, Y-PATTERN											
	SWING TYPE, CRANE# 37											
		3/4"	1	EA	12	1.0						
		1"	2		16	1.2						
	Total		21	EA	19.10	1.3	500			30		
	SPECIALS-											
			26									
422	QUICK DISCONNECT HOSE CPLG,											
	FOR WATER											
		3/4	1	EA	10	1.0						

PARSONS

ESTIMATE WORKSHEET

CUNICH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 4 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV.	CS- SCRD- PIPING												
15060	MECHANICAL PIPING												
15061													
4721	FLANGES- STL FF STL GALV												
	ASTM A105												
	150 # SCRD FLANGE	3/4	3	EA	8	.5							
		2	2	↓	9	1.0							
	FITTINGS- 300 # MI. GALV												
	SCRD, ASTM A197												
	90° ELBOW	3/4"	16	EA	3	.5							
		1"	8	↓	4	.6							
		2"	10	↓	9	1.0							
	45° ELBOW	2"	1	EA	11	1.0							
	TEE	1	2	EA	5	.6							
		1 x 3/4	1	↓	6	.6							
		2 x 3/4	7	↓	13	1.0							
		2 x 1/2	2	↓	13	1.0							
	UNION	1	2	EA	2	.6							
		1/2	2	↓	4	.9							
		2	2	↓	5	1.0							
	PLUG - ROUND SOLID STL SCRD												
	GALV	3/4	5	EA	1	.5							
	Total		64	EA	6.10	.7		500.			60		
			80										

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 5 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT												
DIV.	<u>CS-SEAD-PIPING</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>	<u>INSTRUMENTS - (Labor Only)</u>											
-	<u>CONTROL VALVE</u>	<u>3/4</u>	<u>EA</u>	-	<u>1.5</u>							
		<u>1</u>	<u>EA</u>	-	<u>1.3</u>							
		<u>2</u>	<u>EA</u>	-	<u>3.0</u>							
	<u>Total</u>	<u>6</u>	<u>EA</u>	-	<u>1.9</u>					<u>20</u>		
		<u>8</u>										

PARSONS

ESTIMATE WORKSHEET

Olinca River - Bridge Case

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG. 1985 SHEET 6 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
DIV.	CS-PIPING-SHOP											
15060	MECHANICAL PIPING											
15061												
4201	PIPE-ERW STL, ASTM A53											
	GR B, BE STD WT	4	LF	4.90	.55							
	TOTAL 4" φ	215	LF	4.90	.55		1200			140		
4221	FLANGES-STL F.F. ASTM A105	250										
	150# SLIP-ON	3	EA	8	-							
		4	B	11	-							
	300# SLIP-ON	3	EA	11	-							
	FITTINGS-STL ERW ASTM A234											
	GR WPB											
	90° LR ELL STD WT	4	EA	7	-							
	TEE STD WT	4	EA	16	-							
	4 x 3	2	B	18	-							
	LONG RED STD WT	4 x 3	EA	7	-							
	ELL RED STD WT	4 x 2	EA	12	-							
	3000# TOL ASTM A105											
	3/4"	7	EA	3	-							
	TOTAL	AB	EA	8.60	-		400			-		
-	BUTTWELDS STD WT	3	EA	-	2							
	4	45	B	-	2.9							
	150# SLIP ON WELDS	3	EA	-	2							
	4	B	-	2.9								
	300# SLIP ON WELDS	3	EA	-	2							
	3000#olet WELD	7	-	-	2.1							
	TOTAL	3.6" φ	68	EA	-	2.7				210		

PARSONS
ESTIMATE WORKSHEET

Clinch River - P&H Case

M.T.O. BY *P. GOMEZ* PRICED BY DATE *AUG 1985* SHEET *7* OF *12*
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *ROM* CHECKED BY *[Signature]*

UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT												
<i>DIV.</i>	<i>STNLS STL- PIPING- FIELD</i>											
<i>15060</i>	<i>MECHANICAL PIPING</i>											
<i>15063</i>	<i>BOLT UPS.</i>											
<i>4221</i>	<i>150#</i>	<i>3/4</i>	<i>14</i>	<i>EA</i>	<i>2</i>	<i>.9</i>						
		<i>1</i>	<i>11</i>		<i>2</i>	<i>.3</i>						
		<i>1 1/2</i>	<i>9</i>		<i>2</i>	<i>.9</i>						
		<i>2</i>	<i>48</i>		<i>2</i>	<i>1.2</i>						
		<i>3</i>	<i>10</i>		<i>3</i>	<i>1.5</i>						
		<i>4</i>	<i>1</i>		<i>5</i>	<i>2.0</i>						
	<i>300#</i>	<i>1</i>	<i>1</i>	<i>EA</i>	<i>2</i>	<i>.9</i>						
	<i>Total</i>		<i>94</i>	<i>EA</i>	<i>2.10</i>	<i>1.1</i>		<i>200</i>			<i>120</i>	
<i>-</i>	<i>INSTRUMENTS- (Labor Only)</i>		<i>108</i>									
	<i>CONTROL VALVE.</i>	<i>2</i>	<i>2</i>	<i>EA</i>	<i>-</i>	<i>5.9</i>						
	<i>PRESSURE SAFETY VALVE.</i>											
		<i>2x3</i>	<i>2</i>	<i>EA</i>	<i>-</i>	<i>5.9</i>						
		<i>3x4</i>	<i>1</i>		<i>-</i>	<i>7.7</i>						
	<i>Total</i>		<i>5</i>	<i>EA</i>	<i>-</i>	<i>6.3</i>		<i>-</i>			<i>40</i>	

PARSONS

ESTIMATE WORKSHEET

CUNCHA RIVER - RPB CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 2 OF 12

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

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV.													
15060	STALS STL-SCRD- PIPING												
15063	MECHANICAL PIPING												
	FITTINGS-												
4222	TP304L STALS STL PLUG												
	SCRD ROUND SOLID												
			3/4	3	EA	3	1.0						
				3	EA	3.00	1.0						
				4									
	TOTAL												

PARSONS

ESTIMATE WORKSHEET

CUNHA RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 9 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA MRS. FACILITY
 DESCRIPTION WELD TEST & DECON EQUIP RM
 CAPACITY AREA # 3 ROOM # 1156

ACCNT DIV.	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
	<u>STNLS STL-PIPING-SHOP</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15063</u>												
<u>4202</u>	<u>PIPE-SMLS STNLS STL ASTM</u>											
	<u>A312 GR TP304L, BE</u>											
	<u>SCH 40S</u>	<u>3/4</u>	<u>210</u>	<u>LF</u>	<u>6.10</u>	<u>.12</u>						
		<u>1</u>	<u>265</u>		<u>7.90</u>	<u>.12</u>						
		<u>1 1/2</u>	<u>43</u>		<u>11.90</u>	<u>.18</u>						
		<u>2</u>	<u>620</u>		<u>14.50</u>	<u>.25</u>						
		<u>3</u>	<u>353</u>		<u>25.20</u>	<u>.35</u>						
	<u>Total</u>	<u>1.978</u>	<u>1491</u>	<u>LF</u>	<u>14.00</u>	<u>.23</u>		<u>25000</u>		<u>390</u>		
	<u>VALVES-</u>		<u>1710</u>									
<u>4212</u>	<u>GATE VALVE-150# BW ENDS</u>											
	<u>SCH 40S, 316L SS BODY & TRIM</u>											
	<u>ALOYCO FIG # 116</u>	<u>3</u>	<u>10</u>	<u>EA</u>	<u>528</u>	<u>4.5</u>						
		<u>4</u>	<u>1</u>	<u>EA</u>	<u>758</u>	<u>6.7</u>						
	<u>GLOBE VALVE-600# BW ENDS</u>											
	<u>SCH 40S, 316 SS "Y" PATTERN</u>											
	<u>BODY & 316 SS TRIM</u>											
	<u>KEROTEST FIG # 9900R SERIES</u>											
		<u>1/2"</u>	<u>2</u>	<u>EA</u>	<u>364</u>	<u>3.0</u>						
		<u>3/4"</u>	<u>37</u>		<u>406</u>	<u>3.0</u>						
		<u>1"</u>	<u>11</u>		<u>488</u>	<u>3.0</u>						
		<u>1 1/2"</u>	<u>4</u>		<u>793</u>	<u>3.5</u>						
		<u>2"</u>	<u>36</u>		<u>951</u>	<u>4.0</u>						
	<u>CHECK VALVE-600# BW ENDS</u>											
	<u>SCH 40S - LIFT TYPE, 316L SS</u>											
	<u>"Y" PATTERN BODY & 316 SS</u>											
	<u>TRIM KEROTEST #31000 SERIES</u>											
		<u>1"</u>	<u>2</u>	<u>EA</u>	<u>515</u>	<u>3.0</u>						
		<u>1 1/2"</u>	<u>1</u>		<u>709</u>	<u>3.5</u>						
		<u>2"</u>	<u>6</u>		<u>841</u>	<u>4.0</u>						
	<u>Total</u>		<u>110</u>	<u>EA</u>	<u>648.00</u>	<u>3.6</u>		<u>82400</u>		<u>460</u>		
			<u>127</u>									

PARSONS

ESTIMATE WORKSHEET

Clinch River - B&B CMB

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 10 OF 12

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

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS			
ACCNT DIV.	STNLS STL- PIPING- SHOP														
15060	MECHANICAL PIPING														
15063	FLANGES- R.F. ASTM A182														
4222	GR- F304LSS														
	150# WN	3/40S	3/4	12	EA	22	-								
			1	11		22	-								
			1/2	9		32	-								
			2	48		37	-								
			3	10		55	-								
			4	1		84	-								
	300# ORIFICE FLG SET WELD														
	NECK W/ 1/2" SCD TAPS														
		SCH 40S	2	1	EA	580	-								
	FITTINGS- SMLS SS BW														
	ASTM A403 GR WP304L														
	90° LR ELL														
		3/40S	3/4	30	EA	4	-								
			1	35		4	-								
			1/2	7		7	-								
			2	51		12	-								
			3	29		25	-								
			4	7		50	-								
	45° ELL														
		SCH 40S	3	1	EA	21	-								

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BPSB CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 11 OF 12
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.	STNLS STL-PIPING-SHOP												
15060	MECHANICAL PIPING												
15063	WELD FITTINGS CONT'D-												
4222	TEE S/40S												
			3/4	13	EA	12	-						
			1	8		16	-						
			1/2	1		32	-						
			2	17		33	-						
			3	4		68	-						
			4	4		101	-						
			1 x 3/4	5		23	-						
			1/2 x 3/4	2		47	-						
			2 x 3/4	7		113	-						
			2 x 1	2		59	-						
			2 x 1/2	2		54	-						
			3 x 2	6		117	-						
			4 x 2	1		185	-						
			4 x 3	4		154	-						
	CONC REDUCER												
			S/40S	2 x 1	4	EA	11	-					
				2 x 1/2	6		9	-					
				3 x 1	2		36	-					
				3 x 2	5		15	-					
	ECC REDUCER												
			SCH 40S	1/2 x 1	2	EA	21	-					
				3 x 2	4		34	-					
				4 x 3	3		44	-					

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BABB CASE

M.T.O. BY P. GOMEZ PRICED BY DATE AUG 1985 SHEET 12 OF 12

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

UNIT/AREA MRS. FACILITY

DESCRIPTION WELD TEST & DECON EQUIP RM QUANTITY UNIT COST OR M/HR PER UNIT MATERIAL EXPENSE SUBCONTRACT LABOR TOTAL DOLLARS

CAPACITY AREA# 3 ROOM# 1156 MATL M/H LAB \$ M/HR DOLLARS M/HR DOLLARS

ACCNT DIV. STNLS STL-PIPING-SHOP

15060 MECHANICAL PIPING

15063

FITTINGS CONT'D -

4222

3000# TOL SS ASTM 182

GR F304L 1 2 EA 32 -

W.O.L. ASTM A182 GR

F304L S/40S 2 x 3/4 4 EA 20 -

3 x 3/4 3 - 20 -

TOTAL 363 EA 27.90 12500 -

417

- WELDS -

BUTTWELDS SCH 40S 3/4 135 EA - 1.7

1 216 - 1.7

1/2 44 - 2.6

2 221 - 3.4

3 113 - 4.3

4 38 - 6

3000# OLET WELDS 1 2 EA - 5.1

W.O.L. WELDS S/40S 3/4 7 EA - 4.3

Total 1.7" Ø 776 EA - 2.9

INSTRUMENTS - (Labor Only) 82

- CONTROL VALVE 3/4 1 EA - 3.0

1 2 - 3.0

1/2 1 - 3.5

PRESSURE SAFETY VALVE 1 x 2 6 EA - 3.0

Total 12 EA - 3.1

40

CES-2000 0 (4/81) 3-209

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1995</u>				SHEET <u>13</u> OF <u>13</u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>RCM</u>				CHECKED BY					
UNIT/AREA <u>MRS FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>WELD TEST & DECON EQUIP</u>				MATL	M/H	LAB \$			M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1156</u>													
ACCNT													
<u>DIV</u>													
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u>	<u>CS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>700</u>			<u>140</u>			
<u>4264</u>	<u>FIELD X-RAY</u> <u>16/40</u>	<u>1</u>	<u>LOT</u>				<u>600</u>			<u>20</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>690</u>	<u>LF</u>				<u>100</u>			<u>120</u>			
-	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				-			<u>170</u>			
<u>15063</u>	<u>SS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>3400</u>			<u>510</u>			
<u>4264</u>	<u>FIELD X-RAY</u> <u>223/40</u>	<u>1</u>	<u>LOT</u>				<u>8900</u>			<u>220</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>1710</u>	<u>LF</u>				<u>200</u>			<u>510</u>			
-	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				-			<u>710</u>			
<u>15067</u>	<u>HASTELLOY ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				-			-			
<u>4264</u>	<u>FIELD X-RAY</u> <u>1</u>	<u>1</u>	<u>LOT</u>				-			-			
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				-			-			
-	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				-			-			
<u>15068</u>	<u>PPL LINED CS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				-			-			
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				-			-			
-	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				-			-			

M.T.O. BY P. GOMEZ		PRICED BY RCM		DATE AUG 1985				SHEET 1 OF 1					
JOB NO.: 6440-11		CLIENT: DOE / PNL		TYPE OF ESTIMATE: ROM				CKD BY: JS					
UNIT/AREA MRS FACILITY		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY AREA # 3 ROOM # 1157													
DIV 15 MECHANICAL													
4200	Pipe, Valves and Fittings-Aboveground												
15061	CARBON STEEL												
4201	Pipe - Carbon Steel	1700	LF				2500						
4202	Pipe - Alloy and Special		LF										
4211	Valves - Carbon Steel	87	EA				2600						
4212	Valves - Alloy and Special		EA										
4221	Fittings - Carbon Steel	409	EA				3600						
4222	Fittings - Alloy and Special		EA										
4223	Hangers, Shoes, etc.	1	LOT				1700						
4231	Outside Shop - Carbon Steel		LF										
4232	Outside Shop - Alloy and Specialty		LF										
4241	Field Shop Fabr.		LF										
4251	Install Screwed Piping		LF+										
4252	Install Socket Weld Piping	1700	LF+							1460			
4253	Install Weld or Flanged Piping		LF+										
4257	Scaffolding	1	LOT							270			
4258	Firelines		LF+										
4261	Install Steam Tracing		LF										
4264	X-Ray and Stress Relieve		EA										
4265	Testing and Cleaning	1700	LF				100			200			
4266	Pickling and Chem. Cleaning		LF										
4267	Freight		TONS				300						
	1.0" φ SUBTOTAL	1700	LF+				10800			1930			
	Productivity at PCT.		MH										
	TOTAL		LF+										

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE SUMMARY

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY <i>RCM</i>		DATE <i>AUG 1985</i>				SHEET <i>1</i> OF <i>1</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE: <i>ROM</i>				CKD BY: <i>RS</i>				
UNIT/AREA <i>MRS FACILITY</i>		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>CHEM DECON MAKE-UP</i>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <i>AREA # 3 ROOM # 1157</i>												
<i>AGENT</i> <i>4200</i> MECHANICAL Pipe, Valves and Fittings-Aboveground												
<i>15063</i> STAINLESS STEEL												
<i>4201</i>	Pipe - Carbon Steel		LF									
<i>4202</i>	Pipe - Alloy and Special	<i>1320</i>	LF			<i>11900</i>						
<i>4211</i>	Valves - Carbon Steel		EA									
<i>4212</i>	Valves - Alloy and Special	<i>67</i>	EA			<i>10600</i>						
<i>4221</i>	Fittings - Carbon Steel	<i>-</i>	EA			<i>100</i>						
<i>4222</i>	Fittings - Alloy and Special	<i>246</i>	EA			<i>8000</i>						
<i>4225</i>	Hangers, Shoes, etc.	<i>1</i>	LOT			<i>2600</i>						
<i>4231</i>	Outside Shop - Carbon Steel		LF									
<i>4232</i>	Outside Shop - Alloy and Specialty		LF									
<i>4241</i>	Field Shop Fabr.		LF									
<i>4251</i>	Install Screwed Piping		LF+									
<i>4252</i>	Install Socket Weld Piping	<i>1320</i>	LF+							<i>2400</i>		
<i>4253</i>	Install Weld or Flanged Piping		LF+									
<i>4257</i>	Scaffolding	<i>1</i>	LOT							<i>400</i>		
<i>4258</i>	Firelines		LF+									
<i>4261</i>	Install Steam Tracing		LF									
<i>4264</i>	X-Ray and Stress Relieve	<i>1 Lot</i>	EA			<i>100</i>				<i>-</i>		
<i>4265</i>	Testing and Cleaning	<i>1320</i>	LF			<i>100</i>				<i>290</i>		
<i>4266</i>	Pickling and Chem. Cleaning		LF									
<i>4267</i>	Freight		TONS			<i>1000</i>						
	<i>1.3" φ</i> SUBTOTAL	<i>1320</i>	LF+			<i>34400</i>				<i>3090</i>		
	Productivity at PCT.		MH									
	TOTAL		LF+									

M.T.O. BY P. GOMEZ PRICED BY RCM DATE AUG 1985 SHEET 1 OF 1

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

UNIT/AREA	MRS FACILITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CHEM DECON MAKE-UP			MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY	AREA # 3 ROOM # 1157											

AC ~~4200~~ ^{15 MECHANICAL} Pipe, Valves and Fittings-Aboveground

~~15068~~ PPL LINED CARB STL

~~4201~~ Pipe - Carbon Steel LF

~~4202~~ Pipe - Alloy and Special 290 LF 5800

~~4211~~ Valves - Carbon Steel EA

~~4212~~ Valves - Alloy and Special 17 EA 5100

~~4221~~ Fittings - Carbon Steel - EA 300

~~4222~~ Fittings - Alloy and Special 51 EA 5300

~~4225~~ Hangers, Shoes, etc. 1 LOT 600

~~4231~~ Outside Shop - Carbon Steel LF

~~4232~~ Outside Shop - Alloy and Specialty LF

~~4241~~ Field Shop Fabr. LF

~~4251~~ Install Screwed Piping LF+ }

~~4252~~ Install Socket Weld Piping 290 LF+ 440

~~4253~~ Install Weld or Flanged Piping LF+ }

~~4257~~ Scaffolding 1 LOT 70

~~4258~~ Firelines LF+

~~4261~~ Install Steam Tracing LF

~~4264~~ X-Ray and Stress Relieve EA

~~4265~~ Testing and Cleaning 290 LF 100 50

~~4266~~ Pickling and Chem. Cleaning LF

~~4267~~ Freight TONS 500

1.4" φ SUBTOTAL 290 LF+ 17 700 560

Productivity at PCT. MH

TOTAL LF+

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

1 of 134

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY		DATE <i>AUG 1985</i>				SHEET <i>9</i> OF <i>11</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>				CHECKED BY				
UNIT/AREA <i>MRS. FACILITY</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>CHEM DECON MAKE-UP</i>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <i>AREA # 2 ROOM # 1157</i>												
ACCNT												
<i>DIV.</i>	<i>CS-PIPING-SCRD</i>											
<i>15060</i>	<i>MECHANICAL PIPING</i>											
<i>15061</i>												
<i>4201</i>	<i>PIPE-ERW STL GALV. ASTM</i>											
	<i>AICO T&C</i>											
	<i>XS</i>											
	<i>3/4</i>	<i>490</i>	<i>LF</i>	<i>.90</i>	<i>.25</i>							
	<i>1</i>	<i>160</i>	<i>}</i>	<i>1.30</i>	<i>.25</i>							
	<i>Total</i>	<i>650</i>	<i>LF</i>	<i>1.00</i>	<i>.25</i>		<i>800</i>			<i>200</i>		
<i>4211</i>	<i>GATE VALVE-200# WOG, SCRD,</i>											
	<i>BRONZE BODY & TRIM</i>											
	<i>CRANE # 430LB</i>											
	<i>3/4</i>	<i>14</i>	<i>EA</i>	<i>13</i>	<i>1.0</i>							
	<i>1</i>	<i>2</i>	<i>}</i>	<i>17</i>	<i>1.2</i>							
	<i>GLOBE VALVE-300# WOG, SCRD</i>											
	<i>BRONZE BODY & TRIM, PLUG</i>											
	<i>TYPE DISC, CRANE # 1A-1/2 P</i>											
	<i>3/4</i>	<i>2</i>	<i>EA</i>	<i>27</i>	<i>1.0</i>							
	<i>Total</i>	<i>13</i>	<i>EA</i>	<i>15.00</i>	<i>1.0</i>		<i>300</i>			<i>20</i>		
	<i>SPECIALS-</i>											
		<i>23</i>										
<i>4221</i>	<i>QUICK DISCONNECT HOSE CPLG</i>											
	<i>FOR FLUSHING DECON SOLUTION</i>											
	<i>3/4</i>	<i>4</i>	<i>EA</i>	<i>10</i>	<i>.5</i>							
	<i>HOSE FOR DECON SOLUTION</i>											
	<i>5' LONG QUICK CONNECTORS</i>											
	<i>3/4" x 5'</i>	<i>2</i>	<i>EA</i>	<i>100</i>	<i>2.0</i>							
	<i>AIR HOSE CONNECTION</i>											
	<i>3/4</i>	<i>2</i>	<i>EA</i>	<i>10</i>	<i>.5</i>							

PARSONS

ESTIMATE WORKSHEET

CUNCIH RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985		SHEET 10 OF 12							
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM		CHECKED BY							
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
CAPACITY AREA # 3 ROOM # 1157													
ACCNT DIV.	25-SCREWED-PIPING												
15060	MECHANICAL PIPING												
15061	SPECIALS CONT'D-												
422	STEAM TRAPS- 600# SCD THERMODYNAMIC TYPE, 1-1/4 CG-1/2 MOLY BODY, SS BONNET, SEAT & DISC, INTEGRAL STRAINER AND BLOW-OFF VALVE YARWAY FIG # 7COA	3/4"	5	EA	136	1.5							
	FITTINGS- 300# GALV M.I. SCD ASTM A197												
	90° ELBOW	3/4"	60	EA	3	.5							
		1"	12	}	4	.6							
	TEE	3/4"	17	EA	4	.5							
		1"	9	}	5	.6							
	UNION	3/4"	24	EA	2	.5							
	PLUG ROUND SOLID STL GALV TO B16.5	3/4"	11	EA	1	.5							
	Total		146	EA	920	.6		1700			110		
			183										
	- INSTRUMENTS-												
	CONTROL VALVE.	3/4"	6	EA	-	1.5							
	Total		8	EA	-	1.5					10		

PARSONS
ESTIMATE WORKSHEET

CLINTCH RIVER - BASE CASE

3

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 16 OF 14
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV.	CS- PIPING- SOCKETWELD												
15060	MECHANICAL PIPING												
15061													
4201	PIPE- SMILS STL ASTM A63												
	GR B PE												
	XS		1/2	60	LF	1.20	.25						
			3/4	65		1.30	.25						
			1	255		1.60	.25						
			1 1/2	125		2.40	.3						
			2	205		2.40	.35						
	Total		1 3/4	710	LF	1.91	.29		1700			260	
	VALVES-			890									
4211	GATE VALVE- 800# STL SW												
	1/2 CG TRIM SMITH# 800												
			1/2	4	EA	22	1.6						
			3/4	10		24	1.7						
			1	4		29	1.9						
			1 1/2	3		54	2.5						
			2	11		68	3.4						
	DITTO EXCEPT SW/SCWD												
			3/4	18	EA	24	1.7						
	GLOBE VALVE- 800# STL SW												
	1/2 CG TRIM SMITH# 800												
			1 1/2	1	EA	73	2.5						
	Total			5	EA	36.50	3.1		2300			130	
	FLANGES- STL RF ASTM A105												
4221	150# SW XS												
			1	6	EA	7	1.4						
			1 1/2	6		7	2.0						
			2	15		7	2.3						

PARSONS

ESTIMATE WORKSHEET

Clinch River. BPS Case

4

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 7 OF 14
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA MRS. FACILITY
 DESCRIPTION CHEM DECON MAKE-UP
 CAPACITY AREA # 5 ROOM # 1157

ACCNT DIV.	DESCRIPTION	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>CS-PIPING-SOCKETWELD</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>	<u>FITTINGS-3000#STL SW</u>											
<u>424</u>	<u>ASTM A105</u>											
	<u>90° ELBOW</u>	<u>1/2</u>	<u>10</u>	<u>EA</u>	<u>2</u>	<u>1.1</u>						
		<u>3/4</u>	<u>30</u>	<u>}</u>	<u>3</u>	<u>1.3</u>						
		<u>1"</u>	<u>26</u>	<u>}</u>	<u>3</u>	<u>1.4</u>						
		<u>1 1/2"</u>	<u>8</u>	<u>}</u>	<u>7</u>	<u>2.0</u>						
		<u>2"</u>	<u>20</u>	<u>}</u>	<u>11</u>	<u>2.3</u>						
	<u>TEE</u>	<u>1/2</u>	<u>2</u>	<u>EA</u>	<u>3</u>	<u>1.1</u>						
		<u>3/4</u>	<u>5</u>	<u>}</u>	<u>4</u>	<u>1.3</u>						
		<u>1"</u>	<u>6</u>	<u>}</u>	<u>5</u>	<u>1.4</u>						
		<u>1 1/2"</u>	<u>4</u>	<u>}</u>	<u>11</u>	<u>2.0</u>						
		<u>2"</u>	<u>8</u>	<u>}</u>	<u>15</u>	<u>2.3</u>						
		<u>2 x 3/4</u>	<u>5</u>	<u>}</u>	<u>22</u>	<u>2.3</u>						
	<u>CAP</u>	<u>1</u>	<u>1</u>	<u>EA</u>	<u>3</u>	<u>1.4</u>						
		<u>2</u>	<u>1</u>	<u>}</u>	<u>7</u>	<u>2.3</u>						
	<u>REDUCER</u>	<u>1 x 3/4</u>	<u>8</u>	<u>EA</u>	<u>3</u>	<u>1.4</u>						
	<u>UNION</u>	<u>3/4</u>	<u>10</u>	<u>EA</u>	<u>5</u>	<u>1.3</u>						

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER, BASE CASE

SHEET 5 OF 11

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 5 OF 11				
JOB NO: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE POM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 2 ROOM# 11E7												
ACCNT DIV.	CS - PIPING - SOCKETWELD											
15060	MECHANICAL PIPING											
15061	SPECIALS-											
4221	SAMPLE CONNECTION FOR DICON SOLUTION 3/4" 2 EA 50 1.3											
	SAMPLE CONNECTION FOR CAUSTIC SOLUTION 3/4" 1 EA 50 1.3											
	WYE STRAINERS FOR STEAM - 600# CS BODY, ASTM A216 GR WCB, SW ENDS, 20ASS SCREEN W/.045" PERF (DIA) ARMSTRONG # B15W 3/4" 5 EA 63 1.7											
	Total 184 EA 8.50 1.7 1900 380											
	- INSTRUMENTS-											
	CONTROL VALVE 1/2 2 EA - 3.0											
	Total 2 EA - 3.8 10											
	3											

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 1 OF 1				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 3 ROOM# 1157												
ACCNT DIV.	CS-PIPING-FIELD											
15060	MECHANICAL PIPING											
15068												
4202	PIPE - POLYPROPYLENE-LINED											
	PIPE, ERW STL, ASTM A53 G6B											
	STD WT W/ THRD ENDS & FLANGES											
	IN ACCORDANCE WITH ASTM F492											
	(1 pc)	1" x 2'	2	LF	43.00	.15						
	(4 ✓)	1" x 3'	12		30.20	.15						
	(3 ✓)	1" x 4'	12		23.90	.15						
	(4 ✓)	1" x 5'	20		20.10	.15						
	(1 ✓)	1" x 10'	10		12.40	.15						
	(4 ✓)	1 1/2" x 2'	8		43.90	.2						
	(6 ✓)	1 1/2" x 5'	30		21.00	.2						
	(4 ✓)	1 1/2" x 6'	24		18.50	.2						
	(2 ✓)	1 1/2" x 7'	14		16.70	.2						
	(2 ✓)	1 1/2" x 9'	13		14.30	.2						
	(2 ✓)	1 1/2" x 12'	24		18.50	.2						
	(3 ✓)	1 1/2" x 20'	60		13.40	.2						
	(2 ✓)	2" x 1'	2		88.40	.27						
	(3 ✓)	2" x 2'	6		47.60	.27						
	(1 ✓)	2" x 5'	5		23.00	.27						
	(1 ✓)	2" x 8'	8		16.70	.27						
	Total	1.4" φ	255	LF	20.15	.19			5800.		60	
			290									

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

3
2 OF 14

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 2 OF 14				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA# 3 ROOM# 1157												
ACCNT DIV.	CS- PIPING-FIELD											
15060	MECHANICAL PIPING											
15068	VALVES-											
4212	PLUG VALVE-150# FLGD ENDS											
	CS BODY, POLYPROPYLENE-LINED											
	BODY AND PLUG W/ MOLDED											
	POLYPROPYLENE RAISED FACE											
	ON FLANGES, TFE LEARNING RINGS											
	DOW FIG# 350-P-W-EP											
	1"	5	EA	239	2.3							
	1 1/2"	8	EA	313	2.6							
	CHECK VALVE-150# VERTICAL											
	POPPET TYPE, FLANGED ENDS											
	BOLTED BODY, POLYPROPYLENE-											
	LINED BODY & POPPET W/ R.F.											
	ON FLGS.											
	DOW FIG# 356-P-X-SH											
	1 1/2"	2	EA	407	2.6							
	TOTAL	75	EA	300.90	2.5		5100			40		
		17										

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

3

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 3 OF 4				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 3 ROOM# 11E7												
ACCNT DIV.	CS-PIPING-FIELD											
15060	MECHANICAL PIPING											
15068	SPECIALS-											
4222	QUICK DISCONNECT HOSE CPLG. FOR FLUSHING ACID SOLUTION											
	1" 2 EA 30 1.0											
	HOSE FOR NITRIC ACID SOLUTION 150# FLGD ENDS											
	1" X 5' 1 EA 150 2.5											
	HOSE FOR CAUSTIC SOLUTION 50%											
	1/2" X 5' 2 EA 80 2.0											
	HOSE FOR DIONIZED WATER 5' LONG QUICK CONNECTORS											
	1" X 5' 2 EA 210 2.0											
	SAMPLE CONNECTION FOR ACID SOLUTION											
	1" 1 EA 200 1.0											

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>			SHEET <u>2</u> OF <u>14</u>						
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>			CHECKED BY						
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
ACNT	DIV.			MATL	M/H	LAB\$			M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>MRS. FACILITY</u>												
	<u>CHEM DECON MAKE-UP</u>												
	<u>AREA# 3 ROOM# 1157</u>												
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15068</u>	<u>4222 FITTINGS- POLYPROPYLENE LINED</u>												
	<u>PER ASTM F492, FTGS SHALL</u>												
	<u>BE CS. ASTM A316 GR WPB</u>												
	<u>STD WT W/ 150# ANS1 INTEGRAL</u>												
	<u>FLANGES</u>												
	<u>90° ELL</u>	<u>1</u>	<u>10</u>	<u>EA</u>	<u>75</u>	<u>1.3</u>							
		<u>1 1/2</u>	<u>14</u>	<u>}</u>	<u>94</u>	<u>1.5</u>							
		<u>2</u>	<u>3</u>	<u>}</u>	<u>113</u>	<u>2.1</u>							
	<u>TEE</u>	<u>1 1/2</u>	<u>5</u>	<u>EA</u>	<u>130</u>	<u>1.5</u>							
		<u>2</u>	<u>2</u>	<u>}</u>	<u>154</u>	<u>2.1</u>							
	<u>ELL REDUCER</u>	<u>2 x 1 1/2</u>	<u>2</u>	<u>EA</u>	<u>121</u>	<u>2.1</u>							
	<u>Total</u>		<u>51</u>	<u>EA</u>	<u>1042.0</u>	<u>1.6</u>			<u>5300</u>		<u>80</u>		
<u>4221</u>	<u>BOLT-LIPS-</u>												
	<u>ADD GSKT / B7 STUDS</u>												
	<u>150#</u>	<u>1</u>	<u>30</u>	<u>EA</u>	<u>2</u>	<u>.6</u>							
		<u>1 1/2</u>	<u>77</u>	<u>}</u>	<u>2</u>	<u>.9</u>							
		<u>2</u>	<u>29</u>	<u>}</u>	<u>2</u>	<u>1.2</u>							
	<u>Total</u>		<u>136</u>	<u>EA</u>	<u>2.00</u>	<u>.9</u>			<u>300</u>		<u>140</u>		
	<u>- INSTRUMENTS-</u>		<u>NIT 156</u>										
	<u>CONTROL VALVE-</u>	<u>2</u>	<u>4</u>	<u>EA</u>	<u>-</u>	<u>5.6</u>							
	<u>Total</u>		<u>5</u>	<u>EA</u>	<u>-</u>	<u>5.6</u>			<u>-</u>		<u>30</u>		

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985			SHEET 10 OF 14					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM			CHECKED BY					
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA # 2 ROOM # 1157												
ACCNT DIV.	STAILS CTL- PIPING-SW											
15060	MECHANICAL PIPING											
15063												
4202	PIPE-SMALL STAILS STL ASTM1											
	1 1/2 GR TP304 BE											
	3/4 185 LF 5.20 .45											
	1 197 6.60 .5											
	1 1/2 505 10.00 .6											
	2 152 12.20 .7											
	Total 1.3" φ 1039 LF 8.82 .57 11500 740											
	VALVES- 1300											
4212	GATE VALVE- 800# SW 316LSS											
	BODY & 316SS TRIM											
	SMITH # 800 3/4 10 EA 77 3.4											
	1" 1 105 3.8											
	1 1/2 12 177 5.0											
	2" 5 238 6.8											
	DITTO EXCEPT SW/SCRD 3/4 17 EA 77 3.4											
	CHECK VALVE- 800# SW, PISTON											
	TYPE, 316LSS BODY & TRIM											
	SMITH # C80 1 1/2 6 EA 284 5.0											
	2 1 385 6.8											
	Total 52 EA 145.90 4.4 9500 290											
4222	FLANGES- STL ASTM A182											
	LR F304 3/4 7 EA 19 2.6											
	1 19 2.8											
	1 1/2 11 22 4.0											
	2 3 28 4.6											

PARSONS
ESTIMATE WORKSHEET

CINCINNATI RIVER, BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 13 OF 14
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.	STNLS STL-PIPING-SWI												
15060	MECHANICAL PIPING												
15063													
422	FITTINGS- STNLS STL 3000#												
	SW ASTM A182 GR F304												
	90° ELBOW		3/4	25	EA	7	2.6						
			1	21	}	11	2.8						
			1 1/2	45		28	4.0						
			2	30	}	46	4.6						
	TEE		3/4	1	EA	9	2.6						
			1	3	}	13	2.8						
			1 1/2	14		43	4.0						
			2	3	}	60	4.6						
			1 1/2 x 3/4	11		84	4.0						
			2 x 3/4	5	}	120	4.6						
	CAP		2	2	EA	21	4.6						
	REDUCER		2 x 1 1/2	2	EA	30	4.6						
	STNLS STL- SCRD- PIPING												
	PLUG-ROUND SOLID STL												
	304SS TO B16.5		3/4	6	EA	2	1.0						
	Total			190	EA	31.50	3.7	7500			880		
				238									

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - PHASE C/PSÉ

12
SHEET 11 OF 24

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 11 OF 24				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA# 3 ROOM# 11E7												
ACCNT	STALS STL - PIPING - FIELD FAB											
DIV.	MECHANICAL PIPING											
15060	VALVES											
15063	GATE VALVE - 150# RF 316 SS											
	BODY & TRIM, PLAIN SOLID WEDGE											
	PACIFIC# S-150-1CH											
	3"	2	EA	528	4.5							
	Total	2	EA	528.00	4.5		100.			10		
0221	BOLT - UPS FOR F304 FLGS -											
	150#	3/4	6	EA	3	.8						
		1	1		3	.9						
		1 1/2	11		3	.9						
		1	3		4	1.2						
		3	2		4	1.5						
	Total		23	EA	3.20	1.0		100.		30		
			NT 26									

PARSONS
ESTIMATE WORKSHEET

QUINCH RIVER - BASE CASE

13 of 14

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985			SHEET 14 OF 14					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM			CHECKED BY					
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CHEM DECON MAKE-UP				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA# 3 ROOM# 1157												
ACCNT DIV.	STNLS STL-PIPING-SHOP FAB											
15060	MECHANICAL PIPING											
15063												
4202	PIPE-SMLS STNLS STL ASTM A312 GR TP304 BE S/40S 3 15 LF 21.20 .35											
	Total 3"φ 15 LF 21.20 .35 400 10											
422	FLANGES-SS RF ASTM A182 GR F304 20											
	150# W/M S/40S 3 2 EA 53 -											
	FITTINGS-SMLS STNLS STL BW ASTM A403 GR WP304											
	90° LR ELL S/40S 3 3 EA 25 -											
	ECC REDUCER S/40S 3x2 2 EA 140 -											
	Total 7 EA 65.90 - 500 -											
	WELDS-											
	PASS BW S/40S 3' 9 EA - 4.3											
	Total 10 EA - 4.3 - 40											

PARSONS
ESTIMATE WORKSHEET

Clinch RIVN - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>12</u> OF <u>14</u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>RCM</u>				CHECKED BY					
UNIT/AREA <u>MRS FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>CHEM DECON MAKE-UP</u>				MATL	M/H	LAB \$			M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 1157</u>													
ACCNT													
<u>DIV</u>													
<u>15060</u>	<u>MECHANICAL PIPING</u>												
<u>15061</u>	<u>CS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>1700</u>			<u>340</u>			
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>1700</u>	<u>LF</u>				<u>100</u>			<u>200</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>270</u>			
<u>15063</u>	<u>SS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>2600</u>			<u>400</u>			
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>100</u>			<u>-</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>1320</u>	<u>LF</u>				<u>100</u>			<u>290</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>400</u>			
<u>15067</u>	<u>HASTELLOY ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>-</u>			
<u>15068</u>	<u>PPL LINED CS ADDS</u>												
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>LOT</u>				<u>600</u>			<u>90</u>			
<u>4265</u>	<u>TEST / CLEAN</u>	<u>290</u>	<u>LF</u>				<u>100</u>			<u>50</u>			
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>LOT</u>				<u>-</u>			<u>70</u>			

M.T.O. BY P. GOMEZ

PRICED BY RCM

DATE AUG 1985

SHEET 1 OF 1

JOB NO.: 6440-11

CLIENT: DOE / PNL

TYPE OF ESTIMATE: ROM

CKD BY: AS

UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY												
MRS FACILITY												
FINAL HEPA FILTER SPRAY SYSTEMS												
AREA # 3 ROOM # 3034, 3039												
ACCNT	15 MECHANICAL											
4200	Pipe, Valves and Fittings-Aboveground											
15061	CARBON STEEL											
4201	Pipe - Carbon Steel	470	LF				400					
4202	Pipe - Alloy and Special		LF									
4211	Valves - Carbon Steel		EA									
4212	Valves - Alloy and Special		EA									
4221	Fittings - Carbon Steel	33	EA				200					
4222	Fittings - Alloy and Special		EA									
4225	Hangers, Shoes, etc.	/	LOT				500					
4231	Outside Shop - Carbon Steel		LF									
4232	Outside Shop - Alloy and Specialty		LF									
4241	Field Shop Fabr.		LF									
4251	Install Screwed Piping		LF+									
4252	Install Socket Weld Piping	470	LF+							230		
4253	Install Weld or Flanged Piping		LF+									
4257	Scaffolding	/	LOT							40		
4258	Firelines		LF+									
4261	Install Steam Tracing		LF									
4264	X-Ray and Stress Relieve		EA									
4265	Testing and Cleaning	470	LF				-			30		
4266	Pickling and Chem. Cleaning		LF									
4267	Freight		TONS				100					
	.75" φ SUBTOTAL	470	LF+				1200			300		
	Productivity at PCT.		MH									
	TOTAL		LF+									

ESTIMATE SUMMARY

M.T.O. BY *P. GOMEZ* PRICED BY *RCM* DATE *AUG 1985* SHEET *1* OF *1*
 JOB NO.: *6440-11* CLIENT: *DOE / PNL* TYPE OF ESTIMATE: *ROM* CKD BY: *[Signature]*

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
<i>MRS FACILITY</i>	<i>FINAL HEPA FILTER SPRAY SYSTEMS</i>	<i>AREA # 3 ROOM # 3034, 3039</i>											
<i>DIU 15 MECHANICAL</i>	<i>4200 Pipe, Valves and Fittings-Aboveground</i>												
<i>15063</i>	<i>STAINLESS STEEL</i>												
<i>4201</i>	<i>Pipe - Carbon Steel</i>			LF									
<i>4202</i>	<i>Pipe - Alloy and Special</i>		<i>2290</i>	LF				<i>22200</i>					
<i>4211</i>	<i>Valves - Carbon Steel</i>			EA									
<i>4212</i>	<i>Valves - Alloy and Special</i>		<i>5</i>	EA				<i>800</i>					
<i>4221</i>	<i>Fittings - Carbon Steel</i>		<i>-</i>	EA				<i>100</i>					
<i>4222</i>	<i>Fittings - Alloy and Special</i>		<i>164</i>	EA				<i>4000</i>					
<i>4225</i>	<i>Hangers, Shoes, etc.</i>		<i>1</i>	LOT				<i>2300</i>					
<i>4231</i>	<i>Outside Shop - Carbon Steel</i>			LF									
<i>4232</i>	<i>Outside Shop - Alloy and Specialty</i>			LF									
<i>4241</i>	<i>Field Shop Fabr.</i>			LF									
<i>4251</i>	<i>Install Screwed Piping</i>			LF+									
<i>4252</i>	<i>Install Socket Weld Piping</i>		<i>2290</i>	LF+							<i>2480</i>		
<i>4253</i>	<i>Install Weld or Flanged Piping</i>			LF+									
<i>4257</i>	<i>Scaffolding</i>		<i>1</i>	LOT							<i>420</i>		
<i>4258</i>	<i>Firelines</i>			LF+									
<i>4261</i>	<i>Install Steam Tracing</i>			LF									
<i>4264</i>	<i>X-Ray and Stress Relieve</i>			EA									
<i>4265</i>	<i>Testing and Cleaning</i>		<i>2290</i>	LF				<i>100</i>			<i>300</i>		
<i>4266</i>	<i>Pickling and Chem. Cleaning</i>			LF									
<i>4267</i>	<i>Freight</i>			TONS				<i>900</i>					
	<i>1.5" φ</i> SUBTOTAL		<i>2290</i>	LF+				<i>30400</i>			<i>3200</i>		
	Productivity at			MH									
	<i>GA LEVEL I</i>		<i>100%</i>					<i>30400</i>			<i>3200</i>		
	TOTAL			LF+				<i>60800</i>			<i>6400</i>		

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BPSB CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 1 OF 3
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.	FIELD LABOR												
15060	MECHANICAL PIPING												
15063													
4221	LOLT-UPS FOR 304SS FLGS												
	150#		3/4	8	EA	3	.8						
			1/2	4	EA	3	.9						
			2	4	EA	4	1.2						
-	INST. TOTAL		18	16	EA	3.30	.9	100			20		
	CONTROL VALVE		3/4	2	EA	-	3.5						
			1/2	2	EA	-	3.9						
	PSV		3/4 x 1	2	EA	-	3.5						
	TOTAL			2	EA	-	3.6				30		
*	Q.A. LEVEL I, 100% X-RAY ASME SECT. IX												

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. GOMEZ PRICED BY _____ DATE AUG 1985 SHEET 2 OF 3
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.	STNLS STL. PIPING - SOCKETWELD											
15060	MECHANICAL PIPING											
15063												
4202	PIPE - SMLS STALS STL, ASTM A212 GR TP304											
	3/4 S/405	60	LF	5.20	.45							
		1	620	6.60	.5							
		1 1/2	20	10.00	.6							
		2	830	12.20	.7							
	TOTAL 1.5" φ	1530	LF	9.63	.61		18400.			1170		
4212	VALVES -											
	GATE VALVE - 800# SWI 316L SS											
	BODY & 316SS TRIM SMITH #800											
	3/4	2	EA	77	3.4							
		2	1	238	6.8							
	TOTAL	4	EA	157.50	5.1		800.			30		
4222	FLANGES - SE R.F. ASTM A182											
	GR F304											
	150# SOCKETWELD											
	S/405											
	3/4	8	EA	19	2.6							
		4	1	22	4.0							
		4	1	28	4.6							
	* Q. A. LEVEL I, 100% X-RAY											
	ASME SECT. IX											

PARSONS
ESTIMATE WORKSHEET

CUNCHA RIVER - BASE CASE

M.T.O. BY P. GOMEZ		PRICED BY		DATE AUG 1985				SHEET 3 OF 8				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS. FACILITY		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION FINAL HEPA FILTER SPLY SYSTEMS				MATL	M/H	LABS		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA# 2 ROOM# 3034, 3039												
ACCNT DIV.	STNLS STL- PIPING- SOCKETWELD											
15060	MECHANICAL PIPING											
15063												
4222	FITTINGS-3000# SS ASTM A182											
	GL F304L											
	90° ELBOW	3/4	10	EA	10	2.6						
		1	48		15	2.8						
		1/2	2		40	4.0						
		2	6		65	4.6						
	TEE	3/4	2	EA	13	2.6						
		1	24		19	2.8						
		2	6		86	4.6						
	CAP	2	8	EA	29	4.6						
	TOTAL		120 153	EA	23.50	3.2	3600.			490		
	* Q. A. LEVEL I, 100% X-RAY											
	ASME SECT IX											

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER. BASE CASE

4

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>4</u> OF <u>8</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>FINAL HEPA FILTER SERAY SYSTEMS</u>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <u>AREA# 5 ROOM# 3034, 2039</u>												
ACCNT	<u>FIELD LABOR</u>											
DIV.												
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15062</u>												
<u>4221</u>	<u>BOLT-UP FOR 304SS FLGS</u>											
	<u>150#</u>	<u>1 1/2</u>	<u>EA</u>	<u>3</u>	<u>.9</u>							
	<u>ASB GSKT/B7 STUD</u>	<u>3/4</u>	<u>EA</u>	<u>2</u>	<u>.8</u>							
	<u>TOTAL</u>	<u>7</u>	<u>EA</u>	<u>2.10</u>	<u>.8</u>		<u>-</u>			<u>10</u>		
		<u>MIT</u>	<u>8</u>									

PARSONS
ESTIMATE WORKSHEET

Clinch River - PHSB CASE

5

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>8</u> OF <u>8</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>FINAL HEPA FILTER SPRAY SYSTEMS</u>				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY <u>AREA# 5 ROOM# 303A, 303B</u>												
ACCNT DIV.	<u>CS- PIPING- SCREWED</u>											
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>												
<u>4201</u>	<u>PIPE- ERW STL. GALV. ASTM</u>											
	<u>A120 T & C</u>											
	<u>XS</u>	<u>3/4</u>	<u>375</u>	<u>LF</u>	<u>.90</u>	<u>.25</u>						
	<u>TOTAL</u>		<u>375</u>	<u>LF</u>	<u>.90</u>	<u>.25</u>	<u>400</u>			<u>120</u>		
			<u>470</u>									
<u>4221</u>	<u>150# 3000 FLG ASTM A105 GALV</u>											
		<u>3/4</u>	<u>6</u>	<u>EA</u>	<u>8</u>	<u>.5</u>						
	<u>FITTINGS- 200# M.I. GALV</u>											
	<u>ASTM A197</u>											
	<u>90° ELBOW</u>	<u>3/4</u>	<u>18</u>	<u>EA</u>	<u>3</u>	<u>.5</u>						
	<u>TEE</u>	<u>1/2 x 3/4</u>	<u>2</u>	<u>EA</u>	<u>9</u>	<u>.9</u>						
	<u>TOTAL</u>		<u>26</u>	<u>EA</u>	<u>4.60</u>	<u>.5</u>	<u>200</u>			<u>20</u>		
			<u>33</u>									

PARSONS
ESTIMATE WORKSHEET

CUNCE RIVER - BASS CREEK

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>6</u> OF <u>8</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS. FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>FINAL HEPA FILTER SPRAY SYSTEMS</u>				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 3024, 3039</u>												
ACCNT DIV.	STNLS STL - PIPING - SOCKETWELD											
15060	MECHANICAL PIPING											
15063												
4202	PIPE - SMLS STNLS STL ASTM A312											
	GR TP304											
	E/40S 1 1/2 300 LF 10.00 .6											
	TOTAL 1.5" φ 300 LF 10.00 .6 3800 230											
4222	FLANGES - STNLS STL R.F. ASTM											
	A182 GR F304											
	150# SOCKETWELD											
	E/40S 1 1/2 1 EA 22 4.0											
	FITTINGS - 3000# BS ASTM A182											
	GR F304L											
	90° ELBOW 1 1/2 6 EA 40 4.0											
	1 1/2 2 } 40 4.0											
	TOTAL 2 EA 38.00 4.0 400 40											

PARSONS
ESTIMATE WORKSHEET

CUNCA RIVER - BASE CASE

M.T.O. BY <u>P. GOMEZ</u>		PRICED BY		DATE <u>AUG 1985</u>				SHEET <u>7</u> OF <u>7</u>				
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>				CHECKED BY				
UNIT/AREA <u>MRS FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <u>FINAL HEPA FILTER SPRAY SYSTEMS</u>				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY <u>AREA # 3 ROOM # 3034, 3039</u>												
ACCNT												
<u>QIV</u>												
<u>15060</u>	<u>MECHANICAL PIPING</u>											
<u>15061</u>	<u>CS ADDS</u>											
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>500</u>			<u>90</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST / CLEAN</u>	<u>470</u>	<u>LF</u>				<u>-</u>			<u>30</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>40</u>		
<u>15063</u>	<u>SS ADDS</u>											
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>2300</u>			<u>460</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST / CLEAN</u>	<u>2290</u>	<u>LF</u>				<u>100</u>			<u>300</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>420</u>		
<u>15067</u>	<u>HASTELLOY ADDS</u>											
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4264</u>	<u>FIELD X-RAY</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>15068</u>	<u>PPL LINED CS ADDS</u>											
<u>4225</u>	<u>HANGERS / SUPPORTS</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		
<u>4265</u>	<u>TEST / CLEAN</u>		<u>LF</u>				<u>-</u>			<u>-</u>		
<u>-</u>	<u>SCAFFOLDING</u>	<u>1</u>	<u>Lot</u>				<u>-</u>			<u>-</u>		

M.T.O. BY P. GOMEZ		PRICED BY RCM			DATE Aug 1985				SHEET 1 OF 1			
JOB NO.: 6440-11		CLIENT: DOE / PNL			TYPE OF ESTIMATE: ROM				CKD BY: FIS			
UNIT/AREA MRS FACILITY		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION GENERAL (DISTRIBUTION LOOPS)				MATL	M/H	LABS		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY AREA * ROOM *												
15 MECHANICAL												
Pipe, Valves and Fittings-Aboveground												
15061	CARBON STEEL											
4201	Pipe - Carbon Steel	105780	LF				227600					
4202	Pipe - Alloy and Special		LF									
4211	Valves - Carbon Steel	3224	EA				76400					
4212	Valves - Alloy and Special		EA									
4221	Fittings - Carbon Steel	13281	EA				173600					
4222	Fittings - Alloy and Special		EA									
4225	Hangers, Shoes, etc.	1	LOT				105800					
4231	Outside Shop - Carbon Steel		LF									
4232	Outside Shop - Alloy and Specialty		LF									
4241	Field Shop Fabr.		LF									
4251	Install Screwed Piping		LF+									
4252	Install Socket Weld Piping	105780	LF+							78310		
4253	Install Weld or Flanged Piping		LF+									
4257	Scaffolding	1	LOT							13230		
4258	Firelines		LF+									
4261	Install Steam Tracing		LF									
4264	X-Ray and Stress Relieve	1 Lot	EA				16000			410		
4265	Testing and Cleaning	105780	LF				3400			9450		
4266	Pickling and Chem. Cleaning		LF									
4267	Freight		TONS				18100					
	1.5" Ø SUBTOTAL	105780	LF+				620900			101400		
	Productivity at PCT.		MH									
	TOTAL		LF+									
#1	FUEL HANDLING	10110	LF				59400			3600		
#2	LAG STORAGE	4910	LF				28900			4710		
#3	OTHER CAT I	68840	LF				404100			65990		
#4	NON CAT	21920	LF				128600			21010		

ESTIMATE SUMMARY

M.T.O. BY P. GOMEZ		PRICED BY RCM			DATE Aug 1986				SHEET 1 OF 1			
JOB NO.: 6440-11		CLIENT: DOE / PNL			TYPE OF ESTIMATE: ROM				CKD BY: JS			
UNIT/AREA MRS FACILITY		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION GENERAL (DISTRIBUTION LOOPS)				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA # - ROOM # -												
AGENT DIV 15 MECHANICAL												
4200	Pipe, Valves and Fittings-Aboveground											
15063	STAINLESS STEEL											
4201	Pipe - Carbon Steel		LF									
4202	Pipe - Alloy and Special	71430	LF				865 000					
4211	Valves - Carbon Steel		EA									
4212	Valves - Alloy and Special	491	EA				143 500					
4221	Fittings - Carbon Steel	-	EA				2 100					
4222	Fittings - Alloy and Special	4954	EA				155 400					
4225	Hangers, Shoes, etc.	1	LOT				71 400					
4231	Outside Shop - Carbon Steel		LF									
4232	Outside Shop - Alloy and Specialty		LF									
4241	Field Shop Fabr.		LF									
4251	Install Screwed Piping		LF+									
4252	Install Socket Weld Piping	71430	LF+							76420		
4253	Install Weld or Flanged Piping		LF+									
4257	Scaffolding	1	LOT							13060		
4258	Firelines		LF+									
4261	Install Steam Tracing		LF									
4264	X-Ray and Stress Relieve	1 LOT	EA				52 700			1320		
4265	Testing and Cleaning	71430	LF				3 100			9330		
4266	Pickling and Chem. Cleaning		LF									
4267	Freight		TONS				38 800					
	1.6" ø SUBTOTAL	71430	LF+				1 332 000			100130		
	Productivity at PCT.		MH									
	TOTAL		LF+									
#1	FUEL HANDLING	6830	LF				127 300			9570		
#2	LAG STORAGE	3310	LF				61 800			4650		
#3	OTHER CAT I	46490	LF				866 900			65160		
#4	NON CAT	14800	LF				276 000			20750		

ESTIMATE SUMMARY

M.T.O. BY *P. GOMEZ* PRICED BY *RCM* DATE *AUG 1986* SHEET *1* OF *1*
 JOB NO.: *6440-11* CLIENT: *DOE / PNL* TYPE OF ESTIMATE: *ROM* CKD BY: *TS*

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
<i>MECHANICAL</i>													
4200	Pipe, Valves and Fittings-Aboveground												
<i>15068</i>	<i>PPL LINED CARBON STEEL</i>												
4201	Pipe - Carbon Steel			LF									
4202	Pipe - Alloy and Special		7040	LF			128 620						
4211	Valves - Carbon Steel			EA									
4212	Valves - Alloy and Special		24	EA			5 700						
4221	Fittings - Carbon Steel		-	EA			1 500						
4222	Fittings - Alloy and Special		184	EA			18 000						
4225	Hangers, Shoes, etc.		1	LOT			7 000						
4231	Outside Shop - Carbon Steel			LF									
4232	Outside Shop - Alloy and Specialty			LF									
4241	Field Shop Fabr.			LF									
4251	Install Screwed Piping			LF+									
4252	Install Socket Weld Piping		7040	LF+						3680			
4253	Install Weld or Flanged Piping			LF+									
4257	Scaffolding		1	LOT						620			
4258	Firelines			LF+									
4261	Install Steam Tracing			LF									
4264	X-Ray and Stress Relieve			EA									
4263	Testing and Cleaning		7040	LF			200			440			
4266	Pickling and Chem. Cleaning			LF									
4267	Freight			TONS			4 800						
	<i>1.3"φ</i> SUBTOTAL		7040	LF+			165 800			4 740			
	Productivity at PCT.			MH									
	TOTAL			LF+									
	*1 FUEL HANDLING		670	LF			15 800			450			
	*2 LAG STORAGE		330	LF			7 700			220			
	*3 OTHER CAT I		4580	LF			107 900			3090			
	*4 Non CAT		1460	LF			34 400			980			

ESTIMATE WORKSHEET

CLINCH RIVER BASE CASE

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

JOB NO. 0440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY _____

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LABS		M/HR\$	DOLLARS	M/HR\$	DOLLARS	

This sheet not used.

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER, BASE CASE

M.T.O. BY ENGINEERING PRICED BY NIESOL DATE AUG 85 SHEET 1 OF 4

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
	<u>MRS FACILITY</u>	<u>R&H. BLDG.</u>												
	<u>DIV 15 MECHANICAL AREA 3</u>													
<u>15069</u>	<u>SUMMARY INSULATION</u>													
	<u>INSULATION</u>	<u>P.PE</u>							<u>7000</u>			<u>340</u>		
	<u>"</u>	<u>"</u>							<u>700</u>			<u>30</u>		
	<u>"</u>	<u>"</u>							<u>2900</u>			<u>140</u>		
<u>15069</u>	<u>TOTAL</u>								<u>10600</u>			<u>510</u>		

PARSONS
ESTIMATE WORKSHEET

CUNCA RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF						
JOB NO.: 6440-11		CLIENT: DOE / PNL		TYPE OF ESTIMATE: RDM		CHECKED BY: KS								
UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
ACCNT														
DIV	15 Mechanical													
15069	Insulation - Hot w/ Aluminum Cover													
	Ins. TRKNS													
	1"		3/4"	605	LF	6	.28							
			1"	271	✓	6	.28							
			1 1/2"	402	✓	6	.29							
			2"	238	✓	6	.30							
	Total		1.4"φ	1170	LF	6.00	.29	7000				340		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>P. Gomez</i>		PRICED BY		DATE <i>Aug 1985</i>		SHEET <i> </i> OF <i> </i>						
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE (PNL)</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY						
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
UNIT/AREA <i>MRS Facility</i>												
DESCRIPTION <i>Contaminated Laundry</i>												
CAPACITY <i>Area #3 Room # 1056/57</i>												
ACCNT												
<i>Div.</i>	<i>15 Mechanical</i>											
<i>15069</i>	<i>Hot Insulation of Aluminium Cover</i>											
	<i>1"</i>	<i>80</i>	<i>LF</i>	<i>0</i>	<i>.28</i>							
	<i>1 1/2"</i>	<i>68</i>	<i>✓</i>	<i>6</i>	<i>.29</i>							
	<i>2"</i>	<i>85</i>	<i>✓</i>	<i>6</i>	<i>.3</i>							
	<i>3"</i>	<i>65</i>	<i>✓</i>	<i>7</i>	<i>.34</i>							
	<i>4"</i>	<i>80</i>	<i>✓</i>	<i>7</i>	<i>.34</i>							
	<i>Total</i>	<i>2.2" φ</i>	<i>378</i>	<i>LF</i>	<i>6.38</i>	<i>.31</i>	<i>2900</i>			<i>140</i>		
			<i>450</i>									

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY <i>P. GOMEZ</i>		PRICED BY		DATE <i>AUG 1985</i>				SHEET <i>3</i> OF <i>4</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE <i>FOR</i>				CHECKED BY <i>MS</i>				
UNIT/AREA <i>MRS FACILITY</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>WELD TEST & DECON EQUIP</i>				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY <i>AREA #3 ROOM # 1156</i>												
ACCNT												
<i>DIV 15 MECHANICAL</i>												
<i>15069</i>												
<i>INSULATION</i>												
	<i>INS THKNS</i>	<i>1PS</i>										
	<i>1 1/2"</i>	<i>2</i>	<i>BG</i>	<i>LF</i>	<i>7</i>	<i>.33</i>						
	<i>TOTAL</i>	<i>2.0"φ</i>	<i>86</i>	<i>LF</i>	<i>7.00</i>	<i>.33</i>	<i>700</i>			<i>30</i>		
			<i>100</i>									

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. Gomez PRICED BY _____ DATE Aug 1985 SHEET _____ OF _____

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>MRS Facility</u>	<u>General (Dist. Loops)</u>												
		<u>Area # 3</u>												
	<u>Div 15 Mechanical</u>													
	<u>15070 Insulation</u>													
	<u>Insulation - Hot w/ Aluminum Cover</u>													
	<u>Thickness</u>	<u>IPS</u>												
	<u>1"</u>	<u>3/4"</u>		<u>5320</u>	<u>LF</u>	<u>6</u>	<u>.28</u>							
		<u>1 1/2"</u>		<u>2115</u>	<u>✓</u>	<u>6</u>	<u>.29</u>							
		<u>1"</u>		<u>1095</u>	<u>✓</u>	<u>6</u>	<u>.20</u>							
	<u>Total</u>								<u>51,000</u>			<u>2410</u>		
	<u>Split by % of Areas:</u>													
	<u>Use 65% of Total for Area 3:</u>								<u>use =></u>	<u>33,600</u>		<u>1566 MH</u>		

CLINCH RIVER BASE 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 CAPACITY ACCNT	QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
			MATL	M/H	LABS		M/HR	DOLLARS	M/HR	DOLLARS	

This sheet not used.

PARSONS
ESTIMATE WORKSHEET

CINCY RIVER BRSS CASE

M.T.O. BY JK JONES PRICED BY RUF DATE Aug. '85 SHEET ____ OF ____

JOB NO.: 6410-11 CLIENT: DE TYPE OF ESTIMATE Rom CHECKED BY RCM

UNIT/AREA DESCRIPTION CAPACITY	QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
			MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT Div. 15											
EQUIPMENT Area 3											
15070 PROCESS EQUIPMENT INSULATION											
TANK - 400	65	SF									
{ 401	65	}									
{ 402	65										
{ 403	65										
{ 408	236										
VES - 400	43										
{ 401	236	}									
{ 106	-										
{ 155	56										
EXP 140	82										
TOTAL =	913	SF	10	11		9130			91		
						USE 10 000-			100-		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY BC PRICED BY RO DATE 7/27/05 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE COM - CHECKED BY AS

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
	Header System Piping Supports	Area 3 (Distribution Loops)												
	15060 Header System Supports:													
	Width	1 st Mezz	2 nd Mezz	3 rd Mezz	Totals									
	3'-0"	165	72	67	304	EA								
	4'-0"	43	20	13	81	✓								
	5'-0"	21	27	-	48	✓								
	6'-0"	8	-	26	30	✓								
	7'-0"	23	79	4	106	✓								
	8'-0"	36	39	40	115	✓								
	9'-0"	11	49	-	60	✓								
	10'-0"	10	-	-	10	✓								
	7'-0"	59	-	-	59	✓								
	(Double Deck)													
					Totals	813 EA	200	8	\$162,600			6504 MH		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY YC PRICED BY RD DATE 7/25/85 SHEET 1 OF 1

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>R & H Facility</u>	<u>Oily Sewer</u>	<u>Area 3</u>											
<u>15061</u>	<u>Pipins - Area 3</u>		<u>(es)</u>											
	<u>Oily Sewer Pipins - Area 3</u>			<u>480</u>	<u>LF</u>				<u>\$ 3300</u>			<u>450</u>	<u>MH</u>	
	<u>(50% of Total MTO)</u>													

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY Y. COOPER PRICED BY _____ DATE 7-19-85 SHEET 3 OF 3

JOB NO.: 6440 CLIENT: _____ TYPE OF ESTIMATE PCM CHECKED BY PC

UNIT/AREA R & H FACILITY
DESCRIPTION OILY SEWER
CAPACITY _____

ACCT DIV	DESCRIPTION	QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS			
	PIPING AREAS 3 & 4													
15060	4" LATERAL CONN.	-		-	-									
	4" 45° ELL	-		-	-									
	6" LATERAL CONN.	-		-	-									
	6" 45° ELL	-		-	-									
	6" 90 ELL	-		-	-									
	BUTT WELDS =													
	3" PIPE STD. WT. - C.S	120	EA	-	2									
	4" φ "	-		-	-									
	6" φ	-		-	-									
	X-RAY INSPECT AS REQUIRED 10%	12	EA	35	1									
	Freight (5% x 3)	1	LOT	300	-									
	Hours & Suppl.	1	LOT	700	100									
	HYDRO TEST	1	LOT	100	40									
	Total 2.9" φ	865	LF	6.81	.94		\$ 6500			900	MH			
		960					\$ 6600			900	MH			
	SPLIT 50% to Area 3	480	LF				\$ 3300			450	MH			
	50% to Area 4	480	LF				\$ 3300			450	MH			

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY Y. COOPER PRICED BY RD DATE 7-19-82 SHEET 1 OF 3
 JOB NO.: 6440 CLIENT: PML/ICE TYPE OF ESTIMATE DOM CHECKED BY K

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS		
DESCRIPTION				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS					
ACCNT DIV	PIPING AREAS 344															
15060	FIXTURES															
	FLOOR DRAIN		5	EA	120	5										
	CLEANOUTS =															
	FLOOR		7	EA	60	4										
	ABOVE GRADE (P.S. P. PE)															
	2" Φ ERW CS. GALV ASTM A120 XS T&C		55	LF	2.60	.3										
	3" Φ ERW CS. ASTM A53 GRB STD. WT. BE		786	LF	3.80	.35										
	4" Φ " "		-													
	6" Φ " "		-													
	FITTINGS: 300# MI IRON SCRD. (64)															
	2" 90° ELL		-	EA	-	-										
	3" LATERAL CONNECTION - NW BLACK SMLS OR WELDED CS. BUTTWELD ENDS, STD WT ASTM A234 GR W/BE		13	EA	-	5										

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE				SHEET					
C. COOPER				7-19-85				2 OF 3					
JOB NO.		CLIENT		TYPE OF ESTIMATE				CHECKED BY					
6440		PNL/DOE		ROM				AS					
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS		
CAPACITY													
ACCNT DIV	PIPING AREAS 3 & 4												
15060	3" 45° ELL		17	EA	4	-							
	3" x 2" RED.		5	EA	7	-							
	4" LATERAL CONN.		-		-	-							
	4" 45° ELL		-		-	-							
	4" 90° ELL		-		-	-							
	BELOW GRADE												
	3" φ CFW		24	LF	4.30	.35							
	4" φ		-		-	-							
	6" φ		-		-	-							
	FITTINGS:												
	3" LATERAL CONNECTION		-		-	-							
	3" 45° ELL		8	EA	4	-							

PARSONS

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET					
Y. COOPER		RD		7-18-85		1 OF 3					
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY					
6440-11		PNL/DOE		RCM-		h					
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY											
ACCNT DIV	PIPING AREAS 3 & 4										
15060	FIXTURES:										
	FLOOR DRAIN										
	46	EA	120	5							
	CLEANOUTS:										
	FLOOR										
	25	EA	60	4							
	2" φ ERW C.S. GALV. ASTM A120 XS, T & C										
	210'	LF	2.60	.3							
	3" φ ERW C.S. ASTM A53 GRB STD. WT. BE										
	254'	LF	3.80	.35							
	4" φ " " "										
	-	LF									
	6" φ " " "										
	787	LF	9.00	.55							
	FITTINGS: 300# MI IRON SCRD. ASTM A197										
	2" 90° ELL										
	8	EA	8	1							
	3" LATERAL CONNECTION - NW BLACK SMLS OR WELDED C.S. BUTT WELD ENDS, STD. WT. ASTM A234 GR, WT B										
	3	EA	-	5							
	3" 45° ELL " "										
	54	EA	4	-							

PARSONS
ESTIMATE WORKSHEET

CUNCH LIVER - BASE CASE

M.T.O. BY Y. COOPER PRICED BY _____ DATE 7-18-85 SHEET 2 OF 3
 JOB NO.: 6440 CLIENT: PNL/DOE TYPE OF ESTIMATE ROM - CHECKED BY [Signature]

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DN	PIPING AREAS 3+4											
15060	3" TEE	2	EA	12	-							
	6" LATERAL CONN. - NW	2	EA	-	10							
	6" 45° ELL	6	EA	13	-							
	6" 90° ELL	2	EA	20	-							
	3" x 2" RED.	4	EA	7	-							
	BELOW GRADE											
	3" φ CFW CS STD. WT.	200'	LF	4.30	.35							
	6" φ CFW - -	790	LF	10.00	.55							
	FITTINGS:											
	3" LATERAL CONNECTION	-	EA	-	-							
	3" 45° ELL	35	EA	4	-							

PARSONS

CUNCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET					
Y. COOPER				7-18-85		3 OF 3					
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY					
6440		PNL/DOE		FCM		AW					
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY											
ACCNT DIV	PIPING. AREAS 3 & 4										
15060	4" LATERAL CONN.		-	EA	-	-					
	4" 45° ELL		-	EA	-	-					
	6" LATERAL CONN. - NU		10	EA	-	10					
	6" 45° ELL		17	EA	13	-					
	6" x 3" RED.		1	EA	22	-					
	BUTT WELDS:										
	3" φ PIPE		200	EA	-	2					
	4" φ PIPE		-		-	-					
	6" φ PIPE		125	✓	-	3.8					
	X-RAY INSPECT AS REQUIRED 10%		33	EA	35	1					
	Flight (5% x 4)		1	LOT	1400	-					
	Hangers & Suppls		1	LOT	2000	150					
	HYDRO TEST		1	LOT	100	160					
	Total		4.2" φ	2541	EA	11.75	1.09				
	SPLIT 50% Area 3		2		1400	LF					
	50% Area 4		3		1400	LF					
								\$ 32,200	3050	MH	
								\$ 33,000	3060	MH	
								\$ 16,500	1530	MH	
								\$ 16,500	1530	MH	

PARSONS
ESTIMATE WORKSHEET

CUNCU RIVER - BASE CASE

M.T.O. BY <u>Y. COOPER</u>		PRICED BY <u>RD</u>		DATE <u>7-24-1985</u>			SHEET <u>1</u> OF <u>1</u>							
JOB NO.: <u>6440</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>			CHECKED BY <u>1/s</u>							
UNIT/AREA <u>MRS FACILITY</u>		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION <u>GENERAL (Harden - Distr.)</u>				MATL	M/H	LAB \$			M/HR\$	DOLLARS	M/HR\$	DOLLARS		
CAPACITY <u>STM. & COND.</u>														
ACCNT	<u>DIV 15 MECHANICAL AREA 3</u>													
	<u>15010 INSULATION PIPING</u>													
	<u>15011 INSULATION - HOT W/ ALUMINUM COVER</u>													
	<u>INS. THKNS</u>		<u>IPS</u>											
	<u>1"</u>		<u>1 1/2"</u>	<u>11516 LF</u>	<u>6</u>	<u>.29</u>		<u>69100</u>				<u>3340</u>		

PARSONS

ESTIMATE WORKSHEET

2 of 4

CUNYH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
Y. COOPER		RD		7-24-1985		X		X				
JOB NO.		CLIENT		TYPE OF ESTIMATE				CHECKED BY				
6440		DOE/PNL		ROM				JS				
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY												
MRS FACILITY												
GENERAL (Headers - Distr.)												
DECON SOL.												
ACCNT												
DIVIS "MECHANICAL AREA 3"												
15070 INSULATION PIPING												
15071 INSULATION - HOT W/ ALUMINUM COVER												
INS. THKNS		IPS										
1"		1 1/2"		7838	LF	6	.29	47000	2273			

PARSONS

CLINCH RIVER - BASE CASE ESTIMATE WORKSHEET

M.T.O. BY ENGR		PRICED BY MESEC			DATE AUG '85			SHEET OF						
JOB NO.: 6440-11		CLIENT: DOE / PNL			TYPE OF ESTIMATE ROM			CHECKED BY						
UNIT/AREA MRS R&H Bldg.		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS			
CAPACITY Area # 3														
ACCNT														
Div 15 Mechanical														
15140 thru 15170 Summary:														
15141	Pumps	36	EA				104 400					466		
15142	Agitators	10					14 800					204		
15143	Blowers	3					7 100					69		
15144	Boilers	0					0					0		
15145	Compressors	4					158 700					500		
15146	Cooling Towers	0					0					0		
15147	Dryers	3					18 800					105		
15148	Ejectors	105					38 600					314		
15149	Evaporators	2					143 300					250		
15150	HEPA Filters	3					21 500					45		
15151	Filters	19					23 700					225		
15152	Cleaning Package	1					50 000					400		
15153	Heat Exchangers	5					41 800					110		
15154	Heaters	1					4 000					20		
15155	Tan Exchange Columns	5					108 000					190		
15156	Special Mechanical Equipment	12					616 000					815		
15157	Mixers	0					0					0		
15158	Breathing Air Station	3					4 700					30		
15159	Separators	0					0					0		
15160	Sumps	0					0					0		
15161	Tanks	14					177 500					262		
15162	Vacuum Pumps	6					159 700					280		
15163	Vessels	14					485 200					475		
15164	Washers	2					20 900					70		
Sub-Total		240	EA				2 198 700					4 830		
Deduct 5% For Mtg. Hrdw & Freight							(109 900)							
New Total							2 088 800							
Use							2 098 000							

PARSONS

ESTIMATE WORKSHEET

CUNCIH RIVER - H&B CASE

M.T.O. BY ENGINEERING		PRICED BY MESC	DATE Aug 1985			SHEET ___ OF ___					
JOB NO.: 6440-11		CLIENT: DOE/PNL	TYPE OF ESTIMATE ROM			CHECKED BY					
UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
CAPACITY				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT	DIV 15 MECHANICAL AREA										
15141	Summary Amps										
	P-150, 151, 152	3	EA				12000			15	
	P-153, 154	2	EA				7000			10	
	P-159	1	EA				3000			10	
	P-400 A, B, 401, 402 A, B } 403, 404, 405, 406 }	9	EA				11800			75	
	P-407	1	EA				700			5	
	P-408 A, B	2	EA				3100			40	
	P-420 A, B, 421 A, B	2	EA				14500			90	
	P-422 A, B, 423	3	EA				8900			49	
	P-620 A, B, 621 A, B, 622 A, B } 623 }	7	EA				10500			138	
	P-456	4	EA				30400			64	
15141	TOTAL	36	EA				104900			466	

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY		X8787 PRICED BY		DATE		SHEET						
Jay Hellinger		RBP		11/6/1982		1 OF 12						
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY						
2440-11		DOE/ENL		BOP		RCC						
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS		
CAPACITY												
ACCNT												
15141												
M&E Facility		Room #1										
High Activity Liquid Radwaste System												
Area #3												
MECHANICAL												
PUMPS												
P-150		1113										
HAW EVAPORATOR FEED PUMP												
Diaphragm pump, 304L stainless steel. Rated capacity 2gpm @ 100ft TDH. 1/4 hp, totally enclosed motor, 3 phase, 460V, 60Hz. Vendor: Milroyal A with 1 3/4" plunger diameter		1	EA	\$ 3,600			3600			5		
P-151		1113										
HAW EVAPORATOR BOTTOMS PUMP												
Diaphragm pump, 304L stainless steel. Rated capacity 2.0gpm @ 50ft TDH. 1/4 hp, totally enclosed motor, 3 phase, 460V, 60Hz. Vendor: Milroyal A with 5/8" plunger diameter		1	EA	\$ 2,800			2800			5		
P-152		1120										
HAW ION EXCHANGER FEED PUMP												
Diaphragm pump, 304L stainless steel. Rated capacity 2gpm @ 100ft TDH. 1/4 hp, totally enclosed motor, 3 phase, 460V, 60Hz. Vendor: Milroyal A with 1 3/4" plunger diameter		1	EA	\$ 3,600			3600			5		
* 12 r gpm Cent				M&E Hours @ 15%		1500						
		S/TOTAL				11500						
		USE				12000						

PARSONS

ESTIMATE WORKSHEET

Cunch River, BWS Case

M.T.O. BY Jay Hellinger		PRICED BY TUBP		DATE 8/26/85		SHEET 4 OF 12					
JOB NO: 6440-11		CLIENT: DOE/FML		TYPE OF ESTIMATE FOM		CHECKED BY FOM					
UNIT/AREA MBS Facility		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION High Activity Liquid Radioactive System				MATL	M/H	LAB \$	MATERIAL EXPENSE	M/HRS	DOLLARS	M/HRS	
CAPACITY Area #3											
ACCT											
1515	MECHANICAL	Rooms #									
1514	PUMPS										
	P-153	1120									
	HAW JON EXCHANGER RESIN MIXING PUMP										
	Diaphragm pump, 304L stainless steel. Rated capacity 20gph @ 50 Ft TDH. 1/4 hp, totally enclosed motor, 3 phase, 460V, 60Hz. Vendor: Milton Roy Company * Model: Milroyal A with 7/8" plunger diameter.	1	EA	\$ 3,600		3600			5		
	F-154	1120									
	HAW DEFOAMER PUMP										
	Diaphragm pump, 304L stainless steel with Teflon diaphragm. Rated capacity 0.5 gph @ 50 Ft TDH. 1/4 hp totally enclosed motor, 3 phase, 460V, 60Hz. Vendor: Milton Roy Company * Model: Milroyal D with 1/4" plunger diameter.	1	EA	\$ 2,600		2600			5		
	MTG. HDWE & FREIGHT	15%				900					
	\$ TOTAL					7100			10		
	* or equivalent										

PARSONS
ESTIMATE WORKSHEET

CUNCI RIVER - BASE CASE

M.T.O. BY Jay Hellingor 88787		PRICED BY RBP		DATE 10/3/85		SHEET 2 OF 12					
JOB NO.: 6440-11		CLIENT: DOE/MSR		TYPE OF ESTIMATE		CHECKED BY					
UNIT/AREA	DESCRIPTION	QUAN- TITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT											
6440-11	Mechanical		Room #								
15111	PUMPS										
	P-155	1120									
	HAW STEAM CONDENSATE PUMP										
	Horizontal, centrifugal pump for 50 psia steam condensate service. 276L stainless steel. 5 gpm @ 50 FT TDH, 1/2 hp totally enclosed motor, 3 phase, 460V, 60 Hz Vendor: Duxiron Company, Inc.* Model: 1 1/2 x 1-6/73	1	EA	\$ 2,558			8600			10	
	MFG HOWE & PAT	15%					400				
	S/TOTAL						3000			10	

* - or equivalent

PARSONS
ESTIMATE WORKSHEET

CUNIFF RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET					
P. Bartok		RBP		AUG '985		1 OF 8					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY					
6440-11		DOE / PNL		ROM		Rom					
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY											
ACCNT											
DIV 15											
MRS FACILITY											
DECON											
AREA # 3											
MECHANICAL											
ROOM #											
15141	PUMPS										
	P-400 A	1157	1	EA	1430	5		1430			5
	400 B		1		1430	5		1430			5
	401		1		1430	5		1430			5
	402 A		1		1430	5		1430			5
	402 B		1		1430	5		1430			5
	403		1		1430	5		1430			5
	DECON SUPPLY PUMPS - AIR DRIVEN DOUBLE DIAPHRAGM PUMP WITH TEFLON DIAPHRAGM AND CHECK VALVES AND 316 STAINLESS STL. BODY WARREN RUPP VIP-ST-1A OR EQUAL										
	P-404	1157	1	EA	574	5		570			5
	405		1	EA	574	5		570			5
	406		1	EA	574	5		570			5
	DECON DRUM PUMPS										
	PORTABLE PUMPS, 1/4 HP.										
	MFG. HWDE. & FRT (15%)		9	EA				1540			
	S/TOTAL		9	EA				11800			45

CUNY RIVER - BMS CPE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY P. BARTOK PRICED BY RBP DATE AUG 1985 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY P. Bart

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
MRS FACILITY												
DECON												
CAPACITY AREA # 3												
ACCNT												
RIV 15	MECHANICAL		ROOM #									
15141	PUMPS											
	P-407	VAR.	1	EA	574	5	600			5		
	FREON DRUM PUMP - PORTABLE PUMP - 1/4 HP											
	MTR. HWDE. & FRT (15%)		1	EA	100		100					
	S/TOTAL		1	EA			700			5		

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER BASE CASE

M.T.O. BY Jay Hellinger		PRICED BY RRP	DATE AUG 1985			SHEET 1 OF 11							
JOB NO.: 6410-11		CLIENT: JDF/11	TYPE OF ESTIMATE ROM			CHECKED BY Rom							
UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
ACCNT					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
010.15	MECHANICAL		Room#										
1541	PUMPS												
	P-420A/B		1156										
	SOLVENT FEED PUMP AND SPARE												
	Horizontal, centrifugal pump. 316L stainless steel. 50gpm (3) 400 ft TDH. 40 hp, totally enclosed motor, 3 phase, 460V, 60Hz. Vendor: Duriron Company, Inc. * Model: Durco Mark II 2x1-10A/93		2	EA	# 3,748/EA		7500				70		
	P-421A/B		1156										
	EVAPORATOR FEED PUMP AND SPARE												
	Horizontal, centrifugal pump. 316L stainless steel. 5gpm (4) 50 ft TDH. 1/2 hp, totally enclosed motor, 3 phase, 460V, 60Hz Vendor: Duriron Company, Inc. * Model: Durco Mark II 1 1/2 x 1-6/73		2	EA	# 2,558/EA		5100				20		
	MTG. HWDE. & FRT (15%)		4	EA	USE 475		1900						
	S/TOTAL		4	EA			14500				90		
	* - or equivalent												

PARSONS
ESTIMATE WORKSHEET

Council River - Base Case

M.T.O. BY Jay Hollinger PRICED BY RAT DATE 11/25 1985 SHEET 3 OF 4
 JOB NO.: 6440-11 CLIENT: DOE/EPL TYPE OF ESTIMATE L1 CHECKED BY Rom

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV. 15	MECHANICAL			Room #									
15141	PUMPS												
	P-422 A/B		1156										
	SOLVENT PUMP AND SPARE												
	Horizontal, centrifugal pump, 216 L stainless steel, 50gpm @ 75 ft TDH, 3 hp, totally enclosed motor, 3 phase, 460V, 60Hz Vendor: Duriron Company, Inc. Model: Durco Mark II 1 1/2 x 1-8/73		2	EA			\$ 2,558/EA	5100			44		
	P-422		1156										
	SOLVENT SUMP PUMP												
	Horizontal, centrifugal pump, 216 L stainless steel, 10 gpm @ 50 FT TDH, 1/2 hp, totally enclosed motor, 3 phase, 460V, 60Hz Vendor: Duriron Company, Inc * Model: Durco Mark II 1 1/2 x 1-6/73		1	EA			\$ 2,558	2600			5		
	MTG. HWDE. & FRG (16%)		3	EA			USE 400	1200					
	S/TOTAL		3	EA				8900			49		

* - or equivalent

PARSONS

ESTIMATE WORKSHEET

CUNNICH RIVER - BASE CASE

M.T.O. BY P.F. BLASA PRICED BY RTSP DATE 4/21/85 SHEET 1 OF 4

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

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3												
ACCNT DIV. 15	MECHANICAL											
15141	PUMPS											
	P-620A/B	1157	2	EA	900	5	600			10		
	HYDROCHLORIC ACID TRANSFER PUMP PORTABLE TYPE DRUM PUMP 14 GPM @ 21 FT HEAD 1/4 HP MOTOR											
	P-621 A/B	1157	2	EA	300	5	600			10		
	CALUSTIC SODA TRANSFER PUMPS PORTABLE TYPE DRUM PUMP 14 GPM @ 21 FT HEAD 1/4 HP MOTOR											
	P-622A/B	1157	2	EA	2600	37	5200			74		
	DETONIZED WATER SUPPLY PUMP AND SPARE SINGLE STAGE HORIZONTAL PUMP 25 GPM @ 103 FT 316 SS, MECH SEAL 15 HP MOTOR, 460 VOLTS, 3PH, 60HZ											
	P-623	1157	1	EA			3100			44		
	FINAL HEPA SPRAY VESSEL SUPPLY PUMP, SINGLE STG HORIZONTAL 20 GPM, @ 374 FT 316 SS, MECH SEAL 25HP, 460V, 3PH, 60 HZ											
					MTG. WASTE & PRT. (15%)		1400					
					SUB TOT. 7 EA		10900			138		

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
P. BARTOK				AUG 1985		1		11				
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE / PNL		ROM		ben						
UNIT/AREA		DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
CAPACITY					MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT												
DIV 15	MECHANICAL	ROOM #										
15141	PUMPS											
Δ	P-456	1048	4	EA	7600	16.0		30400			64	
	ANALYTICAL LAB RADWASTE PUMP - AIR DRIVEN DOUBLE DIAPHRAGM PUMP WITH TEFLON DIAPHRAGM AND CHECK VALVES AND HASTELLOY C BODY. WARREN RUPP VIP-ST 1 1/2-A OR EQUAL											
15141	TOTAL		4	EA				30400			64	

PARSONS

CLINTON RIVER, BME CASE

ESTIMATE WORKSHEET

M.T.O. BY ENGINEERING PRICED BY MESCC DATE Aug. 95 SHEET OF

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>MRS FACILITY</u>	<u>R2 H. BLDG</u>												
	<u>Mechanical Area</u>													
<u>15142</u>	<u>Summary Agitators</u>													
	<u>AG-150 A, B, 153</u>			<u>3</u>	<u>EA</u>				<u>6000</u>			<u>87</u>		
	<u>AG-300</u>			<u>1</u>	<u>EA</u>				<u>2600</u>			<u>27</u>		
	<u>AG-301</u>			<u>1</u>	<u>EA</u>				<u>2300</u>			<u>15</u>		
	<u>AG-302</u>			<u>1</u>	<u>EA</u>				<u>2200</u>			<u>15</u>		
	<u>AG-400, 401, 402, 403</u>			<u>4</u>	<u>EA</u>				<u>1600</u>			<u>60</u>		
<u>15142</u>	<u>TOTAL</u>			<u>10</u>	<u>EA</u>				<u>14800</u>			<u>204</u>		

CUNY RIVER - BASE CASE

PARSONS ESTIMATE WORKSHEET

M.T.O. BY Jay Hallinger XB787 PRICED BY R/BP DATE AUG 1985 SHEET 1 OF 11

JOB NO: 6440-11 CLIENT: LOE/PHL TYPE OF ESTIMATE FOM CHECKED BY Rem

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT	MRS Facility	High Activity Liquid Radwaste System											
DIV. 15	MECHANICAL	Area #3		Room #1									
1542	AGITATORS												
	AG-150A/B		1113										
	HAW COLLECTION VESSEL AGITATORS												
	Motor driven Flange mounted agitator with a shaft and 2 propellers. 304L stainless steel. 2 hp, Totally enclosed motor, single phase, 115V, 60Hz. Vendor: Mix-Mor, Inc. * Model: F6-2		2	EA			*2,109/EA	4200				72	
	AG-153		1120										
	HAW TOP EXCHANGER RESIN MIXING AGITATOR												
	Motor driven agitator with a shaft and a propeller. 304L stainless steel. 1/4 hp, TENV Motor, single phase, 120V, 60Hz. Vendor: Blount Roy Company *		1	EA			1000	1000				15	
	MTO HOUSE & FREIGHT							900					
	S/TOTAL		3	EA				6000				87	
	* - or equivalent												

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY SADI DIANAT X-2773 PRICED BY RBP DATE AUG 1985 SHEET 1 OF 6

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

UNIT/AREA MRS FACILITY
DESCRIPTION SOLID RADWASTE SYSTEM
CAPACITY AREA # 3

ACCNT DIV.15	MECHANICAL	ROOM #	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
15142	AGITATORS												
	AG-301 *	1113	1	EA	1,951			2000			15		
	HAW Evaporator Bottom Slurry Agitator Motor-driven, TOP Mounted shaft and Propeller 316 Stainless steel, 1HP MTG HWDE & FAT 15%		1	EA				300					
	<u>S/TOTAL</u>		1	EA				2000			15		
	AG-302 *	1113	1	EA	1,951			2000			15		
	Spent Resin Slurry Agitator, Top mounted shaft and Propeller 316 Stainless steel, 1HP MTG HWDE & FAT 15%		1	EA				300					
	<u>S/TOTAL</u>		1	EA				2300			15		

* RTC-297

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER, EPSC CASE

M.T.O. BY		PRICED BY		DATE		SHEET									
P. Bartok		RBP		AUG 1985		2 OF 8									
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY									
6440-11		DOE/PNL		ROM		Rena									
UNIT/AREA			QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION					MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS				
CAPACITY															
ACCNT															
MRS FACILITY															
DECON															
AREA # 3															
DIV 15 MECHANICAL															
ROOM #															
15142 AGITATORS															
AG-400			1157	1	EA	350			350			15			
AG-401			1157	1	EA	350			350			15			
AG-402			1157	1	EA	350			350			15			
AG-403			1157	1	EA	350			350			15			
DECON TANK AGITATORS															
LOW PRESSURE FLAME															
MOUNTED 1/2 HP.															
STAINLESS STEEL CONSTR.															
MTG. HWDE. & FRT (15%)			4		EA	50			200						
\$/TOTAL			4		EA				1600			60			

PARSONS

ESTIMATE WORKSHEET

CLUNCH RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY NIBGL DATE Aug 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM. CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT	DIVIS												
	<u>MECHANICAL AREA 3</u>	<u>R & H. BLDG.</u>											
<u>15143</u>	<u>Summary</u>	<u>BLOWERS</u>											
	<u>BLO 420 A, B</u>	<u>201</u>	<u>2</u>	<u>EA</u>				<u>600</u>			<u>33</u>		
			<u>1</u>	<u>EA</u>				<u>100</u>			<u>36</u>		
<u>15143</u>	<u>TOTAL</u>		<u>3</u>	<u>EA</u>				<u>700</u>			<u>69</u>		

PARSONS
ESTIMATE WORKSHEET

CUNNIF RIVER - BASE CASE

M.T.O. BY Jay Hollinger PRICED BY RBP DATE AUG 1985 SHEET 3 OF 11
 JOB NO.: 6440-11 CLIENT: DOE/EHL TYPE OF ESTIMATE ROOM CHECKED BY Rem

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV. 13	MECHANICAL			Room #									
15143	FLOWERS												
	ULO-420 A/B		1156										
	SOLVENT VAPOR FLOWER AND SPARE												
	Horizontal, centrifugal blower 316L stainl. (SS) steel. 20 psia discharge pressure. AP=15psi. Capacity = 25 scfm. Electric motor, 3hp (rs+). Vendor:		2	EA	2700			5400			33		
	MTG. HWDE. & FRT. (15%)		2	EA	USE 400			800					
	S/TOTAL		2	EA				6200			33		

or equivalent

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - EASE CASE

M.T.O. BY <i>Sadi Dinaat</i>		PRICED BY <i>RBP</i>		DATE <i>Aug. 1985</i>		SHEET _____ OF _____								
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY _____								
UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
ACCNT														
<i>Div. 15</i>	<i>Mechanical</i>													
<i>15143</i>	<i>Blowers Room # 1113</i>													
	<i>- BLO - 201 **</i>													
	<i>- HAW Off-gas Blower</i>													
	<i>- Rotary Blower</i>													
	<i>- 1000 scfm, Suction pressure = 14.7 psia, Discharge pressure 5"</i>													
	<i>Mfg. Hdwe & Freight 15%</i>													
	<i>Sub-Total</i>													
	<i>** RTC - 298</i>													

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER, BRSE CASE

M.T.O. BY ENGINEERING PRICED BY NIESCC DATE Aug. 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM. CHECKED BY ESM

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>MRS FACILITY</u>	<u>R & H. BLDG.</u>												
	<u>Mechanical Area 3</u>													
<u>15145</u>	<u>Summary Compressors</u>													
	<u>Com - 700 A, B</u>			<u>2</u>	<u>EA</u>				<u>10170</u>			<u>300</u>		
	<u>- 702 A, B</u>			<u>2</u>	<u>EA</u>				<u>57500</u>			<u>500</u>		
<u>15145</u>	<u>TOTAL</u>			<u>4</u>	<u>EA</u>				<u>15870</u>			<u>500</u>		

PARSONS
ESTIMATE WORKSHEET

CUNCK RIVER - EPSE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
P. BARTOK		RBP		AUG 1985		1		6				
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE/PNL		ROM		RPM						
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY												
ACCNT												
DIV 15	MECHANICAL	ROOM#										
15145	COMPRESSORS											
	COM-700 A/B	1155	2	EA	44,000	150	88,000				300	
	BREATHING AIR COMPRESSOR OIL FREE, WATER COOLED RECIPROCATING AIR COMPRESSOR W/50 HP MOTOR											
	MITG. HDWE & Fct 15%		2	EA	6600		13,200					
	S/TOTAL		2	EA			101,200				300	

PARSONS

ESTIMATE WORKSHEET

CINCINNATI RIVER - BASE CASE

M.T.O. BY P. BARTOK		PRICED BY RBP		DATE AUG 1975				SHEET 1 OF 5				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY Qcm				
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION COMPRESSED AIR SYSTEMS				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3												
ACCNT	MECHANICAL	ROOM#										
15145	COMPRESSORS											
	Com - 702 A/B	1155	2	EA	25000	100	50000				200	
	AIR COMPRESSORS - TWO STAGE BASE MOUNTED RECIPROCATING AIR COMPRESSOR WITH AIR COOLED INTERCOOLER, MOTOR: 100 HP, INgersol RAND MODEL T-40 H1000 BKM OR EQUAL											
	MTG. HWDE. & FRT. (15%)		2	EA			7500					
	S/TOTAL		2	EA			57500				200	

PARSONS

CUNY RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY ENGINEERING PRICED BY NIESGL DATE Aug. 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV 15	MECHANICAL AREA 3	R & H. BLDG.											
15147	Summary DRYERS												
	DRY	400	1	EA				6600			60		
		702,710	2	EA				12200			45		
15147	TOTAL		3	EA				18800			105		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>Sadi Dianot</i>		PRICED BY		DATE <i>Aug 1985</i>		SHEET _____ OF _____					
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY					
UNIT/AREA <i>MRS Facility</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>Contaminated Laundry System</i>				MATL	M/H	LAB \$	MATERIAL EXPENSE	M/HRS	DOLLARS	M/HRS	
CAPACITY <i>Area # 3</i>											
ACCNT											
<i>Div. 15</i>	<i>Mechanical</i>										
<i>15147</i>	<i>Dryers Room # 1057</i>										
	<i>DRY - 400</i>	<i>1</i>	<i>EA</i>	<i>5750</i>	<i>60</i>		<i>5750</i>			<i>60</i>	
	<ul style="list-style-type: none"> - Laundry Dryer - Steam Heated Commercial Laundry Dryer - Mat'l: Manufacturer's Std. - Capacity: 110 lbs. - 1 HP Basket Motor - 1 1/2 HP Fan Motor - Two Steam Coils & Steam Trap 										
	<i>Mtg. Hdwe & Frt</i>			<i>we</i>			<i>850</i>			<i>950</i>	<i>-</i>
	<i>Sub-Total</i>	<i>1</i>	<i>EA</i>				<i># 6600</i>			<i>60</i>	

PARSONS
ESTIMATE WORKSHEET

CUNNICH RIVER - BASE CASE

M.T.O. BY **P. BARTOK** PRICED BY **RBP** DATE **AUG 1985** SHEET **2** OF **5**
 JOB NO.: **6440-11** CLIENT: **DOE / PNL** TYPE OF ESTIMATE **ROM** CHECKED BY **rom**

UNIT/AREA		DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
CAPACITY					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT	ROOM #												
PIV 15	MECHANICAL												
		15147 DRYERS											
		DRY-702	1	EA	3289		3300			20			
		PLANT AIR DRYER - REFRIDGERATED DRYER FOR 112 SCFM											
		DRY-710	1	EA	7330		7300			25			
		INSTRUMENT AIR DRYER - HEAT LESS DESSICANT DRYER FOR 154 SCFM											
		MTG. HWDE. & FRT. (15%)	2	EA	USE 800		1600						
		S/TOTAL	2	EA			12200			45			

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY ENGINEERING PRICED BY V. Mese DATE Aug. 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
<u>DIV. 15</u>	<u>Area # 3</u>												
	<u>Summary ELECTIONS</u>												
	<u>JET-150</u>		<u>1</u>	<u>EA</u>				<u>1000</u>			<u>10</u>		
	<u>400</u>		<u>1</u>	<u>EA</u>				<u>100</u>			<u>10</u>		
	<u>457 A-2</u>												
	<u>458 A-B</u>												
	<u>459 D-1</u>												
	<u>460 AY</u>												
	<u>462, 463 A-B</u>		<u>103</u>	<u>EA</u>				<u>37500</u>			<u>294</u>		
	<u>471 A-B 472 A-N</u>												
	<u>473 A-B 474 A-B</u>												
	<u>475 A-D 476 A-J, 479</u>												
	<u>480 A-N 481</u>												
	<u>485</u>												
			<u>105</u>	<u>EA</u>				<u>38600</u>			<u>314</u>		

PARSONS

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY Jay Hellinger Y8287 PRICED BY RBP		DATE AUG 1985		SHEET 5 OF 12							
JOB NO.: 6440-11		CLIENT: DOE/PML		TYPE OF ESTIMATE RDM		CHECKED BY [Signature]					
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB\$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT											
LIV.15	MECHANICAL	Room #									
15140	FLECTORS										
	JET-150	1113									
	HAW JON EXCHANGER FLECTOR										
	Steam-jet syphon, 304L stainless steel, 1" size	1	EA	700			700			10	
	130 lb/hr steam consumption using 50 psig steam.										
	Vendor: Schutte & Koerting *										
	Fig. 27 Model with Type 60 nozzle.										
	MITG HOWE & Felt						300				
	S/TOTAL						1000			10	
	* - or equivalent										

PARSONS

CUNICH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY P. Bartor		PRICED BY RRP		DATE AUG 1985		SHEET 3 OF 8								
JOB NO.: 6440-11		CLIENT: DOE/PNH		TYPE OF ESTIMATE ROM		CHECKED BY Kora								
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION DECON				MATL	M/H	LAB\$	M/HR\$	DOLLARS	M/HR\$	DOLLARS				
CAPACITY AREA # 3														
ACCNT														
DIV 15	MECHANICAL	ROOM #												
15148	EJECTORS													
	JET-400	-	1	EA	77			80				10		
	FOAM EJECTOR													
	FULLY ADJUSTABLE COMPRESSED AIR FORMER WITH 1/4" AIR PRESSURE REGULATOR AND WITH 2 IN. THREADED BUNG AND PLASTIC DIP TUBE FOR DIRECT DRUM CONNECTION													
	DEMA MODEL 294CDM OR APPROVED EQUAL													
	MTG. HWDE. & FRT. (1570)							10						
	S/TOTAL							90				10		
							USE	100						

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY JA/TOK PRICED BY _____ DATE 8/05 SHEET _____ OF _____
 JOB NO.: 6440-11 CLIENT: DOE/ANC TYPE OF ESTIMATE ROM CHECKED BY CSM

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
	AREA 3													
	DIV. 15 MECHANICAL													
	15148 EJECTORS													
	ROADWASTE DRAIN SYSTEM													
	JETS: 457 A-Z 1" S/S			24	EA	285	2.5		6800			60		
	458 A-B 1" S/S			2	EA	285	2.5		600			5		
	459 D-Y 1 1/2" S/S			13	EA	397	3.		5200			39		
	460 A-V 1 1/2" S/S			20	EA	397	3.		7900			60		
	462, 463 A-B 1" S/S			3	EA	285	2.5		900			8		
	471 A-B, 472 A-N, 1 1/2" SS			13	EA	397	3.		5200			39		
	473 A-B, 474 A-B, 1 1/2" SS													
	475 A-D, 476 A-J, 479			18	EA	397	3		7100			54		
	480 A-N, 481 1 1/2" SS			9	EA	397	3		3600			27		
	485 - 1 1/2" SS			1	EA	215	2		200			2		
	S/TOTAL			103	EA	364	2.85		37500			294		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY P. BARTOK		PRICED BY		DATE AUG 1985		SHEET _____ OF _____						
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM		CHECKED BY RCM						
UNIT/AREA MRS FACILITY		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION Radwaste Drain System				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS		
CAPACITY AREA # 3												
ACCNT												
PIV 15	MECHANICAL	ROOM #										
15148	EJECTORS											
	JET - 457 A	2029	1	EA	285	2.5						
	457 B	2029	1		285	2.5						
	457 C	2029	1		285	2.5						
	457 D	2030	1		285	2.5						
	457 E	2030	1		285	2.5						
	457 F	2030	1		285	2.5						
	457 G	2043	1		285	2.5						
	457 H	2043	1		285	2.5						
	457 J	2043	1		285	2.5						
	457 K	2042	1		285	2.5						
	457 L	2042	1		285	2.5	24	6800		60		
	457 M	2042	1		285	2.5						
	457 N	M223	1		285	2.5						
	457 P	M223	1		285	2.5						
	457 Q	M223	1		285	2.5						
	457 R	M224	1		285	2.5						
	457 S	M224	1		285	2.5						
	457 T	M224	1		285	2.5						
	457 U	M239	1		285	2.5						
	457 V	M239	1		285	2.5						
	457 W	M239	1		285	2.5						
	457 X	M238	1		285	2.5						
	457 Y	M238	1		285	2.5						
	457 Z	M238	1		285	2.5						
	RADWASTE DRAIN EJECTORS											
	1 IN. STAINLESS STL. JET,											
	POWERED BY 50 PSIG STEAM											
	HEAD = 40 FT., LIFT = 1 FT.,											
	FLOW = 6.9 GPM											

PARSONS
ESTIMATE WORKSHEET

CUNYCH RIVER - BASE CASE

M.T.O. BY P. BARTOK		PRICED BY		DATE AUG 1985		SHEET _____ OF _____					
JOB NO.: 6440-11		CLIENT: DOE / PNL		TYPE OF ESTIMATE ROM		CHECKED BY [Signature]					
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION Radwaste Drain System				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3											
ACCNT											
DIV 15	MECHANICAL	ROOM #									
1548	EJECTORS										
	JET-458 A	3015	1	EA	285	2.5	}	600			
	458 B	3025	1	EA	285	2.5					
	RADWASTE DRAIN EJECTORS 1 IN. STAINLESS STL. JET. POWERED BY 50 PSIG STEAM. HEAD = 40 FT., LIFT = 1 FT., FLOW = 6.9 GPM										
	JET-459 D	1098	1	EA	397	3	}	1200			
	459 E	1043	1		397	3					
	459 K	1108	1		397	3					
	459 L	1110	1		397	3					
	459 N	1135	1		397	3					
	459 P	1141	1		397	3					
	459 Q	M108	1		397	3					
	459 R	M125	1		397	3					
	459 S	2018	1		397	3					
	459 T	2018	1		397	3					
	459 W	2029	1		397	3					
	459 X	2030	1		397	3					
	459 Y	2025	1		397	3					
	RADWASTE DRAIN EJECTORS 1 1/2 IN. STAINLESS STL. JET. POWERED BY 50 PSIG STEAM. HEAD = 40 FT., LIFT = 1 FT., FLOW = 20 GPM										

PARSONS
ESTIMATE WORKSHEET

CINCINNATI RIVER - BASE CASE

M.T.O. BY P. BARTOK		PRICED BY		DATE AUG 1985		SHEET 1 OF 1					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM		CHECKED BY PCN					
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION Radwaste Drain System				MATERIAL EXPENSE	M/HR\$	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3		ACCNT	ROOM #								
DIV 15	MECHANICAL										
15148	EJECTORS										
	JET-460 A	2040	1	EA	397	3					
	460 B	2043	1		397	3					
	460 C	2042	1		397	3					
	460 D	M216	1		397	3					
	460 E	M210	1		397	3					
	460 F	M217	1		397	3					
	460 G	M223	1		397	3					
	460 H	M224	1		397	3					
	460 J	M227	1		397	3					
	460 K	M204	1		397	3	(20)	7900		60	
	460 L	M232	1		397	3					
	460 M	M252	1		397	3					
	460 N	M247	1		397	3					
	460 P	M245	1		397	3					
	460 Q	M239	1		397	3					
	460 R	M238	1		397	3					
	460 S	3008	1		397	3					
	460 T	3015	1		397	3					
	460 U	3024	1		397	3					
	460 V	3025	1		397	3					
	RADWASTE DRAIN EJECTORS										
	1 1/2 IN. STAINLESS STL.										
	JET. POWERED BY 50										
	PSIG STEAM. HEAD= 40										
	FT., LIFT= 1 FT., FLOW										
	= 20 GPM										

PARSONS
ESTIMATE WORKSHEET

CUNCIH RIVER - BASE CASE

M.T.O. BY P. BARTOK		PRICED BY		DATE AUG 1985				SHEET <u> </u> OF <u> </u>				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY 				
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION Radwaste Drain System				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY AREA # 3												
ACCNT												
DIV 15	MECHANICAL	ROOM #										
15148	EJECTORS											
	JET-462	1156	1	EA	285	2.5	} (3) 900					
	JET-463 A	1057	1	↓	285	2.5					8	
	JET-463 B	1056	1	↓	285	2.5						
	RADWASTE DRAIN EJECTORS 1 IN. STAINLESS STL. JET. POWERED BY 50 PSIG STEAM. HEAD = 40 FT., LIFT = 1 FT., FLOW = 6.9 GPM											
	JET-471 A	1105	1	EA	397	3	} (13) 5200					
	471 B	1105	1		397	3						
	JET-472 A	M110	1		397	3						
	472 B	M121	1		397	3						
	472 E	M206	1		397	3						
	472 F	M212	1		397	3						
	472 G	M219	1		397	3						
	472 H	M250	1		397	3						
	472 J	M243	1		397	3						
	472 K	M230	1		397	3						
	472 L	M232	1		397	3						
	472 M	3011	1		397	3						
	472 N	M207	1	↓	397	3						
	RADWASTE DRAIN EJECTORS 1 1/2 IN. STAINLESS STL. JET. POWERED BY 50 PSIG STEAM. HEAD = 40 FT., LIFT = 1 FT., FLOW = 20 GPM											

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
P. BARTOK				AUG 1985								
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE / PNL		ROM				Bartok				
UNIT/AREA			QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION: Radwaste Drain System					MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY												
ACCNT												
PIV 15												
MECHANICAL												
ROOM #												
15148												
EJECTORS												
JET- 473 A			3021	1	EA	397	3					
473 B			3021	1		397	3					
JET- 474 A			3014	1		397	3					
474 B			3026	1		397	3					
JET- 475 A			1114	1		397	3					
475 B			1113	1		397	3					
475 C			1113	1		397	3					
475 D			1120	1		397	3					
JET- 476 A			1113	1		397	3	(18)	7100	54		
476 B				1		397	3					
476 C				1		397	3					
476 D				1		397	3					
476 E				1		397	3					
476 F				1		397	3					
476 G				1		397	3					
476 H				1		397	3					
476 J			1111	1		397	3					
JET- 479			1111	1		397	3					
RADWASTE DRAIN EJECTORS												
1/2 IN. STAINLESS STL.												
JET. POWERED BY 50												
PSIG STEAM. HEAD =												
40 FT., LIFT = 1 FT.,												
FLOW = 20 GPM												

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY P. BARTOK		PRICED BY		DATE AUG 1985				SHEET ___ OF ___							
JOB NO.: 6440-11		CLIENT: DOE / PNL		TYPE OF ESTIMATE ROM				CHECKED BY Rom							
UNIT/AREA MRS FACILITY			QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION Radwaste Drain System					MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS				
CAPACITY AREA # 3															
ACCNT	ROOM#														
PIV 15	MECHANICAL	ROOM#													
15148	EJECTORS														
	JET-480 A	3021	1	EA	397	3									
	480 B		1		397	3									
	480 C		1		397	3									
	480 D		1		397	3									
	480 E		1		397	3	(9)	3600				27			
	480 F		1		397	3									
	480 G		1		397	3									
	480 H		1		397	3									
	JET-481	1104	1	EA	397	3									
	RADWASTE DRAIN EJECTORS														
	1/2 IN. STAINLESS STL.														
	JET. POWERED BY														
	50 PSIG STEAM. HEAD														
	= 40 FT., LIFT = 1 FT.,														
	FLOW = 20 GPM														
	JET-485	3015	1	EA	215	2		200				2			
	RADWASTE DRAIN EJECTOR														
	1/2 IN. STAINLESS STL.														
	JET. POWERED BY 50														
	PSIG STEAM. HEAD =														
	40 FT., LIFT = 1 FT.,														
	FLOW = 2.5 GPM														

PARSONS

ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY V. MESSER DATE AUG. 95 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT DIV. 15	AREA #												
15149	SUMMARY EVAPORATORS												
	EVP- 420		1	EA				17300			50		
	151		1	EA				126000			200		
15149	TOTAL		2	EA				143300			250		

CLINCH RIVER - BARR CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY Jay Hellinger PRICED BY RBP DATE AUG 1987 SHEET 1 OF 1
 JOB NO.: 6940-11 CLIENT: DOE/FNL TYPE OF ESTIMATE EOMI CHECKED BY Rcm

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV. 15	MECHANICAL												
	15419	EVAPORATORS											
		EVP-420	1156										
		SOLVENT EVAPORATOR											
		Short-tube vertical evaporator Electric heater used as heating medium. 316L stainless steel. Tubes are 2" diameter, 6 ft long. Shell diameter is 3 ft. Feed rate = 2530 lb/hr = 3000 Heating Duty 188,000 C/W/HR. ST = 50 psig, DT = 160°F. Vendor:	1	EA			\$ 15,000	15000			50		
		MTG. HWDE. & FRG. (15%)	1	EA			USE 2300	2300					
		3/TOTAL	1	EA				17300			50		

Clinch River - Base Case

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY Jay Hollinger XRB77 PRICED BY RBT DATE AUG 1985 SHEET 6 OF 12
 JOB NO: 2440-11 CLIENT: DOE/ENL TYPE OF ESTIMATE (P) CHECKED BY RBT

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV. 15	MECHANICAL												
			Room #										
15149	EVAPORATORS												
	EVP-151		1113										
	HAW LIQUID EVAPORATOR												
	Horizontal thin-film evaporator 304 L stainless steel. Normal Feed rate = 1.92 gpm @ 150°F. Motor drive motor: 10 hp. Handling Duty: 968,400 BTU/HR. Vendor: Luvla Corporation * Model: LN-0500		1	EA			\$ 110,000	110,000			200		
	MITG. HDWG & Fret		15%					16,000					
	S/TOTAL		1	EA				126,000			200		

* - or equivalent

PARSONS

ESTIMATE WORKSHEET

OLUNTA RIVER - BASE CASE

M.T.O. BY **ENGINEERING** PRICED BY **V. MESSER** DATE **AUG. 85** SHEET OF

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

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV. 15	AREA # 3												
15150	SUMMARY HEPA FILTERS												
	HEPA	301	1	EA			6900				15		
		702, 721	2	EA			14600				30		
15150	TOTAL		3	EA			21500				45		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>Sadi Dianat</i>		PRICED BY <i>RBP</i>		DATE <i>Aug 1985</i>		SHEET <i> </i> OF <i> </i>											
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY <i>cm</i>											
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT			LABOR			TOTAL DOLLARS				
CAPACITY	ACCNT			MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS							
<i>MRS Facility</i>	<i>Solid Radwaste System</i>																
<i>Area # 3</i>	<i>Div 15 Mechanical</i>																
<i>15150</i>	<i>HEPA Filters Room # 1113</i>																
	<i>HEPA - 201</i>	<i>1</i>	<i>EA</i>				<i>6000</i>				<i>15</i>						
	<i>- How Offgas HEPA Filter</i>																
	<i>- Nuclear Grade HEPA Filter</i>																
	<i>- 14 Gauge S.S. Frames</i>																
	<i>- Glass Media</i>																
	<i>- 1000 SCFM Gas Comp.</i>																
	<i>- 19.6% O₂, 73.9% N₂ & 6.5% Water Vapor</i>																
	<i>- Inlet Gas Temp = Ambient</i>																
	<i>- Inlet Gas Pressure = Atm.</i>																
	<i>- Inlet Gas Particulate = 0.04 lb/hr.</i>																
	<i>- Price includes valves, housings, instrumentation & testing equipment</i>																
	<i>Mtg. Hdwe & Ert. 15%</i>						<i>900</i>										
	<i>Sub-Total</i>	<i>1</i>	<i>EA</i>				<i>\$ 6900</i>				<i>15</i>						

PARSONS

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY <i>R.F. Blasa</i>		PRICED BY <i>RBP</i>		DATE <i>Aug '85</i>		SHEET _____ OF _____								
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY								
UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS			
ACCNT														
<i>Div. 15</i>	<i>Mechanical</i>													
<i>15150</i>	<i>HEPA Filters</i>													
	<i>- HEPA 720 & 721 Filters for Air Sampling Stations</i>		<i>2</i>	<i>EA</i>	<i>6350</i>	<i>15</i>			<i>12700</i>			<i>30</i>		
	<i>- Bag In / Bag out</i>													
	<i>- Flanders Filter Model HP-G2</i>													
	<i>- Capacity = 150 SCFM</i>													
	<i>- Filter Element #007-0-03-05-III-CCF or equal Type B</i>													
	<i>- Nuclear Grade</i>													
	<i>- Price FOB Washington, N.C.</i>													
	<i>Mtg. Hdwe. & Fct. (15%)</i>		<i>NI</i>	<i>2</i>	<i>EA</i>	<i>950</i>			<i>1900</i>			<i>-</i>		
	<i>Sub-Total</i>		<i>2</i>	<i>EA</i>					<i>14600</i>			<i>30</i>		

Cuncy River - Base Case

ESTIMATE WORKSHEET

M.T.O. BY ENGINEERING		PRICED BY V. MESSER	DATE AUG 95			SHEET OF 							
JOB NO.: 6440-11		CLIENT: DOE/PNL	TYPE OF ESTIMATE ROM			CHECKED BY 							
UNIT/AREA MRS.		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS			
CAPACITY													
ACCNT													
DIV. 15		AREA # 3											
15151		SUMMARY FILTERS											
F- 150		1	EA				100				10		
408 A,B		2	EA				2300				20		
421 A,B		2	EA				500				20		
620 A,B, 621		3	EA				5800				45		
700		1	EA				7600				30		
710, 711		2	EA				6000				20		
702, A,B		8	EA				1300				80		
703, A,B													
704, A,B													
705, A,B													
15151		19	EA				23700				225		

PARSONS

ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
Sadi Dianat				Aug 1985								
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE/PNL		RDM								
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY												
ACCN#												
MRS Facility												
Contaminated Laundry System												
Accn #3												
Dx15 Mechanical												
15151 Filters Room # 1057												
- Water Element & Spare Matl.		2	EA	1003	10		2000			20		
a) Filter Element - Polyester Foam												
b) Housing - Carbon Steel w/ 6 mil. fusion-bonded epoxy coating												
- Capacity = 30 gpm												
- Rating = 100 Micron												
- O.P. = 30 psig												
- O.T. = 135° F												
Mtg. Hdwe. & Frt. (15%)		2	EA	150			300			-		
Sub-Total							2300			20		

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY Jay Hellinger PRICED BY RBP DATE AUG 1985 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/ENL TYPE OF ESTIMATE POI CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE			SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$				M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT															
DIV. IS	MECHANICAL			Room #1											
15151	FILTERS														
	F-421 A/B		1156												
	SOLVENT FILTERS														
	In line cartridge type filter with a replaceable cartridge. Removes particulates with a diameter larger than 1 micron. Filter material - 316L stainless steel. OP: 150 psig, DT: 450 °F. Vendor: HR Textron, Inc. * Model: Universal 421 [®] 10" cartridge length 1" pipe connection		2	EA			\$200/EA		400					20	
	MFG. HWDEL. & FRT (15%)		2	EA		USE 50			100						
	5/TOTAL		2	EA					500					20	

* - or equivalent

PARSONS

ESTIMATE WORKSHEET

CUNN RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET									
P.F. BLASA		RBP		6/24/85		2 OF 4									
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY									
6440-11		DOE/PNL		COM		fcm									
UNIT/AREA			QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION					MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS				
CAPACITY															
ACCNT															
DIVIS															
MECHANICAL															
ROOM#															
15151															
FILTERS															
F-620A/B			2	EA	2200	15		4400					30		
DEIONIZER ACTIVATED CARBON FILTER															
20 GPM CAP. ACTIVATED CARBON DEPTH FILTER															
C.S. VESSEL 100 PSIG @ 125 PSIG, ASME CODE															
20" DIA X 5'0" HIGH															
PRICE FOB LOS ANGELES															
F-621			1	EA				400					10		
DI WATER FILTER															
CARTRIDGE TYPE REPLAC-EABLE ELEMENTS.															
10 GPM CAP @ 100 PSIG @ 100°F															
316 SS HOUSING, COTTON SPAN CARTRIDGE ELEMENT WITH 316 SS CORE															
AMF CLIND Mod. CT-102			1	CASE				200					5		
1 CASE FILTER ELEMENTS															
AMF CLIND MODEL D-CCT-2 OF 15 PCS @ 16.00															
TOTAL															
MOUNTING, HWDE. & FRGHT (15%)			3	EA	267			800							
SUB-TOTAL			3	EA				5800					45		

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY P. BARTOK		PRICED BY		DATE AUG 1985		SHEET 2 OF 6					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM		CHECKED BY acw					
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION BREATHING AIR SYSTEM				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY AREA # 3											
ACCNT											
DIV 15	MECHANICAL	ROOM #									
15151	FILTERS										
	F-700	1155	1	EA	9320		6600			30	
	BREATHING AIR PURIFIER DELMONOX MODEL ES13 OR APPROVED EQUAL										
	MTG. HOWE & Pat 15%		1	EA			1000				
	<u>3/TOTAL</u>		1	EA			7600			30	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>RF Blasa</i>		PRICED BY <i>RBP</i>		DATE <i>Aug 1985</i>		SHEET <i> </i> OF <i> </i>							
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE IPNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY <i>R. Com</i>							
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
CAPACITY	ACCNT			MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS			
	<i>MRS Facility</i>												
	<i>Air Sampling System</i>												
	<i>Area #3</i>												
<i>DIV 15</i>	<i>Mechanical</i>												
<i>15151</i>	<i>Filters</i>												
	<i>- F710 & F711 Exhaust Oil Filters for Vacuum Pumps</i>	<i>2</i>	<i>EA</i>	<i>2500</i>	<i>10</i>		<i>5000</i>				<i>20</i>		
	<i>- Capacity 200 SCFM</i>												
	<i>- Filter Assy. #AR-0730-371H</i>												
	<i>- Fiberglass Element Cover</i>												
	<i>- Back Pressure Gage</i>												
	<i>- Vacuum Pump Exhaust Adap.</i>												
	<i>- 1 Box of Filter Elements</i>												
	<i>- 3" Inlet/Outlet Conn.</i>												
	<i>- Price F.O.B. Mass.</i>												
	<i>Mts. Hdwr. & Frt. (15%)</i>	<i>NIT</i>	<i>2 EA</i>	<i>USE 50</i>			<i>1000</i>				<i>-</i>		
	<i>Sub-Total</i>		<i>2 EA</i>				<i>6000</i>				<i>20</i>		

CUNN RIVER, BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY P. BARTOK PRICED BY 1213P DATE AUG 1985 SHEET 3 OF 5
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA			QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS
DESCRIPTION COMPRESSED AIR SYSTEMS					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY AREA # 3															
ACCNT	ROOM #														
DIV 15	MECHANICAL														
15151	FILTERS														
	F-702 A/B	1155	2	EA	76	10		150					20		
	PREFILTER - 5 MICRON CARTRIDGE FILTER: 284 CFM														
	F-703 A/B	1155	2	EA	241	10		480					20		
	COALESCER - 0.03 MICRON CARTRIDGE FILTER: 284 CFM														
	F-704 A/B	1155	2	EA	242	10		480					20		
	ADSORBER - 0.01 MICRON ACTNATED CARBON CARTRIDGE FILTER: 172 CFM														
	F-705 A/B	1155	2	EA	52	10		100					20		
	AFTERFILTER - 5 MICRON CARTRIDGE FILTER: 154 CFM														
	MTG. HWDE. & FRT (15%)		8	EA	USE			90							
	S/TOTAL		8	EA				1300							

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY SADI DIANAT X-2773 PRICED BY		DATE AUG. 1985		SHEET 5 OF 7									
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM		CHECKED BY Rom							
UNIT/AREA MRS FACILITY		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CONTAMINATED LAUNDRY SX.				MATL	M/H	LAB\$			M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY AREA # 3													
ACCNT DIV.15	MECHANICAL	ROOM #											
15152	CLEANING PACKAGES												
	FDC-400	1057											
	Freon Dry Cleaning Unit		1	EA	43450								
	Material: Manufacturer's Standard, Dry Garment Capacity = 55Lbs Packaged Unit with Cleaning Chamber, Solvent Tank, Solvent Pump, Solvent Filters, Still, Drying Fan, Evaporator, Refrigeration compressor, Carbon Column, HEPA Filters and All necessary Instrumentation and Controls.				43600	400		43600			400		
	MIG ALLOW & FRT 15%		1	EA	6500			6500					
	S/TOTAL		1	EA	50000			50000			400		

PARSONS

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY ENGINEERING PRICED BY V. MESSER DATE Aug. 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV. 15	AREA # 3												
15153	SUMMARY HEAT EXCHANGERS												
	HEX.	150	1	EA				15000				30	
		422,423	2	EA				21,900				45	
		700	1	EA				2000				73	
		702	1	EA				2900				20	
15153	TOTAL		5	EA				41,800				110	

Cumuk River - Base Case

PARSONS ESTIMATE WORKSHEET

M.T.O. BY Jay Hellinger X8787 PRICED BY RBP DATE AUG 1995 SHEET 2 OF 12

JOB NO: 6140-11 CLIENT: DOE/PNL TYPE OF ESTIMATE FOM CHECKED BY pem

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
11/15													
15/15	HEAT EXCHANGERS												
	HEX-150		1120										
	RAW EVAPORATOR OVERHEAD CONDENSER												
	Horizontal condenser, Tube side		1	EA			#13,100	13100			30		
	304L stainless steel, shell side												
	304L stainless steel, Tube side												
	20-150 psig, LT=450°F. 36,000												
	side - DP=225 psig, LT=450°F.												
	Heat Duty = 1,010,000 BTU/Hr												
	Cooling Water Required = 135 gpm												
	From 85°F to 100°F												
	Vender: American Standard *												
	Model: 08084												
	Surface Area: 145 ft ²												
	Tube Size - 3/8" O.D.												
	MTD HOWE & FET		15%					1900					
	3/TOTAL		1	EA				15000			30		

CLINCH RIVER - BASE CASE

PARSONS ESTIMATE WORKSHEET

M.T.O. BY Jay Hollinger		PRICED BY R/S/P		DATE AUG 1985		SHEET ___ OF ___							
JOB NO.: 6440-11		CLIENT: DOD/ICNL		TYPE OF ESTIMATE FOM		CHECKED BY ferr							
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
ACCNT													
DIV. 15	MECHANICAL		Room #										
15152	HEAT EXCHANGERS												
	HEX-422	1156											
	EVAPORATOR OVERHEAD CONDENSER												
	Horizontal condenser. Tube and shell 316L stainless steel. Tube side DP: 150 psig, DT: 450°F. Shell side DP: 225 psig, DT: 450°F. Heat Duty: 177,000 BTU/HR. Cooling Water Required: 36 gpm From 85° to 95°F. Vendor: American Standard * Model: 08060. Surface Area - 103 Ft ² . Tube Size - 3/8" O.D.	1	EA			\$ 8,500	8500				20		
	HEX-423	1156											
	SOLVENT RECOVERY CONDENSER												
	Horizontal condenser. Tube and shell 316L stainless steel. Tube side DP: 150 psig, DT: 450°F. Shell side DP: 225 psig, DT: 450°F. Heat Duty: 727,000 BTU/HR. Cooling Water Required: 146 gpm From 85° to 95°F. Vendor: American Standard * Model: 08084. Surface Area - 145 Ft ² . Tube Size - 3/8" O.D.	1	EA			\$ 10,500	10500				25		
	MTG. HWDE. & FRT. (157A)	2	EA			USE 1450	2900						
	S/TOTAL	2	EA				21900				45		
	* - or equivalent												

PARSONS
ESTIMATE WORKSHEET

Cumt River Base Case

M.T.O. BY *P. BARTOK* PRICED BY *RRT* DATE *AUG 1985* SHEET *2* OF *6*
 JOB NO: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *ROM* CHECKED BY *Tom*

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
<i>RIV 15</i>	<i>MECHANICAL</i>		<i>ROOM #</i>									
<i>15153</i>	<i>HEAT EXCHANGERS</i>											
	<i>HEX-700</i>	<i>1</i>	<i>EA</i>	<i>1760</i>			<i>1760</i>			<i>15</i>		
	<i>BREATHING AIR AFTERCOOLER</i>											
	<i>WATER COOLED SHELL AND TUBE AFTERCOOLER WITH MOISTURE SEPARATOR WEIGHT = 200 lb</i>											
	<i>MTG. HOVE & FRT. 15%</i>	<i>1</i>	<i>EA</i>				<i>200</i>					
	<i>S/TOTAL</i>	<i>1</i>	<i>EA</i>				<i>2000</i>			<i>15</i>		

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET						
P. BARTOK		RBP		AUG 1985		4 OF 5						
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE/PNL		ROM		KCM						
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS		
CAPACITY												
ACCNT												
MRS FACILITY												
COMPRESSED AIR SYSTEMS												
AREA # 3												
DIV 15	MECHANICAL	ROOM#										
15153	HEAT EXCHANGERS											
	HEX - 702	1155	1	EA	2506						20	
	AFTERCOOLER - WATER COOLED WITH MOISTURE SEPARATOR, AMERICAN STANDARD MODEL A100 OR EQUAL											
	MTG. HWDE. & FRIT (15%)		1	EA	USE 400							
	S/TOTAL		1	EA							20	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BOTE CASE

M.T.O. BY <u>Jay Hallinger</u>		PRICED BY <u>RMP</u>		DATE <u>1/15/00</u>		SHEET <u> </u> OF <u> </u>						
JOB NO.: <u>6440-11</u>		CLIENT: <u>COE/PAL</u>		TYPE OF ESTIMATE <u>FCM</u>		CHECKED BY <u>ARM</u>						
UNIT/AREA <u>MPE Facility</u>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION <u>Welding Station System</u>				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS		
CAPACITY <u>Area #3</u>												
ACCNT												
<u>DIV. 15</u>	<u>MECHANICAL</u>	<u>Poor #1</u>										
<u>15154</u>	<u>HEATERS</u>											
	<u>#TR-420</u>	<u>1156</u>										
	<u>SOLVENT EVAPORATOR HEATER</u>											
	<u>Resistance type heater (Electric)</u>	<u>1</u>	<u>EA</u>	<u>\$4,000</u>	<u>4000</u>				<u>20</u>			
	<u>Manufacturers standard for materials. Power requirement 80KW.</u>											
	<u>Vendor:</u>											
	<u>MTG. HWDE. & FRT (15%)</u>	<u>1</u>	<u>EA</u>	<u>USE 100</u>	<u>100</u>							
	<u>S/TOTAL</u>	<u>1</u>	<u>EA</u>		<u>4100</u>				<u>20</u>			
				<u>0.00</u>	<u>4000</u>							

PARSONS

CLINCH RIVER - BRB CASE

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE			SHEET		OF		
ENGINEERING		V. MESSER		AUG. 85							
JOB NO.:		CLIENT:		TYPE OF ESTIMATE			CHECKED BY				
6440-11		DOE/PNL		ROM			Rom				
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY											
ACCNT											
DIV. 15											
AREA # 3											
15155											
Summary Ion Exch. Col.											
IX- 150		1	EA			4500			10		
620 A,B, 621 A,B		1	SET			103500			180		
15155											
TOTAL		5	EA			108000			190		

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY Jay Hellinger X8787 PRICED BY *R/S/P* DATE *Aug 21 1995* SHEET *9* OF *12*
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *FORM* CHECKED BY *Rom*

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV-15	MECHANICAL												
			Room #										
15155	ION EXCHANGE COLUMNS												
	IX-150		1113										
	4AW ION EXCHANGER												
	Vertical, cylindrical vessel with semi-elliptical heads 304L stainless steel, 1'0" diameter, 7'0" tangent-to-tangent resin bed depth 3'6" LP: 50 psig DT: 135°F		1	EA									
			358	LB	1100			3900			10		
	MTG. HWDE. & FRT. (15%)		1	EA	USE 600			600					
	5/TOTAL		1	EA				4500			10		

PARSONS

ESTIMATE WORKSHEET

CUNN RIVER - BASE CASE

M.T.O. BY PF BLASA PRICED BY RBP DATE 6/27/85 SHEET 3 OF 4

JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE 1700 CHECKED BY FOR

UNIT/AREA MRS FACILITY
 DESCRIPTION DEIONIZER
 CAPACITY AREA 3

ACCNT	DIV.	DESCRIPTION	ROOM #	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	15	MECHANICAL												
	15/55	ION EXCHANGE COLLUMNS												
		1X-620 A/B		1	SET				90000			180		
		1X-621 A/B												
		DEIONIZER PACKAGE 10 GPM (MAX) CAP (VENDOR QUOTATION 9/4/85												
		MTG. HWDE. & FREIGHT (15%)		1	EA				13500					
		S/TOTAL							103500			180		

PARSONS

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY ENGINEERING PRICED BY V. Mese DATE AUG 5 SHEET OF
 JOB NO: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV.	AREA #												
15156	SUMMARY SPECIAL MACH. EQUIPT.												
	SME	401 402	2	EA				87,800				40	
		403 407	2	EA				143,800				200	
		405	1	EA				3,000				20	
		406 J	1	EA				2,600				5	
		408 409 A, B	3	EA				314,000				400	
		7001	1	EA				16,500				50	
		720, 721	2	EA				48,300				100	
15156		TOTAL	12	EA				616,000				815	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET						
P. Bartok		PRP		AUG 1985		4 OF 8						
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE/PNL		ROM		Carr						
UNIT/AREA			QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION					MATL	M/H	LAB\$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY												
ACCNT												
DIV 15 MECHANICAL			ROOM#									
15156 SPECIAL MECH. EQUIPMENT												
SME-401			VARIOUS	1	EA	48,744					20	
HIGH PRESSURE PORTABLE SPRAY PACKAGE - ELECTRIC HAND CART MOUNTED PUMP, TANK, AND HEATER.												
1) PUMP WITH 3 SPEED TRANSMISSION: 10 GPM / 10,000 PSI, 13 GPM / 8,000 PSI, 16 GPM, 5000 PSI. 60 HP MOTOR												
2) 500 GAL TANK												
3) 125 KW ELECTRIC HEATER												
All WETTED PARTS 304L SS												
SME-402			1099	1	EA	27,620					20	
HIGH PRESSURE SPRAY PACKAGE - SKID MOUNTED PUMP AND HEATER. PUMP: 10 GPM / 10,000 PSI, 60 HP. HEATER: 75 KW ELECTRIC.												
MTG. HWDE. & FRT. (15%)				2	EA	5720	USE					11440
S/TOTAL				2	EA						40	87800

PARSONS

ESTIMATE WORKSHEET

CUNYH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET								
P. Barlow		RBP		AUG 1985		5 OF 8								
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY								
6440-11		DOE / PNL		ROM		G...								
UNIT/AREA			QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION					MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS			
CAPACITY														
ACCNT														
MRS FACILITY														
DECON														
AREA # 3														
PIV 15	MECHANICAL	ROOM #												
15156	SPECIAL MECH. EQUIPMENT													
	SME-403	3014	1	EA	61,000			61,000					100	
	MANIPULATOR & TOOL FREON DECON PACKAGE - SKID MOUNTED GLOVE BOX TYPE CLEANING CHAMBER (24" X 24" X 8'-0" LONG), EVAPORATOR, CONDENSER, STORAGE TANK, PUMPS, FILTERS.													
	SME-407	1104	1	EA	64,000			64,000					100	
	ELECTROPOLISHER - A SKID MOUNTED PACKAGE, OVERALL DIMENSIONS 4'-0" X 12'-0" X 4'-3" HIGH, WITH SEPARATE POWER/CONTROL UNIT AND TWO SEPARATE FILTERS FOR REMOTE INSTALLATION													
	MTG. HWDE. & FRT. (15%)		2	EA	9,400	USE		18,800						
S/TOTAL			2	EA			143,800					200		

PARSONS

ESTIMATE WORKSHEET

CUNICH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET		OF										
Sadi Dianat				Aug. 1985														
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY												
6440-11		DOE/PNL		ROM		Jm												
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS					
DESCRIPTION				MATL	M/H	LAB \$			M/HRS	DOLLARS	M/HRS	DOLLARS						
CAPACITY																		
ACCNT																		
Div. 15		Mechanical																
15156		Special Mechanical Equip.																
SME - 405		Room # 1057		1	EA	2200	20			2200				20				
		- Liquid Metering Package																
		- Vendor Package Consists of:																
		5 Peristaltic Pumps w/																
		Motors, Controls & Control																
		Interface to Washer/																
		Extractor Controller																
		- Capacity: 4 pumps 35 gpm/min.																
		1 pump 2 gpm																
		- Power Requirement = 117 VAC																
		- 60 Hz																
		- 3/4 HP Each Pump																
		Mfg. Hdwe & Frt. (15%)		N/I	1	EA	we			800				-				
		Sub-Total								\$ 3000				20				

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY		PRICED BY		DATE		SHEET					
P. Bartok		PBA		AUG 1985		8 OF 8					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY					
6440-11		DOE / PNL		ROM		fern					
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY											
ACCNT											
MRS FACILITY											
DECON											
AREA # 3											
DIV 15 MECHANICAL		ROOM #									
15156 SPECIAL MECHAN. EQUIPMENT											
SME - 406 J		1	EA	2300					5		
VACUUM CLEANER											
AIR DRIVEN PORTABLE											
SHOP VACUUM											
MTG. HWDE. & FRT. (15%)		1	EA	300							
5/TOTAL		1	EA						5		

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base 988

M.T.O. BY		PRICED BY		DATE		SHEET						
P. Bartok		RBJ		AUG 1985		6 OF 5						
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY						
6440-11		DOE/PNL		ROM		fm						
UNIT/AREA			QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION					MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY												
ACCNT												
MRS FACILITY												
DECON												
AREA # 3												
DIV 15	MECHANICAL		ROOM #									
15156	SPECIAL MECH. EQUIPMENT											
	SME-408	1104	1	EA	73,000					100		
	FREON DECON PACKAGE											
	A SKID MOUNTED UNIT WITH											
	CLEANING CHAMBER, PUMPS,											
	EVAPORATOR, TANK,											
	CONDENSER. SEPARATE											
	FILTERS FOR REMOTE											
	INSTALLATION											
	SME-409 A/B	1105	2	EA	100,000	150				300		
	FREON SYSTEMS - A SKID											
	MOUNTED PACKAGE WITH											
	60 GPM, 2000 PSIG PUMP,											
	TANK, EVAPORATOR,											
	CONDENSER AND FILTERS.											
	MTG. HWDE. & FRST. (15%)		3	EA	USE	24,500						
	5/TOTAL		3	EA						400		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET							
P. BARTOK		RBP		AUG 1985		1 OF 6							
JOB NO.		CLIENT		TYPE OF ESTIMATE		CHECKED BY							
6440-11		DOE / PNL		ROM		RSM							
UNIT/AREA			QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION					MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS		
CAPACITY													
ACCNT													
DIV 15 MECHANICAL			ROOM #										
15156 SPECIAL MECH. EQUIPMENT													
SME-700			1	EA	14402			14400			50		
AIR PACK BOTTLE FILLING EQUIP. 5 SCFM, 6000 PSI/G COMPRESSOR W/5 HP MOTOR, AIR COOLED AFTER COOLER, AND TWO AIR RECEIVER BOTTLES. VENDOR PACKAGED, SKID MOUNTED.													
MTG. HDWE & FRG 15%			1	EA				2100					
S/TOTAL			1	EA				16500			50		

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET								
PF BLASA		RBP		6/21/85		2 OF 2								
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY								
6440-11		DOE/PNL		FOM		Rom								
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS				
CAPACITY														
ACCNT														
DIV. 15														
MRS FACILITY														
AIR SAMPLING SYSTEM														
AREA # 3														
MECHANICAL		ROOM #												
SPECIAL MECHANICAL EQUIPMENT														
SME - 720		1	SET				21000				50			
VACUUM AIR SAMPLING PACKAGE, INCLUDES THE FF.														
3 - VACUUM PUMPS														
105 ACFM @ 20" Hg Vac.														
7.5 HP MOTOR, TEFC														
460 V, 3 PH, 60 HZ														
1 - 200 GAL SURGE TANK														
C.S. MATL, ASME CODE														
50 PSIG & FULL VAC.														
1 - ELEC. CONTROL PANEL														
ALL OF THE ABOVE MOUNTED ON A COMMON SKID														
PRICE F.O.B. VIRGINIA BEACH, VA														
SME - 721		1	SET				21000				50			
VACUUM AIR SAMPLING PACKAGE (IDENTICAL WITH SME - 720)														
PRICE FOB VIRGINIA BEACH, VA														
MTG. HWYDE. & FRT. (15%)		2	SET	3150			6300							
S/TOTAL		2	EA				48300				100			

PARSONS
ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY P. BARTOK PRICED BY RLH DATE AUG 1985 SHEET 2 OF 6
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY RLH

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT												
<u>DIV 15</u>	<u>MECHANICAL</u>		<u>ROOM #</u>									
<u>15158</u>	<u>BREATHING AIR STATIONS</u>											
	<u>BAS-700 A-C</u>	<u>3</u>	<u>EA</u>	<u>1495</u>	<u>10</u>		<u>4500</u>			<u>30</u>		
	<u>PORTABLE BREATHING AIR STATIONS - FILTER, REGULATOR, RELIEF VALVE, SHUT OFF VALVE AND FOUR MANIFOLDED 3/8 IN. QUICK DISCONNECTS FOR AIR LINE RESPIRATORS. MOUNTED INSIDE A SHEET METAL ENCLOSURE.</u>											
	<u>FRT</u>						<u>200</u>					
	<u>3/TOTAL</u>	<u>3</u>	<u>EA</u>				<u>4700</u>			<u>30</u>		

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY <u>ENGINEERING</u>		PRICED BY <u>V. MESS</u>		DATE <u>AUG 85</u>		SHEET <u> </u> OF <u> </u>					
JOB NO.: <u>6440-11</u>		CLIENT: <u>DOE/PNL</u>		TYPE OF ESTIMATE <u>ROM</u>		CHECKED BY <u> </u>					
UNIT/AREA <u>MRS.</u>		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY											
ACCNT											
<u>DIV. 15</u>		<u>AREA # 3</u>									
<u>15161</u>		<u>SUMMARY TANKS</u>									
	<u>TK- 152, 153</u>	<u>2</u>	<u>EA</u>				<u>27500</u>			<u>35</u>	
	<u>3001</u>	<u>1</u>	<u>EA</u>				<u>25700</u>			<u>25</u>	
	<u>301</u>	<u>1</u>	<u>EA</u>				<u>11500</u>			<u>20</u>	
	<u>302</u>	<u>1</u>	<u>EA</u>				<u>6300</u>			<u>15</u>	
	<u>303</u>	<u>1</u>	<u>EA</u>				<u>4100</u>			<u>10</u>	
	<u>400, 401, 402, 403</u>	<u>4</u>	<u>EA</u>				<u>25300</u>			<u>60</u>	
	<u>408</u>	<u>1</u>	<u>EA</u>				<u>29300</u>			<u>27</u>	
	<u>422</u>	<u>1</u>	<u>EA</u>				<u>21400</u>			<u>20</u>	
	<u>516</u>	<u>1</u>	<u>EA</u>				<u>6000</u>			<u>15</u>	
	<u>622</u>	<u>1</u>	<u>EA</u>				<u>20100</u>			<u>35</u>	
<u>15161</u>	<u>TOTAL</u>	<u>14</u>	<u>EA</u>				<u>177500</u>			<u>262</u>	

PARSONS

ESTIMATE WORKSHEET

CUNCE RIVER - BASE CASE

M.T.O. BY <u>John H. King</u> X8787		PRICED BY <u>RBP</u>		DATE <u>AUG 1985</u>				SHEET <u>10</u> OF <u>12</u>				
JOB NO.: <u>84-10-11</u>		CLIENT: <u>DOE/EMSL</u>		TYPE OF ESTIMATE <u>ADP</u>				CHECKED BY <u>Am</u>				
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT												
DIV. 15	MECHANICAL	Room #										
15161	TANKS											
	TK-152	1120										
	HAW EVAPORATOR CONDENSATE HOLD TANK											
	Horizontal, cylindrical vessel with semi-elliptical heads. 304L stainless steel. 4'0" diameter, 13'0" tangent to tangent. Capacity 1347 gal. DP: Full Vacuum/50psig LT: 135°F	1	EA									
		2739	LB	8 ⁰⁰			21900			25		
	TK-153	1120										
	HAW ION EXCHANGER RESIN MIXING TANK											
	Vertical, cylindrical tank with a conical bottom and a lid. 304L stain. less steel. 3'0" diameter, 3'0" tangent to top. Capacity: 100 gal. Vendor: Milton Roy Company * Model: 555-100	1	EA	#	2,000		2000			10		
	MTG. HWDS. & FRG. (1570)	2	EA	US\$	1800		3600					
	S/TOTAL	2	EA				27500			35		
	± or equivalent											

PARSONS

CLINCH RIVER - BASE CASE ESTIMATE WORKSHEET

M.T.O. BY *Sadi Dianat* PRICED BY *RBP* DATE *Aug 1985* SHEET OF
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *RDM* CHECKED BY *R. van*

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS			
	<i>MRS Facility</i>	<i>Solid Radwaste System</i>														
		<i>Area # 4</i>	<i>Div. 15</i>													
			<i>Mechanical</i>													
	<i>15161</i>	<i>Tanks</i>														
		<i>Room #</i>														
		<i>TK-300</i>		<i>1</i>	<i>EA</i>				<i>21 900</i>					<i>25</i>		
		<i>- LLW Evaporator Bottoms Slurry Tank</i>														
		<i>- Vertical Tank w/ 5'-0" Dia. x 9'-0" High Semi-elliptical Heads Supported on Skirt.</i>														
		<i>- 304 L S.S.</i>														
		<i>- Built to ASME Code Section VIII</i>														
		<i>- D.P. = 50 psig or full vacuum</i>														
		<i>- D.T. = 235° F</i>														
		<i>- Total Weight = 2,742 lbs.</i>														
		<i>Mtg. Hdwe & Fct. (15%)</i>		<i>1</i>	<i>EA</i>				<i>3 300</i>					<i>-</i>		
		<i>Sub-Total</i>		<i>1</i>	<i>EA</i>				<i>25 200</i>					<i>25</i>		

PARSONS
ESTIMATE WORKSHEET

CINCH RIVER - BASE CASE

M.T.O. BY SADI DIANAT X-2773 PRICED BY *RBP* DATE AUG. 1985 SHEET 3 OF 6
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY *fern*

UNIT/AREA			QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV.15	ROOM #												
	MECHANICAL												
15161	TANKS												
	TK-301	1113	1	EA				10000				20	
	HAW EVAPORATOR BOTTOMS Slurry Tank, vertical, 2'-6" dia x 4'-0" High and Semi elliptical Heads supported on skirt. 304L Stainless Steel Constructed according to ASME Code Section VIII, D.P. = 50 PSIG or Full Vacuum, D.T. = 235 °F Total Wt. = 1004 Lb												
	MTC HOWE & FR 15%												
	5/TOTAL		1	EA				11500				20	
15161	TK-302	1113	1	EA				5500				15	
	Spent Resin Slurry Tank Vertical Tank with 2'-0" Dia x 4'-0" High and Semi elliptical Heads supported on skirt. 304L Stainless Steel Constructed according to ASME Code Section VIII D.P. = 15 PSIG or Full Vacuum, D.T. = 125 °F Total Wt. = 499 Lb												
	MTC HOWE & FR 15%												
	5/TOTAL		1	EA			USE 800	6300				15	

PARSONS

ESTIMATE WORKSHEET

CUNICH RIVER - BASE CASE

M.T.O. BY SADI DIANAT X-2773 PRICED BY RPH DATE AUG. 1985 SHEET 6 OF 6
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY RSM

UNIT/AREA	DESCRIPTION	CAPACITY	ROOM #	QUANT.	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV.15	MRS FACILITY	SOLID RADWASTE SYSTEM												
	MECHANICAL	AREA # 4												
15161	TK-303	Mixer Washdown Collection Tank	1064	1	EA				3600			10		
		Rectangular Tank with 2'-6" W x 4'-0" L x 1'-6" H and Flat Top. 304 L S.S.												
		D.P. = 15 Psig, D.T. = 235°F												
		Total Weight = 300 Lbs												
		MTG. HOVE & FRT 15%						450	500					
		5/TOTAL		1	EA				4100			10		

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY		PRICED BY		DATE			SHEET				
P. Bartok		RBP		AUG 1985			7 OF 8				
JOB NO.		CLIENT		TYPE OF ESTIMATE			CHECKED BY				
6440-11		DOE/PNL		ROM			Rcm				
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY											
ACCNT											
MRS FACILITY											
DECON											
AREA # 3											
DIV 15 MECHANICAL		ROOM #									
15161 TANKS											
TK-400		1157	1	EA	5550					15	
TK-401		1157	1	EA	5550					15	
TK-402		1157	1	EA	5550					15	
TK-403		1157	1	EA	5550					15	
DECON SOLUTION MAKEUP TANKS 250 GAL VERTICAL MIXING TANKS WITH HINGED LID COVERS, AND STEAM HEATING COILS. STAINLESS STEEL											
MTG. HWDE. & FRG. (15%)		4		EA	USE 825					3300	
S/TOTAL		4		EA						25500	60

PARSONS

ESTIMATE WORKSHEET

CUNYH RIVER - BASE CASE

M.T.O. BY SADI DIANAT X-2773		PRICED BY RRP		DATE AUG. 1985				SHEET 4 OF 7				
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM				CHECKED BY				
UNIT/AREA MRS FACILITY			QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CONTAMINATED LAUNDRY S/S.					MATL	M/H	LAB\$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3												
ACCNT DIV.15	MECHANICAL	ROOM #										
15161	TANKS											
	TK-408	1057										
	Laundry Effluent Collection Tank		1	EA				25500			27	
	Vertical, cylindrical vessel											
	6'-0" Dia x 8'-0" T-T											
	Working Capacity: 1540 gals											
	D.P. = 50 psig											
	D.T. = 160 °F											
	A.S.M.E Code stamped (Sec. VIII) 304L stainless steel, semi-elliptical heads.											
	Total weight = 3,185 lbs											
	MTC. HOUS & FRD 13%		1	EA	USE		3,800	3,800				
	5/TOTAL		1	EA				29300			27	

Clinch River - Base Case

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY Jay Hellinger PRICED BY RBP DATE 106 1985 SHEET 3 OF 11
 JOB NO: 6440-11 CLIENT: LOE/FNL TYPE OF ESTIMATE FOM CHECKED BY Rcm

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
511.15	MECHANICAL			Room #									
15161	TANKS												
	TK-402		1156										
	SOLVENT STORAGE TANK												
	Vertical, cylindrical tank with or cone roof. 316L stainless steel. 6'0" diameter, 6'0" tang out to tangent. Capacity = 1,270 gal. DP: Full vacuum/ 15 psig. DT: 100 °F.		1	EA									
			2331	LB	8 ⁰⁰			18600			20		
	MTG. HWDE. & FRT. (1570)		1	EA	USE			2800					
	S/TOTAL		1	EA				21400			20		

PARSONS
ESTIMATE WORKSHEET

CLINTON RIVER - BASE CASE

M.T.O. BY PF BLASA PRICED BY RBP DATE 7/3/85 SHEET 1 OF 1
 JOB NO.: 6940-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ERM CHECKED BY Rm

UNIT/AREA			QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
1515	MECHANICAL	ROOM #											
15161	TANKS												
	TK-516		868	LBS				5200			15		
	FUEL DAY TANK (FOR LAG STORAGE STANDBY GENERATOR)												
	CAP - 370 GAL, C.S. 3'-0" DIA X 6'-6" LONG DES. PRESS. 15 PSIG @125°F												
	MTG HDWG & FRG	1516						800					
	S/TOTAL		1	EA				6000			15		

PARSONS

ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY PFBLASA PRICED BY RBP DATE 6/21/85 SHEET 1 OF 1

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

UNIT/AREA MRS FACILITY
 DESCRIPTION DEIONIZER
 CAPACITY AREA # 3

ACCNT	DIVIS	MECHANICAL	ROOM#	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	15/61	TANKS												
		TK-622	1157	5,528	LBS	3.25			18000				35	
		DEIONIZED WATER STORAGE TANK - 6000 GAL CAP 9'-0" Ø x 14'-0" C.S. CONE ROOF TANK ATM, 125°F												
		MTG. HWDE. & FRT. (15%)		1	EA				2700					
		S/TOTAL		1	EA				20700				35	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY V. MESSER DATE AUG. 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT DIV. 15	AREA # 3												
15162	Summary Vacuum Pumps												
	VAC	152	1	EA			1000				10		
		421 A, B	}	EQ			158700				270		
		422 A, B											
		423 A, B											
15162	TOTAL						159700				280		

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY Jay Hellinger PRICED BY RBP DATE _____ SHEET 11 OF 12

JOB NO.: 6410-11 CLIENT: _____ TYPE OF ESTIMATE _____ CHECKED BY Pena

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LABS		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV. 15	MECHANICAL			Room #									
15/62	VACUUM PUMPS												
	VAC-152		1120										
	HAW EVAPORATOR VACUUM PUMP												
	Single-stage multivane, air-cooled direct drive vacuum pump. Rated capacity: 6 cfm free air displacement: standard 3/4 hp motor, 3 phase, 460V, 60Hz. Cast iron. Vendor: Busch, Inc. * Model: R5 standard series type 010		1	EA	\$	900		900			10		
	MTG. HWDE. & FRT. (15%)		1	EA		100		100					
	S/TOTAL							1000			10		

* - or equivalent

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BAGE CASE

M.T.O. BY Jay Hollinger PRICED BY RBP DATE 10/6/1985 SHEET 7 OF 11
 JOB NO.: 6410-11 CLIENT: DOE/PNL TYPE OF ESTIMATE FOU CHECKED BY R.M.

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
011.15	MECHANICAL			Room #1									
15162	VACUUM PUMPS												
	VAC-421A/B/C		1099										
	VACUUM PUMPS AND SPARE												
	Rotary blower used in series with rotary piston pump to yield a two stage mechanical booster pump. Rated capacity: 400 scfm. Motor: 15 hp (est.) Vendor: Model:		3	EA	10000	40		30000			120		
	VAC-422A/B/C		1099										
	VACUUM PUMPS AND SPARE												
	Rotary piston pump used in series with a rotary blower to yield a two stage mechanical booster pump. Rated capacity: 300 scfm. Motor: 10 hp. Vendor: Kinney Vacuum Company* Model: CC-4015		3	EA									
	VAC-423A/B/C		1099										
	VACUUM PUMPS AND SPARE												
	10" diffusion pump used in combination with the two stage mechanical booster pump. Rated capacity: 8000 scfm. Motor: 25 hp (est.) Vendor: Kinney Vacuum Company* Model:		3	EA	3600	50		108000			150		
								including VAC-422A/B/C					
	MAT. WASTE & FREIGHT (15%)		6	EA	3450			20700					
	± or equivalent \$ TOTAL		6	EA				158700			270		

PARSONS
ESTIMATE WORKSHEET

CINCINNATI RIVER - BRB CRG

M.T.O. BY SADI DIANAT X-2773 PRICED BY *RAP* DATE *AUG. 1985* SHEET *5* OF *7*
 JOB NO.: *6440-11* CLIENT: *DOE/PNL* TYPE OF ESTIMATE *ROM* CHECKED BY *fcm*

UNIT/AREA		DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
ACCNT DIV.	ROOM #				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
		MRS FACILITY											
		CONTAMINATED LAUNDRY SX.											
		AREA # 3											
		MECHANICAL											
15163		VESSELS											
		VES-400											
		HOT water Vessel	<i>1</i>	<i>EA</i>			<i>5000</i>			<i>20</i>			
		<i>Vertical Vessel with Semi-elliptical Heads and Internal steam-Heating Coil. Epoxy-lined Carbon-steel Tank with Stainless Steel Steam-Heating Coil. ASME Code stamped (sec. VIII) 24" dia x 5'-16" T-T D.P. = 50 Psig Vessel / 80 Psig coil D.T. = 195° F Vessel / 350° F coil Heat Duty = 227,000 Btu/hr Total Wt. = 627 Lbs</i>											
		MITG. HDWG & FAT 15%	<i>1</i>	<i>EA</i>		<i>USE 800</i>	<i>800</i>						
		S/TOTAL	<i>1</i>	<i>EA</i>			<i>5800</i>			<i>20</i>			

PARSONS

CLINCH RIVER - BASE CASE ESTIMATE WORKSHEET

M.T.O. BY *SADI Dianat* PRICED BY *RBP* DATE *Aug '85* SHEET OF

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
	<i>MRS Facility</i>	<i>Customized Laundry System</i>													
		<i>Area #3</i>													
<i>Div. 15</i>	<i>Mechanical</i>														
			<i>Room #1057</i>												
<i>15163</i>	<i>VES - 401</i>			<i>1</i>	<i>EA</i>				<i>25500</i>				<i>27</i>		
	<ul style="list-style-type: none"> - Filtered Laundry Effluent Vessel - Vertical Vessel with Semi-elliptical heads - ASME Code - Stamped (Sec. VIII) - 304 L Stainless steel - 6'-0" Dia x 8'-0" T-T - Working Capacity = 1540 gal. - D.P. = 50 psig - D.T. = 160° F. - Total Weight = 3,185 lbs. 														
	<i>Mtg. Hdwe. & Freight 15%</i>			<i>1</i>	<i>EA</i>		<i>we</i>	<i>3800</i>		<i>3800</i>					
	<i>Sub-Total</i>			<i>1</i>	<i>EA</i>				<i>29300</i>				<i>27</i>		

Clinch River - Base Case

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY Jay Hollinger X8287 PRICED BY RBP DATE AUG 1985 SHEET 12 OF 12

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

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV 15	MECHANICAL		Room #									
VEISS	VESSELS											
	VES-150	1113										
	HAW LIQUID COLLECTION VESSEL											
	Horizontal, cylindrical vessel with semi-elliptical heads. 304L stainless steel. 6'6" diameter, 18'0" tangout to tangout. Capacity = 5006 gal. OP = 50 psig. DT = 175 °F.	1	EA									
		7961	LB	7 ⁰⁰			55700				47	
	VES-151	1113										
	HAW DECON SOLUTION VESSEL											
	Vertical, cylindrical vessel with semi-elliptical heads. 304L stainless steel. 2'6" diameter, 7'6" tangout to tangout. Capacity = 306 gal. OP = 50 psig, DT = 125 °F.	1	EA									
		1022	LB	10 ⁰⁰			10200				15	
	VES-155	1120										
	HAW STEAM CONDENSATE COLLECTION VESSEL											
	Vertical, cylindrical vessel with semi-elliptical heads. 304L stainless steel. 2'6" diameter 5'0" tangout to tangout. Capacity = 214 gal. OP = 65 psig, DT = 325 °F.	1	EA									
		758	LB	10 ⁰⁰			7600				15	
	MTG. HWDE. & FRT. (15%)	3	EA	USE			11000					
		3	EA	3667								
	S/TOTAL	3	EA				84500				77	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BRSS CASE

M.T.O. BY Jay Hellinger PRICED BY RBP DATE Aug 1985 SHEET 4 OF 11
 JOB NO.: 6470-11 CLIENT: DOE/ML TYPE OF ESTIMATE BOA CHECKED BY Rcm

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV. 15	MECHANICAL			Room #									
15/63	VESSELS												
	YES-423		1156										
	SOLVENT SEPARATOR												
	Horizontal, cylindrical vessel with semi-spherical heads. 316L stainless steel. Vessel has both coalescers and separating membranes. 1'0" diameter, 4'0" tangent to tangent. Capacity 25 gal. DP = 50 psig, DT = 125°F		1	EA									
			229	LB	12			2700			20		
	MTG. HWDE. & FRT. (15%)		1	EA	USE			400					
	S/TOTAL		1	EA				3100			20		

PARSONS

ESTIMATE WORKSHEET

CLUNCH RIVER - B085 0756

M.T.O. BY **P. BARTOK** PRICED BY **RBP** DATE **AUG 1985** SHEET **1** OF **1**

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

UNIT/AREA			QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
MRS FACILITY													
Final HEPA Spray Vessels													
CAPACITY AREA # 3													
ACCNT													
DIV 15	MECHANICAL	ROOM #											
15163	VESSELS												
	VES-600 A	3034	1					55300			47		
	VES-600 B	3049	1					55300			47		
	FINAL HEPA SPRAY VESSELS - HORIZONTAL 72" DIA X 13'-0" VESSEL. 304L STAINLESS. WT=7901 lbs.												
	MOUNTING HWDE. & FREIGHT (15%)		2	EA				16600					
	SUB-TOTAL		2	EA				127200			94		

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY P. BARTOK PRICED BY _____ DATE AUG 1985 SHEET 6 OF 6
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY PCW

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
DIV 15	MECHANICAL			ROOM #									
15163	VESSELS												
	YES - 700		1155	16442	16	2.25		37000			69		
	BREATHING AIR RECEIVER												
	VERTICAL CARBON STEEL TANK, 6' DIAM X 14' TAN-TAN.												
	MTG. HDWE & FR 15%		1	EA			USE	5600					
	5/TOTAL		1	EA				42600			69		

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY P. BARTOK PRICED BY RBP DATE AUG 1985 SHEET 5 OF 5
 JOB NO.: 6440-11 CLIENT: DOE / PNL TYPE OF ESTIMATE ROM 3: CHECKED BY Rom

UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
MRS FACILITY												
COMPRESSED AIR SYSTEMS												
CAPACITY AREA # 3												
ACCNT												
DIV 15	MECHANICAL		ROOM #									
15163	VESSELS											
	VES-702	1	EA	1545		1550				20		
	AIR RECEIVER - 30 IN. DIAM. X 7 FT HIGH											
	MTG. HWDE. & FRT. (15%)	1	EA	USE 250		250						
	S/TOTAL	1	EA			1800				20		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY V. MESS DATE AUG 85 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT													
<u>DIV. 15</u>	<u>Area # 3</u>												
<u>15164</u>	<u>Summary Washers</u>												
	<u>W3H 400</u>		<u>1</u>	<u>EA</u>				<u>M 200</u>			<u>50</u>		
	<u>401</u>		<u>1</u>	<u>EA</u>				<u>1700</u>			<u>20</u>		
<u>15164</u>	<u>TOTAL</u>		<u>2</u>	<u>EA</u>				<u>20900</u>			<u>70</u>		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY <i>Sadi Dianat</i>		PRICED BY <i>RBP</i>		DATE <i>AUG 1985</i>		SHEET _____ OF _____						
JOB NO.: <i>0440-11</i>		CLIENT: <i>DOE / PNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY <i>Rcom</i>						
UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS		
ACNT												
<i>Div. 15</i>	<i>Mechanical</i>											
<i>15164</i>	<i>Washers Room # 1057</i>											
	<i>- WSH 400</i>	<i>1</i>	<i>EA</i>	<i>16670</i>			<i>16700</i>			<i>50</i>		
	<i>- Washer / Extractor Continuous Self-Balancing</i>											
	<i>- Washer - Extractor with Automatic Timer Controls & Automatic Recycle Drain Valves</i>											
	<i>- Material : Manufacturing Standard</i>											
	<i>- Capacity = 75 lbs.</i>											
	<i>- Cylinder Volume = 12.5 ft³</i>											
	<i>- 1 1/2 HP Washing Motor</i>											
	<i>- 1 1/2 HP Draining Motor</i>											
	<i>- 3 HP Extractor Motor</i>											
	<i>- 460 V., 60 Hz., 3 phase</i>											
	<i>Mtg. Hdw. & Frt (15%)</i>	<i>1</i>	<i>EA</i>	<i>2500</i>			<i>2500</i>					
	<i>Sub-Total</i>	<i>1</i>	<i>EA</i>				<i>19200</i>			<i>50</i>		

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY SADI DIANAT X-2773 PRICED BY <i>KP</i>		DATE AUG. 1985					SHEET 7 OF 7					
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM			CHECKED BY					
UNIT/AREA MRS FACILITY			QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION CONTAMINATED LAUNDRY SB.					MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA # 3												
ACCNT DIV.15	MECHANICAL	ROOM #										
15164	WSH-401 Respirator Washer Commercial undercounter dishwasher. Material: Manuf acturer's Standard. Tank capacity = 1.8 gal Pump Capacity = 45 gpm 0.5 HP = 1 wash motor 110V, 60 Hz, 1 phase	1057	1	EA	1520			1500			20	
	MITG. HOWE & Pat 15%		1	EA	USE 200			200				
	3/TOTAL		1	EA				1700			20	

PARSONS
ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY		PRICED BY	DATE			SHEET		OF				
A. BALKIN			Aug. 85			_____		_____				
JOB NO.: 6440-11		CLIENT: DOE	TYPE OF ESTIMATE			CHECKED BY						
UNIT/AREA			ROM			RSM						
DESCRIPTION			COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
CAPACITY			MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS		
ACCNT												
DIV 15	MECHANICAL											
15500	Summary Fire Protection											
	SUB-TOTALS Forward					891180			32380			
						28800			320			
15500	TOTAL					917980						
			USE			913000			32700			

ESTIMATE WORKSHEET

M.T.O. BY **A BULKIN** PRICED BY _____ DATE **7-1-85** SHEET **68** OF _____
 JOB NO.: **6440-2E 11** CLIENT: **DOE** TYPE OF ESTIMATE: **LDV** CKD BY: **ROM**

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT													
DIV. 15	MECHANICAL												
15500	FIRE PROTECTION												
	WET PIPE SPRINKLER SYSTEMS		430,944	FT ²			\$2 ⁰⁰ /FT ²	\$86,880	\$86,800/26%		32084		
	PROTECTED AREA: THROUGHOUT THE AREA EXCEPT THE PROCESS AREAS (SHIELDED HOT CELLS AND LAG STORAGE VAULTS)												
	* MATERIAL COST \$2 ⁰⁰ /SQ FT. (INCLUDES RISERS, VALVES, PIPING, SPRINKLERS, E.T.C.)												
	FIRE HOSE CABINETS		12	EA			\$400	\$4,800			96		
	INSTALLED COST \$400 (INCLUDES CABINET, 100' HOSE, ANGLE VALVE, FOG NOZZLE, ETC)												
	PORTABLE FIRE EXTINGUISHERS												
	T. 2 1/2 GAL. WATER FIRE EXTINGUISHERS		50	EA			\$350 ⁰⁰	\$17,500			200		
	EXTINGUISHER COST - \$170 ⁰⁰ EA INSTALLED COST OF EXTINGUISHER IN CABINET \$350 EA												
							S/TOTAL	884,180			32380		

ESTIMATE WORKSHEET

M.T.O. BY A BULKIN PRICED BY _____ DATE Aug. '85 SHEET 69 OF _____
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: cm

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV. 15	MECHANICAL	AREA # 3											
	FIRE PROTECTION (CONT'D)												
	II. 20 LB DRY CHEMICAL ABC		40	EA			X \$370 ⁰⁰	\$14,800				160	
	EXTINGUISHER COST = \$170 ⁰⁰ EA INSTALLED COST OF EXTINGUISHER IN CABINET = \$370 ⁰⁰ EA												
	III 17LB HALON 1211		40	EA			X \$350 ⁰⁰	\$14,000				160	
	EXTINGUISHER COST \$150 ⁰⁰ EA INSTALLED COST OF EXTINGUISHER IN CABINET \$350 ⁰⁰ EA												
								28,800			320		

PARSONS
ESTIMATE WORKSHEET

CUNCIH RIVER. BASE CASE

M.T.O. BY <i>ENGINEERING</i>		PRICED BY <i>W MESSER</i>		DATE <i>AUG 85</i>		SHEET <i>1</i> OF <i>1</i>					
JOB NO.: <i>6440-11</i>		CLIENT: <i>DOE/PNL</i>		TYPE OF ESTIMATE <i>ROM</i>		CHECKED BY <i>Q. COO</i>					
UNIT/AREA <i>MRS FACILITY R&H BLDG.</i>		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>AREA #3</i>				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY											
ACCNT											
<i>DIV 15 Mechanical</i>											
<i>15800</i>	<u><i>SUMMARY AIR DISTN BUTTON</i></u>										
<i>15801</i>	<i>AUTO CONTROL VALVES</i>	<i>1</i>	<i>LOT</i>				<i>1449000</i>			<i>14890</i>	
<i>15802</i>	<i>DUCTS/SUPPORTS</i>	<i>1</i>	<i>LOT</i>				<i>3195000</i>			<i>238931</i>	
<i>15803</i>	<i>A/C EQUIPMENT.</i>	<i>1</i>	<i>LOT</i>				<i>1951000</i>			<i>23474</i>	
<i>15804</i>	<i>HEPA/PRE FILTERS</i>	<i>1</i>	<i>LOT</i>				<i>11524000</i>			<i>16279</i>	
<i>15805</i>	<i>GRILLS & DIFFUSERS</i> <i>430942 x 12 = 430942</i>	<i>1</i>	<i>LOT</i>				<i>215000</i>			<i>8646</i>	
<i>15806</i>	<i>HWS & HW R/CHILL WATER</i> <i>430942 SF x 10°/SF = 4,309,000</i> <i>4309,000 SPLIT 70% M = 3,017,000</i> <i>30% L = 1,292,000</i> <i>INCL. INSULATION/SUPPORTS ETC</i>	<i>1</i>	<i>LOT</i>				<i>3097000</i>			<i>51680</i>	
<i>15800</i>	<i>TOTAL</i>						<i>21531000</i>			<i>353894</i>	

ESTIMATE WORKSHEET

M.T.O. BY J. ANG PRICED BY _____ DATE Aug. '85 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: DOE TYPE OF ESTIMATE: PROP CKD BY: Rem

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV. 15	AREA 3												
	HVAC (CONTINUE)												
15801	AUTO CONTROL DAMPERS & VALVES		1	LT			\$	1,551,770				12,489	
	SUPPORTS							330,230				2,481	
15801	TOTAL DIRECT							1,882,000				14,970	
	DISCOUNT							(15% x 1,551,770)	233,000				
									1,649,000				

M.T.O. BY S. LIEM PRICED BY _____ DATE 6-26-85 SHEET 5 OF 1
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: _____

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
DIV.15	AREA #3												
	<u>HVAC (CONT.)</u>												
15802	DUCTWORK												
	- GALVANIZED STEEL DUCT		48,000	lbs	0.70	.09		33,600				4,320	
	- CARBON STEEL DUCT		934,600	lbs	1.75	.12		1,635,600				112,152	
	- STAINLESS STEEL DUCT		251,450	lbs	3.15	.15		792,100				37,718	
	- INSULATION FOR GALV & C.S. (114,000 + 169,700 = 283,700)		283,700	FT ²	.85	.19		241,100				5,390.3	
	- SUPPORTS 20% DUCT							49,200				3,083.8	
15802	S/TOTAL		1,234,050	LB	2.59			3,194,600				238,931	
								635				3,195,000	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY MCKINNEY DATE Aug 85 SHEET 1 OF 23
 JOB NO.: 6440-11 CLIENT: TYPE OF ESTIMATE RM CHECKED BY fm

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>MRS FACILITY</u>													
<u>DIV 15</u>	<u>AREA 3</u>													
<u>15803</u>	<u>A/C EQUIPMENT</u>													
	<u>BROUGHT FORWARD</u>								<u>1862100</u>			<u>19158</u>		
	<u>HEAT RECOVERY COIL</u>													
	<u>CARRIER 60/40 WATER/GLYCOL 90FT</u>			<u>10</u>	<u>EA</u>	<u>8800</u>	<u>80</u>		<u>88000</u>			<u>800</u>		
	<u>(20% 1/2) 60/40 " " 48FT</u>			<u>12</u>	<u>EA</u>	<u>4700</u>	<u>40</u>		<u>56400</u>			<u>480</u>		
	<u>(20% 3/4) 60/40 " " 48FT</u>			<u>12</u>	<u>EA</u>	<u>4700</u>	<u>40</u>		<u>56400</u>			<u>480</u>		
	<u>60/40 " " 21FT</u>			<u>1</u>	<u>EA</u>	<u>2100</u>	<u>20</u>		<u>2100</u>			<u>20</u>		
	<u>60/40 " " 40FT</u>			<u>1</u>	<u>EA</u>	<u>3900</u>	<u>32</u>		<u>3900</u>			<u>32</u>		
	<u>60/40 GLYCOL/WATER 36FT</u>			<u>1</u>	<u>EA</u>	<u>3500</u>	<u>32</u>		<u>3500</u>			<u>32</u>		
	<u>HEAT EXCHANGER</u>													
	<u>B&G STEAM/NOT WATER MOLSU-164-2</u>			<u>2</u>	<u>EA</u>	<u>3700</u>	<u>16</u>		<u>7400</u>			<u>32</u>		
	<u>REHEAT COIL</u>													
	<u>ANEMOSTAT- MOL FA-PVM 14</u>			<u>305</u>	<u>EA</u>	<u>600</u>	<u>8</u>		<u>183000</u>			<u>2440</u>		
<u>15803</u>	<u>TOTAL</u>			<u>412</u>	<u>Pcs</u>				<u>2262800</u>			<u>23474</u>		
	<u>DISCOUNTS</u>													
	<u>AIR HANDLING UNITS</u>								<u>34100</u>					
	<u>HVAC FANS</u>								<u>48300</u>					
	<u>CHILLERS</u>								<u>75500</u>					
	<u>PUMPS</u>								<u>4500</u>					
	<u>AIR COOLED COND UNITS</u>								<u>1400</u>					
	<u>HT. RECOVERY COILS</u>								<u>18300</u>					
	<u>HT. EXCH.</u>								<u>600</u>					
	<u>REHT. COILS</u>								<u>15100</u>					
	<u>DEDUCT 5% FOR MTDG. HARDWARE & FIT (5% x 2262800)</u>								<u>113000</u>					
	<u>NEW TOTAL</u>								<u>1951000</u>					

PARSONS

ESTIMATE WORKSHEET

CUMM RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY NICKINNEY DATE AUG-95 SHEET 2 OF 25
 JOB NO.: 6440-11 CLIENT: DOB TYPE OF ESTIMATE ROM CHECKED BY Rsm

UNIT/AREA DESCRIPTION CAPACITY	QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
			MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT <u>DIV 15 Area 3.</u>											
<u>15863 A/C Equipment</u>											
<u>AHU</u>											
<u>CARRIER MDL. 39ED-90 (45750CFM)</u>	<u>10</u>	<u>EA</u>	<u>31600</u>	<u>200</u>		<u>316000</u>			<u>2000</u>		
<u>39ED-08 (3530CFM)</u>	<u>1</u>	<u>EA</u>	<u>2300</u>	<u>20</u>		<u>2300</u>			<u>20</u>		
<u>39ED-08 (4020CFM)</u>	<u>2</u>	<u>EA</u>	<u>3100</u>	<u>30</u>		<u>6200</u>			<u>60</u>		
<u>39ED-36 (17590CFM)</u>	<u>1</u>	<u>EA</u>	<u>12100</u>	<u>72</u>		<u>12100</u>			<u>72</u>		
<u>39ED-11 (5450CFM)</u>	<u>4</u>	<u>EA</u>	<u>3600</u>	<u>30</u>		<u>14400</u>			<u>120</u>		
<u>39EF-57 (36000CFM)</u>	<u>4</u>	<u>EA</u>	<u>10400</u>	<u>130</u>		<u>41600</u>			<u>520</u>		
<u>EXHAUST FANS</u>											
<u>BUFFALO FORGE MDL-980-L25</u>	<u>8</u>	<u>EA</u>	<u>33400</u>	<u>280</u>		<u>267200</u>			<u>2240</u>		
<u>890-L59</u>	<u>6</u>	<u>EA</u>	<u>29000</u>	<u>250</u>		<u>174000</u>			<u>1500</u>		
<u>980-L59</u>	<u>4</u>	<u>EA</u>	<u>26500</u>	<u>200</u>		<u>106000</u>			<u>800</u>		
<u>TWIN CITY MDL BCV-300</u>	<u>1</u>	<u>EA</u>	<u>1800</u>	<u>20</u>		<u>1800</u>			<u>20</u>		
<u>BCV-365</u>	<u>1</u>	<u>EA</u>	<u>2500</u>	<u>30</u>		<u>2500</u>			<u>30</u>		
<u>BCV-135</u>	<u>2</u>	<u>EA</u>	<u>600</u>	<u>5</u>		<u>1200</u>			<u>10</u>		
<u>ASL-182</u>	<u>1</u>	<u>EA</u>	<u>1800</u>	<u>12</u>		<u>1800</u>			<u>12</u>		
<u>BCV-270</u>	<u>1</u>	<u>EA</u>	<u>1400</u>	<u>12</u>		<u>1400</u>			<u>12</u>		
<u>CHILLER</u>											
<u>CARRIER MDL 19EB-700</u>	<u>6</u>	<u>EA</u>	<u>41000</u>	<u>1800</u>		<u>246000</u>			<u>10800</u>		
<u>PUMPS:</u>											
<u>CH WATER - PACO MDL KP-SIZE 6012-1</u>	<u>7</u>	<u>EA</u>	<u>4700</u>	<u>72</u>		<u>32900</u>			<u>504</u>		
<u>HT WATER PACO MDL LF-3012-1</u>	<u>3</u>	<u>EA</u>	<u>1900</u>	<u>16</u>		<u>5700</u>			<u>48</u>		
<u>GLYCOL PACO MDL-L-4015-5</u>	<u>3</u>	<u>EA</u>	<u>450</u>	<u>80</u>		<u>1350</u>			<u>240</u>		
<u>AIR COOLED CONDENSING UNIT</u>											
<u>CARRIER MDL-50EC-008</u>	<u>1</u>	<u>EA</u>	<u>6300</u>	<u>50</u>		<u>6300</u>			<u>50</u>		
<u>38JB-016</u>	<u>2</u>	<u>EA</u>	<u>4600</u>	<u>50</u>		<u>9200</u>			<u>100</u>		
<u>C/FORWARD</u>	<u>68</u>	<u>EA</u>				<u>1862100</u>			<u>19158</u>		

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

3

M.T.O. BY		PRICED BY		DATE		SHEET		OF					
S. LIEN				7-5-85		4		25					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:							
6440-11		DOE - PNL		ROM									
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS	M/HRS	DOLLARS	M/HRS	DOLLARS			
CAPACITY													
ACCNT													
DIV.15 AREA #3													
<u>HVAC</u>													
15803 AIR HANDLING UNIT (SUPPLY AIR SYSTEM) TAG NO. AHU-820A, AHU-820B AHU-820C, AHU-820D AHU-820E. AHU-821A, AHU-821B AHU-821C, AHU-821D AHU-821E													
225 Q7 CARRIER MODEL 39ED-90, HORIZ DRAW THRU SYSTEM W/AIR FOIL FAN, VARIABLE INLET VANES, COOLING COIL, STEAM HEATING COIL, COMPLETE WITH 2" THICK 30% PREFILTER, 12" THICK 85% HIGH EFF. BAG TYPE FILTER. AIR FLOW: 45,750 CFM STATIC PRESSURE: 8" W.G. MOTOR = 125 HP.		10	EA	27450	-200.		274,500	-			2000		
CHILLED WATER COIL: EAT: 94/77, LAT: 51/50 EWT: 42°F, LWT: 52°F													
LOCATION: RM #105A MOUNTING HARDWARE 5 FT TO SEA SIDE 15%		12	EA	1150			11,500						
5/TOTAL		10	EA	31,600			316,000			2000			

THE RALPH M. PARSONS COMPANY
CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY **S. LIEM** PRICED BY _____ DATE **10-6-1985** SHEET **25** OF **25**
 JOB NO.: **6440-11** CLIENT: **DOE-PNL** TYPE OF ESTIMATE: **ROM** CKD BY: *PLM*

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LABS		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	AIR HANDLING UNIT (CONTROL RM. 2 ND FL) TAG NO AHU-824 CARRIER MODEL 39ED-08.												
205 W5	HORIZONTAL DRAW THRU SYSTEM W/ REFRIGERANT COIL (DX), 2" THICK 30% EFF. PREFILTER & 12" THICK 85% EFF BAG TYPE FILTER AIR FLOW : 3330 CFM STATIC PRESS : 2 1/2" W.G MOTOR : 3 HP. LOCATION : RM # 2053		1	EA	1998	-20		1998	-			20	
	MTG HOWE SERT (15%)		1	EA	302			302				-	
	S/TOTAL		1	EA				2300				20	
15003	AIR HANDLING UNIT (UPS) TAG NO AHU-825 AHU-826 CARRIER MODEL 39ED-08												
205 376	HORIZONTAL DRAW THRU SYSTEM W/ REFRIGERANT COIL (DX), 2" THICK 30% EFF. FILTERS. AIR FLOW : 4520 CFM STATIC PRESS : 1.5" W.G MOTOR : 5 HP. LOCATION : M-128 & M-116		2	EA	2712	-320		5424	-			60	
	MTG HOWE SERT (15%)		2	EA	388			776				-	
	S/TOTAL		2	EA				6200				60	

THE RALPH M. PARSONS COMPANY
CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

5
SHEET 4 OF 25
CKD BY: fm

M.T.O. BY: S. LIEM		PRICED BY:			DATE: 6-6-1985			SHEET 4 OF 25				
JOB NO.: 6440-11		CLIENT: DOE - PNL			TYPE OF ESTIMATE: ROM			CKD BY: fm				
UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
DIV. 15	AREA #3											
	HVAC (CONT.)											
15803	AIR HANDLING UNIT (CHILLER ROOM) TAG NO AHU-827											
	CARRIER MODEL 39ED-36											
205	HORIZONTAL DRAW THRU W/ CHILLED WATER COIL, 2" THICK	1	EA	10,554	-	72	10,554	-				
Q6	30% EFF FLAT FILTER BANK. AIR FLOW : 17,590 CFM STATIC PRESS : 2" W.G MOTOR : 15 HP.											
	CHILLED WATER COIL: EAT : 80°F , LAT : 65°F EWT : 42°F , LWT : 52°F											
	LOCATION: RM # 1174 MEZZANINE MTG ROOM & ERT 15%	1	EA	1,546			1,546					
	5/TOTAL	1	EA	12,100	72		12,100					

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY S. Liem PRICED BY _____ DATE Aug 1985 SHEET _____ OF _____
 JOB NO.: 6840-11 CLIENT: DOE / PNL TYPE OF ESTIMATE ROM CHECKED BY RLM

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>Mechanical</u>	<u>Area #3</u>	<u>DIL 15</u>											
	<u>HVAC (cont)</u>													
<u>15803</u>	<u>Air Handling Unit</u> <u>(Supply Fan Rm. 2nd Floor)</u>													
	<u>Tag No. AHU - 828A</u>													
	<u>AHU - 828B</u>													
	<u>AHU - 829A</u>													
	<u>AHU - 829B</u>													
<u>(205)</u>	<u>- Carrier Model 39ED-11</u>			<u>4</u>	<u>EA</u>	<u>3150</u>	<u>30</u>		<u>12600</u>			<u>120</u>		
<u>Q6</u>	<u>- Horizontal Draw Thru w/ Chilled</u> <u>Water Coil, 2" Thick 30%</u> <u>Eff. Flat Filter Bank</u> <u>- Air Flow = 5250 cfm</u> <u>- Static Pressure = 1 1/2" W.G.</u> <u>- Motor = 5 HP</u>													
	<u>- Chilled Water Coil</u> <u>EAT = 75.5/60, LAT = 55/51.5</u> <u>BWT = 42°F, LWT = 52°F</u>													
	<u>- Location = M 254</u>													
	<u>Mtg. Hdwe. & Frt (15%)</u>			<u>4</u>	<u>EA</u>	<u>we</u> <u>450</u>			<u>1800</u>					
	<u>Sub-Total</u>			<u>4</u>	<u>EA</u>				<u>14400</u>			<u>120</u>		

THE RALPH M. PARSONS COMPANY
CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

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M.T.O. BY		PRICED BY		DATE		SHEET		OF					
S. LIEM				6-6-85		6		15					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:							
6440 - 11		DOE - PNL		ROM		KRM							
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$			M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY													
ACCNT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	AIR HANDLING UNIT (LAG STORAGE VAULT)												
	TAG NO: AHU - 830A												
	AHU - 830B												
	AHU - 830C												
	AHU - 830D												
	CARRIER MODEL 39EF-57												
(var)	w/ AIR FOIL FAN AND VARIABLE												
06	INLET VANE COMPLETE w/		4	EA	9000.130		36,000 -				520		
	2" THICK 30% EFF. PREFILTER												
	AND 32" THICK 85% EFF BAG												
	TYPE FILTERS. (6Wx3H FILTER												
	BANK w/ 24x24x32" BAG TYPE												
	FILTER)												
	AIR FLOW: 36,000 CFM												
	STATIC PRESS: 4.5" W.G												
	MOTOR: 50 HP.												
	LOCATION: RM # 3038												
	MTG HOWE & FET 15%		4	EA	1400		5600				-		
	S/TOTAL												
			4	EA	10400.130		41600				520		

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

8

M.T.O. BY		PRICED BY		DATE				SHEET # OF				
3. LIEM				6-6-86				# OF 25				
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:				CKD BY:				
6440-11		DOE - PNL		ROM				RM				
UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
CAPACITY				MATL	M/H	LABS		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT												
DIV.15	AREA #3											
	HVAC (CONT.)											
15803	EXHAUST FAN (FINAL EXH. ZONE 1 & 2)											
	TAG NO EF-870 A,											
	EF-870 B,											
	EF-870 C											
	EF-870 D											
ALLOW	EF-872 A	8	EA	29,000	2.00		232,000	-		2240		
	EF-872 B											
	EF-872 C											
	EF-872 D											
	BUFFALO FORGE MODEL											
	980 L-25, SWSI, VBD											
	DIRECT DRIVE.											
	AIR FLOW = 45,000 CFM											
	STATIC PRESS = 28" W.G											
	SPEED = 1780 RPM											
	FAN : = 237 BHP											
	MOTOR = 300 HP.											
	LOCATION : RM# 3033 & RM# 3048											
	MTG HOWE & FRT (N.P.)	8	EA	4400			35200					
	3/TOTAL	8	EA	33400.00			267200			2240		

THE RALPH M. PARSONS COMPANY

Cuncu River - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET		OF					
S. LIEM				6-6-85		9		25					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:							
6440-11		DOE-PNL		ROM		S. LIEM							
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS	M/HRS	DOLLARS	M/HRS	DOLLARS			
CAPACITY													
ACCT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	EXHAUST FAN (FINAL EXH. ZONE 3 & 4)												
	TAG NO: EF-871A												
	EF-871B												
	EF-871C												
	EF-873A												
	EF-873B												
	EF-873C												
ALLOW	BUFFALO FORGE MODEL B90-L39 SWSI, URD, DIRECT DRIVE.												
		6	EA	25,000	250		150,000	-			1500		
	AIR FLOW : 62,600 CFM												
	STATIC PRESS : 14" W.G												
	SPEED : 1780 RPM												
	FAN : 193 BHP												
	MOTOR : 250 HP.												
	LOCATION : RM #3034 & RM #3049												
	MTG NOWE & FRJ												
		6	EA	4,000			24,000						
	S/TOTAL												
		6	EA	29,000	250		174,000				1500		

THE RALPH M. PARSONS COMPANY
 CLUNCH RIVER - PDBE CASE

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
S. LIEM				6-6-85		8		26				
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:						
6440-11		DOE - PNL		ROM		C. M.						
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY												
ACCNT												
DIV.15	AREA #3											
	HVAC (CONT.)											
15808	EXHAUST FAN (LAG STORAGE VAULTS)											
	TAG NO : EF - 874 A											
	EF - 874 B											
	EF - 874 C											
	EF - 874 D											
	BUFFALO FORGE MODEL 980-L39											
Allow	SWSI, VBD, DIRECT DRIVE		4	EA	23,000	-200	92,000	-			800	
	AIR FLOW : 54000 CFM											
	STATIC PRESS : 9" W.G											
	SPEED : 1180 RPM											
	FAN 160°/60°F : 99.2/118 BHP											
	MOTOR : 125 HP.											
	LOCATION : RM # 3043											
	MTG HOWE & FRT (15%)		4	EA	3500		14000				-	
	S/TOTAL		4		26500	200	106000				800	

THE RALPH M. PARSONS COMPANY

Clinch River - Base Case

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET # OF							
S. LIEM				6-6-85		N OF 25							
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:							
G440-11		DOE - PNL		ROM		em							
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY													
ACCT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	EXHAUST FAN (NORTH ELECT. RM.)												
	TAG NO. EF-875												
	"TWIN CITY" MODEL BCV-300												
229)	SWSI, BELT DRIVE, COATED												
Q20	WHEEL, OUTDOOR APPLICATION.												
	AIR FLOW : 10,720 CFM												
	STATIC PRESS : 1.0" W.G												
	FAN : 3.97 BHP												
	MOTOR : 5.0 HP												
	MTG HDWE & FRT (15%)												
	LOCATION : M-128												
	S/TOTAL												
15803	EXHAUST FAN (SOUTH ELECT. RM.)												
	TAG NO. EF-876												
	"TWIN CITY" MODEL BCV-365												
229)	SWSI, BELT DRIVE, COATED												
Q20	WHEEL, OUTDOOR APPLICATION												
	AIR FLOW : 19,900 CFM												
	STATIC PRESS : 1.0" W.G												
	FAN : 8.0 BHP												
	MOTOR : 10 HP												
	MTG HDWE & FRT (15%)												
	LOCATION : M-116												
	S/TOTAL												

THE RALPH M. PARSONS COMPANY

CUNCH RIVER - 5755 CASE

ESTIMATE WORKSHEET

12

M.T.O. BY		PRICED BY		DATE		SHEET # OF					
S. LIEM				6-7-85		12 OF 25					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
6440-11		DOE-PNL		ROM		erm					
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY											
ACCNT											
DIV 15		AREA #3									
		HVAC (CONT.)									
15803		EXHAUST FAN (NORTH & SOUTH BATTERY RM.)									
		TAG. NO EF-883 EF-884									
		"TWIN CITY" MODEL BCU-135 SISW, BELT DRIVE, ALL ALUMINUM CONSTRUCTION FAN AND EXPLOSION PROOF MOTOR									
229) Q20		2	EA	520	5.0		1040	-		10	
		AIR FLOW: 1300 CFM STATIC PRESS: 1.0" WG FAN : .35 BHP MOTOR : 1/2 HP									
		LOCATION: M-120 & M-116 MIS HOUE & FRT (15%)									
		2	EA	80			160				
		5/TOTAL									
		2	EA	600	5.0		1200			10	

THE RALPH M. PARSONS COMPANY

CLUNCH RIVER - BASS CAGE

ESTIMATE WORKSHEET

13

M.T.O. BY		S. LIEM		PRICED BY		DATE		6-7-85		SHEET		13 OF 25	
JOB NO.:		G440-11		CLIENT:		DOE - PNL		TYPE OF ESTIMATE:		ROM		CKD BY:	
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS		
CAPACITY													
ACCNT													
DIV. 15		AREA # 3											
		HVAC (CONT.)											
15803		EXHAUST FAN (LAUNDRY FILTER RM.)											
		TAG NO. EF-885											
(228) Q20		"TWIN CITY" MODEL ASL-182 TUBULAR CENTRIFUGAL FAN DIRECT DRIVE											
		1	EA	1550.	12.		1550	-			12		
		AIR FLOW : 2100 CFM											
		STATIC PRESS : 4.0"W.G											
		SPEED : 2208 RPM											
		FAN : 2.1 BHP.											
		MOTOR : 3 HP											
				1440			250				-		
		1	EA	250			250						
		1	EA	1400	12		1400				12		
15803		EXHAUST FAN (GEN. EXH. 1 ST FL & FAN RM, 2 ND FL EQ RM)											
		TAG NO. EF-886											
(228) Q20		"TWIN CITY" MODEL BCV-270 SISW, BELT DRIVE											
		1	EA	1255.	12.		1255	-			12		
		AIR FLOW : 7320 CFM											
		STATIC PRESS : 1.0"W.G											
		SPEED : 818 RPM											
		FAN : 2.17 BHP											
		MOTOR : 3 HP.											
				1440			145				-		
		1	EA	145			145						
		1	EA	1400			1400				12		

THE RALPH M. PARSONS COMPANY
CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY **S. LIEM** PRICED BY _____ DATE **6-7-85** SHEET **14** OF **25**
 JOB NO.: **6440 - II** CLIENT: **DOE - PNL** TYPE OF ESTIMATE: **ROM** CKD BY: **RLM**

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT													
DIV. 15	AREA #3												
	HVAC (CONT)												
15803	CHILLER												
	TAG NO. CH-800A												
	CH-800B												
	CH-800C												
	CH-800D												
	CH-800E												
	CH-800F												
(237)	"CARRIER" MODEL 19EB-700 PACKAGED HERMETIC CENTRIFUGAL LIQUID CHILLER.		6	EA	122500.-		1800	735,000.-			10800		
	COOLING LOAD : 700 TONS												
	POWER INPUT : 571 KW												
	MOTOR SIZE : DJ.												
	COMPRESSOR : #63, R-12.												
	UNISHELL : #81, 2PASS												
	CHILLED WATER:												
	ENT. TEMP : 52°F												
	LUG TEMP : 42°F												
	CONDENSER WATER												
	ENT. TEMP : 85°F												
	LUG. TEMP : 95°F												
	LOCATION : RM # 1174												
	MTG HOWE & FRT		6	EA	18500			111,000			-		
	S/TOTAL		6	EA	144000/1800			846,000			10800		

THE RALPH M. PARSONS COMPANY
 CLUNCH RIVER - BASE CASE

ESTIMATE WORKSHEET

15
 SHEET ~~18~~ OF 25

M.T.O. BY		PRICED BY		DATE		SHEET		OF			
S. LIEM				6-7-85		18		25			
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
6440-11		DOE - PNL		ROM		RLM					
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY											
ACCENT											
DIV. 15 AREA # 3											
HVAC (CONT.)											
15803 CHILLED WATER PUMP											
TAG NO. P-800A, P-800E											
P-800B, P-800F											
P-800C, P-800G											
P-800D											
(1.2) "PACO" MODEL KP, SIZE 6012-1											
Q2 SINGLE STAGE, DOUBLE SUCTION											
HORIZONTALLY SPLIT CASE		7	EA	4065-72.	28,455-			504			
WATER FLOW : 1680 GPM											
TOTAL HEAD : 90 FT											
SPEED : 1750 RPM											
MOTOR : 50 HP.											
LOCATION : RM # 1174											
MISG HOWE & FRT (15%)		7	EA	635	4,445-			-			
S/TOTAL		7	EA	4700 TV	32,900			504			
15803 HOT WATER PUMP											
(REHEAT, W/W CONVECTORS)											
TAG NO P-801A, P-801B											
(1.2) P-801C											
Q2 "PACO" CLOSE COUPLED, END SUCTION		3	EA	1637-16.	4,911-			48			
FRAME MOUNTED CENTRIFUGAL PUMP)		3	EA	263 -	789			-			
MODEL LF-3012-1											
WATER FLOW : 455 GPM											
TOTAL HEAD = 100 FT											
SPEED : 1750 RPM											
MOTOR : 20 HP											
LOCATION : RM # 2059 S/TOTAL		3	EA	1900 16	5700			48	3-376 *		

THE RALPH M. PARSONS COMPANY
 CLUNCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY S. LIEM PRICED BY _____ DATE 6-10-85 SHEET 16 OF 25
 JOB NO.: 6440-11 CLIENT: DOE - PNL TYPE OF ESTIMATE: ROM CKD BY: RSM

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	GLYCOL PUMP (HEAT RECOVERY)												
	TAG NO P-802A												
	P-802B												
	P-802C												
(142) Q3	"PACO" MODEL L-4015-5 END SUCTION FRAME MOUNTED HORIZONTAL CENTRIFUGAL PUMP WATER FLOW : 1000 GPM TOTAL HEAD : 150 FT SPEED : 1750 RPM MOTOR : 60 HP LOCATION : RM #2059		3	EA	3884	80		11,652.-			240		
	MTG Howe & Fry (15/8)		3	EA	NSG 616		1848			-			
	S/TOTAL		3	EA	4500	80		13,500			240		

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

17

M.T.O. BY **S. LIEM** PRICED BY _____ DATE **6-7-85** SHEET **21** OF **25**
 JOB NO.: **6440-11** CLIENT: **DOE-PNL** TYPE OF ESTIMATE: **ROM** CKD BY: *liem*

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
	MRS - R&H FACILITY													
	AREA # 3													
	HVAC (CONT.)													
15803	AIR COOLED CONDENSING UNIT (CONTROL RM. STD. BY)													
	TAG NO ACCU-824													
208/070	"CARRIER" MODEL: 50EC-008													
Q-6	INDOOR TYPE CONDENSING UNIT ONLY W/ CENTRIFUGAL FAN CAPACITY: 90,000 BCUH COMPRESSOR: 2-4HP (13.2kw) CONDENSER FAN: 1-3HP REFRIGERANT: F22 UNIT SHALL BE COMPLETE W/ TORNADO DAMPER IN THE AIR INLET & EXHAUST FOR 3330 CFM.			1	EA	5500	-50		5500-			50		
	LOCATION: RM # 2053													
	MTG NOWE & FRT (15%)			1	EA	600			600					
	5/TOTAL			1	EA	6300	50		6300			50		

THE RALPH M. PARSONS COMPANY

CUNNIF RIVER - BASE CASE

ESTIMATE WORKSHEET

18
SHEET OF 25

M.T.O. BY: J. LIEM		PRICED BY:			DATE:			SHEET 18 OF 25				
JOB NO.: 6440-11		CLIENT: DOE-PNL			TYPE OF ESTIMATE: ROM			CKD BY: RSM				
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION MRS - R & H BLDG -				MATL	M/H	LABS		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY												
ACCNT												
DIV. 15 AREA #3												
HVAC (CONT.)												
15803 AIR COOLED CONDENSING UNIT (N. & S. UPS. RM)												
TAG N° ACCU-825 ACCU-826												
"CARRIER" MODEL 38JB016 CENTRIFUGAL FAN CONDENSING UNIT.												
Q6	CAPACITY : 122,040 BTU/HR COMPRESSOR : 15.5 Kw CONDENSER FAN : 3 HP AIR FLOW : 7500 CFM REFRIGERANT : F-22 AMB. AIR : 100°F SST : 30°F SCT : 125°F	2	EA	4000	50	8,000	-			100		
LOCATION : M-128 & M-116												
	MTG HOWE & FRT 15%	2	EA	600		1,200	-					
	S/TOTAL	2	EA	4600	50	9200	-			100		

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET					
S. LIEM				6-10-85		19 OF 25					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
6440-11		DOE-PNL		BOM		cm					
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY											
ACCNT											
DIV.15	AREA #3										
	HVAC (CONT.)										
15803	HEAT RECOVERY COIL (AIR INTAKE SYSTEM)										
	TAG NO HRC-807A										
	HRC-807B										
	HRC-807C										
	HRC-807D										
	HRC-807E										
	HRC-808A										
ALC		10	EA	7650	-	80				800	
	HRC-808B										
	HRC-808C										
	HRC-808D										
	HRC-808E										
	"CARRIER" 60/40 WATER/GLYCOL COIL, 8 FINS/INCH, 6 ROWS, FACE VEL. = 500 FPM, AIR FLOW = 45,750 CFM, FACE AREA = 90 FT ²										
		10	EA	1150						11500	
	MTG HOWE & ERT 15%										
		10	EA	8800	80					88000	800
	S/TOTAL										

THE RALPH M. PARSONS COMPANY
CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

20

M.T.O. BY: S. LIEM PRICED BY: DATE: AUG-85 SHEET 20 OF 25
 JOB NO.: G440-11 CLIENT: DDE-PNL TYPE OF ESTIMATE: ROM CKD BY: Lem

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	HEAT RECOVERY COIL (AIR EXHAUST SYST. N&S, ZONE 1 & 2) TAG NO. HRC-800A, HRC-800B, HRC-800C, HRC-800D, HRC-800E, HRC-800F												
Au	HRC-802A HRC-802B HRC-802C HRC-802D HRC-802E HRC-802F		12	EA	4080	400		48,960.-			480		
	"CARRIER" 60/40 WATER/GLYCOL COIL, 2 FINS/INCH, 6 ROWS, FACE VELOCITY - 500 FPM AIR FLOW : 24,640 CFM FACE AREA : 98 FT ² , 144" X 48"												
	MIG HOWE & FRT 15%		12	EA	620			7440					
	S/HOTPC		12	EA	470	40		56400			480		

M.T.O. BY S. LIEM PRICED BY DATE 6-12-85
JOB NO.: 6440-11 CLIENT: DOE - PNL TYPE OF ESTIMATE: ROM CKD BY: [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LABS		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV 15	AREA #3												
	HUAC (CONT.)												
15803	HEAT RECOVERY COIL (AIR EXHAUST, N.E.S. ZONE 3 & 4)												
	TAG NO HRC-801A												
	HRC-801B												
	HRC-801C												
	HRC-801D												
	HRC-801E												
	HRC-801F		12	EA	4080	40	48,960	-			480		
	HRC-803A												
	HRC-803B												
	HRC-803C												
	HRC-803D												
	HRC-803E												
	HRC-803F												
	"CARRIER" 60/40 WATER/GLYCOL COIL, 8 FINS/INCH, 6 ROWS FACE VEL ~ 500 FPM AIR FLOW : 24,100 CFM FACE AREA : 48 FT ² , 144" X 48"												
	MTG HOWE & FRT 15%		12	EA	1115	60	7440						
	S/TOTAL		12	EA	4170	40	56400				480		

THE RALPH M. PARSONS COMPANY

CUNYH RIVER - BOSE CASE

ESTIMATE WORKSHEET

72

M.T.O. BY: S. LIEM PRICED BY: DATE: 6-12-85 SHEET 17 OF 25
 JOB NO.: 6440 - 11 CLIENT: DOE - PNL TYPE OF ESTIMATE: ROM CKD BY: LIEM

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/MRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LABS		M/MRS	DOLLARS	M/MRS	DOLLARS	
ACCNT DIV. 15	AREA # 3											
	HVAC (CONT.)											
15803	HEAT RECOVERY COIL (N. ELECT. RM.)											
	TAG NO: HRC-804											
ALL	"CARRIER" 60/46 WATER/GLYCOL COIL, 8 FINS/INCH, 6 ROWS FACE VELOCITY ~ 500 FT/MIN. AIR FLOW ~ 10720 CFM FACE AREA = 21 FT ²	1	EA	1785	20		1785			20		
	MITG HOWE & FRT 15%	1		315			315					
	<u>Σ/TOTAL</u>	1	EA	2100	20		2100			20		
15803	HEAT RECOVERY COIL (S. ELECT. RM.)											
	TAG NO. HRC-805											
ALL	"CARRIER" 60/40 WATER/GLYCOL COIL, 8 FINS/INCH, 6 ROWS FACE VELOCITY ~ 500 FPM AIR FLOW ~ 19,900 CFM FACE AREA ~ 40 FT ²	1	EA	3400	32		3400			32		
	MITG HOWE & FRT 15%	1	EA	500			500					
	<u>Σ/TOTAL</u>	1	EA	3900	32		3900			32		

THE RALPH M. PARSONS COMPANY

CLINCH RIVER - BASE CASE

ESTIMATE WORKSHEET

23

M.T.O. BY: S. LIEM PRICED BY: DATE: 6-12-85 SHEET 28 OF 25
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: Rm

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
	MRS - R&H FACILITY													
	AREA# 3													
	HVAC (CONT.)													
15803	HEAT RECOVERY COIL (CHILLER RM EXH.)													
	TAG NO. HRC-806													
ALL	"CARRIER" 60/40 GLYCOL/WATER COIL, 8 FINS/INCH, 6 ROWS FACE VELOCITY ~ 500 FPM AIR FLOW ~ 18,320 CFM FACE AREA ~ 36 FT ² , 10'8" x 4'			1	EA	3060	-	32	3060	-		32		
	MTG HOWE & FRT 15%			1	EA	440			440			-		
	S/TOTAL			1	EA	3500	32		3500			32		*

THE RALPH M. PARSONS COMPANY
Chinook River - BSB Case

ESTIMATE WORKSHEET

24
SHEET ~~24~~ OF 25

M.T.O. BY S. LIEM PRICED BY DATE 6-10-85
JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT													
DIV.15	AREA #3												
	HVAC (CONT.)												
15803	HEAT EXCHANGER (STEAM TO HOT WATER)												
	TAG NO. HEX-800 HEX-801												
	1 1/2" STEAM / HOT WATER HEAT EXCHANGER												
173	STEAM @ 10 PSIG												
Q6	H.W. @ 170-190°F Flow: 455 GPM MODEL: SU-169-2 16" Ø X 56" L, 2 PASS. LOCATION: RM # 2059		2	EA	3200	-16.	6400.-				32		
	MTG HOWE & FRT 15%		2	EA	500		1000				-		
	S/TOTAL		2	EA	3700	16	7400				32		

THE RALPH M. PARSONS COMPANY

CLINTON RIVER - BASE CASE

ESTIMATE WORKSHEET

25

M.T.O. BY **S. LIEM** PRICED BY **S. LIEM** DATE **6/13/85** SHEET **25** OF **25**
 JOB NO.: **6440-11** CLIENT: TYPE OF ESTIMATE: **ROM** CKD BY: **SM**

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT													
DIV. 15	AREA # 3												
	HVAC (CONT.)												
15803	REHEAT COIL (TERMINAL)												
	"ANEMOSTAT" PNEUMATICALLY CONTROLLED VARIABLE VOLUME BOX W/ HOT WATER REHEAT MODEL FA-PVM 14. 1 ROW COIL, 1500 CFM, OP=.14" WG		305	EA	496	-	8	151,280	-		2,440		
	MITG HOWE & FRT 1590		305	EA	104			31,710			-		
	S/TOTAL		305	EA	600	-	8	183,000			2,440		

PARSONS

ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY MCKINNEY/MSR DATE AUG 85 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY RCM

UNIT/AREA MRS RTH BLDG.
 DESCRIPTION
 CAPACITY

ACCNT	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
			MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
<u>DIV. 15</u>		<u>AREA 3</u>									
<u>15804</u>		<u>HEPA FILTERS SHT. 2</u>	<u>6</u>	<u>EA</u>		<u>2119800</u>			<u>2238</u>		
			<u>6</u>	<u>EA</u>		<u>1654200</u>			<u>3120</u>		
	<u>3</u>		<u>6</u>	<u>EA</u>		<u>2119800</u>			<u>2220</u>		
			<u>6</u>	<u>EA</u>		<u>1654200</u>			<u>3120</u>		
	<u>4</u>		<u>6</u>	<u>EA</u>		<u>1659600</u>			<u>2700</u>		
	<u>5</u>		<u>1</u>	<u>EA</u>		<u>85100</u>			<u>93</u>		
			<u>1</u>	<u>EA</u>		<u>58100</u>			<u>40</u>		
	<u>6</u>		<u>8</u>	<u>EA</u>		<u>284000</u>			<u>480</u>		
	<u>7</u>		<u>4</u>	<u>EA</u>		<u>94400</u>			<u>160</u>		
	<u>8</u>		<u>4</u>	<u>EA</u>		<u>46800</u>			<u>32</u>		
			<u>3</u>	<u>EA</u>		<u>70800</u>			<u>144</u>		
	<u>9</u>		<u>2</u>	<u>EA</u>		<u>47100</u>			<u>80</u>		
			<u>2</u>	<u>EA</u>		<u>47100</u>			<u>80</u>		
	<u>10</u>		<u>2</u>	<u>EA</u>		<u>44000</u>			<u>20</u>		
			<u>1</u>	<u>EA</u>		<u>122500</u>			<u>40</u>		
			<u>1</u>	<u>EA</u>		<u>45200</u>			<u>18</u>		
	<u>11</u>		<u>1</u>	<u>EA</u>		<u>60700</u>			<u>32</u>		
			<u>1</u>	<u>EA</u>		<u>91700</u>			<u>40</u>		
			<u>2</u>	<u>EA</u>		<u>215000</u>			<u>100</u>		
	<u>12</u>		<u>4</u>	<u>EA</u>		<u>242800</u>			<u>80</u>		
			<u>1</u>	<u>EA</u>		<u>91700</u>			<u>40</u>		
	<u>13</u>		<u>2</u>	<u>EA</u>		<u>90400</u>			<u>24</u>		
			<u>2</u>	<u>EA</u>		<u>131400</u>			<u>48</u>		
	<u>14</u>		<u>1</u>	<u>EA</u>		<u>60700</u>			<u>24</u>		
	<u>15</u>		<u>8</u>	<u>EA</u>		<u>980000</u>			<u>400</u>		
	<u>16</u>		<u>4</u>	<u>EA</u>		<u>785500</u>			<u>352</u>		
			<u>4</u>	<u>EA</u>		<u>865200</u>			<u>400</u>		
	<u>17</u>		<u>2</u>	<u>EA</u>		<u>185400</u>			<u>64</u>		
			<u>2</u>	<u>EA</u>		<u>90400</u>			<u>32</u>		
			<u>1</u>	<u>EA</u>		<u>91700</u>			<u>32</u>		
	<u>18</u>		<u>4</u>	<u>EA</u>		<u>10000</u>			<u>32</u>		
		<u>S/TOTAL</u>				<u>14073300</u>					
		<u>DISCOUNT</u>				<u>1846000</u>					
		<u>DEDUCT MTG H/DW & FREIGHT (5% X 14073300)</u>				<u>703300</u>					
<u>15804</u>		<u>TOTAL DIRECT</u>				<u>11524000</u>			<u>16274</u>		

ESTIMATE WORKSHEET

M.T.O. BY		S. LIEM		PRICED BY		DATE		6-24-85		SHEET		OF		2					
JOB NO.:		G440-11		CLIENT:		DOE - PNL		TYPE OF ESTIMATE:		ROM		CKD BY:							
UNIT/AREA		DESCRIPTION		CAPACITY		QUANTITY		UNIT		COST OR M/HR PER UNIT		MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS	
ACCNT		DIV. 15		AREA # 3		MATS		M/H		LABS		M/HR		DOLLARS		M/HR		DOLLARS	
HVAC (CONT.)																			
15804 HEPA FILTERS (FINAL FILTRATION ZONE 1 & 2 N)																			
TAG # FPL-800A CATEGORY I 6 EA 186 1116																			
FPL-800B																			
FPL-800C 6 EA 307,200. 1,843,200. 1116																			
FPL-800D																			
FPL-800E																			
FPL-800F																			
AIR FLOW : 22,375 CFM EA 15% 6 EA 4600 27600																			
LOCATION : M-223 & RM # 2029																			
S/TOTAL 6 EA 39300 2,119,800 2232																			
15804 HEPA FILTERS (FINAL FILTRATION ZONE 3 & 4 N)																			
TAG # FPL-801A CATEGORY I 6 EA 260 1560																			
FPL-801B																			
FPL-801C 6 EA 239,700. 1,438,200. 1560																			
FPL-801D 260																			
FPL-801E																			
FPL-801F																			
AIR FLOW : 31,200 CFM EA																			
LOCATION : M-224 & RM # 2030																			
1119 N.W.C. & FET 15% 6 EA 36000 216000																			
S/TOTAL 6 EA 275700 1,654,200 3120																			

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET 22 OF 22					
S. LIEM				6-24-85		3					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
G440-11		DOE-PNL		ROM		Lcom					
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY											
ACCNT											
DIV. 15		AREA #3									
		HVAC (CONT.)									
15804		HEPA FILTERS (FINAL FILTRATION ZONE 1 & 2 S.)									
		TAG NO. FPL-802A CATEGORY I		6	EA	185					1110
		FPL-802B									
		FPL-802C									
		FPL-802D		6	EA	307,200.785	1,843,200.7				1110
		FPL-802E									
		FPL-802F				Use					
		MTG HOWE & FRT 15%		6	EA	46100	276600				
		AIR FLOW : 22,225 CFM EA									
		LOCATION : M-234 & RM # 2043									
		6/TOTAL		6	EA	33300	2119800				2220
		HEPA FILTERS (FINAL FILTRATION ZONE 3 & 4)				370					
		TAG NO. FPL-803A CATEGORY I		6	EA	260					1560
		FPL-803B									
		FPL-803C		6	EA	239,700.260	1,438,200.7				1560
		FPL-803D									
		FPL-803E									
		FPL-803F				Use					
		MTG HOWE & FRT 15%		6	EA	36000	216000				
		AIR FLOW : 31,200 CFM EA									
		LOCATION : M-238 & RM # 2042									
		6/TOTAL		6	EA	2770	520	1,154,200			3120

THE RALPH M. PARSONS COMPANY

CUNY RIVER - BASE CASE

ESTIMATE WORKSHEET

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M.T.O. BY		PRICED BY		DATE		SHEET		OF			
S. LIEM				6-24-85		24		OF			
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
0440-11		DOB-PNL		ROM							
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB S	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY											
ACCNT											
DIV. 15		AREA #3									
		HVAC (CONT.)									
15804		HEPA FILTERS (LAG STORAGE VAMP EXH. FINAL)									
TAG NO		FPL-804 A	CATEGORY I	6	EA	225					1350
		FPL-804 B									
		FPL-804 C		6	EA	227.5	275	1,364,700			1350
		FPL-804 D									
		FPL-804 E									
		FPL-804 F									
		AIR FLOW = 27,000 CFM EA.									
		LOCATION = RM # 3044									
		MITG HEAVY & FRT	15%	6	EA	3450		204900			
		5/TOTAL									
				6	EA	3612	450	1569600			2700

ESTIMATE WORKSHEET

M.T.O. BY S, LIEM PRICED BY DATE 6-24-85 SHEET 5 OF 5
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: CLM

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV.15	AREA #3												
	HVAC (CONT.)												
15804	HEPA FILTERS (REMOTE HANDLING EXPT. MAINT. RM)												
	TAG NO: FPL-811		1	EA	74,050	-93		74,050			93		
	AIR FLOW: 11,200 CFM LOCATION: RM. # 1105												
	MITG HOWE & FRT 15%		1	EA	11,250			11,250					
			1	EA	85,100	93		85,100			93		
15804	HEPA FILTERS (HIGH ACTIVITY RADWASTE CELL)												
	TAG NO: FPL-812		1	EA	50,560	-40		50,560			40		
	AIR FLOW: 4800 CFM LOCATION: RM # 1113												
	MITG HOWE & FRT 15%		1	EA	7,540			7,540					
			1	EA	58,100	40		58,100			40		

M.T.O. BY S. LIEM PRICED BY _____ DATE 6-24-85 SHEET 4 OF 6
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: SLM

UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
DIV 15	AREA #3											
	HVAC (CONT.)											
15800	HEPA FILTERS (1ST STAGE TESTABLE FILTER FOR COIL 1,3 & 2,4)											
	TAG NO FPL - 815A											
	FPL - 815C											
	FPL - 817A											
	FPL - 817C											
	FPL - 818A	8	EA	30,845	-60		246,760.			480		
	FPL - 818C											
	FPL - 820A											
	FPL - 820C											
	AIR FLOW = 7200 CFM											
	LOCATION = RM # 3021											
	MTG HOWE & FRT 15%	8	EA	4625			37400					
	<u>5/TOTAL</u>	8	EA	35600	60		284000			480		

ESTIMATE WORKSHEET

M.T.O. BY S. LIEM PRICED BY DATE 6-24-85 CKD BY:
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM

UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CCNT												
DIV. 15	AREA # 3											
	HVAC (CONT.)											
15800	HEPA FILTERS (1ST STAGE TESTABLE FILTER FOR DECON CELL RM #2016 & RM #2051)											
	TAG NO FPL-816A FPL-816B	4	EA	10,200	- 8		40,800			32		
	FPL-819A FPL-819B											
	AIR FLOW : 1000 CFM LOCATION : RM #3021											
	MITG NOWE & FRT 15%	4	EA	1500			6000					
	S/TOTAL	4	EA	11700	8		46800			32		
15800	HEPA FILTERS (1ST STAGE TESTABLE FILTER FOR RM #1105)											
	TAG NO FPL-821A FPL-821B FPL-821C	3	EA	20400	- 48		61,200			144		
	AIR FLOW : 5600 CFM LOCATION : RM #3021											
	MITG NOWE & FRT 15%	3	EA	3120			9360					
	S/TOTAL	3	EA	23600	48		70800			144		

ESTIMATE WORKSHEET

M.T.O. BY: S. LIEM PRICED BY: DATE: 6-24-85 SHEET 29 OF 30
 JOB NO.: 6440-31 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: Rm

UNIT/AREA DESCRIPTION CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
			MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
DIV 15 AREA #3											
15800											
HEPA FILTERS (1ST. STAGE TESTABLE FILTER FOR RADWASTE CELL)											
	2	EA	20,980	40		40,960			80		
TAG NO: FPL-822A FPL-822B											
AIR FLOW: 4800 CFM LOCATION: RM # 3021 MTG HOWE & FRT 15%											
5/TOTAL	2	EA	3070			6140			80		
	2	EA	2350			4700					
				40							
15800											
HEPA FILTERS. (REMOTE AIR FILTRATION CELL N&S)											
TAG NO: FPL-823 FPL-824											
	2	EA	20,980	40		40,960			80		
AIR FLOW: 3900 CFM LOCATION: RM. 3021 MTG HOWE & FRT 15%											
5/TOTAL	2	EA	3070			6140			80		
	2	EA	2350			4700					
				40							

M.T.O. BY S. LIEM PRICED BY _____ DATE 6-24-85 SHEET 10 OF 10
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: acm

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CCNT													
DIV. 15	AREA # 3												
	<u>HVAC (CONT.)</u>												
15800	<u>HEPA FILTERS</u> (SOLID RADWASTE FILTER STORAGE RM)												
	TAG NO	FPL-825	2	EA	19100.	-10		38,200.			20		
		FPL-826											
	AIR FLOW : 1100 CFM LOCATION : RM #1064												
		MITG HOWE & FRT	2	EA	2900			5800					
		S/TOTAL	2	EA	22000	10		44000			20		
15800	<u>HEPA FILTERS</u> (MAKE UP TO RM. M-107)												
	TAG NO	FPL-827	1	EA	106,500.	-40		106,500			40		
	AIR FLOW : 4800 CFM LOCATION : RM. M-104												
		MITG HOWE & FRT	1	EA	16000			16000					
		S/TOTAL	1	EA	122500			122500			40		
15800	<u>HEPA FILTERS</u> (LAUNDRY DRYER)												
	TAG NO	FPL-828	1	EA	39,300	-18		39,300			18		
	AIR FLOW : 2100 CFM LOCATION : RM. M-104												
		MITG HOWE & FRT	1	EA	5900			5900					
		S/TOTAL	1	EA	45200	18		45200			18		

M.T.O. BY: S, LIEM PRICED BY: DATE: 6-24-85 SHEET 46 OF 46
 JOB NO.: 6440-11 CLIENT: DOE-PNL TYPE OF ESTIMATE: ROM CKD BY: Rom

INIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LABS		M/HRS	DOLLARS	M/HRS	DOLLARS	
IV.15	AREA #3											
	HVAC (CONT)											
5800	HEPA FILTERS (RADIOISOTOPE LAB FUME HOODS)											
	TAG NO FPL-829	1	EA	52,800	-32		52,800.			32		
	AIR FLOW : 3750 CFM LOCATION : RM, M-127					Use						
	MTG NOWE & FRT 15%	1	EA	7900			7900					
	S/TOTAL	1	EA	60,700	32		60,700			32		
5800	HEPA FILTERS (GAS ANALYSIS FUME HOODS)											
	TAG NO FPL-830	1	EA	79,700	-40		79,700.			40		
	AIR FLOW : 5000 CFM LOCATION : RM, M-127					Use						
	MTG NOWE & FRT 15%	1	EA	12000			12000					
	S/TOTAL	1	EA	91,700	40		91,700			40		
5800	HEPA FILTERS (REMOTE HANDLING EMPT. MAINT.)											
	TAG NO. FPL-831 TAG NO. FPL-832	2	EA	106,500	-50		213,000.			100		
	AIR FLOW : 6100 CFM (FPL-831) 5100 CFM (FPL-832)											
	LOCATION : RM-M-107 & RM-M-126					Use						
	MTG NOWE & FRT 15%	2	EA	16000			32000					
	S/TOTAL	2	EA	122,500			122,500			100		

ESTIMATE WORKSHEET

12

M.T.O. BY **S. LIEM** PRICED BY _____ DATE **6-25-85** SHEET ~~12~~ OF _____
 JOB NO.: **6440-11** CLIENT: **DOE-PNL** TYPE OF ESTIMATE: **ROM** CKD BY: **RCL**

UNIT/AREA		QUANTITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
DIV. 15	AREA #3											
	HVAC (CONT.)											
15800	HEPA FILTERS (CASK UNLOAD RMS)											
	TAG NO FPL-833											
	FPL-834											
	FPL-835	4	EA	52,800	-20		211,200.			80		
	FPL-836											
	AIR FLOW: 2520 CFM											
	LOCATION: RM. M-106											
	M-108											
	M-124											
	M-119											
	MTG HOWE & FRT 15%	4	EA	USG			31600					
	S/TOTAL	4	EA	60700	20		242800			80		
15800	HEPA FILTERS (HIGH ACTIVITY RADWASTE CELL)											
	TAG NO FPL-837	1	EA	79,700	-40		79,700.			40		
	AIR FLOW: 4800 CFM											
	LOCATION: RM. M-115											
	MTG HOWE & FRT 15%	1	EA	USG			12000					
	S/TOTAL	1	EA	91700	40		91700			40		

M.T.O. BY		PRICED BY		DATE		SHEET 12 OF 12					
S. LIEM				6-25-85							
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
0440-11		DOE-PNL		ROM		cm					
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY											
CCNT											
DIV 15		AREA # 3									
		HVAC (CONT)									
5800		HEPA FILTERS (SHIPPING LOADOUT RM #1133 & 1146)									
		TAG NO FPL-838									
		FPL-839									
		2	EA	39,300	-12					24	
		2	EA	5,900							
		MTG HOWE & FRT 15% AIR FLOW : 1260 CFM LOCATION : RM. #1134 & 1147									
		2	EA	45,200						24	
		S/TOTAL									
15800		HEPA FILTERS (LOADOUT & DECON RM #1136 & #1142)									
		TAG NO. FPL-840									
		FPL-841									
		2	EA	52,800	-24					48	
		2	EA	7,900							
		MTG HOWE & FRT 15% AIR FLOW : 2790 CFM LOCATION : RM. #1134 & #1147									
		2	EA	60,700	24					48	
		S/TOTAL									

Cumt RIVOR - BDBB CASE

ESTIMATE WORKSHEET

14

M.T.O. BY		PRICED BY		DATE		SHEET 14 OF 14					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:					
UNIT/AREA		QUANTITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	MATERIAL EXPENSE	M/HR	DOLLARS	M/HR	
CAPACITY											
CCNT											
DIV.15	AREA # 3										
	HVAC. (CONT.)										
15800	HEPA FILTERS (LAG STORAGE SUMP STATION)										
	TAG NO. FPL-842	1	EA	52,800	-24		52,800			24	
	AIR FLOW = 2800 CFM LOCATION = RM 1108 MTG HOWE & FRT 15%	1	EA	7900			7900				
	<u>5/TOTAL</u>	1	EA	60700	24		60700			24	

M.T.O. BY: S. LIEM PRICED BY: DATE: 6-25-85 SHEET 50 OF _____
 JOB NO.: 6440-11 CLIENT: DOE - PNL TYPE OF ESTIMATE: ROM CKD BY: RM

UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
DIV 15	AREA #3												
	<u>HVAC (CONT)</u>												
5800	HEPA FILTERS (SHIELDED CANYON CELL #5 & #6)												
	TAG NO FPL-843												
	FPL-844												
	FPL-845												
	FPL-846												
	FPL-847		8	EA	106,500	-50		852,000			400		
	FPL-848												
	FPL-849												
	FPL-850												
	MTG HOUSE & FRT 15%		8		1,000			178,000					
	AIR FLOW = 6000 CFM												
	LOCATION = M-225 & M-237												
	5/TOTAL		8	EA	1,000	50		980,000			400		

PARSONS

CLINCH RIVER - BASE CASE ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
5. Liem				AUG 1985								
JOB NO.: 6440-11		CLIENT: DOE/PNL		TYPE OF ESTIMATE ROM		CHECKED BY p.m						
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY												
ACCNT												
Div.15	Mechanical											
	HVAC (con't)											
15800	HEPA Filters (Make-up to Rm 3007, 3031)											
	Tag No FPL - 851 FPL - 854											
	FPL - 855 FPL - 858	4	EA	170750	00		683000			352		
	Mtg. Hdwe. & Fct. (15%)	N/I	4	EA	25625		102500					
	Air Flow = 10,605 CFM Location = Rm 3007 & 3031											
	Sub-Total	4	EA				785500			352		
15800	HEPA Filters (Shielded Process Cells 1,3 & 2,4)											
	Tag No FPL - 852 FPL - 853	4	EA	188050	100		752200			400		
	FPL - 856 FPL - 857											
	Mtg. Hdwe & Fct. (15%)	4	EA	28250			113000					
	Air Flow = 12,000 CFM Location = Rm 3007 & 3031											
	Sub-Total	4	EA				865200			400		

M.T.O. BY S. LIEM PRICED BY _____ DATE 6-25-85 SHEET 52 OF 17
 JOB NO.: 6440-11 CLIENT: _____ TYPE OF ESTIMATE: ROM CKD BY: rom

JNIT/AREA	DESCRIPTION	CAPACITY	CENT	QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
	MRS - R & H BLDG													
	AREA #3													
	<u>HVAC (CONT.)</u>													
5800	HEPA FILTERS (REMOTE HANDLING AIR FILTR. CELL)													
	TAG NO. FPL-859 FPL-860			2	EA	79,700	-	32	159,400			64		
	AIR FLOW : 3900 CFM LOCATION : RM # 3015 & # 3025													
	MITG HOWE & FRT 15%			2	EA	12000			24000					
	S/TOTAL			2	EA	91700		32	183400			64		
5800	HEPA FILTERS (EXH. FILTR. RM # 3044)													
	TAG NO FPL-861 FPL-862			2	EA	39,300	-	16	78,600			32		
	AIR FLOW : 1900 CFM LOCATION : RM # 3044													
	MITG HOWE & FRT 15%			2	EA	5900			11800					
	S/TOTAL			2	EA	45200		16	90400			32		
5800	HEPA FILTERS (MAKE UP TO RM. M-115)													
	TAG NO FPL-863			1	EA	79,700	-	32	79,700			32		
	AIR FLOW = 3600 CFM LOCATION : M-115													
	MITG HOWE & FRT 15%			1	EA	12000			12000					
	S/TOTAL			1	EA	91700		32	91700			32		

3-403

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET		OF				
S. LIEM				6-25-1985		52		OF				
JOB NO.:		CLIENT:		TYPE OF ESTIMATE:		CKD BY:						
6440-11				ROM		Rm						
UNIT/AREA		QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY												
ACCNT												
DIV. 15												
AREA # 3												
HVAC (CONT)												
15800												
HEPA FILTER												
(REMOTE HANDLING FILTRATION COLL)												
TAG NO. F-817												
F-818		4	EA	2150.	8		8,600.-			32		
F-819												
F-820												
AIR FLOW = 500 CFM												
LOCATION = RM. 3015 & 3025												
MTG HOWE & FRT 15%		4	EA	350			1,400					
S/TOTAL		4	EA	2500	8		10,000			32		

PARSONS

ESTIMATE WORKSHEET

CINCINNATI RIVER - BASE CASE

M.T.O. BY ENGINEERING PRICED BY V. MESSER DATE AUG 95 SHEET OF
 JOB NO.: 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY AS

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT DIV.	AREA # 3												
16	Summary												
16100	POWER DIST.							528,000					31,772
16400	SERVICE DISTRIBUTION		1	LOT				1,799,000					8,430
16500	LIGHTING, CONDUIT, WIRE		1	LOT				1,023,000					42,405
16500	RECEPTACLES		1	LOT				300,000					31,629
16550	GROUNDING		1	LOT				45,000					2,198
16603	FIRE ALARM		1	LOT				365,000					13,066
16700	COMMUNICATIONS		1	LOT				162,000					7,326
16900	INST/CONTROL CONDUIT & WIRE		1	LOT				1,482,000					58,694
16	S/TOTAL							5,704,000					19,450

CUNY RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY J.J. PRICED BY J.J. DATE AUG-15 SHEET 1 OF 2
 JOB NO.: 6440-11 CLIENT: PNL-DOE TYPE OF ESTIMATE DOM CHECKED BY JJ

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT DIV-16	ELECTRICAL		ARCH-1, 2, 3 & 4										
16100	<u>POWER DISTRIB.</u>												
	SS-04		SH-3				82190				3494		
	SS-07		SH-7				117910				6415		
	SS-08		SH-10				146170				9140		
	SS-09		SH-13				118640				7672		
	SS-10		SH-18				126840				8755		
	SS-10		SH-19				45620				3176		
	SS-11		SH-23				134690				7843		
							772060				46495		
	<u>COND'T PENETR 5%</u>						38600				2325		
							810660				48820		
	<u>BACK-UP IN AREA-4</u>												
	<u>REFERENCE ONLY</u>												

PARSONS
ESTIMATE WORKSHEET

CUNY RIVER - BASE CASE

M.T.O. BY J.V. PRICED BY J.V. DATE AUG-15 SHEET OF
 JOB NO.: 6740-11 CLIENT: PNL-DOE TYPE OF ESTIMATE RSM CHECKED BY K

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
ACCNT DIV-16	ELECT		AREA-3										
16400	POWER GEAR												
	AREA-1 = 63318 SF		.0956%										
	-2 = 30736 SF		.0464%										
	-3 = 430942 SF →		.6508%				1,798,820				8430		
	-4 = 137187 SF		.2072%										
							2,764,020				12,953		
	2764020 x .6508						1,798,820				8430		
	12953 x .6508												
							USE	1,798,820					
	BACK-UP IN AREA-4												

PARSONS

ESTIMATE WORKSHEET

Clinch River - Base Case

M.T.O. BY N.J PRICED BY N.J DATE AUG-15 SHEET 2 OF 2

JOB NO.: 6440-11 CLIENT: PNC - DOE TYPE OF ESTIMATE ROM CHECKED BY nk

UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION	CAPACITY			MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT												
DIV-16	ELECTRICAL AREA 1,2,3 & 4											
16400	POWER GEAR											
	SS-04 SH-2						316500				1015	
	SS-07 SH-4						290200				689	
	SH-5						75200				478	
	SH-6						227260				1791	
	SS-08 SH-8						289000				615	
	SH-9						192410				1037	
	SS-09 SH-11						225300				595	
	SH-12						196550				804	
	SS-10 SH-14						222800				724	
	SH-15						35880				215	
	SH-16						33510				207	
	SH-17						27480				1411	
	SS-11 SH-20						224490				749	
	SH-21						59380				378	
	SH-22						165890				1700	
							2,632,400				12,336	
	COND'T PENETR 5%						131,620				617	
							2,764,020				12,953	
	BACK-UP IN AREA-4											
	REFERENCE ONLY											

CUNY RIVER - BASE CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET					
N. J.		J. J.		AUG-15		1 OF					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY					
6440-11		PNL-DOE		ROM		JK					
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HRS	DOLLARS	M/HRS	DOLLARS	
CAPACITY											
ACCNT											
DIV. 16											
ELECTRICAL AREA - 3											
16500 LIGHTING											
AREA - 1 = 63,318 SF				26 ³⁵	.1155	1668430				7313	
AREA - 2 = 30,736 SF				26 ³⁵	.1155	809890				3550	
AREA - 3 = 430,942 SF				2.375	.0984	1023490				42405	
AREA - 4 = 137,187 SF				2.375	.0984	325820				13500	
						3,827,630				66,768	
430,942 x 2.375						1,023,490				42,405	
430,942 x .0984						USE 1,023,000					

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY J.J. PRICED BY J.J. DATE AUG 1985 SHEET ___ OF ___

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HRS	DOLLARS	M/HRS	DOLLARS	
Div. 16	Lighting Study	MRS Facility	Electrical											
16500	Area 8x8 = 64 sq. ft													
	2'x4' 4 Floor Tubes			1	E	100	2			100		2		
	3/4" ϕ RGS			25	LF	1.	.03			25		2		
	Ft & Support 50%									10		1		
	#12 Wires 30x3			90	LF	.065	.008			10		1		
										145		6		
	Cond. Floor Penetration 5%									7		0.3		
										152		6.3		
	6.3 ÷ 64 =			1	ϕ		.0084							
	152 ÷ 64 =			1	ϕ	2.375								

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY J.J. PRICED BY J.J. DATE AUG-15 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: PNL-DOE TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
	<u>R & H BLDG</u>													
	<u>RECEPT, COND'T & WIRE</u>													
	<u>MRS FACILITY</u>													
<u>DIV. 16</u>	<u>ELECTRICAL AREA-3</u>													
<u>16500</u>	<u>RECEPTACLES</u>													
	<u>SUMMARY</u>													
	<u>AREA-3 = 430,942 SF</u>							<u>.6957</u>	<u>.0734</u>	<u>299,540</u>			<u>31,629</u>	
	<u>AREA-4 = 137,179 SF</u>							<u>.6957</u>	<u>.0734</u>	<u>95,350</u>			<u>10,068</u>	
										<u>394,890</u>			<u>41,697</u>	
	<u>430,942 SF x .6957</u>									<u>299,540</u>			<u>31,629</u>	
	<u>430,942 SF x .0734</u>									<u>300000</u>				
								<u>Use</u>						

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET					
J.J.		J.J.		AUG-15		6 OF 6					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY					
6410-11		PNL-DOE		ROM		JJK					
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY		R & H BLDG..									
ACCNT		D1016 ELECTRICAL AREA 3									
DESCRIPTION		16550 GROUNDING									
DESCRIPTION		THRU FLOOR 75 X 4 300									
DESCRIPTION		GRND 665 + 665 + 545 + 545 = 2420									
DESCRIPTION		SEC. 535 + 520 + 520 X 3 = 4725									
DESCRIPTION		70 X 14 = 980									
DESCRIPTION		26 X 10 = 260									
DESCRIPTION		GRND, FIRST, SEC, ME2, ME4, THIR-6000									
DESCRIPTION		14685									
DESCRIPTION		COND 1" φ 8815									
DESCRIPTION		TRENCHING & BACKFILL 2420 LN 5 .08 12180 194									
DESCRIPTION		FLOOR PENETR. 12 E 20 3 240 36									
DESCRIPTION		4/0 GRND CABLE 14685 LN 1.8 .036 26430 529									
DESCRIPTION		GRND WCU 8 E 100 4 800 32									
DESCRIPTION		CADDWELL 130 G 2 1 260 130									
DESCRIPTION		GRND TERM. 160 E 2 1- 320 160									
DESCRIPTION		#2 GRND 500 X 10 = 5000 LF .66 .102 3300 100									
DESCRIPTION		METAL GRND TERM 500 E 1 .53 500 165									
DESCRIPTION		1 1/2" RGS & FITTING 1.85 X 1.5 8815 LF 2.75 .21 24240 1851									
DESCRIPTION		GRND MCC & SWGER 46 E 10 4 460 184									
DESCRIPTION		68,650 3381									
DESCRIPTION		MATERIAL COST PER SQ FT									
DESCRIPTION		68,650 ÷ 662,183 \$.104									
DESCRIPTION		3381 ÷ 662,183 .0051									

PARSONS
ESTIMATE WORKSHEET

CLINTON RIVER - BASE CASE

M.T.O. BY J.J. PRICED BY J.J. DATE AUG-15 SHEET 1 OF 1
 JOB NO.: 6440-11 CLIENT: PNL-DOE TYPE OF ESTIMATE ROM CHECKED BY RS

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
	<u>R&H BLDG</u>													
	<u>FIRE ALARM SYSTEM</u>													
	<u>MRS FACILITY</u>													
<u>DIV 16</u>	<u>ELECTRICAL AREA 3</u>													
<u>16603</u>	<u>FIRE ALARM SUMMARY</u>													
	<u>AREA # 1</u>			<u>-0-</u>					<u>-0-</u>			<u>-0-</u>		
	<u>AREA # 2</u>			<u>-0-</u>					<u>-0-</u>			<u>-0-</u>		
	<u>AREA # 3 = 430,942 SF</u>					<u>.847</u>	<u>.028</u>		<u>365000</u>			<u>12,066</u>		
	<u>AREA # 4 = 137,187 SF</u>					<u>.847</u>	<u>.028</u>		<u>116200</u>			<u>3841</u>		
									<u>481,200</u>			<u>15,907</u>		
	<u>430,942 X .847</u>								<u>365000</u>			<u>12,066</u>		
	<u>430,942 X .028</u>													

PARSONS

ESTIMATE WORKSHEET

CLINTON RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE		SHEET							
J.J.		J.J.		AUG-15		1 OF 1							
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY							
6440-11		PNL-DOE		ROM		[Signature]							
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY													
ACCNT													
PHONE & COM.													
R & H BLDG -													
MRS FACILITY													
ELECTRICAL AREA-3													
DIV. 16													
16700 COMMUNICAT													
AREA #1 = 0													
#2 = 0													
#3 = 430,942 S.F.													
#4 = 137,187 S.F.													
		.375 .017			161,600		7326						
		.375 .017			51,450		2332						
					213,050		9658						
					161600		7326						
		USE			162000								
430,942 S.F. X .375													
430,942 S.F. X .017													

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY J.J.		PRICED BY J.J.		DATE AUG-15		SHEET 4 OF								
JOB NO.: 6440-11		CLIENT: PNL-DOE		TYPE OF ESTIMATE (ROM)		CHECKED BY								
UNIT/AREA	DESCRIPTION	CAPACITY	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE		SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
ACCNT DIV 16 16700	PHONE & COMMUN. R & H BLDG MRS FACILITY													
	ELECTRICAL AREA 3 COMMUNICAT													
	CONSIDER FOR EVERY 20' X 20' = 400 \$ ONE PHONE													
	ONE PHONE		1	E	50	.25		50				.25		
	J BOX & PHONE PLUG		1	E	10	1.5		10				1.5		
	3/4" \$ RGS 30'		30	LF	.9	.08		30				2.5		
	PHONE WIRE		40	LF	.2	.008		10				.5		
	FITTING & SUPPORT 10%							15				1.25		
								115				6-		
	25% TOWARDS PNL							30				1.5		
								145				7.5		
	FLOOR PENETR. 5%							10				.38		
								155				7.88		
	PA SYSTEM 40 X 40 = 1600 \$													
	ONE SPEAKER		1	E	100	1.5		100				1.5		
	3/4" RGS COND.		40	LF	.9	.08		40				3.2		
	CABLE		50	LF	.2	.008		10				.5		
	FITTING & SUPPORT 10%							20				1.6		
								170				6.8		
	25% TOWARDS EQUIP'T							40				1.2		
								210				8.5		
	FLOOR PENETR 5%							10				.43		
								220				8.93		
	400 \$ + 1600 \$ = 2000 \$ ÷ 2 = 1000 \$													
	#155 + 220 = ÷ 1000 =		1	\$	0.375									
	7.88 + 8.93 = ÷ 1000 =				.017									

CLINCH RIVER BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY V. Meese PRICED BY V. Meese DATE Aug. 85 SHEET OF
 JOB NO. 6440-11 CLIENT: DOE/PNL TYPE OF ESTIMATE ROM CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LABS		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT	Summary of Deducts Area #3												
DIV 17	INSTRUMENTATION.												
1702	CHANGE COST		From 200	EA				50000				200	
			To 187	EA				46750				187	
			Deduct					(3250)				(13)	
1706	CHANGE COST		From 150	EA				46500				300	
			To 138	EA				37250				276	
			Deduct					(2940)				(24)	
1706	CHANGE COST		From 200	EA				50000				400	
			To 191	EA				47750				382	
			Deduct					(2250)				(18)	
1714	CHANGE COST		From 1	lot				500000					
			To 1	lot				420000					
			Deduct					(80000)					
1702	CHANGE COST		From 350					133000				350	
			To 310					117800				310	
			Deduct					(15200)				(40)	
1715	CHANGE COST		From 100					10000				300	
			To 82					8200				246	
			Deduct					(1800)				(54)	
Σ TOTAL DEDUCTS THIS SHEET								105740				149	

CLINCH RIVER BASE CASE

ESTIMATE WORKSHEET

M.T.O. BY V. MESEC PRICED BY V. MESEC DATE Aug 85 SHEET OF
 JOB NO. 6440-11 CLIENT: DOE/PNG TYPE OF ESTIMATE COM. CHECKED BY

UNIT/AREA	DESCRIPTION	CAPACITY	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
					MATL	M/H	LABS		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
ACCNT	Summary of Deducts Area #3												
DIV. 17	INS TRIMMERTATION												
1710	CHANGE COST							1,395,463					
								1,346,781					
								DEDUCT					
								78,624					
1714	CHANGE COST							33,000					
								26,853					
								DEDUCT					
								(6,145)					
1710	CHANGE COST		20	16				33,500			800		
								26,000			640		
								DEDUCT					
								(7,500)			(60)		
1710	CHANGE COST							150,000					
								147,000					
								DEDUCT					
								(3,000)					
								45,269			60		
								105,740			149		
								318,546			668		
								TOTAL DEDUCTS					
								469,535			877		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER SITE - BAE6 C&E

M.T.O. BY C.E. HUCIK PRICED BY CEH / BH DATE 7/3/85 SHEET 2 OF 5

JOB NO.: 6440-11 CLIENT: PAUL/DC TYPE OF ESTIMATE Rom CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	QUANTITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
UNIT/AREA	R & H BUILDING											
DESCRIPTION	INSTRUMENTATION & CONTROLS											
CAPACITY	AREA 3 (ALSO PARTLY IN 1,2,4,5,6)											
ACCNT												
DIV. 17	INSTRUMENTATION											
1701	DISTRIBUTED CONTROL SYSTEM											
	COMPUTER PRODUCTS CO. OR EQUAL											
	CONSISTING OF THE FOLLOWING:											
	LABOR ALLOWANCE	1	LOT								5600	
	PROCESS INFORMATION CENTERS (PICS) EACH	2	EA				144	814				
	W/ VIDEO GENERATORS FOR 3 COLOR CONSOLES											
	PIC DISK UNITS (40 MB W/ BACK	2	EA				36	738				
	ALARM PRINTER / LOGGER	3	EA				14	204				
	COLOR CONSOLE W/ KEYBOARD & ENCLOSURE	6	EA				86	052				
	ENGINEERS PROGRAMMING TERMINAL,	1	EA					2795				
	B&W, W/ KEYBOARD											
	MULTIFUNCTION CONTROLLERS (MFCs) FOR	4	EA				120	192				
	STORAGE AREA RS-232C INPUTS											
	MFCs FOR PROCESS & HVAC AREAS	4	EA				120	192				
	HIGH SPEED RS-232C INTERFACES, PROCESS	10	EA				45	090				
	UNIVERSAL I/O CONTROLLER, PROCESS & HVAC	18	EA				34	920				
	A/D CONVERTER CARD	6	EA				6	510				
	STANDARD SPEED GATE CARD	38	EA					9500				
	4-CHANNEL ANALOG OUTPUT CARD	75	EA					34500				
	I/O BUS CONVERTER	16	EA					8080				
	16-BIT DIGITAL INPUT CARD	88	EA					20680				
	16-BIT DIGITAL OUTPUT CARD	50	EA					11500				
	8-NODE WIRE CENTERS FOR REDUNDANT	2	EA					6344				
	TC-NET											
	TCS STANDARD CABINETS, 72 IN.	18	EA					46350				
	PROTECT SERVICES, SYSTEM INTEGRATION,	1	LOT					198000				
	CHECKOUT & PROTECT MGT.											
	COLOR VIDEO COPIER	4	EA					52000				
	COLOR CONSOLE, REMOTE, CRT	2	EA					28684				
	BLACK & WHITE VIDEO COPIER	1	EA					1000				
	REDUNDANT TC-NET	1	LOT					103928				
	BARRIER TERMINAL STRIP ASSEMBLIES	1	LOT					246432				
	REDUNDANCY OF GALLERY REMOTE MUX'S	1	LOT					101392				
	ADJ							3				
	(CONT'D)											
	SHEET TOTAL							1476900			5600	

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER SITE - BASE CASE

M.T.O. BY C.E. HUCK PRICED BY CEH/BAH DATE 7/3/85 SHEET 3 OF 4

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

UNIT/AREA R & H BUILDING QUANTITY UNIT COST OR M/HR PER UNIT MATERIAL EXPENSE SUBCONTRACT LABOR TOTAL DOLLARS

DESCRIPTION CAPACITY AREA 3 (ALSO PARTLY IN 1,2,4,5,6) MATL M/H LAB \$ M/HR DOLLARS M/HR DOLLARS

ACCNT Div, 17

1701 (CONT'D) NOTE:
 ITEMS INCLUDED IN THE CONTROL ROOM PERIPHERAL EQUIPMENT ITEMS (ITEMS 1 THRU 5) ARE REDUNDANT WITH IDENTICAL EQUIPMENT LOCATED IN THE SITE SERVICES BLDG. ADD FOR COST INCREASE IN SITE SERVICES BLDG \$ 294,604. ADD FOR COST INCREASE TO ADMINISTRATION BLDG 1 TERMINAL AT \$ 14,342.

1701 PROGRAMMABLE LOGIC CONTROLLER SYSTEM FOR PROCESS & CANYON CALLS, ALLEN BRADLEY OR EQUAL
 PLC-3 CONTROLLER & BACKUP INCLUDING FASTRAC 6000 SERVO LOOP CONTROLLERS, POWER SUPPLIES, COMMUNICATION CONTROLLERS, COLOR GRAPHIC SYSTEMS CONTAINING 19" CRT'S & KEYBOARDS, REDUNDANT DATA HIGHWAY, INPUT/OUTPUT EQUIPMENT, AND ALL RS-232C SERIAL INTERFACE EQUIPMENT TO THE DISTRIBUTED CONTROL SYSTEM. INCLUDES ALL FABRICATION ENCLOSURES, SOFTWARE, PROJECT MGT, INSTALLATION & STARTUP ENG'G.

1701 DEC GENERAL PURPOSE COMPUTER TERMINAL OR EQUAL, CONSISTING OF ;
 VT-220-B VIDEO TERMINAL W/ KEYBOARD
 LA100-BA KSR PRINTER
 DF02-AA MODEM

ADJ
 SUBSET TOTAL

4 169 200 16050

CUNCE RIVER - BPSB CASE

PARSONS
ESTIMATE WORKSHEET

M.T.O. BY E.M. BABAJANIAN PRICED BY BH DATE 6-25-85 SHEET 4 OF 4
 JOB NO.: 6440-11 CLIENT: PAL/DOE TYPE OF ESTIMATE ROM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV. 17	INSTRUMENTATION											
1702	CONTROL VALVE, MASONBILAN SERIES 29000 - BODY MATERIAL; 300 SERIES S.S., PLUG AND SEAT; 300 SERIES S.S.; WITH PNEUMATIC DIAPHRAGM OPERATOR FOR 3-15 PSIG SIGNAL RANGE.	300	EA	3000	3		900000			900		
1702	EACH VALVE SHALL HAVE AN INTEGRAL CURRENT TO PRESSURE CONVERTER MOUNTED ON THE ACTUATOR BONNET TO CONVERT 4-20 MA CURRENT TO 3-15 PSIG PNEUMATIC SIGNAL	300	EA	250	-		75000			W/VALVES		
1702	SOLENOID OPERATED VALVE 3-WAY, 24 VDC OR 115 V AC COIL, ASCO SERIES 8000, 1/2" PIPE SIZE ORIFICE 1/8" TO 5/8". BODY S.S., SOFT SEAT, W/ NEMA 4 ENCLOSURE	200	EA	250	1		50000			200		
SHEET TOTAL		800	EA				1025000			1100		

PARSONS

ESTIMATE WORKSHEET

CLINTON RIVER - BOSE CASE

M.T.O. BY E.M. BABAJANIAN		PRICED BY BA		DATE 7/8/85				SHEET 5 OF 5				
JOB NO.: 6440-11		CLIENT: PNL/DOE		TYPE OF ESTIMATE ROM				CHECKED BY [Signature]				
UNIT/AREA R#H BUILDING		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA 3												
ACCNT												
DIV. 17 INSTRUMENTATION												
17D0	DIFFERENTIAL PRESSURE TRANSMITTER ROSEMOUNT 1151 FOR LEVEL, FLOW, AND DIFFERENTIAL PRESSURE MEASUREMENTS	350	EA	1765	15		617750			5250		
17D6	MAGNETIC FLOW METER, SPARKING PDS-650 1 TO 30 FPS FOR 0.25 IN METER SIZE, 304L SS. W/ KYNAR LINER	25	EA	7200	10		180000			250		
SHEET TOTAL		375	EA				797750			5500		

PARSONS

ESTIMATE WORKSHEET

CLINTON RIVER - BASE CASE

M.T.O. BY C.E. HARRIS

PRICED BY CEM/BH

DATE 7/5/85

SHEET 7 OF

JOB NO.: 6440-11

CLIENT: PUL-DCE

TYPE OF ESTIMATE Rom

CHECKED BY

UNIT/AREA R&H BUILDING

DESCRIPTION

CAPACITY Area 3 (Also in 1,2,4,5,6)

ACCT

Div. 17

RADIATION MONITORING AND CENTRUM

DIRECTION INSTRUMENTATION SYSTEM,

EBERLINE OR EQUIV, CONSISTING OF:

CT-20 CONTROL TREATMENT

SPIN-3A SYSTEM PARTICULATE & NOISE

GAS MONITOR WITH OPONS

DAI-7C NEUTRON CAPABILITY DETECTORS

DAM-4-9 DATA ACQUISITION MODULES FOR

USE WITH CENTRUM DETECTORS

SLM-1 GASK OFF GAS/HX & COND. EFFLUENT MONITOR

SAMPLING SYSTEM FOR SLM-1

DAM-4-3 DATA MODULE FOR SLM-1

AMS-3 CONTRA. BETA MONITOR

DAM-4-9 DATA MODULE FOR AMS-3

ALPHA-6A ALPHA MONITOR

DAM-4-9 DATA MODULE FOR ALPHA-6A

DAI-6CC/RT-8 GAMMA AREA MONITORS,

INCLUDES LOCAL ALARMS

DAM-4-9 DATA MODULE FOR DAI-6CC W/

8 ANALOG OUTPUT CHANNELS

SA-5/RDA-2A/CSM-1/IR2/DAM-4

EFFLUENT WATER MONITOR WITH DAM UNIT

PM-6 PORTAL MONITOR

PM-1 PERSONNEL CONTAMINATION MONITOR

HEM-6 HAND & FOOT MONITOR

FM-40 FLOOR MONITOR

RM-22 LAUNDRY MONITOR

EMERGENCY KIT: ESP-1, AC3-7, HP-260,

HP-270 HP-290, CCAL2

ESP-1/HP-260 PORTABLE SURVEY INSTR.

RO-3D CUTIE PIE INSTRUMENTS

RGIF-IR5232C INTERLOCK FOR DCS

CONT'D ON NEXT SHEET

UNIT	QUAN-TITY	COST OR M/HRS PER UNIT	MATERIAL EXPENSE	M/HRS	DOLLARS	SUBCONTRACT	M/HRS	DOLLARS	LABOR	M/HRS	DOLLARS	TOTAL DOLLARS
EA	1	15555			15555							15555
EA	3	51600			154980							154980
EA	48	1350			64800							64800
EA	6	13650			81900							81900
EA	37	2800			103600							103600
EA	2	5000			10000							10000
EA	13	11730			152490							152490
EA	19	3930			74670							74670
EA	5	13130			65650							65650
EA	5	3820			19100							19100
EA	2	13130			26260							26260
EA	52	1770			92040							92040
EA	6	16230			97380							97380
EA	4	30000			120000							120000
EA	5	19895			99475							99475
EA	1	23850			23850							23850
EA	3	10850			32550							32550
EA	2	5000			10000							10000
EA	1	14000			14000							14000
EA	2	1800			3600							3600
EA	36	700			25200							25200
EA	37	995			36825							36825
EA	1	8850			8850							8850

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY C.E. HICK		PRICED BY CEN/CH		DATE 7/3/85		SHEET 8 OF					
JOB NO.: 6440-11		CLIENT: PNL-DOE		TYPE OF ESTIMATE Rom		CHECKED BY					
UNIT/AREA R&H BUILDING		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY AREA 3 (ALSO IN 1,2,4,5,6)											
ACCNT											
1710	CONTINUED FROM PREVIOUS PAGE (RAD. MONIT. & CRITICALITY DET. (CONT'D))										
	RS232C INTERFACE, CONT. TERM TO CRT	1	EA	815			815				
	3 DAYS' SERVICE ENG'G & T.S.L.	1	LOT	2860			2860				
	DAI-600 GAMMA AREA MONITORS FOR 1ST STAGE HVAC FILTERS	22	EA	870			19140				
	DAM4-9 DATA MODULE FOR DAT-600S	3	EA	13130			39390				
	NOTE: ALL PORTABLE 1710 COMPONENTS ARE ASSIGNED TO THE R&H BLDG, EVEN WHEN USED IN THE SUPPORT BLDGS, STORAGE AREAS AND GATE HOUSE. AN ADDITIONAL AMOUNT MUST BE ADDED FOR ONE CT-20 CONTROL TERMINAL IN THE SITE SERVICES BLDG AND ONE ADD'L PM-6 PORTAL MONITOR IN THE PROTECTED AREA GATE HOUSE.										
	RADIATION MONITOR & CRITICALITY DETECTOR SUBTOTAL						1395405			5300	
	ADJ						(5)				
	SHEET TOTAL	1	LOT				1395400			5300	

PARSONS
ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY		PRICED BY		DATE				SHEET					
E.M. BABAJANIAN				6-25-85				9 OF 10					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE				CHECKED BY					
6440-11		PNL/DOE		RDM				JTS					
UNIT/AREA		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS		
DESCRIPTION				MATL	M/H	LAB \$	M/HR	DOLLARS	M/HR	DOLLARS			
CAPACITY													
AREA 3													
ACNT													
DIV. 17													
INSTRUMENTATION													
1710	CHTRU/LLW INTERROGATION ASSAY SYSTEM, NUCLEAR DATA, CONSISTING OF THE FOLLOWING:	1	LOT					150,000			500		
	ND-65 MULTICHANNEL ANALYZER (COMPUTER TERMINAL)	1	EA										
	ND-11 COMPUTER SYSTEM	1	SYS										
	RSX-11M MULTIPLE USER SYSTEM, ALL INTERFACING, PROGRAMMING, HARDWARE CABINETS AND WIRING NECESSARY FOR PROPER OPERATION TO LOS ALAMOS NATIONAL LABORATORY SPECIFICATIONS.	1	LOT										
	INCLUDED WILL BE FACTORY TEST 5 DAYS, INSTALLATION (SITE TEST, 5 DAYS, (ONSITE OPERATIONAL TRAINING 2 DAYS.												
1710	LEAD PIG FOR RADIOACTIVE "GRAB" SAMPLE TRANSPORT. TO PROVIDE 3 IN. THICK SHIELDING ON ALL SIDES. GAMMA PRODUCTS. QUOTATION # 85-5-1	20	EA	1675				33,500			800		
SHEET TOTAL								183,500			1300		

PARSONS

ESTIMATE WORKSHEET

CLINTON RIVER, BASE CASE

M.T.O. BY C.E. HUCK PRICED BY CEN/AH DATE 7/3/85 SHEET 11 OF 15

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

UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
Div. 17	INSTRUMENTATION											
1712	BREATHING AIR ANALYSIS SYSTEM	1	LOT				11700			200		
	CONSISTING OF:											
	BECKMAN 865 CO ANALYZER	1	EA									
	BECKMAN 340 MOISTURE ANALYZER	1	EA									
	SAMPLE CONDITIONING CANNIST CONTAINERS	1	EA									
	METERING VALVING & CALIBRATION MEANS											
	SIZE: 80"W x 30"D x 72" H											
1712	MASS SPECTROMETER, LABORATORY TYPE,	1	LOT	20000			20000			100		
	VARIAN MODEL 936-WOSP INCLUDING											
	7 CFM FOREPUMP, 7 CFM ROUGHING PUMP,											
	& STAINLESS STEEL DIFFUSION PUMP, COLD											
	TRAP & COLD CATHODE & THERMOCOUPLE											
	GAUGES FOR LABORATORY ANALYSIS											
1712	GAS CHROMATOGRAPH, LABORATORY TYPE	1	LOT	2150			21150			200		
	HEWLETT-PACKARD MODEL 5870 A w/											
	OPTIONS INCLUDING VALVING INTERCONNECTING											
	FITTINGS, COLUMN & FLAME IONIZATION &											
	THERMAL CONDUCTIVITY TYPE DETECTORS,											
	X-Y RECORDER & DOT MATRIX											
	PRINTER.											
	SHEET TOTAL	1	LOT				52350			500		

PARSONS
ESTIMATE WORKSHEET

CLINTON RIVER - BASE CASE

M.T.O. BY <i>E.M. BABAJANIAN</i>		PRICED BY		DATE <i>6-25-85</i>				SHEET <i>12</i> OF <i>12</i>				
JOB NO.: <i>6440-11</i>		CLIENT: <i>PNL/DOE</i>		TYPE OF ESTIMATE <i>ROM</i>				CHECKED BY <i>[Signature]</i>				
UNIT/AREA <i>R/H BUILDING</i>		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION <i>INSTRU. AND CONTROL EQUIPMENT</i>				MATL	M/H	LAB\$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY <i>AREA 3</i>												
ACCNT DIV. 17	INSTRUMENTATION											
1712	NON-DISPERSIVE INFRARED ANALYZER, LABORATORY, FOR ANALYSIS OF CO, CH ₄ , SO ₂ , NO, HC. BECKMAN 865.	1	EA	4100			4100			100		
	RELAY RACK CONTAINING ELECTRONICS, VALVING, CALIBRATION & SAMPLING EQUIPMENT	1	LOT	5,000			5000			100		
1712	OIL (HC) IN-LINE ANALYZER TELE-DYNE MODEL 660, INCLUDING SAMPLING SYSTEM AND VALVING, IN NEMA 12 CABINET.	1	LOT	12,030			12030			100		
1712	SOLVENT FREDON (C ₂ CL ₂ , F ₂) DETECTOR, HORIBA VIA-500 NDIR, FOR IN-LINE ANALYSIS OF TRACE QUANTITIES OF FREDON IN THE OFF-GAS LINE FROM THE CANISTER WELDING STATION.	1	LOT	5,000			5000			100		
	RELAY RACK CONTAINING ELECTRONICS, VALVING, CALIBRATION & SAMPLING EQUIPMENT.	1	LOT	5,000			5000			100		
	ADJ											
	SHEET TOTAL						31,150			500		

PARSONS

ESTIMATE WORKSHEET

CLINCH RIVER - BASE CASE

M.T.O. BY C.E. HUCK PRICED BY CAH/BAH DATE 7/3/85 SHEET 13 OF 15
 JOB NO.: 6440-11 CLIENT: PNL/DOE TYPE OF ESTIMATE RDM CHECKED BY [Signature]

UNIT/AREA	DESCRIPTION	QUAN-TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT												
DIV. 17	INSTRUMENTATION											
1712	HELIUM LEAK DETECTOR FOR CHECKING CANNISTER WELDS. VARIAN # 938-41, CART MOUNTED, MASS SPECTROMETER W/ 90 L/SEC SS DIFFUSION PUMP, COLD CATHODE GAUGE & THERMOCOUPLE GAUGE IN PORT MANIFOLD & ROUGHING PUMP. WHOLE SYSTEM TO BE MOUNTED ON CART INCLUDING ALL VALVING & TUBING PLUS CONNECTIONS.	1	LOT				14,000			100		
SHEET TOTAL							14,000			100		

PARSONS

ESTIMATE WORKSHEET

CUNCI RIVER BASE CASE

M.T.O. BY E.M. BARGJANIAN		PRICED BY EMB/BJH		DATE 7/3/85		SHEET 15 OF						
JOB NO.: 6440-11		CLIENT: PNL/DOE		TYPE OF ESTIMATE ROM		CHECKED BY [Signature]						
UNIT/AREA R&H BUILDING		QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LAB \$	M/HR\$	DOLLARS	M/HR\$	DOLLARS		
CAPACITY AREA 3												
ACCNT												
DIV. 17 INSTRUMENTATION												
1714	THERMOCOUPLE & WELL ASSEMBLY, THERMOELECTRIC 3C TYPE K (CHROMEL-ALUMEL), WELL: 300 S.S. W/ ALUMINUM HEAD AND 1/2" NPT CONDUIT CONNECTION	150	EA	270	2		40500				300	
	WIRE SIZE: # 20 AWG CONSTRUCTION: COMPACTED MgO INSULATED THERMOCOUPLE											
1714	MISC. INSTRUMENTS SUCH AS WEIGH SENSORS (WEIGHING SYSTEMS) DIGITAL COUNTERS, TIMERS, TACHOMETERS, ETC		A/R				500000				5000	
SHEET TOTAL		1	LOT				540500				5300	

PARSONS

ESTIMATE WORKSHEET

Clinch River, BASE CASE

M.T.O. BY E.M. BABAJANIAN PRICED BY _____ DATE 7/8/85 SHEET 16 OF 17

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

UNIT/AREA	DESCRIPTION	CAPACITY	ACCNT	QUAN-TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
						MATL	M/H	LAB \$		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
	<u>R9H BUILDING</u>	<u>AREA 3</u>												
	<u>INSTRUMENTATION</u>													
<u>1715</u>	<u>ORIFICE PLATE, FLOW MEASURING,</u> <u>DANIEL #520, S.S. 0.125" THK</u> <u>ANSI 150#, BORE: SQUARE AND</u> <u>SHARP.</u>			<u>100</u>	<u>EA</u>	<u>100</u>	<u>3</u>		<u>10000</u>			<u>300</u>		
				<u>SHEET TOTAL</u>	<u>100 EA</u>				<u>10000</u>			<u>300</u>		

PARSONS

ESTIMATE WORKSHEET

CUNCH RIVER - BASE CASE

M.T.O. BY E.M. BABAJANIAN / PH PRICED BY EMB / BH DATE 7/12/85 SHEET 17 OF 18

JOB NO.: 6440-11 CLIENT: TYPE OF ESTIMATE RDM CHECKED BY [Signature]

UNIT/AREA DESCRIPTION CAPACITY		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB \$		M/HR	DOLLARS	M/HR	DOLLARS	
ACCNT DIV. 17	INSTRUMENTATION											
1718	INSTRUMENT INSTALLATION MAT'L											
	5- VALVE MANIFOLD FOR CALIBRATION & INTERCONNECTION OF DIP TRANSMITTERS IMPERIAL EASTMAN 790 SERIES, S.S.	350	EA	380	1		133000			350		
	INSTRUMENT SUPPORTS	500	EA	50	2		25000			1000		
	INSTR. AIR SUBHEADER	3000	LF	3.50	.43		10500			1290		
	INSTR. AIR SUPPLY	300	EA	80	12		24000			3600		
	TUBING & FITTING HOOKUP OF DIP TRNS.	350	EA	300	10		105000			3500		
	TUBING SUPPORTS	6000	LF	1.50	.18		9000			1080		
	MISC. HOOKUPS @ ~5%	1	LOT				15500			540		
	SHEET TOTAL	1	LOT				322000			11360		

