

94336.(file 94336A3)

TVA - FHP FHE ESTIMATING

Phase II Approval

rept:np95

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND
.ALT 3-TWO PUMPS & TWO PIPELINE.

24-Sep-94

09:23 AM

EXECUTIVE SUMMARY

Location	Material \$\$	T & L Man-Hours	Labor \$\$	Eqpt/Othr \$\$	Subcontr \$\$	Total Cost
A REMOVALS		488	8,750			8,750
COAL YARD SUMP	15,560	946	16,913			32,473
DX PUMPING ASSY	178,118	304	7,026			185,144
EARTHFILL	2,235	87	1,728	19		3,982
STNLS STL PIPE	46,346	385	9,256			55,602
SUMP - ASH POND	41,564	1,858	37,034	5,562		84,160
z0 ELECTRICAL	1,573	144	3,432	12		5,017
z1 HEAVY EQUIP				23,620		23,620
z1 TAGGED EQUIP				5,540		5,540
Construction Facilities		997	16,318	12,659	244	29,221
TOTAL DIRECT COST	285,394	5,207	100,451	47,411	244	433,499
Non-Manual Labor						30,600
		(Phase 2 = 6,000 + Phase 3 = 24,600)				
Total Contingency						32,800
		(Phase 2 = 10,700 + Phase 3 = 22,100)				
Partner Expnse/Charges(84E)						19,200
		(Fee = 9,600 + Ins = 9,600)				
TOTAL CONSTRUCTION						516,100
:: LESS Engineered Materials - (Phase 2 = 216,300 + 10,700 contingency)						227,000 <
TOTAL CONTRACT CONSTRUCTION						289,100
F&H Engineering						23,250
Plant Overhead Charges for Procurement & Handling of Capital Materials						12,000
Project Manager's Contingency						27,650
== TOTAL (PAB APPROVAL) COST ==						579,000

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ATTACHMENT 1

Loc	Description	Quantity	Unit	Material \$\$	M-H/Unit	Man-Hours	Labor \$\$	Eqpt/Othr \$\$	Subcont \$	Unit Cost	Total Cost
A REMOVALS											
	Electrical Demolition	1.0	ls	24.00		24	580			580.00	580
	Remove Pump & Piping	1.0	ls	144.00		144	2,561			2,561.00	2,561
	Remove Pump House & Slab	1.0	ls	180.00		180	2,614			2,614.00	2,614
	Remove Pump Platform & Piping	1.0	ls	140.00		140	2,995			2,995.00	2,995
	subtotal A REMOVALS	0		0		488	8,750	0	0	0	8,750
COAL YARD SUMP											
	Excavate for sump	810.0	cy	0.13		108	1,845			2.28	1,845
	Backfill for sump	470.0	cy	0.27		128	2,187			4.65	2,187
	Backfill 1" crushed stone	340.0	C.Y.	3,443		40	652			12.04	4,095
	Formwork for slab & walls sump	1,792.0	sfca	3,665		358	6,327			5.58	9,992
	Reinforcing place walls, #3 #7	4.4	ton	2,160		70	1,531			838.86	3,691
	Pour concrete in place 3000psi	60.0	cy	3,900		160	2,610			108.50	6,510
	Welded shear conn 3/4"x4 - 3/16"	24.0	ea	24		18	394			17.42	418
	3"x3"x5/16 steel angle A36	10.0	lf	40		6	131			17.10	171
	Str stl,wf,10' - 45's,w 14 x 26	50.0	lf	638		32	672			26.20	1,310
	Steel Plates 3/4"x1'x1'-2"	6.0	ea	150		16	341			81.83	491
	1-1/2"x 3/16"Galv bar grating	125.0	sf	1,500		6	129			13.03	1,629
	4" PVC pipe sch 40	10.0	lf	40		4	94			13.40	134
	subtotal COAL YARD SUMP	15,560		15,560		946	16,913	0	0	0	32,473
DX PUMPING ASSY											
	:::Polypropylene Sump 10'diax16'h	1.0	ea	> 18,000	<	40	848			18848.00	18,848
	:::36" Polypropylene Suction pipe	1.0	ls	> 12,109	<	144	3,362			15471.00	15,471
	:::6" Vert Cant 40hp pump w/mtr	2.0	ea	> 145,009	<	96	2,236			73622.50	147,245
	:::Level control system	1.0	ea	> 3,000	<	24	580			3580.00	3,580
	subtotal DX PUMPING ASSY	178,118		178,118		304	7,026	0	0	0	185,144
EARTHFILL											

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.ALT 3-TWO PUMPS & TWO PIPELINE.

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ATTACHMENT 1

Loc	Description	Quantity	Unit	Material \$\$	M-H/Unit	Man-Hours	Labor \$\$	Eqpt/Othr \$\$	Subcontr \$\$	Unit Cost	Total Cost
	Earth Fill & compaction	700.0	C.Y.		0.01	9	151			0.22	151
	Crushed Stone Pmp House Area	230.0	tn	2,070	0.20	46	819			12.56	2,889
	1"GRS conduit w/figs & sps	80.0	lf	165	0.40	32	758		19	11.78	942
	subtotal EARTHFILL			2,235		87	1,728		19	0	3,982
	STNLS STL PIPE										
	Valve box 20"x14"x16"dp,plas	2.0	ea	400	16.00	32	776			588.00	1,176
	Valve box 20"x14"x6"dp,plas	2.0	ea	200	8.00	16	388			294.00	588
	10" SSteel 316 flange,150# SO	2.0	ea	1,400	6.00	12	289			844.50	1,689
	6" SSteel 316 flange,150# SO	2.0	ea	470	4.00	8	193			331.50	663
	6" SSteel 316 90deg sch 40	2.0	ea	750	9.00	18	434			592.00	1,184
	10" SSteel 316 45deg sch 40	4.0	ea	3,520	12.00	48	1,156			1169.00	4,676
	10x6" SS 316 reducer sch 40	2.0	ea	1,200	12.00	24	578			889.00	1,778
	10" SSteel 316 pipe sch 40	20.0	lf	2,840	1.00	20	466			165.30	3,306
	1" SSteel 316 pipe sch 40	20.0	lf	140	0.40	8	193			16.65	333
	10"x1" socket 3000# 316 ss	2.0	ea	216	4.00	8	189			202.50	405
	1" socket 3000# 316ss 90deg	4.0	ea	200	4.00	16	378			144.50	578
	10"x1" threadolet 3000# 316 ss	2.0	ea	180	4.00	8	189			184.50	369
	1/2"plug hex head 316 ss	2.0	ea	30	1.00	2	47			38.50	77
	12" pipe sleeves, A53 cs,coated	200.0	lf	9,600	0.56	112	2,698			61.49	12,298
	10" ss check valve 150# flngd	2.0	ea	12,600	24.00	48	1,164			6882.00	13,764
	1" ss gate valve 150# ,threaded	2.0	ea	12,600	2.50	5	118			6359.00	12,718
	subtotal STNLS STL PIPE			46,346		385	9,256		0	0	55,602
	SUMP - ASH POND										
	Tempcray dike @ coal yd sump	1.0	ls		160.00	160	2,454		562	3016.00	3,016
	Backfill sand around 10' pipe	620.0	cy	3,382	0.33	205	3,047			10.37	6,429
	Excavate for 10' pipe trench	2,050.0	cy		0.11	219	3,639			1.78	3,639
	Backfill earth for 10' trench	1,430.0	cy		0.17	240	3,714			2.60	3,714
	:::10' Polyethylene Pipe SDR 19	8,400.0	lf	>	36,540 <	0.11	962	22,453		7.02	58,993
	:::10' Polyethylene Pipe figs 90d	4.0	ea	>	678 <	4.50	18	432		277.50	1,110
	:::10' Polyethylene Pipe figs 45d	10.0	ea	>	770 <	4.50	45	1,079		184.90	1,849

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Loc	Description	Quantity	Unit	Material \$\$	M-H/Unit	Man-Hours	Labor \$\$	Expt/Othr \$\$	Subcontr \$\$	Unit Cost	Total Cost
	::10' Polyethylene Pipe flange	2.0 ea	>	194 <	4.50	9	216			205.00	410
	Rent polyethylene fusion welder	1.0 ls						5,000		5000.00	5,000
	subtotal SUMP -- ASH POND			41,564		1,858	37,034	5,562	0		84,160
	Z0 ELECTRICAL										
	3/4"GRS conduit w/ftgs & spts	30.0 lf		52	0.72	22	517	7		19.20	576
	1 - 1/2"GRS conduit w/ftgs & spts	12.0 lf		35	0.80	10	230	1		22.17	266
	2" GRS conduit w/ftgs & spts	30.0 lf		116	0.50	15	359	4		15.97	479
	3/4"flexible conduit, sealite	5.0 lf		18	1.20	6	145			32.60	163
	1" flexible conduit, sealite	10.0 lf		45	0.90	9	218			26.30	263
	2" flexible conduit, sealite	5.0 lf		53	1.80	9	218			54.20	271
	#10 -3/c PXMJ 600v P & C cable	100.0 lf		79	0.04	4	87			1.66	166
	#12 -4/c PXMJ 600v P & C cable	40.0 lf		37	0.08	3	73			2.75	110
	#2/0 -s/c PXJ-600v P & C cable	120.0 lf		228	0.08	9	221			3.74	449
	Cable Terminations	62.0 ea		62	0.40	25	600			10.68	662
	Bare copper wire stranded #2	50.0 lf		39	0.30	15	363			8.04	402
	Grnd.cdw/ #2 wire mot frame	4.0 ea		40	2.00	8	196			59.00	236
	1" FD outlet box	1.0 ea		10	0.67	1	16			26.00	26
	Ground fault indicating, 15 amp	1.0 ea		40	1.00	1	24			64.00	64
	Cover plwthr proof nema 7-23	1.0 ea		19	1.00	1	24			43.00	43
	Safety hvy duty 600v 3p 60 a	1.0 ea		700	6.00	6	141			841.00	841
	subtotal z0 ELECTRICAL			1,573		144	3,432	12	0		5,017
	Z1 HEAVY EQUIP										
	AirComp, 201 -250cfm	1.0 ea						400		400.00	400
	Trac,CrawI,Med,D5,100-110 hp	1.0 ea						2,700		2700.00	2,700
	Trac,CrawI,Hvy,D8,270-300 hp	1.0 ea						1,750		1750.00	1,750
	Compct,SheepFt,Rex 3-50	1.0 ea						4,200		4200.00	4,200
	Bkhol,dr, 1-1/4CYX17'x18"	2.0 ea						2,700		1350.00	2,700
	TrkDmp, 4x2, Platform	1.0 ea						1,500		1500.00	1,500
	TrkDmp,6x4,12-14CY, OnRd	3.0 ea						4,050		1350.00	4,050
	Trk, Fuel, 4x2	1.0 ea						750		750.00	750

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Loc	Description	Quantity	Unit	Material \$\$	M-H/Unit	Man-Hours	Labor \$\$	Eqpt/Othr \$\$	Subcontr \$\$	Unit Cost	Total Cost
	Sprnkt,6x4, 2,000 Gal	1.0	ea					900		900.00	900
	Crn,RightTrn,21-25Tn,SwCb	1.0	ea					1,800		1800.00	1,800
	Crn,RightTrn,41-50Tn,SwCb	1.0	ea					1,500		1500.00	1,500
	Welder	1.0	ea					500		500.00	500
	Tugger, 2,000-2,500 lb	1.0	ea					870		870.00	870
	subtotal z1 HEAVY EQUIP			0	0	0	0	23,620	0		23,620
	z1 TAGGED EQUIP										
	Air Hoist(Tugger)1000 #	1.0	ea					750		750.00	750
	AirEqp,Jkhtmr,to 70# paving bkr	1.0	ea					200		200.00	200
	CmptEqp,Tamper,175lb.	2.0	ea					2,400		1200.00	2,400
	Cncte bucket,laydown,1 C.Y.	1.0	ea					240		240.00	240
	Cncte,mtrzd,buggy,walk-behind	1.0	ea					1,365		1365.00	1,365
	Bndr,hydr,lcndt/pipe,to 2'	1.0	ea					585		585.00	585
	subtotal z1 TAGGED EQUIP			0	0	0	0	5,540	0		5,540
	Construction Facilities										
	Mobilization	1.0	WKS.		192.00	192	2,876	243		3119.00	3,119
	Admin Time(Employee proc,etc.)	13.0	WKS.		9.00	117	2,442			187.85	2,442
	General Cleanup	3.0	WKS.		16.00	208	3,109	788		299.77	3,897
	Drinking Water	13.0	WKS.		8.00	104	1,741	1,438		244.54	3,179
	Hauling	13.0	WKS.		24.00	312	5,223	2,365		583.69	7,588
	Small Tool Dispense & Repair	5,206.0	sthr					3,540		0.68	3,540
	Portable Toilet Service	13.0	WKS					244		18.77	244
	Consumables & Expendables	5,206.0	cehr					4,164		0.80	4,164
	Demobilization	1.0	WKS.		64.00	64	927	121		1048.00	1,048
	subtotal Construction Facilities			0	997	997	16,318	12,659	244		29,221

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ATTACHMENT 1

Loc	Description	Quantity	Unit	Material \$\$	M-H/Unit	Man-Hours	Labor \$\$	Eqpt/Othr \$\$	Subcont \$\$	Unit Cost	Total Cost
TOTAL DIRECT COST											
	Non-Manual Labor			285,394		5,207	100,451	47,411	244		433,499
	Total Contingency										30,600
	Partner Expenses/Charges (84E)										32,800
											19,200
TOTAL CONSTRUCTION											
											516,100
	LESS Engineered Materials - (Indicated by > <)										227,000 <
TOTAL CONTRACT CONSTRUCTION											
											289,100
	F&H Engineering - Phase 1										21,580
	F&H Engineering - Phase 2										1,670
	F&H Engineering - Phase 3										12,000
	Plant Overhead Charges for Procurement & Handling of Capital Materials										27,650
	Project Manager's Contingency										
== TOTAL (PAB APPROVAL) COST ==											579,000