

*KING*

SHAWNEE FOSSIL PLANT  
SCRUBBER GYPSUM STACK  
(OPTION 1A)

Project name SHE/0316301A/GYPSUM STACK

Engineer Daniel Smith (Parsons)  
757-8088

Estimator C. L. TONEY

Labor rate table SHF 40 2003

Equipment rate table TVA Equipment

Project SCRUBBER GYPSUM STCK  
Locatn Code(4 Dig) SHAWNEE FOSSIL  
EST No./Rev: 0316301A  
Agreement Type PMMA

Notes  
Option 1A is located at the peninsula area east of the plant. This is a greenfield area. This option will spoil material for future final cover installation, but will require additional earthen material at closure.  
The ponds (stilling basins) are shown as rectangular areas. Basically, they would be constructed with earthen dikes and water would flow from the ponds.

For comparison purpose all work is assumed to be in present day (2003) dollars.

Report format Sorted by 'Location/Activity'  
'Detail' summary

Location	Activity	Description	Takeoff Quantity	Labor Productivity	Labor Quantity	Labor Amount	Labor	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount
01	Clear And Grub	Remove Trees	13.50 ac	250.000	3,375.00	77,119	-	-	-	82,181	-	11,800.00	159,300
		Clear And Grub	90.00 ac	72.000	6,480.00	148,068	-	-	-	157,788	-	3,398.40	305,856
		Strip 1 ft. Vegetation And Topsoil - Spoil At Stockpile	129,000.00 cy	0.020	2,580.00	61,045	-	-	-	80,625	-	1.10	141,670
		Clear And Grub			12,435.00	286,232	-	-	-	370,594	-		606,826
		01			12,435.00	286,232	-	-	-	370,594	-		606,826
02	Erosion Controls	Erect Silt Fence (Trench Bottom Of Fence, 10% Hay Bales)	4,900.00 lf	0.069	335.99	7,502	-	2,421	-	1,523	-	2.34	11,445
		Cut For Stormwater Runoff Pond	2,000.00 cy	800.000	2.50	2,068	-	-	-	2,063	-	2.07	4,131
		Cleanout Stormwater Runoff Pond	2,300.00 cy	383.333	6.00	2,482	-	-	-	1,920	-	1.91	4,402
		Fill For Stormwater Runoff Pond	12,000.00 cy	1,904.000	6.30	14,670	-	-	-	20,200	-	2.91	34,870
		Riprap For Stormwater Runoff Pond	4,300.00 in	0.200	860.00	19,607	-	43,000	-	18,079	-	18.76	80,686
		Pipe Bedding	20.00 in	0.500	10.00	220	-	184	-	33	-	21.89	438
		72 " Dia. CMP For Outlet Structure	6.00 lf	2.000	12.00	257	-	1,800	-	69	-	354.19	2,125
		48 " Dia. CMP For Riser For Outlet Structure	7.00 lf	1.091	7.64	163	-	910	-	44	-	159.56	1,117
		48 " Dia. CMP Outlet Pipe (Principle Spillway)	150.00 lf	0.620	93.00	1,988	-	7,280	-	531	-	65.33	9,800
		Cut Holes In Riser	3.00 ea	1.000	3.00	56	-	-	-	15	-	23.80	71
		Composite Concrete For Riser Base (Assume 7' x 7' x 2')	4.00 cy	10.000	40.00	982	-	800	-	103	-	471.12	1,884
		Anti-Sleep Collars (Assume Concrete)	7.00 ea	75.000	525.00	12,888	-	4,935	-	1,346	-	2,736.38	19,169
		Erosion Controls			2,617.25	62,884	-	61,330	-	45,925	-		170,139
		02			2,617.25	62,884	-	61,330	-	45,925	-		170,139
03	Roads	Bottom Ash (South Access Road)	2,400.00 cy	1,904.000	1.26	2,359	-	-	-	3,057	-	2.26	5,416
		Crushed Stone Base (South Access Road)	2,900.00 in	0.120	348.00	8,713	-	24,360	-	3,350	-	12.56	36,422
		Crushed Stone Base (Permanent Parking Lot Paved Stone)	340.00 in	0.120	40.80	1,021	-	2,856	-	393	-	12.56	4,270
		Roads			479.56	12,093	-	27,216	-	6,799	-		46,108
		03			479.56	12,093	-	27,216	-	6,799	-		46,108
07	Fencing	New Fencing (Including Grounding)	200.00 lf	-	-	-	-	-	4,000	-	-	20.00	4,000
		Personnel Swinging Gate	1.00 ea	-	-	-	-	-	350	-	-	350.00	350
		Sliding Gate, 20 Ft Wide, With Motorized Operator	1.00 ea	-	-	-	-	-	16,500	-	-	16,500.00	16,500
		Fencing			-	-	-	-	20,850	-	-		20,850
		07			-	-	-	-	20,850	-	-		20,850
11	Seed/Mulch	Seed / Mulch Disturbed Areas	25.00 ac	-	-	-	-	-	58,080	-	-	2,323.20	58,080
		Seed/Mulch			-	-	-	-	58,080	-	-		58,080
		11			-	-	-	-	58,080	-	-		58,080
20	Gypsum Disp Facility	Clear And Grub Area For Select Spoil	7.00 ac	72.000	504.00	11,516	-	-	-	12,272	-	3,398.40	23,789
		Cut And Fill (Balance)	189,719.00 cy	2,800.000	67.76	157,718	-	-	-	217,163	-	1.98	374,881
		Cut & Spoil Select Cut For Future 1 Ft Clay Layer In Final Cover	112,933.00 cy	1,904.000	59.31	99,997	-	-	-	150,063	-	2.21	250,060
		Cut & Spoil Additional Material	7,900.00 cy	1,904.000	4.15	6,995	-	-	-	10,497	-	2.21	17,492
		Perimeter Road Surfacing - Bottom Ash	2,400.00 cy	1,904.000	1.26	2,359	-	-	-	3,057	-	2.26	5,416
		Compacted Clay Liner, 6" Lifts	339,000.00 cy	1,200.000	282.50	657,579	-	-	-	905,424	-	4.61	1,563,002
		Drainage Layer (1 Ft Thick) For Liner (No. 57 Stone)	168,000.00 in	0.096	16,128.00	389,733	-	1,344,000	-	252,000	-	11.82	1,985,733
		Perimeter Road Surfacing - Crushed Stone	2,900.00 in	0.120	348.00	8,713	-	24,360	-	3,350	-	12.56	36,422
		Riprap For Ditch	23,500.00 in	0.200	4,700.00	107,155	-	235,000	-	98,805	-	18.76	440,960
		Ditch For Riprap (24" wide x 2' deep)	7,300.00 lf	0.044	320.03	8,430	-	-	-	12,651	-	2.89	21,082
		Geotextile (If Riprap Is Used)	19,500.00 sq	0.015	292.50	6,447	-	25,584	-	875	-	1.69	33,016
		Geotextile Fabric For Underdrain Pipe	5,700.00 sq	0.011	59.85	1,319	-	7,481	-	200	-	1.58	9,000
		8" Dia. HDPE, SDR 17 Perforated Pipe	6,400.00 lf	0.200	1,280.00	26,578	-	10,416	-	5,333	-	6.61	42,327
		8" Dia. HDPE Standard Fittings	50.00 ea	0.200	10.00	188	-	400	-	-	-	11.76	568

Location	Activity	Description	Takeoff Quantity	Labor Productivity	Labor Quantity	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount
	Gypsum Disp Facility	Concrete Anchors For Underdrain Piping	85.00 ea	12.500	1,062.50	26,082	9,988	-	2,724	-	456.40	38,794
		Proofroll Subgrade	70.00 ac	7.000	10.00	6,579	-	-	4,000	-	151.13	10,579
		Seed / Mulch Selected Spoil Material Area	7.00 ac	-	-	-	-	16,262	-	-	2,323.20	16,262
		Gypsum Disp Facility			59,919.85	1,517,389	1,657,239	16,262	1,678,514	-	-	4,869,404
30					59,919.85	1,517,389	1,657,239	16,262	1,678,514	-	-	4,869,404
	Stack Closure	Place 1 Ft Low Permeable Clay ( Use Previously Stockpiled Material)	112,933.00 cy	1,904.000	59.31	138,065	-	-	190,102	-	2.91	328,167
		Place 1.5 Ft Soil Cover (Obtain From New Future On-Site Borrow Area)	169,400.00 cy	1,904.000	88.97	149,996	-	-	225,086	-	2.21	375,091
		Riprap For Ditch	9,500.00 ln	0.200	1,900.00	43,318	95,000	-	39,942	-	18.76	178,260
		Ditch For Riprap ( 28 Ditches, 500 Ft Long 10' wide x 1' deep)	14,000.00 lf	0.018	256.06	6,745	-	-	10,121	-	1.21	16,866
		Geotextile For Riprap Ditches	15,600.00 sy	0.015	234.00	5,158	20,475	-	780	-	1.69	25,413
		4" Dia. ADS HDPE Drain Tubing	93,115.00 lf	0.184	17,164.82	355,410	73,328	-	71,512	-	5.38	501,251
		Seeding / Mulch	70.00 ac	-	-	-	-	162,624	-	-	2,323.20	162,624
		Stack Closure			30,468.59	699,692	188,803	162,624	537,554	-	-	1,588,673
40					30,468.59	699,692	188,803	162,624	537,554	-	-	1,588,673
	Borrow Area Develop	Disc Future Borrow Area	210.00 ac	6.000	35.00	15,971	-	-	9,100	-	119.39	25,071
		Seed / Fertilize / Lime Future Borrow Area	210.00 ac	-	-	-	-	487,872	-	-	2,323.20	487,872
		Borrow Area Develop			560.00	15,971	-	487,872	9,100	-	-	512,943
50					560.00	15,971	-	487,872	9,100	-	-	512,943
	Construction Parking	Silt Fence	1,000.00 lf	0.020	20.00	397	315	-	-	-	0.71	712
		Cut And Fill (Balance)	500.00 cy	2,800.000	0.18	416	-	-	572	-	1.98	988
		Cut & Spoil Additional Material	500.00 cy	1,904.000	0.26	443	-	-	664	-	2.21	1,107
		Crushed Stone Base	1,400.00 ln	0.120	168.00	4,206	11,760	-	1,617	-	12.56	17,583
		Construction Parking			220.52	5,461	12,075	-	2,854	-	-	20,390
xCONST FACILITY					220.52	5,461	12,075	-	2,854	-	-	20,390
	Construct Facilities	Mobilization	1.00 ls	400.000	400.00	10,486	-	-	4,002	-	14,488	14,488
		Admin Time (Employee proc, etc)	1.00 ls	256.000	256.00	6,488	-	-	-	-	6,487.81	6,488
		General Clean Up	1.00 ls	768.000	768.00	15,562	-	-	2,081	-	17,643.26	17,643
		Maintain Roads	1.00 ls	480.000	480.00	9,340	-	-	3,807	-	13,347.12	13,347
		Drinking Water	1.00 ls	680.000	680.00	14,276	-	-	2,764	-	17,040.12	17,040
		Hauling	1.00 ls	680.000	680.00	15,766	-	-	5,528	-	21,294.88	21,295
		Portable Toilet Service	1.00 ls	-	-	-	-	10,880	-	-	10,880.00	10,880
		Demobilization	1.00 ls	240.000	240.00	6,292	-	-	2,401	-	8,692.56	8,693
		Construct Facilities			3,504.00	78,410	-	10,880	20,584	-	-	109,873
xCONST FACILITY					3,504.00	78,410	-	10,880	20,584	-	-	109,873
zNON MANUAL												109,873
	Non-Manual	Non Manual	1.00 ls	13,776.000	13,776.00	688,800	-	-	-	-	688,800.00	688,800
		Non-Manual			13,776.00	688,800	-	-	-	-	-	688,800
zNON MANUAL					13,776.00	688,800	-	-	-	-	-	688,800

Estimate Totals

Labor	3,366,932	123,980,767 hrs
Material	1,946,862	
Subcontract	756,568	
Equipment	2,621,924	59,349,850 hrs
	<u>8,692,086</u>	8,692,086
Engineered Materials - Ph 2		100,000 %
Adjustment - Engr Materials		(100,000) %
	8,692,086	
Environmental Costs		100,000 %
Adjustment Environmental		(100,000) %
	8,692,086	
Small Tools Expense	49,484	0.450 \$/hr
Consumables & Expendables	106,874	4.000 %
Office Supplies & Expense	20,664	3.000 %
Subcontract Fee	<u>177,022</u>	8,869,108
Escalation - Craft Labor	133,592	5.000 %
Escalation - Subcontract	37,828	5.000 %
Escalation - Subcontract Fee		0.350 %
Escalation - Perm Materials	97,333	5.000 %
Escalation - HED Equipment		5.000 %
Escalation - Tagged Equipment		5.000 %
Escalation - Small Tools	3,739	0.034 \$/hr
Escalation - Consumables	5,344	0.200 %
Escalation - Non-Manual Labor	34,440	5.000 %
Escalation - Office Supplies	<u>1,378</u>	0.200 %
	313,664	9,182,762
Partner Insurance (FY03)	100,819	3.000 %
Partner Award Fee (FY03)	<u>168,032</u>	5.000 %
	268,851	9,451,613
FPG Engineering - Phase 1		9,451,613
FPG Engineering - Phase 2		
FPG Engineering - Phase 3		
Plant Ovrhd Chgs - Matl Hnding		
Phase 1 Other/Other Org		
Phase 2 Other/Other Org		
Phase 3 Other/Other Org		
Rounding		
		9,451,613
		9,451,613
	<b>Total</b>	<b>9,451,613</b>