Summary of Alternatives
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM WBS	ITEM DESCRIPTION	Alternative 1a TOTAL ($)	Alternative 1b TOTAL ($)	Alternative 2a TOTAL ($)	Alternative 2b TOTAL ($)	Alternative 3a TOTAL ($)	Alternative 3b TOTAL ($)
1.0	BUILD INFRASTRUCTURE	5,500,000	2,500,000	5,500,000	2,500,000	5,500,000	5,500,000
2.0	REMOVE TEST CELL / DREDGE CELL	1,400,000	1,400,000	20,200,000	20,200,000	0	0
3.0	EXCAVATE SWAN POND EMBAYMENT	24,400,000	22,800,000	24,400,000	22,800,000	24,400,000	24,400,000
4.0	DREDGE SWAN POND EMBAYMENT	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
5.0	REMOVE CLEAN WATER DITCHES	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000
6.0	REMOVE DIKE 2 & SETTLING BASIN	700,000	700,000	700,000	700,000	700,000	700,000
7.0	TRANSPORT & DISPOSE OFFSITE	167,100,000	158,500,000	396,100,000	382,500,000	0	0
8.0	RESTORE EMBAYMENT ECOSYSTEM	800,000	800,000	800,000	800,000	800,000	800,000
9.0	BUILD PERIMETER CONTAINMENT	36,200,000	36,200,000	18,400,000	18,400,000	65,000,000	35,000,000
10.0	GRADE DREDGE CELL & ASH POND	34,800,000	34,800,000	16,800,000	16,800,000	40,100,000	35,200,000
11.0	COVER DREDGE CELL & ASH POND	35,600,000	35,600,000	35,600,000	35,600,000	35,600,000	35,600,000
12.0	ENVIRONMENTAL MONITORING	17,600,000	17,600,000	25,600,000	25,600,000	24,600,000	25,100,000
13.0	INSITUTIONAL CONTROLS	100,000	100,000	100,000	100,000	100,000	100,000
14.0	MISC. SUPPORT ACTIVITIES	6,100,000	6,200,000	6,100,000	6,100,000	2,900,000	2,900,000
15.0	PROJECT MANAGEMENT/SUPPORT	44,200,000	44,200,000	62,400,000	62,400,000	58,300,000	53,300,000
	Subtotal	379,400,000	366,300,000	617,600,000	599,400,000	262,900,000	223,500,000
	Contingency (20%)	75,900,000	73,300,000	123,500,000	119,900,000	52,600,000	44,700,000
	** CAPITAL COST TOTAL **	$ 455,300,000	$ 439,600,000	$ 741,100,000	$ 719,300,000	$ 315,500,000	$ 268,200,000

ITEM WBS	ITEM DESCRIPTION	Alternative 1a TOTAL ($)	Alternative 1b TOTAL ($)	Alternative 2a TOTAL ($)	Alternative 2b TOTAL ($)	Alternative 3a TOTAL ($)	Alternative 3b TOTAL ($)
16.0	OPERATION & MAINTENANCE (O&M)	624,000	624,000	624,000	624,000	624,000	624,000
	Contingency (10%)	62,000	62,000	62,000	62,000	62,000	62,000
	** ANNUAL O&M COST TOTAL **	$ 686,000	$ 686,000	$ 686,000	$ 686,000	$ 686,000	$ 686,000

TVA Alternative 1a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
1.0	**BUILD INFRASTRUCTURE**							**783,534**		**1,182,221**		**434,532**		**3,100,000**	**5,500,287**
1.1	Construct Infrastructure for North Embayment	1	lot		16,632	mixed	47.11	783,534	1,182,221	1,182,221	434532	434,532		0	2,400,287
1.2	Conveyor system	1	ea										3000000	3,000,000	3,000,000
1.3	Demolition	1	lot					0		0			100000	100,000	100,000
2.0	**REMOVE TEST CELL / DREDGE CELL**							**716,090**		**30,000**		**660,000**		**0**	**1,406,090**
2.1	Remove material from dredge cell and transport to ballfield	300,000	cy	0.0542	16,260	mixed	44.04	716,090	0.10	30,000	2.20	660,000		0	1,406,090
3.0	**EXCAVATE SWAN POND EMBAYMENT**							**10,421,431**		**398,730**		**13,597,229**		**32,000**	**24,449,390**
3.1	Remove material with mechanical excavators and transport to ballfield	1,800,000	cy	0.116	208,800	mixed	48.48	10,122,624	0.215	387,000	7.31	13,158,000		32,000	23,699,624
3.2	Remove material from West Dike Storage and transport to ballfield	120,800	cy	0.057	6,898	mixed	43.32	298,807	0.0971	11,730	3.636	439,229		0	749,766
4.0	**DREDGE SWAN POND EMBAYMENT**							**1,213,947**		**38,989**		**1,090,669**		**137,335**	**2,480,940**
4.1	Remove material with hydraulic dredges and pump to Rim Ditch	500,000	cy	0.0120	6,000	mixed	59.78	358,680	0.020	10,000	0.349	174500	23200	23200	566,380
4.2	Dredge Ash Pond	1	lot		3,600		60.12	216,432	6,120	6,120	152384	152384		0	374,936
4.3	Mobilization	1	lot										114135	114,135	114,135
4.4	Operate Rim Ditch/dewatering	1	lot		13452	mixed	47.49	638,835	22,869	22,869	763785	763785			1,425,489
5.0	**REMOVE CLEAN WATER DITCHES**							**1,120,821**		**37,774**		**1,273,411**		**0**	**2,432,006**
5.1	Remove ditch in North Embayment	1	ea	12,100	12,100	mixed	50.36	609,356	20,570	20,570	693644	693,644		0	1,323,570
5.2	Remove ditch in Central Embayment	1	ea	10,120	10,120	mixed	50.54	511,465	17,204	17,204	579767	579,767		0	1,108,436
6.0	**REMOVE DIKE 2 & SETTLING BASIN**							**298,908**		**11,730**		**439,220**		**0**	**749,858**
6.1	Remove and transport to ballfield	120000	cy		6,900	mixed	43.32	298,908		11,730		439,220		0	749,858
7.0	**TRANSPORT & DISPOSE OFFSITE**							**4,205,321**		**140,360**		**2,480,500**		**160,305,600**	**167,131,781**
7.1	Dewater/dry material from embayment	2,420,000	cy	0.0341	82,522	mixed	50.96	4,205,321	0.0580	140,360	1.025	2480500		0	6,826,181
7.2	Load / transport / dispose by rail to landfill	3,640,000	ton		0			0		0		0	44.04	160,305,600	160,305,600
7.3	Load / transport / dispose by truck to landfill		ton		0			0		0		0	30.20	0	0
	2.8M cy @ 1.3 tons/cy = 3.64M ton														
8.0	**RESTORE EMBAYMENT ECOSYSTEM**							**0**		**0**		**0**		**845,198**	**845,198**
8.1	Restore topography (coarse grading)	28	ac										6000	168,000	168,000
8.2	Restore microtopography (fine grading)	0.43	ac										58600	25,198	25,198
8.3	Construct island	1	lot										50000	50,000	50,000
8.4	Add soil admendments	7280	cy										25	182,000	182,000
8.5	Plant wetland and floodplain species	28	ac										15000	420,000	420,000
9.0	**BUILD PERIMETER CONTAINMENT**							**Dike C**		**Dike D**		**Dike B,SP**		**Ash Pond**	**36,202,894**
9.1	Prepare site	196,000	cy				196000	1,051,560		0					1,051,560
9.2	Build working platform	30,700	cy				12200	620,696	4,900	249,507	4000	203,120	9600	487,078	1,560,401
9.3	Install foundation treatment/deep soil mixing	298,050	cy				96500	7,005,000	58,500	4,095,000	46800	3,276,000	96250	6,737,500	21,113,500
9.4	Construct Earthern Berm	117,000	cy				96600	2,231,408	20,400	804,282		0	0	0	3,035,690
9.5	Install Riprap Armoring	68,000	cy				18900	1,406,727	17,800	1,166,132		0	31300	2,329,659	4,902,518
9.6	Other- vegetation,dust, silt, monitoring, etc	4	lot				1	363,965	1	413,082	1	588,105	1	738,543	2,103,695
9.7	Geotechnical monitoring & testing	576	dy				44	970,661	158	434,874	123	338,624	251	691,371	2,435,530

TVA Alternative 1a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
10.0	**GRADE DREDGE CELL & ASH POND**							**7,787,824**		**4,610,656**		**7,185,235**		**15,204,870**	**34,788,585**
10.1	Regrade ash in dredge cell	1,800,000	cy	0.066	118,800	mixed	49.71	5,905,548	0.11	198,000	2.45	4,410,000		0	10,513,548
10.2	Regrade ash in ash pond	131,000	cy	0.066	8,646	mixed	49.71	429,793	0.11	14,410	2.45	320,950		0	765,153
10.3	Construct working platform	289,000	cy										52.61	15,204,870	15,204,870
10.4	Place & dry material from embayment	-	cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
10.5	Fill Ash Pond with soil to drain	237,000	cy	0.0341	8,082	mixed	50.96	411,843	0.0580	13,746	1.025	242925		0	668,514
10.6	Import Fill for Ash Pond to drain (1.85 t/cy)	438,450	ton						10.00	4,384,500					4,384,500
10.7	Compact material in lifts	2,168,000	cy	0.480				1,040,640			1.02	2,211,360			3,252,000
11.0	**COVER DREDGE CELL & ASH POND**							**5,176,731**		**24,512,360**		**5,238,480**		**717,600**	**35,645,171**
11.1	Grade, compact, cover with clay and topsoil, seed & mulch	615000	cy	0.0943	57,995	mixed	45.90	2,661,948	0.16	98,400	4.38	2,693,700	0.6	369,000	5,823,048
11.2	24" clay; 127 Ac; 1.85 T/cy	758000	ton						10.00	7,580,000					7,580,000
11.3	12" topsoil; 127 Ac	379000	ton						13.00	4,927,000					4,927,000
11.4	Grade, cover, seed Ash Pond, 120 Ac	581000	cy	0.0943	54,788	mixed	45.90	2,514,783	0.16	92,960	4.38	2,544,780	0.6	348,600	5,501,123
11.5	24" clay; 120 Ac; 1.85 T/cy	716000	ton						10.00	7,160,000					7,160,000
11.6	12" topsoil; 120 Ac	358000	ton						13.00	4,654,000					4,654,000
12.0	**ENVIRONMENTAL MONITORING**							**0**		**0**		**0**		**17,578,000**	**17,578,000**
12.1	Install monitoring wells	4	ea					0		0		0	22,000	88,000	88,000
12.2	Sample & analyze wells quarterly one year	4	events					0		0		0	25,000	100,000	100,000
12.3	Sample & analyze surface water (1/wk)	37	mo										200,000	7,400,000	7,400,000
12.4	Sample & analyze air (continuous)	37	mo										90,000	3,330,000	3,330,000
12.5	Dust monitoring and control	37	mo										180,000	6,660,000	6,660,000
13.0	**INSITUTIONAL CONTROLS**							**0**		**0**		**0**		**100,000**	**100,000**
13.1	Legal Fees, Administration, Documentation	allow	lot					0		0		0		100,000	100,000
14.0	**MISC. SUPPORT ACTIVITIES**							**183,563**		**492,268**		**177,063**		**5,209,404**	**6,062,299**
14.1	Ballfield restoration-excavate 12" rock	40,333	cy	0.0542	2,186	mixed	44.04	96,274	0.10	4,033	2.20	88,733		0	189,041
14.2	Ballfield restoration-load / transport / dispose offsite	72,600	ton										44.04	3,197,304	3,197,304
14.3	Ballfield restoration-6" topsoil	37,308	ton						13.00	485,008				0	485,008
14.4	Ballfield restoration-grade, seed, mulch	20,167	cy	0.0943	1,902	mixed	45.90	87,289	0.16	3,227	4.38	88,330	0.6	12,100	190,945
14.5	Dewatering and water management	1	allow										2000000	2,000,000	2,000,000
15.0	**PROJECT MANAGEMENT/SUPPORT**							**15,848,530**		**66,000**		**33,000**		**28,250,000**	**44,197,530**
15.1	Project Manager (4 FTE)	37	mo	692	25,604		128.00	3,277,312		0		0		0	3,277,312
15.2	Sub-contract Tech. Rep. (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.3	Field construction support--10 FTE	33	mo	1,730	57,090		75.00	4,281,750	2,000	66,000	1000	33,000		50,000	4,430,750
15.4	ES & H (3 FTE)	33	mo	519	17,127		93.00	1,592,811							1,592,811
15.5	Health & Safety (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.6	Quality Engineer (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.7	Project Control Engineer 2 FTE)	33	mo	346	11,418		89.00	1,016,202		0		0		0	1,016,202
15.8	Procurement (0.25 FTE)	33	mo	43	1,427		80.00	114,180		0		0		0	114,180
15.9	Construction Engineer (3 FTE)	33	mo	519	17,127		125.00	2,140,875		0		0		0	2,140,875
15.10	Transport Specialist (2 FTE)	33	mo	346	11,418		80.00	913,440		0		0		0	913,440
15.11	Waste Packaging Specialist (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.12	Field Engineer (2 FTE)	33	mo	346	11,418		60.00	685,080		0		0		0	685,080
15.13	TVA oversight and management	37	mo										600000	22,200,000	22,200,000
15.14	TVA oversight - later Ash Pond closure	10	mo										600000	6,000,000	6,000,000
														** CAPITAL COST TOTAL **	$ 379,570,028

TVA Alternative 1a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
16.0	**OPERATION & MAINTENANCE (O&M)**							**0**		**0**		**0**		**624,000**	**624,000**
16.1	Sample & analyze wells semiannually	2	events					0		0		0	25,000	50,000	50,000
16.2	Maintain cell cover (mow, repair erosion)	247	Ac										2,000	494,000	494,000
16.3	Annual/5-yr review reports	1	ea										20,000	20,000	20,000
16.4	TVA oversight and management	12	mo										5,000	60,000	60,000
														** ANNUAL O&M COST TOTAL **	$ 624,000

Alternative 1b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
1.0	**BUILD INFRASTRUCTURE**							**783,534**		**1,182,221**		**434,532**		**100,000**	**2,500,287**
1.1	Construct Infrastructure for North Embayment	1	lot		16,632	mixed	47.11	783,534	1,182,221	1,182,221	434532	434,532		0	2,400,287
1.2	Conveyor system	0	ea										3000000	0	0
1.3	Demolition	1	lot					0		0			100000	100,000	100,000
2.0	**REMOVE TEST CELL / DREDGE CELL**							**716,090**		**30,000**		**660,000**		**0**	**1,406,090**
2.1	Remove material from dredge cell and transport to ballfield	300,000	cy	0.0542	16,260	mixed	44.04	716,090	0.10	30,000	2.20	660,000		0	1,406,090
3.0	**EXCAVATE SWAN POND EMBAYMENT**							**9,235,834**		**293,850**		**13,238,509**		**64,000**	**22,832,192**
3.1	Remove material with mechanical excavators and transport to ballfield	1,800,000	cy	0.116	208,800	mixed	48.48	10,122,624	0.215	387,000	7.31	13,158,000		32,000	23,699,624
3.2	Remove material from West Dike Storage and transport to ballfield	120,800	cy	0.057	6,898	mixed	43.32	298,807	0.0971	11,730	3.636	439,229		0	749,766
3.3	Savings: no transport to ballfield	-760,000	cy	0.0417	-31,692	mixed	37.41	(1,185,598)	0.138	(104,880)	0.472	(358,720)		32,000	(1,617,198)
4.0	**DREDGE SWAN POND EMBAYMENT**							**1,213,947**		**38,989**		**1,090,669**		**137,335**	**2,480,940**
4.1	Remove material with hydraulic dredges and pump to Rim Ditch	500,000	cy	0.0120	6,000	mixed	59.78	358,680	0.020	10,000	0.349	174500	23200	23200	566,380
4.2	Dredge Ash Pond	1	lot		3,600		60.12	216,432	6,120	6,120	152384	152384		0	374,936
4.3	Mobilization	1	lot										114135	114,135	114,135
4.4	Operate Rim Ditch/dewatering	1	lot		13452	mixed	47.49	638,835	22,869	22,869	763785	763785			1,425,489
5.0	**REMOVE CLEAN WATER DITCHES**							**1,120,821**		**37,774**		**1,273,411**		**0**	**2,432,006**
5.1	Remove ditch in North Embayment	1	ea	12,100	12,100	mixed	50.36	609,356	20,570	20,570	693644	693,644		0	1,323,570
5.2	Remove ditch in Central Embayment	1	ea	10,120	10,120	mixed	50.54	511,465	17,204	17,204	579767	579,767		0	1,108,436
6.0	**REMOVE DIKE 2 & SETTLING BASIN**							**298,908**		**11,730**		**439,220**		**0**	**749,858**
6.1	Remove and transport to ballfield	120000	cy		6,900	mixed	43.32	298,908		11,730		439,220		0	749,858
7.0	**TRANSPORT & DISPOSE OFFSITE**							**4,205,321**		**140,360**		**2,480,500**		**151,665,500**	**158,491,681**
7.1	Dewater/dry material from embayment	2,420,000	cy	0.0341	82,522	mixed	50.96	4,205,321	0.0580	140,360	1.025	2480500		0	6,826,181
7.2	Load / transport / dispose by rail to landfill	2,650,000	ton		0			0		0		0	45.95	121,767,500	121,767,500
7.3	Load / transport / dispose by truck to landfill	990,000	ton		0			0		0		0	30.20	29,898,000	29,898,000
	2.04M cy @ 1.3 tons/cy = 2.65M ton														
	0.76M cy @ 1.3 tons/cy = 0.99M ton														
8.0	**RESTORE EMBAYMENT ECOSYSTEM**							**0**		**0**		**0**		**845,198**	**845,198**
8.1	Restore topography (coarse grading)	28	ac										6000	168,000	168,000
8.2	Restore microtopography (fine grading)	0.43	ac										58600	25,198	25,198
8.3	Construct island	1	lot										50000	50,000	50,000
8.4	Add soil admendments	7280	cy										25	182,000	182,000
8.5	Plant wetland and floodplain species	28	ac										15000	420,000	420,000
9.0	**BUILD PERIMETER CONTAINMENT**							**Dike C**		**Dike D**		**Dike B,SP**		**Ash Pond**	**36,202,894**
9.1	Prepare site	196,000	cy				196000	1,051,560		0					1,051,560
9.2	Build working platform	30,700	cy				12200	620,696	4,900	249,507	4000	203,120	9600	487,078	1,560,401
9.3	Install foundation treatment/deep soil mixing	298,050	cy				96500	7,005,000	58,500	4,095,000	46800	3,276,000	96250	6,737,500	21,113,500
9.4	Construct Earthern Berm	117,000	cy				96600	2,231,408	20,400	804,282		0	0	0	3,035,690
9.5	Install Riprap Armoring	68,000	cy				18900	1,406,727	17,800	1,166,132		0	31300	2,329,659	4,902,518
9.6	Other- vegetation,dust, silt, monitoring, etc	4	lot				1	363,965	1	413,082	1	588,105	1	738,543	2,103,695
9.7	Geotechnical monitoring & testing	884	dy				352	970,661	158	434,874	123	338,624	251	691,371	2,435,530

Alternative 1b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
10.0	**GRADE DREDGE CELL & ASH POND**							**7,787,824**		**4,610,656**		**7,185,235**		**15,204,870**	**34,788,585**
10.1	Regrade ash in dredge cell	1,800,000	cy	0.066	118,800	mixed	49.71	5,905,548	0.11	198,000	2.45	4,410,000		0	10,513,548
10.2	Regrade ash in ash pond	131,000	cy	0.066	8,646	mixed	49.71	429,793	0.11	14,410	2.45	320,950		0	765,153
10.3	Construct working platform	289,000	cy										52.61	15,204,870	15,204,870
10.4	Place & dry material from embayment	-	cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
10.5	Fill Ash Pond with soil to drain	237,000	cy	0.0341	8,082	mixed	50.96	411,843	0.0580	13,746	1.025	242925		0	668,514
10.6	Import Fill for Ash Pond to drain (1.85 t/cy)	438,450	ton						10.00	4,384,500					4,384,500
10.7	Compact material in lifts	2,168,000	cy	0.480				1,040,640			1.02	2,211,360			3,252,000
11.0	**COVER DREDGE CELL & ASH POND**							**5,176,731**		**24,512,360**		**5,238,480**		**717,600**	**35,645,171**
11.1	Grade, compact, cover with clay and topsoil, seed & mulch	615000	cy	0.0943	57,995	mixed	45.90	2,661,948	0.16	98,400	4.38	2,693,700	0.6	369,000	5,823,048
11.2	24" clay; 127 Ac; 1.85 T/cy	758000	ton						10.00	7,580,000					7,580,000
11.3	12" topsoil; 127 Ac	379000	ton						13.00	4,927,000					4,927,000
11.4	Grade, cover, seed Ash Pond, 120 Ac	581000	cy	0.0943	54,788	mixed	45.90	2,514,783	0.16	92,960	4.38	2,544,780	0.6	348,600	5,501,123
11.5	24" clay; 120 Ac; 1.85 T/cy	716000	ton						10.00	7,160,000					7,160,000
11.6	12" topsoil; 120 Ac	358000	ton						13.00	4,654,000					4,654,000
12.0	**MONITOR GROUNDWATER**							**0**		**0**		**0**		**17,578,000**	**17,578,000**
12.1	Install monitoring wells	4	ea					0		0		0	22,000	88,000	88,000
12.2	Sample & analyze wells quarterly one year	4	events					0		0		0	25,000	100,000	100,000
12.3	Sample & analyze surface water (1/wk)	37	mo										200,000	7,400,000	7,400,000
12.4	Sample & analyze air (continuous)	37	mo										90,000	3,330,000	3,330,000
12.5	Dust monitoring and control	37	mo										180,000	6,660,000	6,660,000
13.0	**INSITUTIONAL CONTROLS**							**0**		**0**		**0**		**100,000**	**100,000**
13.1	Legal Fees, Administration, Documentation	allow	lot					0		0		0		100,000	100,000
14.0	**MISC. SUPPORT ACTIVITIES**							**183,563**		**492,268**		**177,063**		**5,348,070**	**6,200,965**
14.1	Ballfield restoration-excavate 12" rock	40,333	cy	0.0542	2,186	mixed	44.04	96,274	0.10	4,033	2.20	88,733		0	189,041
14.2	Ballfield restoration-load / transport / dispose offsite	72,600	ton										45.95	3,335,970	3,335,970
14.3	Ballfield restoration-6" topsoil	37,308	ton						13.00	485,008				0	485,008
14.4	Ballfield restoration-grade, seed, mulch	20,167	cy	0.0943	1,902	mixed	45.90	87,289	0.16	3,227	4.38	88,330	0.6	12,100	190,945
14.5	Dewatering and water management	1	allow										2000000	2,000,000	2,000,000
15.0	**PROJECT MANAGEMENT/SUPPORT**							**15,848,530**		**66,000**		**33,000**		**28,250,000**	**44,197,530**
15.1	Project Manager (4 FTE)	37	mo	692	25,604		128.00	3,277,312		0		0		0	3,277,312
15.2	Sub-contract Tech. Rep. (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.3	Field construction support--10 FTE	33	mo	1,730	57,090		75.00	4,281,750	2,000	66,000	1000	33,000		50,000	4,430,750
15.4	ES & H (3 FTE)	33	mo	519.00	17,127		93.00	1,592,811							1,592,811
15.5	Health & Safety (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.6	Quality Engineer (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.7	Project Control Engineer 2 FTE)	33	mo	346	11,418		89.00	1,016,202		0		0		0	1,016,202
15.8	Procurement (0.25 FTE)	33	mo	43	1,427		80.00	114,180		0		0		0	114,180
15.9	Construction Engineer (3 FTE)	33	mo	519	17,127		125.00	2,140,875		0		0		0	2,140,875
15.10	Transport Specialist (2 FTE)	33	mo	346	11,418		80.00	913,440		0		0		0	913,440
15.11	Waste Packaging Specialist (1 FTE)	33	mo	173	5,709		80.00	456,720		0		0		0	456,720
15.12	Field Engineer (2 FTE)	33	mo	346	11,418		60.00	685,080		0		0		0	685,080
15.13	TVA oversight and management	37	mo										600000	22,200,000	22,200,000
15.14	TVA oversight - later Ash Pond closure	10	mo										600000	6,000,000	6,000,000
														** CAPITAL COST TOTAL **	$ 366,451,397

Alternative 1b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
16.0	**OPERATION & MAINTENANCE (O&M)**							**0**		**0**		**0**		**624,000**	**624,000**
16.1	Sample & analyze wells semiannually	2	events					0		0		0	25,000	50,000	50,000
16.2	Maintain cell cover (mow, repair erosion)	247	Ac										2,000	494,000	494,000
16.3	Annual/5-yr review reports	1	ea										20,000	20,000	20,000
16.4	TVA oversight and management	12	mo										5,000	60,000	60,000
														**** ANNUAL O&M COST TOTAL ****	**$ 624,000**

Alternative 2a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
1.0	**BUILD INFRASTRUCTURE**							**783,534**		**1,182,221**		**434,532**		**3,100,000**	**5,500,287**
1.1	Construct Infrastructure for North Embayment	1	lot		16,632	mixed	47.11	783,534	1,182,221	1,182,221	434532	434,532		0	2,400,287
1.2	Conveyor system	1	ea										3000000	3,000,000	3,000,000
1.3	Demolition	1	lot					0		0			100000	100,000	100,000
2.0	**REMOVE TEST CELL / DREDGE CELL**							**10,263,962**		**430,000**		**9,460,000**		**0**	**20,153,962**
2.1	Remove material from dredge cell and transport to ballfield	4,300,000	cy	0.0542	233,060	mixed	44.04	10,263,962	0.10	430,000	2.20	9,460,000		0	20,153,962
3.0	**EXCAVATE SWAN POND EMBAYMENT**							**10,421,431**		**398,730**		**13,597,229**		**32,000**	**24,449,390**
3.1	Remove material with mechanical excavators and transport to ballfield	1,800,000	cy	0.116	208,800	mixed	48.48	10,122,624	0.215	387,000	7.31	13,158,000		32,000	23,699,624
3.2	Remove material from West Dike Storage and transport to ballfield	120,800	cy	0.057	6,898	mixed	43.32	298,807	0.0971	11,730	3.636	439,229		0	749,766
4.0	**DREDGE SWAN POND EMBAYMENT**							**1,213,947**		**38,989**		**1,090,669**		**137,335**	**2,480,940**
4.1	Remove material with hydraulic dredges and pump to Rim Ditch	500,000	cy	0.0120	6,000	mixed	59.78	358,680	0.020	10,000	0.349	174500	23200	23200	566,380
4.2	Dredge Ash Pond	1	lot		3,600		60.12	216,432	6,120	6,120	152384	152384		0	374,936
4.3	Mobilization	1	lot										114135	114,135	114,135
4.4	Operate Rim Ditch/dewatering	1	lot		13452	mixed	47.49	638,835	22,869	22,869	763785	763785			1,425,489
5.0	**REMOVE CLEAN WATER DITCHES**							**1,120,821**		**37,774**		**1,273,411**		**0**	**2,432,006**
5.1	Remove ditch in North Embayment	1	ea	12,100	12,100	mixed	50.36	609,356	20,570	20,570	693644	693,644		0	1,323,570
5.2	Remove ditch in Central Embayment	1	ea	10,120	10,120	mixed	50.54	511,465	17,204	17,204	579767	579,767		0	1,108,436
6.0	**REMOVE DIKE 2 & SETTLING BASIN**							**298,908**		**11,730**		**439,220**		**0**	**749,858**
6.1	Remove and transport to ballfield	120000	cy		6,900	mixed	43.32	298,908		11,730		439,220		0	749,858
7.0	**TRANSPORT & DISPOSE OFFSITE**							**4,205,321**		**140,360**		**2,480,500**		**389,313,600**	**396,139,781**
7.1	Dewater/dry material from embayment	2,420,000	cy	0.0341	82,522	mixed	50.96	4,205,321	0.0580	140,360	1.025	2480500		0	6,826,181
7.2	Load / transport / dispose by rail to landfill	8,840,000	ton		0			0		0		0	44.04	389,313,600	389,313,600
7.3	Load / transport / dispose by truck to landfill		ton		0			0		0		0	30.20	0	0
	6.8M cy @ 1.3 tons/cy = 8.84M ton														
8.0	**RESTORE EMBAYMENT ECOSYSTEM**							**0**		**0**		**0**		**845,198**	**845,198**
8.1	Restore topography (coarse grading)	28	ac										6000	168,000	168,000
8.2	Restore microtopography (fine grading)	0.43	ac										58600	25,198	25,198
8.3	Construct island	1	lot										50000	50,000	50,000
8.4	Add soil admendments	7280	cy										25	182,000	182,000
8.5	Plant wetland and floodplain species	28	ac										15000	420,000	420,000
9.0	**BUILD PERIMETER CONTAINMENT**							**Dike C**		**Dike D**		**Dike B,SP**		**Ash Pond**	**18,397,028**
9.1	Prepare site / test program	0	cy							250,000					250,000
9.2	Build working platform	14,500	cy						4,900	249,507			9600	487,078	736,585
9.3	Install foundation treatment/deep soil mixing	154,750	cy						58,500	4,095,000			96250	6,737,500	10,832,500
9.4	Construct Earthern Berm	20,400	cy						20,400	804,282			0	0	804,282
9.5	Install Riprap Armoring	49,100	cy						17,800	1,166,132			31300	2,329,659	3,495,791
9.6	Other- vegetation,dust, silt, monitoring, etc	2	lot						1	413,082			1	738,543	1,151,625
9.7	Geotechnical monitoring & testing	409	dy						158	434,874			251	691,371	1,126,245

Alternative 2a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
10.0	**GRADE DREDGE CELL & ASH POND**							**1,018,276**		**4,412,656**		**939,235**		**10,454,491**	**16,824,658**
10.1	Regrade ash in dredge cell	-	cy	0.066	0	mixed	49.71	0	0.11	0	2.45	0		0	0
10.2	Regrade ash in ash pond	131,000	cy	0.066	8,646	mixed	49.71	429,793	0.11	14,410	2.45	320,950		0	765,153
10.3	Construct working platform	198,700	cy										52.61	10,454,491	10,454,491
10.4	Place & dry material from embayment	-	cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
10.5	Fill Ash Pond with soil to drain	237,000	cy	0.0341	8,082	mixed	50.96	411,843	0.0580	13,746	1.025	242925		0	668,514
10.6	Import Fill for Ash Pond to drain (1.85 t/cy)	438,450	ton						10.00	4,384,500					4,384,500
10.7	Compact material in lifts	368,000	cy	0.480				176,640			1.02	375,360			552,000
11.0	**COVER DREDGE CELL & ASH POND**							**5,176,731**		**24,512,360**		**5,238,480**		**717,600**	**35,645,171**
11.1	Grade, compact, cover with clay and topsoil, seed & mulch	615000	cy	0.0943	57,995	mixed	45.90	2,661,948	0.16	98,400	4.38	2,693,700	0.6	369,000	5,823,048
11.2	24" clay; 127 Ac; 1.85 T/cy	758000	ton						10.00	7,580,000					7,580,000
11.3	12" topsoil; 127 Ac	379000	ton						13.00	4,927,000					4,927,000
11.4	Grade, cover, seed Ash Pond, 120 Ac	581000	cy	0.0943	54,788	mixed	45.90	2,514,783	0.16	92,960	4.38	2,544,780	0.6	348,600	5,501,123
11.5	24" clay; 120 Ac; 1.85 T/cy	716000	ton						10.00	7,160,000					7,160,000
11.6	12" topsoil; 120 Ac	358000	ton						13.00	4,654,000					4,654,000
12.0	**ENVIRONMENTAL MONITORING**							**0**		**0**		**0**		**25,568,000**	**25,568,000**
12.1	Install monitoring wells	4	ea					0		0		0	22,000	88,000	88,000
12.2	Sample & analyze wells quarterly one year	4	events					0		0		0	25,000	100,000	100,000
12.3	Sample & analyze surface water (1/wk)	54	mo										200,000	10,800,000	10,800,000
12.4	Sample & analyze air (continuous)	54	mo										90,000	4,860,000	4,860,000
12.5	Dust monitoring and control	54	mo										180,000	9,720,000	9,720,000
13.0	**INSITUTIONAL CONTROLS**							**0**		**0**		**0**		**100,000**	**100,000**
13.1	Legal Fees, Administration, Documentation	allow	lot					0		0		0		100,000	100,000
14.0	**MISC. SUPPORT ACTIVITIES**							**183,563**		**492,268**		**177,063**		**5,209,404**	**6,062,299**
14.1	Ballfield restoration-excavate 12" rock	40,333	cy	0.0542	2,186	mixed	44.04	96,274	0.10	4,033	2.20	88,733		0	189,041
14.2	Ballfield restoration-load / transport / dispose offsite	72,600	ton										44.04	3,197,304	3,197,304
14.3	Ballfield restoration-6" topsoil	37,308	ton						13.00	485,008				0	485,008
14.4	Ballfield restoration-grade, seed, mulch	20,167	cy	0.0943	1,902	mixed	45.90	87,289	0.16	3,227	4.38	88,330	0.6	12,100	190,945
14.5	Dewatering and water management	1	allow										2000000	2,000,000	2,000,000
15.0	**PROJECT MANAGEMENT/SUPPORT**							**23,830,404**		**100,000**		**50,000**		**38,450,000**	**62,430,404**
15.1	Project Manager (4 FTE)	54	mo	692	37,368		128.00	4,783,104		0		0		0	4,783,104
15.2	Sub-contract Tech. Rep. (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.3	Field construction support--10 FTE	50	mo	1,730	86,500		75.00	6,487,500	2,000	100,000	1000	50,000		50,000	6,687,500
15.4	ES & H (3 FTE)	50	mo	519.00	25,950		93.00	2,413,350							2,413,350
15.5	Health & Safety (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.6	Quality Engineer (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.7	Project Control Engineer 2 FTE)	50	mo	346	17,300		89.00	1,539,700		0		0		0	1,539,700
15.8	Procurement (0.25 FTE)	50	mo	43	2,163		80.00	173,000		0		0		0	173,000
15.9	Construction Engineer (3 FTE)	50	mo	519	25,950		125.00	3,243,750		0		0		0	3,243,750
15.10	Transport Specialist (2 FTE)	50	mo	346	17,300		80.00	1,384,000		0		0		0	1,384,000
15.11	Waste Packaging Specialist (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.12	Field Engineer (2 FTE)	50	mo	346	17,300		60.00	1,038,000		0		0		0	1,038,000
15.13	TVA oversight and management	54	mo										600000	32,400,000	32,400,000
15.14	TVA oversight - later Ash Pond closure	10	mo										600000	6,000,000	6,000,000
														**** CAPITAL COST TOTAL ****	**$ 617,778,981**

Alternative 2a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
16.0	**OPERATION & MAINTENANCE (O&M)**							**0**		**0**		**0**		**624,000**	**624,000**
16.1	Sample & analyze wells semiannually	2	events					0		0		0	25,000	50,000	50,000
16.2	Maintain cell cover (mow, repair erosion)	247	Ac										2,000	494,000	494,000
16.3	Annual/5-yr review reports	1	ea										20,000	20,000	20,000
16.4	TVA oversight and management	12	mo										5,000	60,000	60,000
														**** ANNUAL O&M COST TOTAL ****	**$ 624,000**

TVA Alternative 2b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
1.0	**BUILD INFRASTRUCTURE**							**783,534**		**1,182,221**		**434,532**		**100,000**	**2,500,287**
1.1	Construct Infrastructure for North Embayment	1	lot		16,632	mixed	47.11	783,534	1,182,221	1,182,221	434532	434,532		0	2,400,287
1.2	Conveyor system	0	ea										3000000	0	0
1.3	Demolition	1	lot					0		0			100000	100,000	100,000
2.0	**REMOVE TEST CELL / DREDGE CELL**							**10,263,962**		**430,000**		**9,460,000**		**0**	**20,153,962**
2.1	Remove material from dredge cell and transport to ballfield	4,300,000	cy	0.0542	233,060	mixed	44.04	10,263,962	0.10	430,000	2.20	9,460,000		0	20,153,962
3.0	**EXCAVATE SWAN POND EMBAYMENT**							**9,235,834**		**293,850**		**13,238,509**		**64,000**	**22,832,192**
3.1	Remove material with mechanical excavators and transport to ballfield	1,800,000	cy	0.116	208,800	mixed	48.48	10,122,624	0.215	387,000	7.31	13,158,000		32,000	23,699,624
3.2	Remove material from West Dike Storage and transport to ballfield	120,800	cy	0.057	6,898	mixed	43.32	298,807	0.0971	11,730	3.636	439,229		0	749,766
3.3	Savings: no transport to ballfield	-760,000	cy	0.0417	-31,692	mixed	37.41	(1,185,598)	0.138	(104,880)	0.472	(358,720)		32,000	(1,617,198)
4.0	**DREDGE SWAN POND EMBAYMENT**							**1,213,947**		**38,989**		**1,090,669**		**137,335**	**2,480,940**
4.1	Remove material with hydraulic dredges and pump to Rim Ditch	500,000	cy	0.0120	6,000	mixed	59.78	358,680	0.020	10,000	0.349	174500	23200	23200	566,380
4.2	Dredge Ash Pond	1	lot		3,600		60.12	216,432	6,120	6,120	152384	152384		0	374,936
4.3	Mobilization	1	lot										114135	114,135	114,135
4.4	Operate Rim Ditch/dewatering	1	lot		13452	mixed	47.49	638,835	22,869	22,869	763785	763785			1,425,489
5.0	**REMOVE CLEAN WATER DITCHES**							**1,120,821**		**37,774**		**1,273,411**		**0**	**2,432,006**
5.1	Remove ditch in North Embayment	1	ea	12,100	12,100	mixed	50.36	609,356	20,570	20,570	693644	693,644		0	1,323,570
5.2	Remove ditch in Central Embayment	1	ea	10,120	10,120	mixed	50.54	511,465	17,204	17,204	579767	579,767		0	1,108,436
6.0	**REMOVE DIKE 2 & SETTLING BASIN**							**298,908**		**11,730**		**439,220**		**0**	**749,858**
6.1	Remove and transport to ballfield	120000	cy		6,900	mixed	43.32	298,908		11,730		439,220		0	749,858
7.0	**TRANSPORT & DISPOSE OFFSITE**							**4,205,321**		**140,360**		**2,480,500**		**375,700,080**	**382,526,261**
7.1	Dewater/dry material from embayment	2,420,000	cy	0.0341	82,522	mixed	50.96	4,205,321	0.0580	140,360	1.025	2480500		0	6,826,181
7.2	Load / transport / dispose by rail to landfill	7,852,000	ton		0			0		0		0	44.04	345,802,080	345,802,080
7.3	Load / transport by truck to landfill	990,000	ton		0			0		0		0	30.20	29,898,000	29,898,000
	6.04M cy @ 1.3 tons/cy = 7.852M ton														
	0.76M cy @ 1.3 tons/cy = 0.99M ton														
8.0	**RESTORE EMBAYMENT ECOSYSTEM**							**0**		**0**		**0**		**845,198**	**845,198**
8.1	Restore topography (coarse grading)	28	ac										6000	168,000	168,000
8.2	Restore microtopography (fine grading)	0.43	ac										58600	25,198	25,198
8.3	Construct island	1	lot										50000	50,000	50,000
8.4	Add soil admendments	7280	cy										25	182,000	182,000
8.5	Plant wetland and floodplain species	28	ac										15000	420,000	420,000
9.0	**BUILD PERIMETER CONTAINMENT**							**Dike C**		**Dike D**		**Dike B,SP**		**Ash Pond**	**18,397,028**
9.1	Prepare site / test program	0	cy							250,000					250,000
9.2	Build working platform	14,500	cy						4,900	249,507			9600	487,078	736,585
9.3	Install foundation treatment/deep soil mixing	154,750	cy						58,500	4,095,000			96250	6,737,500	10,832,500
9.4	Construct Earthern Berm	20,400	cy						20,400	804,282			0	0	804,282
9.5	Install Riprap Armoring	49,100	cy						17,800	1,166,132			31300	2,329,659	3,495,791
9.6	Other- vegetation,dust, silt, monitoring, etc	2	lot						1	413,082			1	738,543	1,151,625
9.7	Geotechnical monitoring & testing	409	dy						158	434,874			251	691,371	1,126,245

TVA Alternative 2b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
10.0	**GRADE DREDGE CELL & ASH POND**							**1,018,276**		**4,412,656**		**939,235**		**10,454,491**	**16,824,658**
10.1	Regrade ash in dredge cell	-	cy	0.066	0	mixed	49.71	0	0.11	0	2.45	0		0	0
10.2	Regrade ash in ash pond	131,000	cy	0.066	8,646	mixed	49.71	429,793	0.11	14,410	2.45	320,950		0	765,153
10.3	Construct working platform	198,700	cy										52.61	10,454,491	10,454,491
10.4	Place & dry material from embayment	-	cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
10.5	Fill Ash Pond with soil to drain	237,000	cy	0.0341	8,082	mixed	50.96	411,843	0.0580	13,746	1.025	242925		0	668,514
10.6	Import Fill for Ash Pond to drain (1.85 t/cy)	438,450	ton						10.00	4,384,500					4,384,500
10.7	Compact material in lifts	368,000	cy	0.480				176,640			1.02	375,360			552,000
11.0	**COVER DREDGE CELL & ASH POND**							**5,176,731**		**24,512,360**		**5,238,480**		**717,600**	**35,645,171**
11.1	Grade, compact, cover with clay and topsoil, seed & mulch	615000	cy	0.0943	57,995	mixed	45.90	2,661,948	0.16	98,400	4.38	2,693,700	0.6	369,000	5,823,048
11.2	24" clay; 127 Ac; 1.85 T/cy	758000	ton						10.00	7,580,000					7,580,000
11.3	12" topsoil; 127 Ac	379000	ton						13.00	4,927,000					4,927,000
11.4	Grade, cover, seed Ash Pond, 120 Ac	581000	cy	0.0943	54,788	mixed	45.90	2,514,783	0.16	92,960	4.38	2,544,780	0.6	348,600	5,501,123
11.5	24" clay; 120 Ac; 1.85 T/cy	716000	ton						10.00	7,160,000					7,160,000
11.6	12" topsoil; 120 Ac	358000	ton						13.00	4,654,000					4,654,000
12.0	**ENVIRONMENTAL MONITORING**							**0**		**0**		**0**		**25,568,000**	**25,568,000**
12.1	Install monitoring wells	4	ea					0		0		0	22,000	88,000	88,000
12.2	Sample & analyze wells quarterly one year	4	events					0		0		0	25,000	100,000	100,000
12.3	Sample & analyze surface water (1/wk)	54	mo										200,000	10,800,000	10,800,000
12.4	Sample & analyze air (continuous)	54	mo										90,000	4,860,000	4,860,000
12.5	Dust monitoring and control	54	mo										180,000	9,720,000	9,720,000
13.0	**INSITUTIONAL CONTROLS**							**0**		**0**		**0**		**100,000**	**100,000**
13.1	Legal Fees, Administration, Documentation	allow	lot					0		0		0		100,000	100,000
14.0	**MISC. SUPPORT ACTIVITIES**							**183,563**		**492,268**		**177,063**		**5,209,404**	**6,062,299**
14.1	Ballfield restoration-excavate 12" rock	40,333	cy	0.0542	2,186	mixed	44.04	96,274	0.10	4,033	2.20	88,733		0	189,041
14.2	Ballfield restoration-load / transport / dispose offsite	72,600	ton										44.04	3,197,304	3,197,304
14.3	Ballfield restoration-6" topsoil	37,308	ton						13.00	485,008				0	485,008
14.4	Ballfield restoration-grade, seed, mulch	20,167	cy	0.0943	1,902	mixed	45.90	87,289	0.16	3,227	4.38	88,330	0.6	12,100	190,945
14.5	Dewatering and water management	1	allow										2000000	2,000,000	2,000,000
15.0	**PROJECT MANAGEMENT/SUPPORT**							**23,830,404**		**100,000**		**50,000**		**38,450,000**	**62,430,404**
15.1	Project Manager (4 FTE)	54	mo	692	37,368		128.00	4,783,104		0		0		0	4,783,104
15.2	Sub-contract Tech. Rep. (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.3	Field construction support--10 FTE	50	mo	1,730	86,500		75.00	6,487,500	2,000	100,000	1000	50,000		50,000	6,687,500
15.4	ES & H (3 FTE)	50	mo	519.00	25,950		93.00	2,413,350							2,413,350
15.5	Health & Safety (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.6	Quality Engineer (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.7	Project Control Engineer 2 FTE)	50	mo	346	17,300		89.00	1,539,700		0		0		0	1,539,700
15.8	Procurement (0.25 FTE)	50	mo	43	2,163		80.00	173,000		0		0		0	173,000
15.9	Construction Engineer (3 FTE)	50	mo	519	25,950		125.00	3,243,750		0		0		0	3,243,750
15.10	Transport Specialist (2 FTE)	50	mo	346	17,300		80.00	1,384,000		0		0		0	1,384,000
15.11	Waste Packaging Specialist (1 FTE)	50	mo	173	8,650		80.00	692,000		0		0		0	692,000
15.12	Field Engineer (2 FTE)	50	mo	346	17,300		60.00	1,038,000		0		0		0	1,038,000
15.13	TVA oversight and management	54	mo										600000	32,400,000	32,400,000
15.14	TVA oversight - later Ash Pond closure	10	mo										600000	6,000,000	6,000,000
														**** CAPITAL COST TOTAL ****	**$ 599,548,264**

TVA Alternative 2b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
16.0	**OPERATION & MAINTENANCE (O&M)**							**0**		**0**		**0**		**624,000**	**624,000**
16.1	Sample & analyze wells semiannually	2	events					0		0		0	25,000	50,000	50,000
16.2	Maintain cell cover (mow, repair erosion)	247	Ac										2,000	494,000	494,000
16.3	Annual/5-yr review reports	1	ea										20,000	20,000	20,000
16.4	TVA oversight and management	12	mo										5,000	60,000	60,000
														**** ANNUAL O&M COST TOTAL ****	**$ 624,000**

Alternative 3a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
1.0	**BUILD INFRASTRUCTURE**							**783,534**		**1,182,221**		**434,532**		**3,100,000**	**5,500,287**
1.1	Construct Infrastructure for North Embayment	1	lot		16,632	mixed	47.11	783,534	1,182,221	1,182,221	434532	434,532		0	2,400,287
1.2	Conveyor system	1	ea										3000000	3,000,000	3,000,000
1.3	Demolition	1	lot					0		0			100000	100,000	100,000
2.0	**REMOVE TEST CELL / DREDGE CELL**							**0**		**0**		**0**		**0**	**0**
2.1	Remove material from dredge cell and transport to ballfield	0	cy	0.0542	0	mixed	44.04	0	0.10	0	2.20	0		0	0
3.0	**EXCAVATE SWAN POND EMBAYMENT**							**10,421,431**		**398,730**		**13,597,229**		**32,000**	**24,449,390**
3.1	Remove material with mechanical excavators and transport to ballfield	1,800,000	cy	0.116	208,800	mixed	48.48	10,122,624	0.215	387,000	7.31	13,158,000		32,000	23,699,624
3.2	Remove material from West Dike Storage and transport to ballfield	120,800	cy	0.057	6,898	mixed	43.32	298,807	0.0971	11,730	3.636	439,229		0	749,766
4.0	**DREDGE SWAN POND EMBAYMENT**							**1,213,947**		**38,989**		**1,090,669**		**137,335**	**2,480,940**
4.1	Remove material with hydraulic dredges and pump to Rim Ditch	500,000	cy	0.0120	6,000	mixed	59.78	358,680	0.020	10,000	0.349	174500	23200	23200	566,380
4.2	Dredge Ash Pond	1	lot		3,600		60.12	216,432	6,120	6,120	152384	152384		0	374,936
4.3	Mobilization	1	lot										114135	114,135	114,135
4.4	Operate Rim Ditch/dewatering	1	lot		13452	mixed	47.49	638,835	22,869	22,869	763785	763785			1,425,489
5.0	**REMOVE CLEAN WATER DITCHES**							**1,120,821**		**37,774**		**1,273,411**		**0**	**2,432,006**
5.1	Remove ditch in North Embayment	1	ea	12,100	12,100	mixed	50.36	609,356	20,570	20,570	693644	693,644		0	1,323,570
5.2	Remove ditch in Central Embayment	1	ea	10,120	10,120	mixed	50.54	511,465	17,204	17,204	579767	579,767		0	1,108,436
6.0	**REMOVE DIKE 2 & SETTLING BASIN**							**298,908**		**11,730**		**439,220**		**0**	**749,858**
6.1	Remove and transport to ballfield	120000	cy		6,900	mixed	43.32	298,908		11,730		439,220		0	749,858
7.0	**TRANSPORT & DISPOSE OFFSITE**							**0**		**0**		**0**		**0**	**0**
7.1	Dewater/dry material from embayment	0	cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
7.2	Load / transport / dispose by rail to landfill	0	ton		0			0		0		0	45.95	0	0
7.3	Load / transport by truck to landfill		ton		0			0		0		0	30.20	0	0
8.0	**RESTORE EMBAYMENT ECOSYSTEM**							**0**		**0**		**0**		**845,198**	**845,198**
8.1	Restore topography (coarse grading)	28	ac										6000	168,000	168,000
8.2	Restore microtopography (fine grading)	0.43	ac										58600	25,198	25,198
8.3	Construct island	1	lot										50000	50,000	50,000
8.4	Add soil admendments	7280	cy										25	182,000	182,000
8.5	Plant wetland and floodplain species	28	ac										15000	420,000	420,000
9.0	**BUILD PERIMETER CONTAINMENT**							**Dike C**		**Dike D**		**Dike B,SP**		**Ash Pond**	**64,966,371**
9.1	Prepare site	196,000	cy				196000	1,051,560		0					1,051,560
9.2	Build working platform	58,100	cy				12200	620,696	14,000	713,020	22300	1,136,389	9600	487,078	2,957,183
9.3	Install foundation treatment/deep soil mixing	654,350	cy				96500	7,005,000	194,800	13,636,000	266800	18,676,000	96250	6,737,500	46,054,500
9.4	Construct Earthern Berm	117,000	cy				96600	2,231,408	20,400	804,282		0	0	0	3,035,690
9.5	Install Riprap Armoring	68,000	cy				18900	1,406,727	17,800	1,166,132		0	31300	2,329,659	4,902,518
9.6	Other- vegetation,dust, silt, monitoring, etc	4	lot				1	363,965	1	521,582	1	726,505	1	738,543	2,350,595
9.7	Geotechnical monitoring & testing	1,676	dy				352	970,661	465	1,279,920	608	1,672,374	251	691,371	4,614,325

Alternative 3a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
10.0	**GRADE DREDGE CELL & ASH POND**							**10,522,143**		**4,674,016**		**9,705,135**		**15,204,870**	**40,106,164**
10.1	Regrade ash in dredge cell	1,100,000	cy	0.066	72,600	mixed	49.71	3,608,946	0.11	121,000	2.45	2,695,000		0	6,424,946
10.2	Regrade ash in ash pond	131,000	cy	0.066	8,646	mixed	49.71	429,793	0.11	14,410	2.45	320,950		0	765,153
10.3	Construct working platform	289,000	cy										52.61	15,204,870	15,204,870
10.4	Place & dry material from embayment	2,420,000	cy	0.0341	82,522	mixed	50.96	4,205,321	0.0580	140,360	1.025	2480500		0	6,826,181
10.5	Fill Ash Pond with soil to drain	237,000	cy	0.0341	8,082	mixed	50.96	411,843	0.0580	13,746	1.025	242925		0	668,514
10.6	Import Fill for Ash Pond to drain (1.85 t/cy)	438,450	ton						10.00	4,384,500					4,384,500
10.7	Compact material in lifts	3,888,000	cy	0.480				1,866,240			1.02	3,965,760			5,832,000
11.0	**COVER DREDGE CELL & ASH POND**							**5,176,731**		**24,512,360**		**5,238,480**		**717,600**	**35,645,171**
11.1	Grade, compact, cover with clay and topsoil, seed & mulch	615000	cy	0.0943	57,995	mixed	45.90	2,661,948	0.16	98,400	4.38	2,693,700	0.6	369,000	5,823,048
11.2	24" clay; 127 Ac; 1.85 T/cy	758000	ton						10.00	7,580,000					7,580,000
11.3	12" topsoil; 127 Ac	379000	ton						13.00	4,927,000					4,927,000
11.4	Grade, cover, seed Ash Pond, 120 Ac	581000	cy	0.0943	54,788	mixed	45.90	2,514,783	0.16	92,960	4.38	2,544,780	0.6	348,600	5,501,123
11.5	24" clay; 120 Ac; 1.85 T/cy	716000	ton						10.00	7,160,000					7,160,000
11.6	12" topsoil; 120 Ac	358000	ton						13.00	4,654,000					4,654,000
12.0	**ENVIRONMENTAL MONITORING**							**0**		**0**		**0**		**24,628,000**	**24,628,000**
12.1	Install monitoring wells	4	ea					0		0		0	22,000	88,000	88,000
12.2	Sample & analyze wells quarterly one year	4	events					0		0		0	25,000	100,000	100,000
12.3	Sample & analyze surface water (1/wk)	52	mo										200,000	10,400,000	10,400,000
12.4	Sample & analyze air (continuous)	52	mo										90,000	4,680,000	4,680,000
12.5	Dust monitoring and control	52	mo										180,000	9,360,000	9,360,000
13.0	**INSITUTIONAL CONTROLS**							**0**		**0**		**0**		**100,000**	**100,000**
13.1	Legal Fees, Administration, Documentation	allow	lot					0		0		0		100,000	100,000
14.0	**MISC. SUPPORT ACTIVITIES**							**183,563**		**492,268**		**177,063**		**2,012,100**	**2,864,995**
14.1	Ballfield restoration-excavate 12" rock	40,333	cy	0.0542	2,186	mixed	44.04	96,274	0.10	4,033	2.20	88,733		0	189,041
14.2	Ballfield restoration-load / transport / dispose offsite	0	ton										45.95	0	0
14.3	Ballfield restoration-6" topsoil	37,308	ton						13.00	485,008				0	485,008
14.4	Ballfield restoration-grade, seed, mulch	20,167	cy	0.0943	1,902	mixed	45.90	87,289	0.16	3,227	4.38	88,330	0.6	12,100	190,945
14.5	Dewatering and water management	1	allow										2000000	2,000,000	2,000,000
15.0	**PROJECT MANAGEMENT/SUPPORT**							**20,898,400**		**96,000**		**48,000**		**37,250,000**	**58,292,400**
15.1	Project Manager (4 FTE)	52	mo	692	35,984		128.00	4,605,952		0		0		0	4,605,952
15.2	Sub-contract Tech. Rep. (1 FTE)	48	mo	173	8,304		80.00	664,320		0		0		0	664,320
15.3	Field construction support--10 FTE	48	mo	1,730	83,040		75.00	6,228,000	2,000	96,000	1000	48,000		50,000	6,422,000
15.4	ES & H (3 FTE)	48	mo	519.00	24,912		93.00	2,316,816							2,316,816
15.5	Health & Safety (1 FTE)	48	mo	173	8,304		80.00	664,320		0		0		0	664,320
15.6	Quality Engineer (1 FTE)	48	mo	173	8,304		80.00	664,320		0		0		0	664,320
15.7	Project Control Engineer 2 FTE)	48	mo	346	16,608		89.00	1,478,112		0		0		0	1,478,112
15.8	Procurement (0.25 FTE)	48	mo	43	2,076		80.00	166,080		0		0		0	166,080
15.9	Construction Engineer (3 FTE)	48	mo	519	24,912		125.00	3,114,000		0		0		0	3,114,000
15.10	Transport Specialist (2 FTE)	0	mo	346	0		80.00	0		0		0		0	0
15.11	Waste Packaging Specialist (1 FTE)	0	mo	173	0		80.00	0		0		0		0	0
15.12	Field Engineer (2 FTE)	48	mo	346	16,608		60.00	996,480		0		0		0	996,480
15.13	TVA oversight and management	52	mo										600000	31,200,000	31,200,000
15.14	TVA oversight - later Ash Pond closure	10	mo										600000	6,000,000	6,000,000
														** CAPITAL COST TOTAL **	$ 263,060,779

Alternative 3a
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
16.0	**OPERATION & MAINTENANCE (O&M)**							**0**		**0**		**0**		**624,000**	**624,000**
16.1	Sample & analyze wells semiannually	2	events					0		0		0	25,000	50,000	50,000
16.2	Maintain cell cover (mow, repair erosion)	247	Ac										2,000	494,000	494,000
16.3	Annual/5-yr review reports	1	ea										20,000	20,000	20,000
16.4	TVA oversight and management	12	mo										5,000	60,000	60,000
														**** ANNUAL O&M COST TOTAL ****	**$ 624,000**

Alternative 3b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
1.0	**BUILD INFRASTRUCTURE**							**783,534**		**1,182,221**		**434,532**		**3,100,000**	**5,500,287**
1.1	Construct Infrastructure for North Embayment	1	lot		16,632	mixed	47.11	783,534	1,182,221	1,182,221	434532	434,532		0	2,400,287
1.2	Conveyor system	1	ea										3000000	3,000,000	3,000,000
1.3	Demolition	1	lot					0		0			100000	100,000	100,000
2.0	**REMOVE TEST CELL / DREDGE CELL**							**0**		**0**		**0**		**0**	**0**
2.1	Remove material from dredge cell and transport to ballfield	0	cy	0.0542	0	mixed	44.04	0	0.10	0	2.20	0		0	0
3.0	**EXCAVATE SWAN POND EMBAYMENT**							**10,421,431**		**398,730**		**13,597,229**		**32,000**	**24,449,390**
3.1	Remove material with mechanical excavators and transport to ballfield	1,800,000	cy	0.116	208,800	mixed	48.48	10,122,624	0.215	387,000	7.31	13,158,000		32,000	23,699,624
3.2	Remove material from West Dike Storage and transport to ballfield	120,800	cy	0.057	6,898	mixed	43.32	298,807	0.0971	11,730	3.636	439,229		0	749,766
4.0	**DREDGE SWAN POND EMBAYMENT**							**1,213,947**		**38,989**		**1,090,669**		**137,335**	**2,480,940**
4.1	Remove material with hydraulic dredges and pump to Rim Ditch	500,000	cy	0.0120	6,000	mixed	59.78	358,680	0.020	10,000	0.349	174500	23200	23200	566,380
4.2	Dredge Ash Pond	1	lot		3,600		60.12	216,432	6,120	6,120	152384	152384		0	374,936
4.3	Mobilization	1	lot										114135	114,135	114,135
4.4	Operate Rim Ditch/dewatering	1	lot		13452	mixed	47.49	638,835	22,869	22,869	763785	763785			1,425,489
5.0	**REMOVE CLEAN WATER DITCHES**							**1,120,821**		**37,774**		**1,273,411**		**0**	**2,432,006**
5.1	Remove ditch in North Embayment	1	ea	12,100	12,100	mixed	50.36	609,356	20,570	20,570	693644	693,644		0	1,323,570
5.2	Remove ditch in Central Embayment	1	ea	10,120	10,120	mixed	50.54	511,465	17,204	17,204	579767	579,767		0	1,108,436
6.0	**REMOVE DIKE 2 & SETTLING BASIN**							**298,908**		**11,730**		**439,220**		**0**	**749,858**
6.1	Remove and transport to ballfield	120000	cy		6,900	mixed	43.32	298,908		11,730		439,220		0	749,858
7.0	**TRANSPORT & DISPOSE OFFSITE**							**0**		**0**		**0**		**0**	**0**
7.1	Dewater/dry material from embayment	0	cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
7.2	Load / transport / dispose by rail to landfill	0	ton		0			0		0		0	45.95	0	0
7.3	Load / transport by truck to landfill		ton		0			0		0		0	30.20	0	0
8.0	**RESTORE EMBAYMENT ECOSYSTEM**							**0**		**0**		**0**		**845,198**	**845,198**
8.1	Restore topography (coarse grading)	28	ac										6000	168,000	168,000
8.2	Restore microtopography (fine grading)	0.43	ac										58600	25,198	25,198
8.3	Construct island	1	lot										50000	50,000	50,000
8.4	Add soil admendments	7280	cy										25	182,000	182,000
8.5	Plant wetland and floodplain species	28	ac										15000	420,000	420,000
9.0	**BUILD PERIMETER CONTAINMENT**							**Dike C**		**Dike D**		**Dike B,SP**		**Ash Pond**	**35,045,124**
9.1	Prepare site	196,000	cy				196000	1,051,560		0					1,051,560
9.2	Build working platform	27,500	cy				12200	620,696			5700	289,401	9600	487,078	1,397,175
9.3	Install foundation treatment/deep soil mixing	262,750	cy				96500	7,005,000			70000	4,900,000	96250	6,737,500	18,642,500
9.4	Construct Earthern Berm	96,600	cy				96600	2,231,408					0	0	2,231,408
9.5	Install Riprap Armoring	113,200	cy				18900	1,406,727			63000	4,088,520	31300	2,329,659	7,824,906
9.6	Other- vegetation,dust, silt, monitoring, etc	3	lot				1	363,965			1	651,038	1	738,543	1,753,546
9.7	Geotechnical monitoring & testing	778	dy				352	970,661			175	481,997	251	691,371	2,144,029

Alternative 3b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

10.0	**GRADE DREDGE CELL & ASH POND**							**10,256,039**		**283,360**		**9,459,900**		**15,204,870**	**35,204,169**
10.1	Regrade ash in dredge cell	1,300,000	cy	0.066	85,800	mixed	49.71	4,265,118	0.11	143,000	2.45	3,185,000		0	7,593,118
10.2	Regrade ash in ash pond		cy	0.066	0	mixed	49.71	0	0.11	0	2.45	0		0	0
10.2	Construct working platform	289,000	cy										52.61	15,204,870	15,204,870
10.3	Place & dry material from embayment	2,420,000	cy	0.0341	82,522	mixed	50.96	4,205,321	0.0580	140,360	1.025	2480500		0	6,826,181
10.5	Fill Ash Pond with soil to drain		cy	0.0341	0	mixed	50.96	0	0.0580	0	1.025	0		0	0
10.6	Import Fill for Ash Pond to drain (1.85 t/cy)	-	ton						10.00	0					0
10.7	Compact material in lifts	3,720,000	cy	0.480				1,785,600			1.02	3,794,400			5,580,000
11.0	**COVER DREDGE CELL & ASH POND**							**5,176,731**		**24,512,360**		**5,238,480**		**717,600**	**35,645,171**
11.1	Grade, compact, cover with clay and topsoil, seed & mulch	615000	cy	0.0943	57,995	mixed	45.90	2,661,948	0.16	98,400	4.38	2,693,700	0.6	369,000	5,823,048
11.2	24" clay; 127 Ac; 1.85 T/cy	758000	ton						10.00	7,580,000					7,580,000
11.3	12" topsoil; 127 Ac	379000	ton						13.00	4,927,000					4,927,000
11.4	Grade, cover, seed Ash Pond, 120 Ac	581000	cy	0.0943	54,788	mixed	45.90	2,514,783	0.16	92,960	4.38	2,544,780	0.6	348,600	5,501,123
11.5	24" clay; 120 Ac; 1.85 T/cy	716000	ton						10.00	7,160,000					7,160,000
11.6	12" topsoil; 120 Ac	358000	ton						13.00	4,654,000					4,654,000
12.0	**ENVIRONMENTAL MONITORING**							**0**		**0**		**0**		**25,098,000**	**25,098,000**
12.1	Install monitoring wells	4	ea					0		0		0	22,000	88,000	88,000
12.2	Sample & analyze wells quarterly one year	4	events					0		0		0	25,000	100,000	100,000
12.3	Sample & analyze surface water (1/wk)	53	mo										200,000	10,600,000	10,600,000
12.4	Sample & analyze air (continuous)	53	mo										90,000	4,770,000	4,770,000
12.5	Dust monitoring and control	53	mo										180,000	9,540,000	9,540,000
13.0	**INSITUTIONAL CONTROLS**							**0**		**0**		**0**		**100,000**	**100,000**
13.1	Legal Fees, Administration, Documentation	allow	lot					0		0		0		100,000	100,000
14.0	**MISC. SUPPORT ACTIVITIES**							**183,563**		**492,268**		**177,063**		**2,012,100**	**2,864,995**
14.1	Ballfield restoration-excavate 12" rock	40,333	cy	0.0542	2,186	mixed	44.04	96,274	0.10	4,033	2.20	88,733		0	189,041
14.2	Ballfield restoration-load / transport / dispose offsite	0	ton										45.95	0	0
14.4	Ballfield restoration-6" topsoil	37,308	ton						13.00	485,008				0	485,008
14.5	Ballfield restoration-grade, seed, mulch	20,167	cy	0.0943	1,902	mixed	45.90	87,289	0.16	3,227	4.38	88,330	0.6	12,100	190,945
14.6	Dewatering and water management	1	allow										2000000	2,000,000	2,000,000
15.0	**PROJECT MANAGEMENT/SUPPORT**							**21,326,402**		**98,000**		**49,000**		**31,850,000**	**53,323,402**
15.1	Project Manager (4 FTE)	53	mo	692	36,676		128.00	4,694,528		0		0		0	4,694,528
15.2	Sub-contract Tech. Rep. (1 FTE)	49	mo	173	8,477		80.00	678,160		0		0		0	678,160
15.3	Field construction support--10 FTE	49	mo	1,730	84,770		75.00	6,357,750	2,000	98,000	1000	49,000		50,000	6,554,750
15.4	ES & H (3 FTE)	49	mo	519.00	25,431		93.00	2,365,083							2,365,083
15.5	Health & Safety (1 FTE)	49	mo	173	8,477		80.00	678,160		0		0		0	678,160
15.6	Quality Engineer (1 FTE)	49	mo	173	8,477		80.00	678,160		0		0		0	678,160
15.7	Project Control Engineer 2 FTE)	49	mo	346	16,954		89.00	1,508,906		0		0		0	1,508,906
15.8	Procurement (0.25 FTE)	49	mo	43	2,119		80.00	169,540		0		0		0	169,540
15.9	Construction Engineer (3 FTE)	49	mo	519	25,431		125.00	3,178,875		0		0		0	3,178,875
15.10	Transport Specialist (2 FTE)	0	mo	346	0		80.00	0		0		0		0	0
15.11	Waste Packaging Specialist (1 FTE)	0	mo	173	0		80.00	0		0		0		0	0
15.12	Field Engineer (2 FTE)	49	mo	346	16,954		60.00	1,017,240		0		0		0	1,017,240
15.13	TVA oversight and management	53	mo										600000	31,800,000	31,800,000
15.14	TVA oversight - later Ash Pond closure	0	mo										600000	0	0
														**** CAPITAL COST TOTAL ****	**$ 223,738,539**

Alternative 3b
Embayment/Dredge Cell EE/CA
TVA Kingston Fly Ash Recovery Project

ITEM				LABOR					MATERIAL		EQUIPMENT		SUBCONTRACT		
WBS	ITEM DESCRIPTION	QTY	UNIT	UNIT MH	TOTAL MH	CRAFT	$/MH	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	$/UNIT	$ VALUE	TOTAL ($)
16.0	**OPERATION & MAINTENANCE (O&M)**							**0**		**0**		**0**		**624,000**	**624,000**
16.1	Sample & analyze wells semiannually	2	events					0		0		0	25,000	50,000	50,000
16.2	Maintain cell cover (mow, repair erosion)	247	Ac										2,000	494,000	494,000
16.3	Annual/5-yr review reports	1	ea										20,000	20,000	20,000
16.4	TVA oversight and management	12	mo										5,000	60,000	60,000
													**** ANNUAL O&M COST TOTAL ****	**$**	**624,000**