

Spreadsheet Report
KIF0509301R1FLY&BOT ASH
KINGSTON FOSSIL PLANT
OPTION 1 - WET ASH IN POND & GYPSUM ON PENINSULA
(WITHOUT BUFFER OPTION)

Project name KIF0509301R1FLY&BOT ASH

Engineer DAN SMITH

Estimator C. L. Toney

Labor rate table KIF 40 2004

Equipment rate table TVA Equipment

Project Plant Ash
Estimate # KIF
PCN # 050501R1
Requesting Engr. KIF530
Option Dan Smith
Revision 1
Phase 1
Estimate Type Preliminary
Estimate Accuracy +/- 20%
Est. Issue Date 01/21/2005
Funding Type Capital
Unit N

Wet ash in pond & gypsum on peninsula (Wet ash in dredge cell/Phase 1, and Phase2, Phase 3 not constructed. Gypsum on peninsula).

All cost are based in 2005 dollars. Additional notes are as follow:

- (1) Closure costs not included.
- (2) Liner is not required for this option.
- (3) Bottom ash columns are subject to change with final design.
- (4) Engineering (incl TVA oversight, subcontracts, and geotechnical investigation) - Assumes 10% of construction cost.
- (5) Assuming a disposal rate of 475,600 cy annually (including bottom and fly ash) & gypsum ash generating 327,360 cy annually.
- (6) Single phase power is assumed for pumps installed for dredge call coverage retrofit. 3-phase power is assumed not to be required.

Report format Sorted by "Location/Activity/Outage Set"
Detail summary

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Estimate Company

Location	Activity	Outage Seq	Description	Takeoff Quantity	Labor Productivity	Labor Quantity	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount
01	Instl Dms/Swan Pond	Capital											
			5' Dia Pipe Bolsters	24.00 ea	1.500	36.00 mh	1,035	4,882			245	256.78	6,163
			PVC Monitoring Wells	6.00 ea		84.80 mh	2,587		12,324			2,054.00	12,324
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 772)	474.00 lf	0.200	94.80 mh	2,907	785			403	7.85	3,775
			Crushed Stone, Bedding 6' Depth	16.00 tn	0.200	3.20 mh	230	152			27	25.61	4.10
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 799)	520.00 lf	0.200	104.00 mh	2,638	85			31	7.95	4,141
			Crushed Stone, Bedding 6' Depth	18.00 tn	0.200	3.60 mh	259	171			31	25.61	461
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 792)	491.00 lf	0.200	98.20 mh	2,680	813			29	7.96	3,910
			Crushed Stone, Bedding 6' Depth	17.00 tn	0.200	3.40 mh	245	162			29	25.61	435
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 810)	1,282.00 lf	0.200	256.40 mh	6,998	2,122			1,089	7.96	10,208
			Crushed Stone, Bedding 6' Depth	43.00 tn	0.200	8.60 mh	619	406			73	25.61	1,101
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 817)	1,218.00 lf	0.200	243.60 mh	5,648	2,016			1,034	7.96	9,699
			Crushed Stone, Bedding 6' Depth	41.00 tn	0.200	8.20 mh	590	390			70	25.61	1,050
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 825)	1,180.00 lf	0.200	236.00 mh	5,441	1,953			1,002	7.96	9,395
			Crushed Stone, Bedding 6' Depth	40.00 tn	0.200	8.00 mh	576	380			68	25.61	1,024
			6' Dia Non-Perf HDPE Corrugated Tubing Lateral Outlet Pipes (EL. 832)	1,160.00 lf	0.200	232.00 mh	5,322	1,930			985	7.96	9,237
			Crushed Stone, Bedding 6' Depth	39.00 tn	0.200	7.80 mh	559	371			66	25.61	999
			Cut For 6' Dia Non-Perforated HDPE (17,658 bcy)	21,990.00 sy	0.250	4,398.00 mh	121,975				36,025	7.46	158,020
			Backfill For 6' Dia Non-Perforated HDPE (12,381 bcy)	14,633.00 sy	0.250	3,708.25 mh	108,746				44,481	10.20	151,227
			Cut For 6' Dia Perforated HDPE (18,186 bcy)	21,824.00 sy	0.250	4,364.80 mh	123,846				37,403	7.46	162,748
			Backfill For 6' Dia Perforated HDPE (12,730 bcy)	15,276.00 sy	0.250	3,819.00 mh	109,594				45,510	10.20	155,744
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 83)	2,000.00 lf	0.200	400.00 mh	10,917	3,310			1,658	7.96	15,926
			1081 Crushed Stone	378.00 tn	0.150	56.70 mh	1,632	345			109	14.67	5,545
			Geotextile Woven Mouldflament	1,556.00 sy	0.021	32.01 mh	913	20,669			3218	2.69	4,173
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 772)	3,790.00 lf	0.200	758.00 mh	20,669	6,273			913	14.67	30,179
			1081 Crushed Stone	716.00 tn	0.150	107.40 mh	3,092	649			268	7.56	10,503
			Geotextile Woven Mouldflament	2,848.00 sy	0.021	59.64 mh	1,730	5,999			3,032	2.68	7,905
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 780)	4,160.00 lf	0.200	832.00 mh	22,707	6,886			1,092	14.67	33,125
			1081 Crushed Stone	786.00 tn	0.150	117.90 mh	3,394	713			147	7.56	11,500
			Geotextile Woven Mouldflament	3,236.00 sy	0.021	68.56 mh	1,899	6,552			228	2.68	8,678
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 792)	3,925.00 lf	0.200	785.00 mh	21,425	6,497			3,353	14.67	31,254
			1081 Crushed Stone	742.00 tn	0.150	111.30 mh	3,204	675			214	7.56	11,885
			Geotextile Woven Mouldflament	3,053.00 sy	0.021	62.80 mh	1,782	5,610			2,744	2.68	8,187
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 810)	5,410.00 lf	0.200	1,082.00 mh	34,989	10,610			5,443	14.67	51,042
			Geotextile Woven Mouldflament	1,211.00 tn	0.150	181.65 mh	5,229	1,099			346	7.56	13,371
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 817)	4,950.00 lf	0.200	990.00 mh	31,242	10,080			5,171	14.67	46,491
			1081 Crushed Stone	1,151.00 tn	0.150	172.65 mh	4,970	1,047			331	7.56	12,703
			Geotextile Woven Mouldflament	4,737.00 sy	0.021	97.44 mh	2,780	9,592			5010	2.68	14,881
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 825)	5,900.00 lf	0.200	1,180.00 mh	32,295	9,765			5,010	14.67	46,981
			1081 Crushed Stone	4,888.00 sy	0.021	94.40 mh	2,932	6,859			321	7.56	16,352
			Geotextile Woven Mouldflament	1,096.00 lf	0.200	216.00 mh	3,165	9,600			4,925	2.68	12,336
			6' Dia Perforated HDPE Perimeter Underdrain (EL. 832)	4,511.00 lf	0.200	902.20 mh	26,472	8,048			4,925	14.67	40,165
			Geotextile Woven Mouldflament	2,660.00 lf	0.250	532.00 mh	1,760	4,483			2,741	2.68	12,078
			12' Dia Force Main HDPE Perimeter Underdrain (EL. 763)	575.00 lf	0.150	86.25 mh	3,242	1,080			1,488	12.95	3,432
			1081 Crushed Stone	1,000 ea	56.000	60.00 mh	505	5,085			209	14.67	9,435
			Submersible Pumping Station Equipment Package	1 ea		18.10 mh	1,810	3,051			478	7,560.57	7,561
			60' Diameter Catch Basin (Fricas)	1 ea		47.17 mh	1,346	6,643			160	2,596	6,149
			Geotextile Woven Mouldflament	2,353.00 sy	0.021	47.17 mh	1,346	2,856			499	2.68	4,870
			GROUT Seal Storm Drain - 24" Diameter (Pump & Plug)	2,000 ea	1.000	54.00 mh	1,515	102			80	243.02	486
			Seal Weld 1/4" Thick A-36 Steel Plate	53.00 sy	1.000	53.00 mh	1,487	2,803			490	90.19	4,760
			GROUT Seal Storm Drain - 24" Diameter (Pump & Plug)	2,000 ea	1.000	53.00 mh	1,487	2,803			490	243.02	486
			Seal Weld 1/4" Thick A-36 Steel Plate	23.00 sy	1.000	23.00 mh	645	1,216			212	90.19	2,074
			GROUT Seal Storm Drain - 24" Diameter (Pump & Plug)	2,000 ea	1.000	54.00 mh	1,515	102			80	243.02	486
			Seal Weld 1/4" Thick A-36 Steel Plate	36.00 lf	0.480	18.24 mh	488	773			68	35.24	1,339
			24" CMP Storm Drain	36.00 lf	0.300	10.80 mh	173	300			77	249	1,339
			Excavation For 24" Dia Pipe (25 bcy)	30.00 sy	0.320	9.60 mh	300	193			166	17.13	380
			Backfill For 24" Diameter CMP (17 bcy)	21.00 lf	0.500	4.20 mh	58	38			7	25.61	102
			36" CMP Storm Drain	61.00 sy	0.200	12.20 mh	1,259	2,709			265	56.80	4,233
			Excavation For 36" Dia Pipe (67 bcy)	74.00 lf	0.600	43.20 mh	1,259	2,709			207	63.1	573
			Backfill For 36" Diameter CMP (67 bcy)	57.00 sy	0.300	17.10 mh	451	252			15	17.13	976
			Bedding For 36" Culvert	9.00 tn	0.500	4.50 mh	130	85			15	25.61	230
			Anchor Trench - Excavate into borrow Area (6,500 bcy)	10,380.00 sy	0.300	2,076.00 mh	59,760				28,469	8.31	86,229
			Upper & Lower LDPE Geomembrane	110,688.00 sy	0.050	5,534.40 mh	197,885	241,653			11,113	3.79	419,551
			Soilment Frag (6,500 bcy)	4,358.00 sy	0.500	174.34 mh	5,807	5,807			4,582	2.39	10,389
			Contingency @ 10%	1.00 lb									
			Capital										
			Instl Dms/Swan Pond										
			01										
02	ASH In Pond	Capital											
			Erect Silt Fence	1,006.00 lf	0.069	68.57 mh	1,994	502			317	2.81	2,813
			Geotextile (Nonwoven) Erosion Protection Channel	4,300.00 sy	0.016	68.80 mh	1,963	5,772			175	1.84	7,911

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Estimate Company

Location	Activity	Outage Seq	Description	Takeoff Quantity	Labor Productivity	Labor Quantity	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount
20	Ph 2 Initial Constr.	O & M	O&C For Construction Of Disposal Facility O & M Ph 2 Base Construct 17	100 ls		hrs 0.00 hrs 0.00 hrs	0 0 0	0 0 0	470,247 470,247 470,247	0 0 0		470,246.87	470,247 470,247 470,247
		O & M	Dredge Ash	451,295.00 sy					709,588			1.57	709,588
		O & M	Initial Disposal Life	0.90 Yrs								0.00	0
			Perforated Pipe ADS Drain Tube, 6" Diameter	7,370.00 lf	0.200	1,474.00 mh	40,229	12,199		6,258		7.96	58,886
			Geotextile For Underdrain	5,142.00 sy	0.021	128.34 mh	3,604	12,437		430		2.68	16,471
			#57 Stone For Outlet Pipe Bedding (135 pc)	1,492.00 in	0.150	223.80 mh	8,442	13,542		1,952		14.87	21,867
			Solid Outlet Pipe ADS Drain 6" Diameter	1,858.00 lf	0.200	371.60 mh	9,050	2,744		1,408		7.96	13,202
			#57 Stone For Outlet Pipe Bedding (135 pc)	338.00 in	0.150	50.40 mh	1,451	3,050		428		14.87	4,529
		O & M	Ph 2 Initial Constr			2,206.14 hrs	60,777	43,972	709,588	10,427		14.87	824,763
		O & M	Ph 2 Operation Cost			2,206.14 hrs	60,777	43,972	709,588	10,427			824,763
22	Ph 2 Operation Cost	O & M	Stage 1 (3 To 1 Side Slopes) Compacted Fly Ash Dike Fill (50% F. A. & 50% B. A.) Dredge Ash	1.00 lot 265,403.00 sy 1,334,498.00 sy	1,300.000	195.30 cd	475,359		2,098,277	395,452		0.00	0
		O & M	Stage 1 Disposal Life (Assume Dike & Dredge Ash)	3.30 Yrs								0.00	0
			Perforated Pipe ADS Drain Tube, 6" Diameter	11,495.00 lf	0.200	2,299.00 mh	62,748	19,026		9,761		7.96	91,533
			Geotextile For Underdrain	9,579.00 sy	0.021	197.04 mh	5,921	19,395		670		2.68	25,987
			#57 Stone For Outlet Pipe Bedding (135 pc)	2,328.00 in	0.150	349.20 mh	10,052	21,131		2,988		14.87	34,151
			Solid Outlet Pipe ADS Drain 6" Diameter	2,585.00 lf	0.200	517.20 mh	14,118	4,280		2,196		7.96	20,592
			#57 Stone For Outlet Pipe Bedding (135 pc)	524.00 in	0.150	78.60 mh	2,263	4,756		668		14.87	7,387
		O & M	Ph 2 Operation Cost			17,574.59 hrs	570,156	69,589	2,098,277	412,725		14.87	3,149,748
		O & M	Ph 2 Operation Cost			17,574.59 hrs	570,156	69,589	2,098,277	412,725			3,149,748
23	Ph 2 Operation Cost	O & M	Stage 2 (3 To 1 Side Slopes) Compacted Fly Ash Dike Fill (50% F. A. & 50% B. A.) Dredge Ash	1.00 lot 265,403.00 sy 1,509,673.00 sy	1,300.000	202.92 cd	490,859		2,373,715	403,223		0.00	0
		O & M	Stage 2 Disposal Life (Assume Dike & Dredge Ash)	3.70 Yrs								0.00	0
			Perforated Pipe ADS Drain Tube, 6" Diameter	11,865.00 lf	0.200	2,373.00 mh	64,765	19,639		10,075		7.96	94,479
			Geotextile For Underdrain	9,888.00 sy	0.021	205.40 mh	5,602	20,022		692		2.68	26,516
			#57 Stone For Outlet Pipe Bedding (135 pc)	2,403.00 in	0.150	360.45 mh	10,378	21,811		3,084		14.87	35,251
			Solid Outlet Pipe ADS Drain 6" Diameter	2,670.00 lf	0.200	534.00 mh	14,574	4,419		2,287		7.96	21,261
			#57 Stone For Outlet Pipe Bedding (135 pc)	541.00 in	0.150	81.15 mh	2,338	4,911		690		14.87	7,936
		O & M	Ph 2 Operation Cost			18,140.47 hrs	588,514	70,801	2,373,715	425,011		14.87	3,459,041
		O & M	Ph 2 Operation Cost			18,140.47 hrs	588,514	70,801	2,373,715	425,011			3,459,041
24	Ph 2 Operation Cost	O & M	Stage 3 (3 To 1 Side Slopes) Compacted Fly Ash Dike Fill (50% F. A. & 50% B. A.) Dredge Ash	1.00 lot 227,108.00 sy 1,344,916.00 sy	1,300.000	174.70 cd	423,046		2,114,661	352,932		0.00	0
		O & M	Stage 3 Disposal Life (Assume Dike & Dredge Ash)	3.50 Yrs								0.00	0
			Perforated Pipe ADS Drain Tube, 6" Diameter	10,230.00 lf	0.200	2,046.00 mh	55,841	16,532		6,687		7.96	61,460
			Geotextile For Underdrain	8,525.00 sy	0.021	176.30 mh	5,003	17,362		597		2.68	22,861
			#57 Stone For Outlet Pipe Bedding (135 pc)	2,072.00 in	0.150	310.80 mh	8,947	18,807		2,642		14.87	30,995
			Solid Outlet Pipe ADS Drain 6" Diameter	2,302.00 lf	0.200	460.40 mh	12,666	3,510		1,955		7.96	18,330
			#57 Stone For Outlet Pipe Bedding (135 pc)	465.00 in	0.150	69.00 mh	2,012	4,200		594		14.87	6,636
		O & M	Ph 2 Operation Cost			15,640.64 hrs	507,414	61,041	2,114,661	367,306		14.87	3,050,423
		O & M	Ph 2 Operation Cost			15,640.64 hrs	507,414	61,041	2,114,661	367,306			3,050,423

