



**Big Sandy Plant
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration**

Prepared for:
Kentucky Power Company (Owner)
and American Electric Power Service Corporation

Project No. 12721-001
June 20, 2011

Executive Summary



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EXECUTIVE SUMMARY

Sargent & Lundy LLC (S&L), using an extensive project team, and with support from Kiewit Power Constructors (Kiewit), recently completed cost estimates for the addition of a Brownfield 2x2x1 Mitsubishi 501GAC combined cycle addition at the Big Sandy Plant. Two (2) options were developed, reflecting different power block locations. The Combined Cycle Brownfield Build Study results were documented in a report previously issued. American Electric Power (AEP) is now interested in determining the estimated cost of the Option 2 configuration using GE 7FA.05 Combustion Turbines which would result in reduced station output.

For the Combined Cycle Brownfield Build Study heat balances were prepared for the 2x2x1 configuration using the Mitsubishi 501GAC combustion turbines. An option using the GE 7FA.05's was not studied hence, performance data is not available. Based on AEP's request to estimate the performance S&L utilized the results from another project (defined as Project X) to estimate the performance expected using the GE 7FA.05's.

Based on heat balances prepared for Project X, the plant performance design basis for natural gas is tabulated in Table ES-1 using the Mitsubishi 501GAC CT's and in Table ES-2 using the GE 7FA.05 CT's.

Table ES-1

**PROJECT X PLANT PERFORMANCE DESIGN BASIS FOR MITSUBISHI 501GAC
 COMBUSTION TURBINES - NATURAL GAS**

CASE NUMBER	CASE 1	CASE 13	CASE 4	CASE 12	CASE 11	CASE 16
DESCRIPTION	ANNUAL AVERAGE UNFIRED	ANNUAL AVERAGE FIRED	WINTER UNFIRED	WINTER FIRED	SUMMER UNFIRED	SUMMER FIRED
NET PLANT OUTPUT (kW)	740,580	844,198	845,361	947,924	728,317	830,028
NET PLANT HEAT RATE, HHV (Btu/kWh)	6,717	7,077	6,759	7,082	6,993	7,341
AUXILIARY POWER (%)	2.52	2.61	2.20	2.22	4.90	4.55

Table ES-2

**PROJECT X PLANT PERFORMANCE DESIGN BASIS FOR GE 7FA.05
 COMBUSTION TURBINES - NATURAL GAS**

CASE NUMBER	CASE 1	CASE 13	CASE 4	CASE 12	CASE 11	CASE 16
DESCRIPTION	ANNUAL AVERAGE UNFIRED	ANNUAL AVERAGE FIRED	WINTER UNFIRED	WINTER FIRED	SUMMER UNFIRED	SUMMER FIRED
NET PLANT OUTPUT (kW)	589,084	690,898	640,744	744,627	579,907	680,008
NET PLANT HEAT RATE, HHV (Btu/kWh)	6,856	7,293	6,985	7,354	7,134	7,555
AUXILIARY POWER (%)	2.49	2.61	2.18	2.23	4.92	4.50

The performance data for Project X was compared to determine scaling factors that could be applied to the Big Sandy Mitsubishi 501GAC CT heat balances to obtain estimated performance data if GE 7FA.05 CT's were used. Table ES-3 tabulates the scaling factors calculated.

Table ES-3

PROJECT X PLANT PERFORMANCE DESIGN BASIS COMPARISON
SCALING FACTORS

CASE NUMBER	CASE 1	CASE 13	CASE 4	CASE 12	CASE 11	CASE 16
DESCRIPTION	ANNUAL AVERAGE UNFIRED	ANNUAL AVERAGE FIRED	WINTER UNFIRED	WINTER FIRED	SUMMER UNFIRED	SUMMER FIRED
NET PLANT OUTPUT (kW)	0.7954	0.8184	0.7580	0.7855	0.7962	0.8193
NET PLANT HEAT RATE, HHV (Btu/kWh)	1.0207	1.0305	1.0334	1.0384	1.0202	1.0292
AUXILIARY POWER (%)	0.9881	1.0000	0.9909	1.0045	1.0041	0.9890

The performance data established for the Big Sandy Plant using the Mitsubishi 501GAC CT's is summarized in Table ES-4.

Table ES-4

BIG SANDY PLANT PERFORMANCE DESIGN BASIS FOR MITSUBISHI 501GAC
COMBUSTION TURBINES - NATURAL GAS

CASE NUMBER	CASE 1	CASE 40	CASE 3	CASE 9	CASE 5	CASE 2
DESCRIPTION	ANNUAL AVERAGE UNFIRED	ANNUAL AVERAGE FIRED	WINTER UNFIRED	WINTER FIRED	SUMMER UNFIRED	SUMMER FIRED
NET PLANT OUTPUT (kW)	762,016	909,079	848,495	993,693	703,136	904,257
NET PLANT HEAT RATE, HHV (Btu/kWh)	6,707	7,140	6,770	7,135	6,744	7,244
AUXILIARY POWER (%)	2.24	2.20	2.14	2.12	2.26	3.46

Using the scaling factors from Table ES-3 and applying them to the performance data in Table ES-4 results in estimated performance data for the Big Sandy Plant using GE 7FA.05 CT's identified in Table ES-5. Please note that this estimated performance data is provided for comparison purposes only and is not to be used for study or design purposes.

Table ES-5

**BIG SANDY PLANT ESTIMATED PERFORMANCE DESIGN BASIS FOR GE 7FA.05
 COMBUSTION TURBINES - NATURAL GAS**

CASE NUMBER	CASE 1	CASE 40	CASE 3	CASE 9	CASE 5	CASE 2
DESCRIPTION	ANNUAL AVERAGE UNFIRED	ANNUAL AVERAGE FIRED	WINTER UNFIRED	WINTER FIRED	SUMMER UNFIRED	SUMMER FIRED
NET PLANT OUTPUT (kW)	606,135	743,997	643,119	780,580	559,857	740,821
NET PLANT HEAT RATE, HHV (Btu/kWh)	6,846	7,358	6,996	7,409	6,880	7,455
AUXILIARY POWER (%)	2.24	2.20	2.14	2.12	2.26	3.46

The cost estimates prepared for the Combined Cycle Brownfield Build Study were based upon conceptual design deliverables prepared by S&L for each configuration option. The conceptual design deliverables, consisting of project site plot plans, general arrangements, piping and instrument diagrams, water balances and electrical one-lines, formed the basis for development of preliminary major equipment sizes and commodity estimates. Attention was focused on the significant elements that changed from one configuration option to another, primarily the site layout and available space.

In order to minimize the cost and schedule requirements of the cost estimate preparation for this effort, S&L used a methodology that produced cost estimates of somewhat reduced accuracy, based on scaling down the G-Class Option 2 cost estimate prepared for the Combined Cycle Brownfield Build Study. This was accomplished with minimal external support (new performance data was the sole input) by working at a line-item detail level and adjusting scope and costs based on our experience. One major assumption was

that the general layout and major building sizes would remain unchanged from the G-Class scheme, since any reductions in size was expected to be minimal. Equipment pricing was either replaced with recent pricing from other sources or scaled down using parametric estimating principles based on the equipment capacity. Commodity quantities generally remain unchanged, but sizing of select items was reduced when deemed appropriate, such as critical piping and select BOP systems. The resulting cost estimates incorporate all of the same features as the G-Class estimates, scaled down to an F-Class design. The effort is no longer a bottoms-up estimate, but rather the cost estimating group's informed opinion of what the expected project costs should be. We applied the same contingency levels established for the G-Class scheme, and pro-rated the escalation values to maintain consistency.

For the G-Class cost estimates, S&L represented that the end product estimates reflect a general accuracy range of -15%, +20%. Since the above approach would be downscaling costs and some borderline adjustments, such as primary building size reductions, would not be considered, we expect the resulting cost estimate to be somewhat more conservative, and fall into the -20%, +20% range.

The results of the capital cost estimates prepared for Option 2 are tabulated in the following tables. Costs are tabulated without (Table ES-6) and with (Table ES-7) escalation and contingency. These total costs do not include costs to be developed by AEP.

Table ES-6

OPTION 2 F-CLASS ITERATION CAPITAL COST ESTIMATE SUMMARY
(EXCLUDES ESCALATION AND CONTINGENCY)

OPTION 2 (7FA.05 CT's) BS PLANT FGD AREA	TOTAL EQUIPMENT COSTS	TOTAL MATERIAL COSTS	TOTAL CONSTRUCTION & ERECTION COSTS	TOTAL PROJECTED COSTS
SUBTOTAL PROJECT COSTS	\$317,431,523	\$77,136,268	\$198,797,357	\$593,365,149
PROJECT INDIRECT COSTS				\$42,241,600
TOTAL PROJECT COST (LESS ESCALATION & CONTINGENCY)				\$635,606,749

Table ES-7

OPTION 2 F-CLASS ITERATION CAPITAL COST ESTIMATE SUMMARY
(INCLUDES ESCALATION AND CONTINGENCY)

OPTION 2 (7FA.05 CT's) BS PLANT FGD AREA	TOTAL EQUIPMENT COSTS	TOTAL MATERIAL COSTS	TOTAL CONSTRUCTION & ERECTION COSTS	TOTAL PROJECTED COSTS
SUBTOTAL PROJECT COSTS	\$317,431,523	\$77,136,268	\$198,797,357	\$593,365,149
PROJECT INDIRECT COSTS				\$42,241,600
ESCALATION				\$66,888,756
CONTINGENCY				\$79,552,900
TOTAL PROJECT COST				\$782,048,405

Table ES-8 tabulates the optional cost for fuel oil firing.



Table ES-8

**FUEL OIL OPTION F-CLASS ITERATION CAPITAL COST
ESTIMATE SUMMARY**

FUEL OIL OPTION	TOTAL EQUIPMENT COSTS	TOTAL MATERIAL COSTS	TOTAL CONSTRUCTION & ERECTION COSTS	TOTAL PROJECTED COSTS
SUBTOTAL PROJECT COSTS	\$4,510,248	\$2,309,540	\$3,808,119	\$10,627,907
PROJECT INDIRECT COSTS				\$67,700
ESCALATION				\$1,188,953
CONTINGENCY				\$1,975,600
TOTAL PROJECT COST				\$13,860,160

The Option 2 cost estimate includes costs for specific equipment and materials included in the base conceptual design. Separate Takeout Pricing cost estimates were prepared to identify the costs included in the base cost estimates for these items. Table ES-9 provides a summary of the takeout pricing cost estimates.



Table ES-9

TAKEOUT PRICING SUMMARY
FOR F-CLASS ITERATION

	TOTAL DIRECT & CONSTRUCTION INDIRECT COST	PROJECT INDIRECT COST	TOTAL COST IMPACT
FUEL OIL BASE	\$6,980,705	\$1,692,958	\$8,673,663
CT INLET AIR CHILLERS	\$22,951,807	\$5,531,601	\$28,483,408
CONDENSATE POLISHER	\$4,267,112	\$1,020,877	\$5,287,989
AUXILIARY BOILER	\$4,699,917	\$1,104,103	\$5,804,020
SERVICE WATER PIPING (SS vs CS)	\$360,877	\$82,280	\$443,157
DCS HIGH FIDELITY SIMULATOR	\$1,631,549	\$395,868	\$2,027,417

The following deliverables were prepared and are attached to this report.

ATTACHMENT	DESCRIPTION
1-1	Option 2 Detailed Capital Cost Estimate F-Class Iteration No. 31155A
1-2	Fuel Oil Option Detailed Capital Cost Estimate F-Class Iteration No. 31156A
1-3	Option 2 Summary Capital Cost Estimate F-Class Iteration No. 31155A
1-4	Fuel Oil Option Summary Capital Cost Estimate F-Class Iteration No. 31156A
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1-6	Fuel Oil Option Capital Cost Estimate Comparison F-Class Iteration to G-Class
1-7	Cost Estimate Takeout Pricing F-Class Iteration



Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-1
Option 2 Detailed Capital Cost Estimate
F-Class Iteration No. 31155B

A	B	C	D	E	F	H	I	L	M	O	Q	R	S	T	U	
1														Estimate No.:	31155B	
2														Project No.:	12721-001	
3														First Issue Date:	06/02/11	
4														Revision No.:	B	
5														Revision Date:	06/17/11	
6														Run Date:	06/17/11	
7														Preparer:	TJM	
8														Reviewer:	MNO	
9																
10																
11																
12	<u>Account No.</u>	<u>Item Description</u>	<u>Scope Definition</u>	<u>Cost Type</u>	<u>Quantity</u>	<u>Unit of Measure</u>	<u>Unit Equipment Cost</u>	<u>Unit Material Cost</u>	<u>Total Equipment Cost</u>	<u>Total Material Cost</u>	<u>Unit Man-hours (Base)</u>	<u>Total Man-hours, w/ Productivity</u>	<u>Crew Code</u>	<u>Crew Wage Rate</u>	<u>Total Construction & Erection Cost</u>	<u>Total Projected Cost</u>
13																
14																
15	10.00	GENERAL SITE WORK														13,614,221
16																
17	10.10	CIVIL						150,000	4,516,642			56,223		5,776,041	10,442,683	
18																
19	10.10.1	Existing Fuel Oil Tank Removal and Area Restoration	Priced Separately After Estimate Totals													
20																
21	10.10.2	Construction Parking & Laydown Areas Preparation						0	1,923,056			20,682		2,511,644	4,434,700	
22																
23		Blaine Creek Area						0	942,506			11,812		1,445,090	2,387,596	
24		Erosion & Sediment Control														
25		Silt Fence		Est.	3,700	LF		0	3,700		0.02	85	LAND	64.65	5,502	9,202
26		Rock Check Dams		Est.	30	EA		0	15,000		12	414	LAND	64.65	26,765	41,765
27		Rock Construction Entrance	30' x 100' x 8" Thick Crushed Stone	Est.	1	EA		0	26,000		50	58	BCSE	106.22	6,108	32,108
28		Stormwater (Sediment) Pond Restoration at End of Construction	Sediment Removal	Est.	75	CY		0	0		2	173	EXFD	94.41	16,286	16,286
29		Site Grading														
30		Topsoil & Organic Stripping	6" Removal Depth	Est.	8,400	CY		0	0		0.05	512	ETWK	180.48	92,402	92,402
31		Soil Cut	Assume 0.75' Cut Across the Entire Area	Est.	12,000	CY		0	0		0.08	1,104	ETWK	180.48	199,250	199,250
32		Fill	Assume 0.75' Fill Across the Entire Area	Est.	12,000	CY		0	0		0.08	1,104	ETWK	180.48	199,250	199,250
33		Riprap		Est.	200	CY		0	6,000		0.30	69	RRAP	74.77	5,159	11,159
34		Roads & Surfacing														
35		Soil Cut	Minor Grading for Access Road Widening	Est.	2,500	CY		0	0		0.08	230	ETWK	180.48	41,510	41,510
36		Fill	Minor Grading for Access Road Widening	Est.	2,500	CY		0	0		0.08	230	ETWK	180.48	41,510	41,510
37		Laydown Area Access Road - Widen Existing Roadway 18' for a Total 30' Wide Road	Includes: 6" Base Course 10 OZ/SY Geotextile 12" Subgrade Prep	Est.	6400	SY		0	76,800		0.07	515	BCSE	106.22	54,725	131,525
38		Laydown Area Access Road - Improve Existing 12' Wide Roadway by Adding 8" of Gravel	Includes: 6" Base Course	Est.	4300	SY		0	47,300		0.05	247	BCSE	106.22	26,263	73,563
39		Aggregate Area Surfacing	Total Laydown Area of 10 Acres Includes: 6" Base Course 10 OZ/SY Geotextile 12" Subgrade Prep	Est.	50000	SY		0	600,000		0.07	4,025	BCSE	106.22	427,536	1,027,536
40		Fencing														
41		6' High w/ 3-Strand Barbed Wire		Est.	3200	LF		0	96,000		0.100	368	CARP	75.94	27,946	123,946
42		24' Double Wide Swing Gate		Est.	4	EA		0	14,000		50.000	230	CARP	75.94	17,466	31,466

A	B	C	D	E	F	H	I	L	M	O	Q	R	S	T	U	
1														Estimate No.:	31155B	
2														Project No.:	12721-001	
3														First Issue Date:	06/02/11	
4		Cost Type: Est=Estimated, B=Bid and												Revision No.:	B	
5		OPB=Other Project Bid												Revision Date:	06/17/11	
6		DOR:												Run Date:	06/17/11	
7														Preparer:	TJM	
8														Reviewer:	MNO	
9																
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12	<u>Account No.</u>	<u>Item Description</u>	<u>Scope Definition</u>	<u>Cost Type</u>	<u>Quantity</u>	<u>Unit of Measure</u>	<u>Unit Equipment Cost</u>	<u>Unit Material Cost</u>	<u>Total Equipment Cost</u>	<u>Total Material Cost</u>	<u>Unit Man-hours (Base)</u>	<u>Total Man-hours, w/ Productivity</u>	<u>Crew Code</u>	<u>Crew Wage Rate</u>	<u>Total Construction & Erection Cost</u>	<u>Total Projected Cost</u>
13																
14																
43		Stormwater Runoff / Sediment Control Pond	Earthwork													
44		Soil Cut		Est.	3,000	CY	0	0	0	0	0.08	276	ETWK	180.48	49,812	49,812
45		Fill		Est.	3,000	CY	0	0	0	0	0.08	276	ETWK	180.48	49,812	49,812
46		4" Topsoil		Est.	650	CY	27.6	0	17,940	0.03	22	22	LAND	64.65	1,450	19,390
47		Grass Seeding, Fertilizing, & Mulch		Est.	1.2	AC	4930	0	5,916	240	331	331	MSTR	83.24	27,569	33,485
48		Riprap	Pond Inlet, Outlet, & Emergency Spillway Protection	Est.	200	CY	30	0	6,000	0.30	69	69	RRAP	74.77	5,159	11,159
49		Stormwater Pond Outlet Structure - CMP Riser						0	27,850		1,474	1,474			123,610	151,460
50		Excavation		Est.	1.5	CY	0	0	0	0.20	0	0	EXFD	94.41	33	33
51		Backfill		Est.	0.5	CY	0	0	0	0.15	0	0	EXFD	94.41	8	8
52		Reinforcing		Est.	0.3	TN	950	0	285	20	7	7	REIN	82.48	569	854
53		Concrete		Est.	2	CY	150	0	300	1.5	3	3	CONP	82.94	286	586
54		Piping	48" CMP	Est.	5	LF	75	0	375	4	23	23	YDPP	94.07	2,164	2,539
55		Piping	18" CMP	Est.	70	LF	32	0	2,240	0.75	60	60	YDPP	94.07	5,679	7,919
56		Grass Seeding, Fertilizing, & Mulch	For Topsoil & Spoils Waste Area	Est.	5	AC	4930	0	24,650	240	1,380	1,380	MSTR	83.24	114,871	139,521
57																
58		Area in Existing Plant						0	980,550		8,870	8,870			1,066,554	2,047,104
59		Erosion & Sediment Control														
60		Silt Fence		Est.	3,550	LF	1	0	3,550	0.02	82	82	LAND	64.65	5,279	8,829
61		Rock Check Dams		Est.	15	EA	500	0	7,500	12	207	207	LAND	64.65	13,383	20,883
62		Rock Construction Entrance	30' x 100' x 8" Thick Crushed Stone	Est.	1	EA	26000	0	26,000	50	58	58	BCSE	106.22	6,108	32,108
63		Stormwater (Sediment) Pond Restoration at End of Construction	Sediment Removal	Est.	75	CY	0	0	0	2	173	173	EXFD	94.41	16,286	16,286
64		Fencing														
65		6' High w/ 3-Strand Barbed Wire		Est.	2000	LF	30	0	60,000	0.10	230	230	CARP	75.94	17,466	77,466
66		24' Double Wide Swing Gate		Est.	1	EA	3500	0	3,500	50	58	58	CARP	75.94	4,367	7,867
67		Man Gate		Est.	2	EA	500	0	1,000	12	28	28	CARP	75.94	2,096	3,096
68		Railroad Crossing	30' Wide, Crossing 2 Tracks, Wooden RR Tie Construction	Est.	1	LS	15000	0	15,000	180	207	207	RRTK	91.63	18,967	33,967
69		Site Grading														
70		Topsoil Stripping	6" Removal Depth, Includes 1 Mile Haul	Est.	8,800	CY	0	0	0	0.09	911	911	ETWK	180.48	164,381	164,381
71		Soil Cut		Est.	6,100	CY	0	0	0	0.08	561	561	ETWK	180.48	101,285	101,285
72		Fill		Est.	6,100	CY	0	0	0	0.08	561	561	ETWK	180.48	101,285	101,285
73		Roads & Surfacing														
74		Aggregate Area Surfacing	Includes: 6" Base Course 10 OZ/SY Geotextile 12" Subgrade Prep	Est.	72000	SY	12	0	864,000	0.07	5,796	5,796	BCSE	106.22	615,651	1,479,651
75																
76	10.10.3	Erosion & Sediment Control - CC Area						0	66,400		573	573			41,806	108,206
77		Silt Fence		Est.	4,900	LF	1	0	4,900	0.02	113	113	LAND	64.65	7,286	12,186
78		Rock Check Dams		Est.	15	EA	500	0	7,500	12	207	207	LAND	64.65	13,383	20,883
79		Rock Construction Entrance	30' x 100' x 8" Thick Crushed Stone	Est.	2	EA	26000	0	52,000	50	115	115	BCSE	106.22	12,215	64,215
80		Stormwater (Sediment) Pond Restoration at End of Construction	Allowance	Est.	1	LS	2000	0	2,000	120	138	138	LAND	64.65	8,922	10,922

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13																
14																
81																
82	10.10.4	Site Grading							0	0		2,944			531,333	531,333
83		Cut	Assume 0.75' Cut Across the Entire CC Area	Est.	16,000	CY		0	0	0	0.080	1,472	ETWK	180.48	265,667	265,667
84		Fill	Assume 0.75' Fill Across the Entire CC Area	Est.	16,000	CY		0	0	0	0.080	1,472	ETWK	180.48	265,667	265,667
85																
86	10.10.5	Roads & Surfacing							0	1,254,000		7,728			717,868	1,971,868
87		Plant Roads & Surfacing	Includes: 1.5" Asphalt Surface Course 1.5" Asphalt Binder Course 12" Base Course 10 OZ/SY Geotextile 12" Subgrade Prep	Est.	17500	SY		47	0	822,500	0.120	2,415	PBIT	93.12	224,885	1,047,385
88		Ammonia & Chemical Unloading Slabs	12" Reinforced Concrete, 10' x 150'	Est.	230	CY		250	0	57,500	8.000	2,116	CONP	82.94	175,501	233,001
89		Concrete Pad Building Entrances	10" Reinforced Concrete	Est.	400	SY		80	0	32,000	1.500	690	CONP	82.94	57,229	89,229
90		Aggregate Area Surfacing	6" Base Course	Est.	26000	SY		12	0	312,000	0.070	2,093	BCSE	106.22	222,318	534,318
91		Railroad Crossing (Pretreatment Area Access)	30' Wide, Crossing 2 Tracks, Wooden RR Tie Construction	Est.	2	LS		15000	0	30,000	180	414	RRTK	91.63	37,935	67,935
92																
93	10.10.6	Fencing							0	179,500		1,090			82,790	262,290
94		Plant Area Fencing														
95		6' High w/ 3-Strand Barbed Wire		Est.	4100	LF		30	0	123,000	0.100	472	CARP	75.94	35,806	158,806
96		24' Double Wide Swing Gate		Est.	4	EA		3500	0	14,000	50	230	CARP	75.94	17,466	31,466
97		Man Gate		Est.	7	EA		500	0	3,500	12.000	97	CARP	75.94	7,336	10,836
98		GSU Transformer Fencing														
99		6' High w/ 3-Strand Barbed Wire		Est.	1100	LF		30	0	33,000	0.100	127	CARP	75.94	9,606	42,606
100		20' Wide Slide Gate		Est.	3	EA		1500	0	4,500	36.000	124	CARP	75.94	9,432	13,932
101		Man Gate		Est.	3	EA		500	0	1,500	12.000	41	CARP	75.94	3,144	4,644
102																
103	10.10.7	New Concrete Encasement	16' x 4' x 40' - For Existing Ash Pipe Road Crossing						0	20,745		568			52,001	72,746
104		Excavation & Backfill		Est.	150	CY		0	0	0	0.150	26	EXFD	94.41	2,443	2,443
105		Reinforcing		Est.	6	TN		1150	0	6,900	20.000	138	REIN	82.48	11,382	18,282
106		Formwork		Est.	1500	SF		2.5	0	3,750	0.140	242	FORM	103.29	24,945	28,695
107		Concrete		Est.	70	CY		120	0	8,400	1.500	121	CONP	82.94	10,015	18,415
108		Mudmat		Est.	6	CY		95	0	570	1.500	10	CONP	82.94	858	1,428
109		Embedded Steel		Est.	450	LB		2.5	0	1,125	0.060	31	CARP	75.94	2,358	3,483
110																
111	10.10.8	Stormwater Drainage Trench							0	936,000		18,113			1,332,537	2,268,537
112		Cast In Place Concrete Trench	2' W x 1.5' Deep, w/ Reinforcing and HS-20 Rated Gate Covers	Est.	1200	LF		220	0	264,000	3.500	4,830	COND	73.57	355,343	619,343
113		Cast In Place Concrete Trench	3' W x 3' Deep, w/ Reinforcing and HS-20 Rated Gate Covers	Est.	2100	LF		320	0	672,000	5.500	13,283	COND	73.57	977,194	1,649,194
114																

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13																
14																
115	10.10.9	Stormwater Runoff Pond							0	29,856		1,544			236,541	266,397
116		Sand Excavation		Est.	15000	CY		0	0	0	0.065	1,121	ETWK	180.48	202,363	202,363
117		4" Topsoil		Est.	650	CY		27.6	0	17,940	0.030	22	LAND	64.65	1,450	19,390
118		Grass Seeding, Fertilizing, & Mulch		Est.	1.2	AC		4930	0	5,916	240.000	331	MSTR	83.24	27,569	33,485
119		Riprap	For Overflow Spillway	Est.	200	CY		30	0	6,000	0.300	69	RRAP	74.77	5,159	11,159
120																
121	10.10.10	Stormwater Pond Pump Structure							150,000	62,085		2,407			225,856	437,941
122		Excavation		Est.	0	CY		0	0	0	0.200	0	EXFD	94.41	0	0
123		Backfill		Est.	0	CY		0	0	0	0.150	0	EXFD	94.41	0	0
124		Reinforcing		Est.	3	TN		950	0	2,850	20.000	69	REIN	82.48	5,691	8,541
125		Formwork		Est.	2025	SF		2.5	0	5,063	0.140	326	FORM	103.29	33,675	38,738
126		Concrete		Est.	33	CY		120	0	3,960	1.500	57	CONP	82.94	4,721	8,681
127		Mudmat		Est.	0	CY		95	0	0	1.500	0	CONP	82.94	0	0
128		Embedded Steel		Est.	165	LB		2.5	0	413	0.060	11	CARP	75.94	865	1,277
129		Gallery Steel		Est.	5	TN		4000	0	20,000	35.000	201	GALL	88.72	17,855	37,855
130		Permanent Pumps	500 GPM, 75 PSIG	Est.	3	EA	30000	4000	90,000	12,000	165.000	569	MECH	93.18	53,043	155,043
131		Temporary Pumps for Construction Runoff	Allowance	Est.	2	EA	30000	4000	60,000	8,000	165.000	380	MECH	93.18	35,362	103,362
132		Piping	6" HDPE, SDR 9	Est.	1000	LF		9.8	0	9,800	0.690	794	YDPP	94.07	74,645	84,445
133																
134	10.10.11	Temporary Construction Guard House	Allowance	Est.	1	LS	0	20000	0	20,000	500.000	575	CARP	75.94	43,666	63,666
135																
136	10.10.12	Concrete Filled Pipe Bollards	Includes Installation Labor	Est.	100	EA	0	250	0	25,000						25,000
137																
156	10.89	SUBTOTAL - DIRECT COSTS, GENERAL SITE WORK							150,000	4,516,642		56,223		102.73	5,776,041	10,442,683
157																
158	10.90	CONSTRUCTION INDIRECTS, GENERAL SITE WORK							7,500	1,061,411		4,889			2,102,627	3,171,538
159		Additional Crane Allowance			1	LS				0					0	0
160		Mobilization / Demobilization - Included in Wage Rates Above														
161		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
162		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						4,889		102.73	502,000	502,000
163		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					6,111				532,060	532,060
164		Per Diem	None		0.00	HR						0			0	0
165		Consumables - % of Subtotal Above			0.5	%				22,583					28,880	51,463
166		Freight on Material - % of Subtotal Above			5.0	%				225,832						225,832
167		Freight on Equipment - % of Subtotal Above			5.0	%			7,500							7,500
168		Scaffolding - % of Subtotal Above			3.0	%				135,499					173,281	308,780
169		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				677,496					866,406	1,543,902
171	10.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, GENERAL SITE WORK							157,500	5,578,053		61,112		128.92	7,878,668	13,614,221
172																

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13																
14																
173	10.99	SUBCONTRACTS							0	0		0			0	0
176																
177	10.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, GENERAL SITE WORK							157,500	5,578,053		61,112		128.92	7,878,668	13,614,221
178																
179																
180																
181	11.00	UNDERGROUND														30,430,557
182																
183	11.10	CIVIL							7,500	459,025		37,860			3,546,313	4,012,838
184																
185		Site Drainage System														
186	11.10.1	Oily Water Sewer System							7,500	306,875		9,978			939,824	1,254,199
187		Piping	6" CS	Est.	2000	LF		52	0	104,000	1.190	2,737	YDPP	94.07	257,470	361,470
188		Piping	8" CS	Est.	2000	LF		69	0	138,000	1.260	2,898	YDPP	94.07	272,615	410,615
189		Post Indicator Valve		Est.	10	EA	750	0	7,500	0	6.000	69	YDPP	94.07	6,491	13,991
190		Manholes	4' Internal Diameter	Est.	37	EA		1575	0	58,275	20.000	851	YDPP	94.07	80,054	138,329
191		Excavation / Backfill		Est.	8940	CY		0	0	0	0.30	3,084	EXFD	94.41	291,189	291,189
192		Bedding Material		Est.	440	CY		15	0	6,600	0.67	339	EXFD	94.41	32,007	38,607
193																
194	11.10.2	Removal of Existing Storm Sewers							0	0		863			81,253	81,253
195		Underground Pipe Removal	Allowance for 16" Pipe, 5' Deep	Est.	1800	LF		0	0	0	0.250	518	YDPP	94.07	48,681	48,681
196		Excavation / Backfill	For Underground Pipe Removal	Est.	1500	CY		0	0	0	0.200	345	EXFD	94.41	32,571	32,571
197																
198	11.10.3	Sanitary Sewer System							0	27,150		6,116			576,417	603,567
199		Piping	6" PVC SDR 26	Est.	250	LF		6	0	1,500	0.150	43	YDPP	94.07	4,057	5,557
200		Cleanout	6" PVC SDR 26	Est.	3	EA		25	0	75	0.700	2	YDPP	94.07	227	302
201		Manholes	4' Internal Diameter	Est.	4	EA		1575	0	6,300	20.000	92	YDPP	94.07	8,654	14,954
202		Force Main from Packaged Sewage Treatment Plant	4" Dia. HDPE, SDR 17, Effluent Will Be Routed to a Location To Be Determined Based on Permitting Requirements	Est.	3500	LF		3.9	0	13,650	0.700	2,818	YDPP	94.07	265,042	278,692
203		Excavation / Backfill		Est.	8325	CY		0	0	0	0.30	2,872	EXFD	94.41	271,157	271,157
204		Bedding Material		Est.	375	CY		15	0	5,625	0.67	289	EXFD	94.41	27,279	32,904
205																
206	11.10.4	Mechanical Excavation (for process pipe trenches)							0	0		19,179			1,810,647	1,810,647
207		Depths - 5' to 10'	28,000 LF of trench @ 2.81 CY/LF	Est.	78,680	CY		0	0	0	0.15	13,572	EXFD	94.41	1,281,361	1,281,361
208		Depths - over 10'	3,250 LF of trench for Circ. wtr @ 6 cy/lf	Est.	19,500	CY		0	0	0	0.25	5,606	EXFD	94.41	529,286	529,286
209																
210	11.10.5	Relocation of Miscellaneous Underground Utilities	Allowance	Est.	1	LS		125000	0	125,000	1,500.000	1,725	ECND	80.10	138,173	263,173
211																
212	11.20	CONCRETE							0	9,000		345			25,382	34,382
213																
214	11.20.1	Concrete Thrust Blocks for Piping Systems	Allowance	Est.	50	Ea.		180.00	0	9,000	6.00	345	COND	73.57	25,382	34,382
215																

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13																
14																
222	11.50	ELECTRICAL							0	2,089,658		58,352			5,209,774	7,299,432
223																
224	11.50.1	Electrical Ductbanks & Trenches	Per ESK-OPT2-030						0	607,925		34,696			3,125,803	3,733,728
225		Ductbanks														
226		Excavation / Backfill	11.5 ft below ground	Est.	50000	CY	0	0	0	0	0.30	17,250	EXFD	94.41	1,628,573	1,628,573
227		Concrete		Est.	2500	CY	120	0	300,000	1.90	5,463	5,463	COND	73.57	401,876	701,876
228		Reinforcing		Est.	30	TN	950	0	28,500	22.50	776	776	REIN	82.48	64,025	92,525
229		Formwork		Est.	30000	SF	2.25	0	67,500	0.20	6,900	6,900	FORM	103.29	712,701	780,201
230		Manholes	ESK-OPT2-18 & ESK-OPT2-19	Est.	1	LS		0	211,925		4,307	4,307			318,629	530,554
231		16'x16'x10' deep		Est.	2	Ea	25000	0	50,000	400	920	920	COND	73.57	67,684	117,684
232		14'x14'x12' deep		Est.	1	Ea	20000	0	20,000	380	437	437	COND	73.57	32,150	52,150
233		14'x14'x10' deep		Est.	1	Ea	18000	0	18,000	380	437	437	COND	73.57	32,150	50,150
234		12'x12'x10' deep		Est.	1	Ea	15000	0	15,000	350	403	403	COND	73.57	29,612	44,612
235		10'x10'x10' deep		Est.	2	Ea	13000	0	26,000	340	782	782	COND	73.57	57,532	83,532
236		8'x8'x10' deep		Est.	3	Ea	10000	0	30,000	300	1,035	1,035	COND	73.57	76,145	106,145
237																
238		Trenwa Trench	UAT 1B to Transformer PDC													
239		Excavation / Backfill		Est.	243	CY	0	0	0	0.30	84	84	EXFD	94.41	7,915	7,915
240		Trenwa- MS-20 With concrete cover	Road crossing type	Est.	365	LF	145	0	52,925	0.50	210	210	COND	73.57	15,441	68,366
241																
242	11.50.2	Conduits	Per ESK-OPT2-030						0	1,120,725		15,434			1,236,274	2,356,999
243		Conduit-Below Grade in Ductruns														
244		2" PVC Conduit		Est.	8,239	LF	3.88	0	31,967	0.04	417	417	ECND	80.10	33,393	65,360
245		3" PVC Conduit		Est.	21,200	LF	7.95	0	168,540	0.08	1,975	1,975	ECND	80.10	158,180	326,720
246		4" PVC Conduit		Est.	46,282	LF	11.75	0	543,814	0.10	5,376	5,376	ECND	80.10	430,590	974,403
247		5" PVC Conduit		Est.	9,600	LF	16.2	0	155,520	0.14	1,546	1,546	ECND	80.10	123,803	279,323
248		2" RGS Conduit		Est.	2,216	LF	8.76	0	19,412	0.26	673	673	ECND	80.10	53,889	73,302
249		3" RGS Conduit		Est.	2,200	LF	18.28	0	40,216	0.48	1,224	1,224	ECND	80.10	98,033	138,249
250		4" RGS Conduit		Est.	5,488	LF	25.84	0	141,810	0.61	3,820	3,820	ECND	80.10	305,970	447,780
251		5" RGS Conduit		Est.	144	LF	45.6	0	6,566	0.85	140	140	ECND	80.10	11,212	17,778
252		6" RGS Conduit		Est.	184	LF	70	0	12,880	1.25	265	265	ECND	80.10	21,203	34,083
253																
254	11.50.3	Grounding	Per ESK-010						0	211,008		6,612			681,706	892,713
255		Ground Rod (3/4" -10'L)		Est.	140	EA	175	0	24,500	1.500	242	242	WIRE	103.10	24,899	49,399
256		10' Ground pigtailed		Est.	671	EA	10	0	6,710	1.000	772	772	WIRE	103.10	79,557	86,267
257		Exothermic weld (Ground cable to Ground rods +test)		Est.	140	EA	15	0	2,100	1.500	242	242	WIRE	103.10	24,899	26,999
258		ExothermicTee weld		Est.	858	EA	20	0	17,160	1.750	1,727	1,727	WIRE	103.10	178,025	195,185
259		#4/0 KCMIL Bare cooper wire		Est.	39,000	EA	3.0825	0	120,218	0.060	2,691	2,691	WIRE	103.10	277,442	397,660
260		#500 KCMIL Bare cooper wire		Est.	6,000	EA	6.72	0	40,320	0.087	597	597	WIRE	103.10	61,535	101,855
261		Megger resistance test	Testing & Documentation	Est.	1	LS		0	0	298	343	343	WIRE	103.10	35,349	35,349
262																
263	11.50.4	Cathodic Protection	Per ESK-008	Est.	1	LS	150000	0	150,000	1400.000	1,610	1,610	WIRE	103.10	165,991	315,991
264																

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13																
14																
267	11.60	MECHANICAL							250,000	0		2,392			225,494	475,494
268																
269	11.60.1	Oil/Water Separator Including Lift Stations	500 GPM w/ Integral Lift Station	Est.	3	EA	50000	0	150,000	0	560.000	1,932	YDPP	94.07	181,743	331,743
270																
271	11.60.2	Packaged Sanitary Sewage Treatment Plant	Allowance	Est.	1	LS	100000		100,000	0	400.00	460	WTRT	95.11	43,751	143,751
272																
273	11.70	PIPING							0	3,805,235		74,156		6,975,920	10,781,155	
274																
275	11.70.1	Large Bore BOP Pipe 2-1/2" & Larger - Below Ground	Incl. Coating & Wrapping		61,265	LF			0	3,743,170		72,485		6,818,644	10,561,814	
276		Off-Site Fuel Gas Supply Line	By Others													
277		Auxiliary Cooling Water System	HDPE, SDR11, 20" dia.	Est.	400	LF	60.7	0	24,280	1.26	580	YDPP	94.07	54,523	78,803	
278		Ammonia System	SS, 3" dia. Sch 40S	Est.	1,300	LF	46.6	0	60,580	0.83	1,241	YDPP	94.07	116,727	177,307	
279		Blowdown Drains System	CS, 10" dia.	Est.	350	LF	103.6	0	36,260	1.21	487	YDPP	94.07	45,814	82,074	
280		Bottle Gas System	SS, 3" dia. Sch 40S	Est.	7,800	LF	46.6	0	363,480	0.83	7,445	YDPP	94.07	700,361	1,063,841	
281		Chilled Water System	HDPE, SDR11, 20" dia.	Est.	2,900	LF	60.7	0	176,030	1.26	4,202	YDPP	94.07	395,292	571,322	
282		Circulating Water System	PCCP, 96" dia.	Est.	640	LF	1000	0	640,000	9.60	7,066	YDPP	94.07	664,661	1,304,661	
283		Circulating Water System	PCCP, 78" dia.	Est.	200	LF	750	0	150,000	8.60	1,978	YDPP	94.07	186,070	336,070	
284		Circulating Water System	PCCP, 54" dia.	Est.	200	LF	620	0	124,000	6.90	1,587	YDPP	94.07	149,289	273,289	
285		Circulating Water System	HDPE, SDR11, 16" dia.	Est.	2,200	LF	38.7	0	85,140	1.11	2,808	YDPP	94.07	264,177	349,317	
286		Closed Cooling Water System	HDPE, SDR11, 3" dia.	Est.	600	LF	2.1	0	1,260	0.46	317	YDPP	94.07	29,858	31,118	
287		Deminerlized Water System	HDPE, SDR11, 10" dia.	Est.	300	LF	22	0	6,600	0.85	293	YDPP	94.07	27,586	34,186	
288		Deminerlized Water System	HDPE, SDR11, 8" dia.	Est.	300	LF	11.8	0	3,540	0.73	252	YDPP	94.07	23,692	27,232	
289		Deminerlized Water System	HDPE, SDR11, 4" dia.	Est.	500	LF	2.8	0	1,400	0.40	230	YDPP	94.07	21,636	23,036	
290		Deminerlized Water System - CT Wash Water	HDPE, SDR11, 4" dia.	Est.	1,200	LF	2.8	0	3,360	0.40	552	YDPP	94.07	51,927	55,287	
291		Fire Protection System	HDPE, SDR9, 12" dia.	Est.	7,400	LF	36.5	0	270,100	1.09	9,276	YDPP	94.07	872,584	1,142,684	
292		Fuel Gas System	CS, 14" dia. Sch 60	Est.	2,450	LF	248	0	607,600	2.02	5,691	YDPP	94.07	535,385	1,142,985	
293		Fuel Gas System	CS, 8" dia. Sch 60	Est.	500	LF	85	0	42,500	1.39	799	YDPP	94.07	75,185	117,685	
294		Fuel Gas System	CS, 6" dia. Sch 60	Est.	240	LF	55.75	0	13,380	1.05	290	YDPP	94.07	27,261	40,641	
295		Fuel Oil System	Encased CS, 8" dia. Sch 40	Est.	2,200	LF	220	0	484,000	1.60	4,048	YDPP	94.07	380,795	864,795	
296		Fuel Oil System	Encased CS, 6" dia. Sch 40	Est.	600	LF	120	0	72,000	1.40	966	YDPP	94.07	90,872	162,872	
297		Fuel Oil Demin Water System	HDPE, SDR11, 4" dia.	Est.	1,100	LF	2.8	0	3,080	0.40	506	YDPP	94.07	47,599	50,679	
298		Instrument Air System	SS, 4" dia. Sch 40S	Est.	3,200	LF	54.3	0	173,760	0.92	3,386	YDPP	94.07	318,483	492,243	
299		Oily Water Drains System	HDPE, SDR11, 4" dia.	Est.	1,100	LF	2.8	0	3,080	0.40	506	YDPP	94.07	47,599	50,679	
300		Oily Water Drains System	CS, 3" dia.	Est.	3,100	LF	19.2	0	59,520	0.67	2,389	YDPP	94.07	224,691	284,211	
301		Potable Water System	HDPE, SDR11, 4" dia.	Est.	3,900	LF	2.8	0	10,920	0.40	1,794	YDPP	94.07	168,762	179,682	
302		Potable Water System	HDPE, SDR11, 3" dia.	Est.	2,400	LF	2.1	0	5,040	0.46	1,270	YDPP	94.07	119,431	124,471	
303		Raw Water System	HDPE, SDR11, 20" dia.	Est.	2,400	LF	60.7	0	145,680	1.26	3,478	YDPP	94.07	327,138	472,818	
304		Sanitary Drain System	PVC, SDR26, 3" dia.	Est.	600	LF	2	0	1,200	0.45	311	YDPP	94.07	29,209	30,409	
305		Service Air System	CS, 4" dia.	Est.	3,500	LF	24.4	0	85,400	0.73	2,938	YDPP	94.07	276,401	361,801	
306		Service Water System	HDPE, SDR9, 20" dia.	Est.	240	LF	72.8	0	17,472	1.45	400	YDPP	94.07	37,647	55,119	
307		Service Water System	HDPE, SDR9, 8" dia.	Est.	1,200	LF	14.1	0	16,920	0.83	1,145	YDPP	94.07	107,748	124,668	
308		Service Water System	HDPE, SDR9, 4" dia.	Est.	2,700	LF	3.4	0	9,180	0.46	1,428	YDPP	94.07	134,360	143,540	
309		Waste Water System	HDPE, SDR11, 12" dia.	Est.	945	LF	30.4	0	28,728	0.95	1,032	YDPP	94.07	97,119	125,847	
310		Waste Water System	HDPE, SDR11, 6" dia.	Est.	2,600	LF	6.8	0	17,680	0.60	1,794	YDPP	94.07	168,762	186,442	
311																

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13																
14																
312	11.70.2	New Buried Hydrogen Line from Relocated Hydrogen Storage Area to Existing Plant							0	62,065		1,671			157,276	219,341
313		Hydrogen System	Large Bore Pipe, Double Wall	Est.	800	LF		75	0	60,000	1.65	1,518	YDPP	94.07	142,798	202,798
314		Excavation / Backfill		Est.	593	CY		0	0	0	0.20	136	EXFD	94.41	12,877	12,877
315		Bedding Material		Est.	59	CY		35	0	2,065	0.25	17	EXFD	94.41	1,601	3,666
316																
319	11.89	SUBTOTAL - DIRECT COSTS, UNDERGROUND							257,500	6,362,918		173,106		92.33	15,982,883	22,603,301
320																
321	11.90	CONSTRUCTION INDIRECTS, UNDERGROUND							12,875	1,495,286		15,053			5,819,096	7,327,257
322		Additional Crane Allowance			1	LS				0					0	0
323		Mobilization / Demobilization - Included in Wage Rates Above														
324		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
325		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						15,053		92.33	1,390,000	1,390,000
326		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					18,816				1,472,263	1,472,263
327		Per Diem	None		0.00	HR						0			0	0
328		Consumables - % of Subtotal Above			0.5	%				31,815					79,914	111,729
329		Freight on Material - % of Subtotal Above			5.0	%				318,146						318,146
330		Freight on Equipment - % of Subtotal Above			5.0	%			12,875							12,875
331		Scaffolding - % of Subtotal Above			3.0	%				190,888					479,486	670,374
332		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				954,438					2,397,432	3,351,870
334	11.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, UNDERGROUND							270,375	7,858,203		188,158		115.87	21,801,979	29,930,557
335																
336	11.99	SUBCONTRACTS	Jack & Bore Under RR Tracks						0	150,000		0			350,000	500,000
337																
338		Jack & Bore Subcontract - Ductbank Crossing Under Existing RR Track			1	LS				150,000					350,000	500,000
339																
340	11.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, UNDERGROUND							270,375	8,008,203		188,158		117.73	22,151,979	30,430,557
341																
342																

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13																	
14																	
343																	
344	21.00	CTG A														67,374,127	
345																	
348	21.20	CONCRETE							0	466,325		11,102			948,987	1,415,312	
349																	
350	21.20.1	Combustion Turbine A Foundation	Isolated Mat Foundation, 110' x 35'						0	278,550		4,344			355,032	633,582	
351		Excavation		Est.	1250	CY		0	0	0	0.20	288	EXFD	94.41	27,143	27,143	
352		Backfill		Est.	180	CY		0	0	0	0.15	31	EXFD	94.41	2,931	2,931	
353		Concrete		Est.	1000	CY		120	0	120,000	1.90	2,185	COND	73.57	160,750	280,750	
354		Reinforcing		Est.	48	TN		950	0	45,600	22.50	1,242	REIN	82.48	102,440	148,040	
355		Formwork		Est.	2600	SF		2.25	0	5,850	0.20	598	FORM	103.29	61,767	67,617	
356		Piles	16" Dia. X 68' Long Augercast Piles	Est.	45	EA		2380	0	107,100	incl w/matl	incl w/matl				107,100	
357																	
358	21.20.2	Combustion Turbine A Piers / Pedestal							0	161,550		5,756			502,262	663,812	
359		Concrete		Est.	300	CY		120	0	36,000	1.90	656	COND	73.57	48,225	84,225	
360		Reinforcing		Est.	30	TN		950	0	28,500	22.50	776	REIN	82.48	64,025	92,525	
361		Embeds		Est.	15	TN		5,000	0	75,000	120.00	2,070	CARP	75.94	157,196	232,196	
362		Formwork		Est.	4500	SF		2.25	0	10,125	0.20	1,035	FORM	103.29	106,905	117,030	
363		Formwork Shoring	Allowance	Est.	2650	SF		4.5	0	11,925	0.40	1,219	FORM	103.29	125,911	137,836	
364																	
365	21.20.3	Combustion Turbine A Excitation & Isolation Transformer Foundations	Includes Mat, Piers, Firewalls, and Containment						0	20,050		816			75,475	95,525	
366		Excavation		Est.	100	CY		0	0	0	0.20	23	EXFD	94.41	2,171	2,171	
367		Backfill		Est.	40	CY		0	0	0	0.15	7	EXFD	94.41	651	651	
368		Concrete		Est.	90	CY		120	0	10,800	1.90	197	COND	73.57	14,468	25,268	
369		Reinforcing		Est.	5	TN		950	0	4,750	22.50	129	REIN	82.48	10,671	15,421	
370		Formwork		Est.	2000	SF		2.25	0	4,500	0.20	460	FORM	103.29	47,513	52,013	
371																	
372	21.20.4	Combustion Turbine A Miscellaneous Equipment Pads	Pads in Building and Small Foundations Outside Building						0	6,175		186			16,218	22,393	
373		Concrete		Est.	30	CY		120	0	3,600	1.90	66	COND	73.57	4,823	8,423	
374		Reinforcing		Est.	2	TN		950	0	1,900	22.50	52	REIN	82.48	4,268	6,168	
375		Formwork		Est.	300	SF		2.25	0	675	0.20	69	FORM	103.29	7,127	7,802	
376																	
377	21.30	STRUCTURAL STEEL							0	6,712		61			5,671	12,383	
378																	
379	21.30.1	Miscellaneous Steel for Transformer Containments							0	6,712		61			5,671	12,383	
380		Framing		Est.	0.5	TN		0	3710	0	1,855	22.000	13	STST	109.52	1,385	3,240
381		Grating	1-1/2" Galvanized	Est.	300	SF		0	16.19	0	4,857	0.14	48	GALL	88.72	4,285	9,142
382																	

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13																
14																
391	21.60	MECHANICAL							60,015,000	0		34,201			3,186,846	63,201,846
392																
393	21.60.1	Combustion Turbine & Accessories							59,000,000	0		32,867			3,062,547	62,062,547
394		Combustion Turbine	GE 7FA.05 C/T. - Nominal 210 mW, Firing Natural Gas or Fuel Oil, w/Dry Low Nox Burners, Inlet Air Filters, Standard Accessories.	Est.	1	Ea.	57500000		57,500,000	0	28,200	32,430	MECH	93.18	3,021,827	60,521,827
395		Pulse Type Inlet Air Filter	Included Above													Included Above
396		Water Wash Skid	(1) Included Above, Common to (2) CTG's	Est.	1	Ea.			0	0	30	35	MECH	93.18	3,215	3,215
397		Dual Fuel Capability	Included Above													Included Above
398		Skid Interconnecting Piping	Included Above													Included Above
399		Ocean Freight	Included Above													Included Above
400		Delivery from Port of Import to Station	Included Above													Included Above
401		Technical Field Assistance (TFA)	Included Above													Included Above
402		Training	Included Above													Included Above
403		Special Acoustic Treatments - C/T	Not Included													Not Included
404		Inlet Chilling Coils	Allowance	Est.	1	LS	1500000		1,500,000	0	350	403	MECH	93.18	37,505	1,537,505
405																
406	21.60.2	Fuel Gas Conditioning							1,000,000	0		748			69,652	1,069,652
407		Fuel Gas Conditioning Skid	Skid Mounted, Includes Separators, Coalescing Filters, & Dewpoint Heater. Serves (1) C/T's	Est.	1	Ea.	1000000		1,000,000	0	650	748	MECH	93.18	69,652	1,069,652
408		Fuel Gas Startup Electric Heater	Included Above													Included Above
409																
410	21.60.3	Heat Exchangers							0	0		518			48,221	48,221
411		Fuel Gas Preheater (Performance Heater)	Equipment Furnished w/ Major Equipment	Est.	1	Ea.	0		0	0	450	518	MECH	93.18	48,221	48,221
412																
413	21.60.4	Shop Fabricated Tanks							15,000	0		69			6,427	21,427
414		Water Wash Drain Tank	(1) 100% per C/T	Est.	1	Ea.	15000		15,000	0	60	69	TANK	93.14	6,427	21,427
415																
420	21.89	SUBTOTAL - DIRECT COSTS, CTG A							60,015,000	473,037		45,363		91.30	4,141,504	64,629,541
421																
422	21.90	CONSTRUCTION INDIRECTS, CTG A							125,750	111,164		3,945			1,507,673	1,744,586
423		Additional Crane Allowance			1	LS				0					0	0
424		Mobilization / Demobilization - Included in Wage Rates Above														
425		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
426		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						3,945		91.30	360,000	360,000
427		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					4,931				381,494	381,494
428		Per Diem	None		0.00	HR						0			0	0
429		Consumables - % of Subtotal Above			0.5	%				2,365					20,708	23,073

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13																
14																
430		Freight on Material - % of Subtotal Above			5.0%					23,652						23,652
431		Freight on Equipment - % of Subtotal Above	C/T Excluded.		5.0%			125,750								125,750
432		Scaffolding - % of Subtotal Above			3.0%					14,191				124,245		138,436
433		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15%					70,956				621,226		692,181
435	21.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, CTG A						60,140,750		584,201		49,308		114.57	5,649,176	66,374,127
436																
437	21.99	SUBCONTRACTS						0		0		0		1,000,000		1,000,000
438																
439		Heavy Haul Subcontract for CTG A Offloading & Staging	Allowance		1	LS								1,000,000		1,000,000
440																
441	21.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, CTG A						60,140,750		584,201		49,308		134.85	6,649,176	67,374,127
442																
443																
444																
445	22.00	CTG B														67,370,021
446																
449	22.20	CONCRETE						0		466,325		11,102		948,987		1,415,312
450																
451	22.20.1	Combustion Turbine B Foundation	Isolated Mat Foundation, 110' x 35'					0		278,550		4,344		355,032		633,582
452		Excavation		Est.	1250	CY	0	0	0	0	0.20	288	EXFD	94.41	27,143	27,143
453		Backfill		Est.	180	CY	0	0	0	0	0.15	31	EXFD	94.41	2,931	2,931
454		Concrete		Est.	1000	CY	120	0	120,000	1.90	2,185	2,185	COND	73.57	160,750	280,750
455		Reinforcing		Est.	48	TN	950	0	45,600	22.50	1,242	1,242	REIN	82.48	102,440	148,040
456		Formwork		Est.	2600	SF	2.25	0	5,850	0.20	598	598	FORM	103.29	61,767	67,617
457		Piles	16" Dia. X 68' Long Augercast Piles	Est.	45	EA	2380	0	107,100		incl w/matl	incl w/matl				107,100
458																
459	22.20.2	Combustion Turbine B Piers / Pedestal						0		161,550		5,756		502,262		663,812
460		Concrete		Est.	300	CY	120	0	36,000	1.90	656	656	COND	73.57	48,225	84,225
461		Reinforcing		Est.	30	TN	950	0	28,500	22.50	776	776	REIN	82.48	64,025	92,525
462		Embeds		Est.	15	TN	5,000	0	75,000	120.00	2,070	2,070	CARP	75.94	157,196	232,196
463		Formwork		Est.	4500	SF	2.25	0	10,125	0.20	1,035	1,035	FORM	103.29	106,905	117,030
464		Formwork Shoring	Allowance	Est.	2650	SF	4.5	0	11,925	0.40	1,219	1,219	FORM	103.29	125,911	137,836
465																
466	22.20.3	Combustion Turbine B Excitation & Isolation Transformer Foundations	Includes Mat, Piers, Firewalls, and Containment					0		20,050		816		75,475		95,525
467		Excavation		Est.	100	CY	0	0	0	0	0.20	23	EXFD	94.41	2,171	2,171
468		Backfill		Est.	40	CY	0	0	0	0	0.15	7	EXFD	94.41	651	651
469		Concrete		Est.	90	CY	120	0	10,800	1.90	197	197	COND	73.57	14,468	25,268
470		Reinforcing		Est.	5	TN	950	0	4,750	22.50	129	129	REIN	82.48	10,671	15,421
471		Formwork		Est.	2000	SF	2.25	0	4,500	0.20	460	460	FORM	103.29	47,513	52,013
472																

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13																
14																
473	22.20.4	Combustion Turbine B Miscellaneous Equipment Pads	Pads in Building and Small Foundations Outside Building						0	6,175		186			16,218	22,393
474		Concrete		Est.	30	CY	120		0	3,600	1.90	66	COND	73.57	4,823	8,423
475		Reinforcing		Est.	2	TN	950		0	1,900	22.50	52	REIN	82.48	4,268	6,168
476		Formwork		Est.	300	SF	2.25		0	675	0.20	69	FORM	103.29	7,127	7,802
477																
478	22.30	STRUCTURAL STEEL							0	6,712		61			5,671	12,383
479																
480	22.30.1	Miscellaneous Steel for Transformer Containments							0	6,712		61			5,671	12,383
481		Framing		Est.	0.5	TN	0	3710	0	1,855	22.00	13	STST	109.52	1,385	3,240
482		Grating	1-1/2" Galvanized	Est.	300	SF	0	16.19	0	4,857	0.14	48	GALL	88.72	4,285	9,142
483																
492	22.60	MECHANICAL							60,015,000	0		34,167			3,183,632	63,198,632
493																
494	22.60.1	Combustion Turbine & Accessories							59,000,000	0		32,833			3,059,332	62,059,332
495		Combustion Turbine	GE 7FA.05 C/T. - Nominal 210 mW, Firing Natural Gas or Fuel Oil, w/Dry Low Nox Burners, Inlet Air Filters, Standard Accessories.	Est.	1	Ea.	57500000		57,500,000	0	28,200	32,430	MECH	93.18	3,021,827	60,521,827
496		Pulse Type Inlet Air Filter	Included Above													Included Above
497		Water Wash Skid	Common to (2) C/T's, Included w/ CTG A													Included Elsewhere
498		Dual Fuel Capability	Included Above													Included Above
499		Skid Interconnecting Piping	Included Above													Included Above
500		Ocean Freight	Included Above													Included Above
501		Delivery from Port of Import to Station	Included Above													Included Above
502		Technical Field Assistance (TFA)	Included Above													Included Above
503		Training	Included Above													Included Above
504		Special Acoustic Treatments - C/T	Not Included													Not Included
505		Inlet Chilling Coils	Allowance	Est.	1	LS	1500000		1,500,000	0	350	403	MECH	93.18	37,505	1,537,505
506																
507	22.60.2	Fuel Gas Conditioning							1,000,000	0		748			69,652	1,069,652
508		Fuel Gas Conditioning Skid	Skid Mounted, Includes Separators, Coalescing Filters, & Dewpoint Heater. Serves (1) C/T's	Est.	1	Ea.	1000000		1,000,000	0	650	748	MECH	93.18	69,652	1,069,652
509		Fuel Gas Startup Electric Heater	Included Above		1	Ea.										Included Above
510																
511	22.60.3	Heat Exchangers							0	0		518			48,221	48,221
512		Fuel Gas Preheater (Performance Heater)	Equipment Furnished w/ Major Equipment	Est.	1	Ea.	0		0	0	450	518	MECH	93.18	48,221	48,221
513																
514	22.60.4	Shop Fabricated Tanks							15,000	0		69			6,427	21,427
515		Water Wash Drain Tanks	(1) 100% per C/T	Est.	1	Ea.	15000		15,000	0	60	69	TANK	93.14	6,427	21,427
516																
521	22.89	SUBTOTAL - DIRECT COSTS, CTG B							60,015,000	473,037		45,329		91.29	4,138,289	64,626,326
522																

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13																
14																
523	22.90	CONSTRUCTION INDIRECTS, CTG B							125,750	111,164		3,942			1,506,782	1,743,695
524		Additional Crane Allowance			1	LS				0					0	0
525		Mobilization / Demobilization - Included in Wage Rates Above														
526		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
527		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						3,942		91.29	360,000	360,000
528		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					4,927				381,198	381,198
529		Per Diem	None		0.00	HR						0			0	0
530		Consumables - % of Subtotal Above			0.5	%				2,365					20,691	23,057
531		Freight on Material - % of Subtotal Above			5.0	%				23,652						23,652
532		Freight on Equipment - % of Subtotal Above	C/T Excluded		5.0	%			125,750							125,750
533		Scaffolding - % of Subtotal Above			3.0	%				14,191					124,149	138,340
534		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				70,956					620,743	691,699
536	22.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, CTG B							60,140,750	584,201		49,271		114.57	5,645,071	66,370,021
537																
538	22.99	SUBCONTRACTS							0	0		0			1,000,000	1,000,000
539																
540		Heavy Haul Subcontract for CTG B Offloading & Staging	Allowance		1	LS									1,000,000	1,000,000
541																
542	22.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, CTG B							60,140,750	584,201		49,271		134.87	6,645,071	67,370,021
543																
544																
545																
546	31.00	HRSG A														41,176,893
547																
550	31.20	CONCRETE							0	605,368		8,961			735,689	1,341,057
551																
552	31.20.1	HRSG A Foundation (Incl. Stack)	Mat Foundation, 160' x 45'						0	503,563		6,801			546,181	1,049,744
553		Excavation		Est.	1110	CY		0	0	0	0.2	255	EXFD	94.41	24,103	24,103
554		Backfill		Est.	178	CY		0	0	0	0.15	31	EXFD	94.41	2,899	2,899
555		Concrete		Est.	1173	CY	120	0	140,760	0	1.5	2,023	COND	73.57	148,863	289,623
556		Reinforcing		Est.	80	TN	950	0	76,000	0	22.5	2,070	REIN	82.48	170,734	246,734
557		Embeds		Est.	13.4	TN	5,000	0	67,000	0	120.00	1,849	CARP	75.94	140,428	207,428
558		Formwork		Est.	2490	SF	2.25	0	5,603	0	0.2	573	FORM	103.29	59,154	64,757
559		Piles	16" Dia. X 68' Long Augercast Piles	Est.	90	EA	2380	0	214,200	0	incl w/matl	incl w/matl				214,200
560																

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13																
14																
561	31.20.2	Boiler Feed Pump Enclosure Foundation	Foundation 65'x28'						0	76,510		1,114			91,989	168,499
562		Excavation		Est.	225	CY	0	0	0	0	0.2	52	EXFD	94.41	4,886	4,886
563		Backfill		Est.	60	CY	0	0	0	0	0.15	10	EXFD	94.41	977	977
564		Concrete		Est.	230	CY	120	0	27,600	27,600	1.5	397	COND	73.57	29,189	56,789
565		Reinforcing		Est.	20	TN	950	0	19,000	19,000	22.5	518	REIN	82.48	42,683	61,683
566		Formwork		Est.	600	SF	2.25	0	1,350	1,350	0.2	138	FORM	103.29	14,254	15,604
567		Piles	16" Dia. X 68' Long Augercast Piles	Est.	12	EA	2380	0	28,560	28,560	incl w/matl	incl w/matl				28,560
568																
569	31.20.3	Misc HRSG Equipment Pads / Foundations							0	25,295		1,045			97,519	122,814
570		Blowdown Tank Pit / Trenches														
571		Excavation		Est.	320	CY	0	0	0	0	0.2	74	EXFD	94.41	6,949	6,949
572		Backfill		Est.	170	CY	0	0	0	0	0.15	29	EXFD	94.41	2,769	2,769
573		Concrete		Est.	80	CY	120	0	9,600	9,600	1.5	138	COND	73.57	10,153	19,753
574		Reinforcing		Est.	5	TN	950	0	4,750	4,750	22.5	129	REIN	82.48	10,671	15,421
575		Formwork		Est.	2070	SF	2.25	0	4,658	4,658	0.2	476	FORM	103.29	49,176	53,834
576		SCR Skid														
577		Excavation		Est.	30	CY	0	0	0	0	0.2	7	EXFD	94.41	651	651
578		Backfill		Est.	10	CY	0	0	0	0	0.15	2	EXFD	94.41	163	163
579		Concrete		Est.	20	CY	120	0	2,400	2,400	1.5	35	COND	73.57	2,538	4,938
580		Reinforcing		Est.	1	TN	950	0	950	950	22.5	26	REIN	82.48	2,134	3,084
581		Formwork		Est.	200	SF	2.25	0	450	450	0.2	46	FORM	103.29	4,751	5,201
582		Duct Burner Blower Skid Foundation														
583		Excavation		Est.	20	CY	0	0	0	0	0.2	5	EXFD	94.41	434	434
584		Backfill		Est.	10	CY	0	0	0	0	0.15	2	EXFD	94.41	163	163
585		Concrete		Est.	10	CY	120	0	1,200	1,200	1.5	17	COND	73.57	1,269	2,469
586		Reinforcing		Est.	1	TN	950	0	950	950	22.5	26	REIN	82.48	2,134	3,084
587		Formwork		Est.	150	SF	2.25	0	338	338	0.2	35	FORM	103.29	3,564	3,901
588																
589	31.30	STRUCTURAL STEEL							0	48,153		342			34,512	82,665
590																
591	31.30.1	Blowdown Tank Pit / Trenches							0	48,153		342			34,512	82,665
592		Framing		Est.	8	TN	0	3710	0	29,680	22.000	202	STST	109.52	22,167	51,847
593		Handrail		Est.	70	LF	0	33.5	0	2,345	0.100	8	GALL	88.72	714	3,059
594		Grating	2" Galvanized	Est.	600	SF	0	26.88	0	16,128	0.19	131	GALL	88.72	11,631	27,759
595																
596	31.40	ARCHITECTURAL							0	147,560		0			0	147,560
597																
598	31.40.1	Boiler Feed Pump Enclosure							0	147,560		0			0	147,560
599		Pre Engineered Building, Incl. HVAC, 28' x 62' x 16' High	Subcontract Price, Includes Installation Labor	Est.	1,736	SF	85	0	147,560	147,560	incl w/matl	incl w/matl				147,560
600																

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13																
14																
607	31.60	MECHANICAL							24,600,000	0		83,214			9,400,816	34,000,816
608																
609	31.60.1	HRSG & Accessories	3-Press HRSG w/Reheat. Supplemental Duct Burners Incl. Integral Deaerator Incl. SCR and CO Catalyst Incl. 200 Foot Steel Stack Incl.	Est.	1	Ea.	22500000		22,500,000	0	70,200	80,730	SGEN	113.63	9,173,350	31,673,350
610		Duct Burners	Included Above													Included Above
611		SCR	Included Above													Included Above
612		CO Catalyst	Included Above													Included Above
613		Integral Deaerator	Included Above													Included Above
614		Penthouse Enclosure & Lower Level Skirting	Included Above													Included Above
615		Elevator to Drum Level	Included Above													Included Above
616		Spargers & Accessories for Heating of HRSG w/ External Steam (Aux. Boiler).	Included Above													Included Above
617		Technical Field Assistance (TFA), HRSG	Included Above													Included Above
618		Stack Damper	Included Above													Included Above
619		Delivery to Jobsite	Included Above													Included Above
620																
621	31.60.2	Boiler Feed Pumps & Accessories	Incl. VFD's						1,940,000	0		2,231			204,181	2,144,181
622		Boiler Feed Pumps & Drives	(2) 100% Capacity Per HRSG With Capability For Supplying Both HP & IP Stages. Horizontal Multistage, Ring Section, incl. Motor	B	2	Ea.	970000		1,940,000	0	970	2,231	PUMP	91.52	204,181	2,144,181
623		Boiler Feed Pump Variable Frequency Drives	Included Above													Included Above
624		Boiler Feed Pump Hydraulic Couplings	Not Included													Not Included
625																
626	31.60.3	Shop Fabricated Tanks							50,000	0		81			7,498	57,498
627		HRSG Blowdown Tank, Atmospheric		Est	1	Ea.	50000		50,000	0	70	81	TANK	93.14	7,498	57,498
628																
629	31.60.4	Miscellaneous Pumps							110,000	0		173			15,787	125,787
630		Blowdown Water Sump Pumps	3 x 50% in Common Sump for (2) HRSG's	B	3	Ea.	36666.67		110,000	0	50	173	PUMP	91.52	15,787	125,787
631																
636	31.89	SUBTOTAL - DIRECT COSTS, HRSG A							24,600,000	801,081		92,517		109.94	10,171,017	35,572,098
637																
638	31.90	CONSTRUCTION INDIRECTS, HRSG A							984,000	188,254		8,045			3,702,541	4,874,795
639		Additional Crane Allowance			1	LS				0					0	0
640		Mobilization / Demobilization - Included in Wage Rates Above														
641		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
642		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						8,045		109.94	884,000	884,000
643		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					10,056				936,903	936,903

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13																
14																
644		Per Diem	None		0.00	HR						0			0	0
645		Consumables - % of Subtotal Above			0.5	%				4,005					50,855	54,860
646		Freight on Material - % of Subtotal Above			5.0	%				40,054						40,054
647		Freight on Equipment - % of Subtotal Above	HRSG Excluded		5.0	%			984,000							984,000
648		Scaffolding - % of Subtotal Above			3.0	%				24,032					305,131	329,163
649		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				120,162					1,525,653	1,645,815
651	31.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, HRSG A							25,584,000	989,334		100,562		137.96	13,873,559	40,446,893
652																
653	31.99	SUBCONTRACTS							0	0		0			730,000	730,000
654																
655		Heavy Haul Subcontract for HRSG A Offloading & Staging	Allowance		1	LS									730,000	730,000
656																
657	31.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, HRSG A							25,584,000	989,334		100,562		145.22	14,603,559	41,176,893
658																
659																
660																
661	32.00	HRSG B														41,041,331
662																
665	32.20	CONCRETE							0	605,368		8,961			735,689	1,341,057
666																
667	32.20.1	HRSG B Foundation (Incl. Stack)	Mat Foundation, 160' x 45'						0	503,563		6,801			546,181	1,049,744
668		Excavation		Est.	1110	CY	0	0	0	0	0.2	255	EXFD	94.41	24,103	24,103
669		Backfill		Est.	178	CY	0	0	0	0	0.15	31	EXFD	94.41	2,899	2,899
670		Concrete		Est.	1173	CY	120	0	140,760	0	1.5	2,023	COND	73.57	148,863	289,623
671		Reinforcing		Est.	80	TN	950	0	76,000	0	22.5	2,070	REIN	82.48	170,734	246,734
672		Embeds		Est.	13.4	TN	5,000	0	67,000	120.00	1,849	CARP	75.94	140,428	207,428	
673		Formwork		Est.	2490	SF	2.25	0	5,603	0	0.2	573	FORM	103.29	59,154	64,757
674		Piles	16" Dia. X 68' Long Augercast Piles	Est.	90	EA	2380	0	214,200	incl w/matl		incl w/matl				214,200
675																
676	32.20.2	Boiler Feed Pump Enclosure Foundation	Foundation 65'x28'						0	76,510		1,114			91,989	168,499
677		Excavation		Est.	225	CY	0	0	0	0	0.2	52	EXFD	94.41	4,886	4,886
678		Backfill		Est.	60	CY	0	0	0	0	0.15	10	EXFD	94.41	977	977
679		Concrete		Est.	230	CY	120	0	27,600	0	1.5	397	COND	73.57	29,189	56,789
680		Reinforcing		Est.	20	TN	950	0	19,000	0	22.5	518	REIN	82.48	42,683	61,683
681		Formwork		Est.	600	SF	2.25	0	1,350	0	0.2	138	FORM	103.29	14,254	15,604
682		Piles	16" Dia. X 68' Long Augercast Piles	Est.	12	EA	2380	0	28,560	incl w/matl		incl w/matl				28,560
683																

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13																
14																
684	32.20.3	Misc HRSG Equipment Pads / Foundations							0	25,295		1,045			97,519	122,814
685		Blowdown Tank Pit / Trenches														
686		Excavation		Est.	320	CY	0	0	0	0	0.2	74	EXFD	94.41	6,949	6,949
687		Backfill		Est.	170	CY	0	0	0	0	0.15	29	EXFD	94.41	2,769	2,769
688		Concrete		Est.	80	CY	120	0	0	9,600	1.5	138	COND	73.57	10,153	19,753
689		Reinforcing		Est.	5	TN	950	0	0	4,750	22.5	129	REIN	82.48	10,671	15,421
690		Formwork		Est.	2070	SF	2.25	0	0	4,658	0.2	476	FORM	103.29	49,176	53,834
691		SCR Skid														
692		Excavation		Est.	30	CY	0	0	0	0	0.2	7	EXFD	94.41	651	651
693		Backfill		Est.	10	CY	0	0	0	0	0.15	2	EXFD	94.41	163	163
694		Concrete		Est.	20	CY	120	0	0	2,400	1.5	35	COND	73.57	2,538	4,938
695		Reinforcing		Est.	1	TN	950	0	0	950	22.5	26	REIN	82.48	2,134	3,084
696		Formwork		Est.	200	SF	2.25	0	0	450	0.2	46	FORM	103.29	4,751	5,201
697		Duct Burner Blower Skid Foundation														
698		Excavation		Est.	20	CY	0	0	0	0	0.2	5	EXFD	94.41	434	434
699		Backfill		Est.	10	CY	0	0	0	0	0.15	2	EXFD	94.41	163	163
700		Concrete		Est.	10	CY	120	0	0	1,200	1.5	17	COND	73.57	1,269	2,469
701		Reinforcing		Est.	1	TN	950	0	0	950	22.5	26	REIN	82.48	2,134	3,084
702		Formwork		Est.	150	SF	2.25	0	0	338	0.2	35	FORM	103.29	3,564	3,901
703																
704	32.30	STRUCTURAL STEEL							0	48,153		342			34,512	82,665
705																
706	32.30.1	Blowdown Tank Pit / Trenches							0	48,153		342			34,512	82,665
707		Framing		Est.	8	TN	0	3710	0	29,680	22.00	202	STST	109.52	22,167	51,847
708		Handrail		Est.	70	LF	0	33.5	0	2,345	0.10	8	GALL	88.72	714	3,059
709		Grating	2" Galvanized	Est.	600	SF	0	26.88	0	16,128	0.19	131	GALL	88.72	11,631	27,759
710																
711	32.40	ARCHITECTURAL							0	147,560		0			0	147,560
712																
713	32.40.1	Boiler Feed Pump Enclosure							0	147,560		0			0	147,560
714		Pre Engineered Building, Incl. HVAC, 28' x 62' x 16' High	Subcontract Price, Includes Installation Labor	Est.	1,736	SF	85	0	0	147,560	incl w/matl	incl w/matl				147,560
715																
722	32.60	MECHANICAL							24,490,000	0		83,042			9,385,029	33,875,029
723																
724	32.60.1	HRSG & Accessories	3-Press HRSG w/Reheat. Supplemental Duct Burners Incl. Integral Deaerator Incl. SCR and CO Catalyst Incl. 200 Foot Steel Stack Incl.	Est	1	Ea.	22500000		22,500,000	0	70,200	80,730	SGEN	113.63	9,173,350	31,673,350
725		Duct Burners	Included Above													Included Above
726		SCR	Included Above													Included Above
727		CO Catalyst	Included Above													Included Above
728		Integral Deaerator	Included Above													Included Above
729		Penthouse Enclosure & Lower Level Skirting	Included Above													Included Above
730		Elevator to Drum Level	Included Above													Included Above

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13																
14																
731		Spargers & Accessories for Heating of HRSG w/ External Steam (Aux. Boiler).	Included Above													Included Above
732		Technical Field Assistance (TFA), HRSG	Included Above													Included Above
733		Stack Damper	Included Above													Included Above
734		Delivery to Jobsite	Included Above													Included Above
735																
736	32.60.2	Boiler Feed Pumps & Accessories	Incl. VFD's						1,940,000	0		2,231			204,181	2,144,181
737		Boiler Feed Pumps & Drives	(2) 100% Capacity Per HRSG With Capability For Supplying Both HP & IP Stages. Horizontal Multistage, Ring Section, incl. Motor	B	2	Ea.	970000		1,940,000	0	970	2,231	PUMP	91.52	204,181	2,144,181
738		Boiler Feed Pump Variable Frequency Drives	Included Above													Included Above
739		Boiler Feed Pump Hydraulic Couplings	Not Included													Not Included
740																
741	32.60.3	Shop Fabricated Tanks							50,000	0		81			7,498	57,498
742		HRSG Blowdown Tank, Atmospheric		Est	1	Ea.	50000		50,000	0	70	81	TANK	93.14	7,498	57,498
743																
744	32.60.4	Miscellaneous Pumps							0	0		0			0	0
745		Blowdown Water Sump Pumps	Not Required. Common Pumps Included w/ HRSG A													Not Required
746																
747																
752	32.89	SUBTOTAL - DIRECT COSTS, HRSG B							24,490,000	801,081		92,344		109.97	10,155,230	35,446,311
753																
754	32.90	CONSTRUCTION INDIRECTS, HRSG B							979,600	188,254		8,030			3,697,166	4,865,020
755		Additional Crane Allowance			1	LS				0					0	0
756		Mobilization / Demobilization - Included in Wage Rates Above														
757		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
758		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						8,030		109.97	883,000	883,000
759		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					10,037				935,449	935,449
760		Per Diem	None		0.00	HR						0			0	0
761		Consumables - % of Subtotal Above			0.5	%			4,005						50,776	54,782
762		Freight on Material - % of Subtotal Above			5.0	%			40,054							40,054
763		Freight on Equipment - % of Subtotal Above	HRSG Excluded		5.0	%			979,600							979,600
764		Scaffolding - % of Subtotal Above			3.0	%				24,032					304,657	328,689
765		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				120,162					1,523,285	1,643,447
767	32.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, HRSG B							25,469,600	989,334		100,374		138.01	13,852,396	40,311,331
768																

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13																
14																
769	32.99	SUBCONTRACTS	HRSG B Heavy Haul						0	0		0			730,000	730,000
770																
771		Heavy Haul Subcontract for HRSG B Offloading & Staging	Allowance		1	LS									730,000	730,000
772																
773	32.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, HRSG B							25,469,600	989,334		100,374		145.28	14,582,396	41,041,331
774																
775																
776																
777	41.00	STEAM TURBINE														67,710,994
778																
781	41.20	CONCRETE							0	889,665		20,455			1,789,741	2,679,406
782																
783	41.20.1	STG Pedestal Foundation	Isolated Mat Foundation, 100' x 40'						0	449,323		5,108			415,390	864,713
784		Excavation		Est.	1250	CY	0	0	0	0	0.2	288	EXFD	94.41	27,143	27,143
785		Backfill	Structural Backfill Mat'l	Est.	180	CY	12	0	2,160	0	0.15	31	EXFD	94.41	2,931	5,091
786		Concrete		Est.	1210	CY	120	0	145,200	0	1.5	2,087	COND	73.57	153,559	298,759
787		Reinforcing		Est.	88	TN	950	0	83,600	0	22.5	2,277	REIN	82.48	187,807	271,407
788		Formwork		Est.	1850	SF	2.25	0	4,163	0	0.2	426	FORM	103.29	43,950	48,112
789		Piles	16" Dia. X 68' Long Augercast Piles	Est.	90	EA	2380	0	214,200	0	incl w/mat'l	incl w/mat'l				214,200
790																
791	41.20.2	STG Pedestal	40' High Conc. Pedestal						0	426,253		14,804			1,324,186	1,750,439
792		Concrete		Est.	1180	CY	120	0	141,600	0	1.5	2,036	COND	73.57	149,752	291,352
793		Reinforcing		Est.	114	TN	950	0	108,300	0	22.5	2,950	REIN	82.48	243,295	351,595
794		Embeds		Est.	22	TN	5,000	0	110,000	0	120.00	3,036	CARP	75.94	230,554	340,554
795		Formwork		Est.	13740	SF	2.25	0	30,915	0	0.2	3,160	FORM	103.29	326,417	357,332
796		Formwork Shoring	Allowance	Est.	7875	SF	4.5	0	35,438	0	0.40	3,623	FORM	103.29	374,168	409,606
797																
798	41.20.3	STG Excitation Transformer Foundation	Includes Mat, Piers, Firewalls, and Containment						0	8,155		373			35,216	43,371
799		Excavation		Est.	50	CY	0	0	0	0	0.20	12	EXFD	94.41	1,086	1,086
800		Backfill		Est.	20	CY	0	0	0	0	0.15	3	EXFD	94.41	326	326
801		Concrete		Est.	33	CY	120	0	3,960	0	1.90	72	COND	73.57	5,305	9,265
802		Reinforcing		Est.	2	TN	950	0	1,900	0	22.50	52	REIN	82.48	4,268	6,168
803		Formwork		Est.	1,020	SF	2.25	0	2,295	0	0.20	235	FORM	103.29	24,232	26,527
804																
805	41.20.4	STG Equipment Pads	Pads Inside Building						0	5,935		169			14,949	20,884
806		Concrete		Est.	28	CY	120	0	3,360	0	1.5	48	COND	73.57	3,553	6,913
807		Reinforcing		Est.	2	TN	950	0	1,900	0	22.5	52	REIN	82.48	4,268	6,168
808		Formwork		Est.	300	SF	2.25	0	675	0	0.2	69	FORM	103.29	7,127	7,802
809																

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13																
14																
820	41.60	MECHANICAL							55,138,000	0		47,451			4,455,380	59,593,380
821																
822	41.60.1	Steam Turbine	Approx. 320 MW Condensing Reheat Steam Turbine with Standard Accessories, Down Exhaust	Est	1	Ea.	47100000		47,100,000	0	33,700	38,755	MECH	93.18	3,611,191	50,711,191
823		Technical Field Assistance (TFA), Steam Turbine	Included Above													Included Above
824		Training	Included Above													Included Above
825		Delivery to Jobsite	Included Above													Included Above
826		Enclosure for Outdoor Design	Not Included													Not Included
827																
828	41.60.2	Condenser & Accessories							4,964,200	0		5,923			587,754	5,551,954
829		Condenser	Surface Condenser - 2-Pass	Est	1	Ea.	4964200		4,964,200	0	4,550	5,233	CNDR	100.04	523,459	5,487,659
830		Condenser Tubes	Stainless Steel, Included Above		1	LS										Included Above
831		Vacuum Pumps	(2) 100%, Rotary Water Seal, Included Above	Est.	2	Ea.			0	0	300	690	MECH	93.18	64,294	64,294
832		Steam Jet Air Ejectors	Not Included													Not Included
833		Tube Cleaning	Not Included													Not Included
834																
835	41.60.3	Pumps							523,800	0		1,221			111,773	635,573
836		Condensate Pumps	50% Capacity Pumps, Vertical Can	Est	3	Ea.	160600		481,800	0	330	1,139	PUMP	91.52	104,196	585,996
837		STG Sump Pumps	50% Capacity	Est	3	Ea.	14000		42,000	0	24	83	PUMP	91.52	7,578	49,578
838																
839	41.60.4	Condensate Polishing Equipment							2,550,000	0		1,553			144,662	2,694,662
840		Condensate Polisher Skid		Est	1	LS	2550000		2,550,000	0	1,350	1,553	MECH	93.18	144,662	2,694,662
841																
846	41.89	SUBTOTAL - DIRECT COSTS, STEAM TURBINE							55,138,000	889,665		67,906		91.97	6,245,121	62,272,786
847																
848	41.90	CONSTRUCTION INDIRECTS, STEAM TURBINE							2,205,520	209,071		5,905			2,273,616	4,688,208
849		Additional Crane Allowance			1	LS				0					0	0
850		Mobilization / Demobilization - Included in Wage Rates Above														
851		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
852		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						5,905		91.97	543,000	543,000
853		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					7,381				575,269	575,269
854		Per Diem	None		0.00	HR						0			0	0
855		Consumables - % of Subtotal Above			0.5	%			4,448						31,226	35,674
856		Freight on Material - % of Subtotal Above			5.0	%			44,483							44,483
857		Freight on Equipment - % of Subtotal Above	ST Excluded		5.0	%			2,205,520							2,205,520
858		Scaffolding - % of Subtotal Above			3.0	%				26,690					187,354	214,044
859		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				133,450					936,768	1,070,218

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13																
14																
861	41.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, STEAM TURBINE							57,343,520	1,098,736		73,811		115.41	8,518,738	66,960,994
862																
863	41.99	SUBCONTRACTS							0	0		0			750,000	750,000
864																
865		Heavy Haul Subcontract for STG Offloading & Staging	Allowance		1	LS									750,000	750,000
866																
867	41.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, STEAM TURBINE							57,343,520	1,098,736		73,811		125.57	9,268,738	67,710,994
868																
869																
870																
871	50.00	COOLING TOWER														15,401,266
872																
875	50.20	CONCRETE							0	1,489,164		30,142			2,553,107	4,042,271
876																
877	50.20.1	Cooling Tower Pump Structure							0	374,600		11,868			1,047,688	1,422,288
878		Excavation		Est.	3,800	CY		0	0	0	0.2	874	EXFD	94.41	82,514	82,514
879		Backfill		Est.	1,300	CY		0	0	0	0.15	224	EXFD	94.41	21,171	21,171
880		Concrete		Est.	1100	CY		120	0	132,000	1.9	2,404	COND	73.57	176,825	308,825
881		Reinforcing		Est.	110	TN		950	0	104,500	22.5	2,846	REIN	82.48	234,759	339,259
882		Embeds		Est.	10	TN		5,000	0	50,000	120.00	1,380	CARP	75.94	104,797	154,797
883		Formwork		Est.	13000	SF		2.25	0	29,250	0.2	2,990	FORM	103.29	308,837	338,087
884		Formwork Shoring	Allowance	Est.	2500	SF		4.5	0	11,250	0.40	1,150	FORM	103.29	118,784	130,034
885		Piles	16" Dia. X 68' Long Augercast Piles	Est.	20	EA		2380	0	47,600	incl w/matl	incl w/matl				47,600
886																
887	50.20.2	Mech. Draft Cooling Tower Basin, Incl. Overflow Sump	10 Cell Tower, 310' x 140' w/ 6' High Wall, 1' Thick						0	1,114,564		18,274			1,505,419	2,619,983
888		Excavation		Est.	5,290	CY		0	0	0	0.2	1,217	EXFD	94.41	114,869	114,869
889		Backfill		Est.	330	CY		0	0	0	0.15	57	EXFD	94.41	5,374	5,374
890		Concrete		Est.	3720	CY		120	0	446,400	1.9	8,128	COND	73.57	597,992	1,044,392
891		Reinforcing		Est.	240	TN		950	0	228,000	22.5	6,210	REIN	82.48	512,201	740,201
892		Formwork		Est.	11575	SF		2.25	0	26,044	0.2	2,662	FORM	103.29	274,984	301,028
893		Piles	16" Dia. X 68' Long Augercast Piles	Est.	174	EA		2380	0	414,120	incl w/matl	incl w/matl				414,120
894																
895	50.30	STRUCTURAL STEEL							0	8,100		39			3,469	11,569
896																
897	50.30.1	Miscellaneous Steel for Cooling Tower Pump Intake							0	8,100		39			3,469	11,569
898		Grating	1-1/4" Galvanized	Est.	100	SF		0	14	0	0.14	16	GALL	88.72	1,428	2,828
899		Handrail		Est.	200	LF		0	33.5	0	0.10	23	GALL	88.72	2,041	8,741
900																

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13																
14																
909	50.60	MECHANICAL							1,549,000	0		2,300			211,143	1,760,143
910																
911		Mechanical Draft Cooling Tower w/ Accessories	See Subcontracts Below													Included Elsewhere
912																
913	50.60.1	Cooling Tower Fire Protection System	Not Included													Not Included
914																
915	50.60.2	Trash Screens		Est.	1	LS	60000		60,000	0	300	345	MECH	93.18	32,147	92,147
916																
917	50.60.3	Circulating Water Chemical Feed System							52,000	0		46			4,284	56,284
918		Chemical Feed Skid	Furn. w/ Feedwater Chemical Feed System		1	LS										Included Elsewhere
919		Sulfuric Acid Storage Tank	14,000 gal., CS	Est.	1	EA	30000		30,000	0	20	23	TANK	93.14	2,142	32,142
920		Sodium Hypochloride Storage Tank	12,000 gal., Polyethylene	Est.	1	EA	22000		22,000	0	20	23	TANK	93.14	2,142	24,142
921																
922	50.60.4	Pumps							1,437,000	0		1,909			174,712	1,611,712
923		Circulating Water Pumps & Motors	50% Capacity Circulating Water Pumps and Motor Drives.	Est.	2	Ea.	675000		1,350,000	0	700	1,610	PUMP	91.52	147,347	1,497,347
924		Miscellaneous Pumps														
925		Cooling Tower Makeup Pumps		B	2	Ea	43500		87,000	0	130	299	PUMP	91.52	27,364	114,364
926																
931	50.89	SUBTOTAL - DIRECT COSTS, COOLING TOWER							1,549,000	1,497,264		32,481		85.21	2,767,719	5,813,983
932																
933	50.90	CONSTRUCTION INDIRECTS, COOLING TOWER							77,450	351,857		2,824			1,007,976	1,437,283
934		Additional Crane Allowance			1	LS				0					0	0
935		Mobilization / Demobilization - Included in Wage Rates Above														
936		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
937		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						2,824		85.21	241,000	241,000
938		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					3,531				254,948	254,948
939		Per Diem	None		0.00	HR						0			0	0
940		Consumables - % of Subtotal Above			0.5	%			7,486						13,839	21,325
941		Freight on Material - % of Subtotal Above			5.0	%			74,863							74,863
942		Freight on Equipment - % of Subtotal Above			5.0	%			77,450							77,450
943		Scaffolding - % of Subtotal Above			3.0	%				44,918					83,032	127,949
944		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				224,590					415,158	639,747
946	50.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, COOLING TOWER							1,626,450	1,849,121		35,306		106.94	3,775,696	7,251,266
947																

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13																
14																
948	50.99	SUBCONTRACTS	Cooling Tower						8,150,000	0		0			0	8,150,000
949																
950		Mechanical Draft Cooling Tower w/ Accessories	Wet Mechanical Draft Cooling Tower, FRP Counterflow	Est.	1	Ea.	8150000		8,150,000	0	incl w/equip.	incl w/equip.				8,150,000
951		Plume Abatement	Not Included													Not Included
952		Special Cooling Tower Sound Attenuation	Not Included													Not Included
953																
954	50.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, COOLING TOWER							9,776,450	1,849,121		35,306		106.94	3,775,696	15,401,266
955																
956																
957																
958	55.00	WATER TREATMENT														8,356,339
959																
962	55.20	CONCRETE							0	543,743		8,017			640,313	1,184,056
963																
964	55.20.1	Water Treatment Building Foundation	Mat Foundation, 110' x 85'						0	374,493		6,240			490,297	864,790
965		Excavation		Est.	1,020	CY	0	0	0	0	0.2	235	EXFD	94.41	22,149	22,149
966		Backfill		Est.	170	CY	0	0	0	0	0.15	29	EXFD	94.41	2,769	2,769
967		Concrete		Est.	1145	CY	120	0	137,400	0	1.9	2,502	COND	73.57	184,059	321,459
968		Reinforcing		Est.	51	TN	950	0	48,450	0	22.5	1,320	REIN	82.48	108,843	157,293
969		Embeds		Est.	13	TN	5,000	0	65,000	0	120.00	1,794	CARP	75.94	136,236	201,236
970		Formwork		Est.	1270	SF	2.25	0	2,858	0	0.2	292	FORM	103.29	30,171	33,029
971		Grating, FRP	Trenches & Sumps	Est.	425	SF	21	0	8,925	0	0.14	68	GALL	88.72	6,071	14,996
972		Piles	16" Dia. X 68' Long Augercast Piles	Est.	47	EA	2380	0	111,860	0	incl w/matl	incl w/matl				111,860
973																
974	55.20.2	Misc. Equipment Pads in Building							0	11,050		302			26,771	37,821
975		Concrete		Est.	65	CY	120	0	7,800	0	1.5	112	COND	73.57	8,249	16,049
976		Reinforcing		Est.	2	TN	950	0	1,900	0	22.5	52	REIN	82.48	4,268	6,168
977		Formwork		Est.	600	SF	2.25	0	1,350	0	0.2	138	FORM	103.29	14,254	15,604
978																
979	55.20.3	Chemical Storage Foundation							0	17,830		440			37,343	55,173
980		Excavation		Est.	100	CY	0	0	0	0	0.2	23	EXFD	94.41	2,171	2,171
981		Backfill		Est.	25	CY	0	0	0	0	0.15	4	EXFD	94.41	407	407
982		Concrete		Est.	100	CY	120	0	12,000	0	1.5	173	COND	73.57	12,691	24,691
983		Reinforcing		Est.	5	TN	950	0	4,750	0	22.5	129	REIN	82.48	10,671	15,421
984		Formwork		Est.	480	SF	2.25	0	1,080	0	0.2	110	FORM	103.29	11,403	12,483
985																
986	55.20.4	Demin. Water Storage Tank Foundation	50' Dia. Tank on Mat						0	136,728		942			77,766	214,493
987		Excavation		Est.	290	CY	0	0	0	0	0.2	67	EXFD	94.41	6,297	6,297
988		Backfill		Est.	85	CY	0	0	0	0	0.15	15	EXFD	94.41	1,384	1,384
989		Concrete		Est.	240	CY	120	0	28,800	0	1.5	414	COND	73.57	30,458	59,258
990		Reinforcing		Est.	12	TN	950	0	11,400	0	22.5	311	REIN	82.48	25,610	37,010
991		Formwork		Est.	590	SF	2.25	0	1,328	0	0.2	136	FORM	103.29	14,016	15,344
992		Piles	16" Dia. X 68' Long Augercast Piles	Est.	40	EA	2380	0	95,200	0	incl w/matl	incl w/matl				95,200
993																

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5		OPB=Other Project Bid													Revision Date:	06/17/11
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13																
14																
994	55.20.5	Demin. Pump Foundation							0	3,643		94			8,135	11,778
995		Excavation		Est.	15	CY		0	0	0	0.2	3	EXFD	94.41	326	326
996		Backfill		Est.	3	CY		0	0	0	0.15	1	EXFD	94.41	49	49
997		Concrete		Est.	20	CY		120	0	2,400	1.5	35	COND	73.57	2,538	4,938
998		Reinforcing		Est.	1	TN		950	0	950	22.5	26	REIN	82.48	2,134	3,084
999		Formwork		Est.	130	SF		2.25	0	293	0.2	30	FORM	103.29	3,088	3,381
1000																
1003	55.40	ARCHITECTURAL							75,000	1,076,366		1,159			92,325	1,243,690
1004																
1005	55.40.1	Water Treatment Building							75,000	1,076,366		1,159			92,325	1,243,690
1006		Pre Engineered Building, Incl. HVAC, 85' x 110' x 30' High	Subcontract Price, Includes Installation Labor	Est.	9,350	SF		105	0	981,750	incl w/matl	incl w/matl				981,750
1007		Additional HVAC for Electrical Equipment Room	40T Packaged Unit for Electrical Equipment Room. Includes Allowance for Concrete Pad and Electrical Work	Est.	1	LS	75000	30000	75,000	30,000	400	460	HVAC	85.19	39,187	144,187
1008		Interior Finishes														
1009		8" CMU	Glazed, Double Faced	Est.	400	SF	0	19	0	7,600	0.17	78	MSRY	77.09	6,028	13,628
1010		Gypsum Board		Est.	6,550	SF	0	0.65	0	4,258	0.03	226	CARP	75.94	17,161	21,418
1011		Metal Stud/Runner		Est.	4,090	LF	0	0.76	0	3,108	0.024	113	CARP	75.94	8,572	11,681
1012		Suspended Acoustical Tile Ceiling		Est.	1,050	SF	0	4	0	4,200	0.05	60	SSCL	74.88	4,521	8,721
1013		Double Door		Est.	1	EA	0	2900	0	2,900	12	14	CARP	75.94	1,048	3,948
1014		Man Door		Est.	7	EA	0	1500	0	10,500	8	64	CARP	75.94	4,891	15,391
1015		Rolling Steel Door		Est.	3	EA	0	10000	0	30,000	36	124	CARP	75.94	9,432	39,432
1016		Water Closet		Est.	1	LS	0	1450	0	1,450	9	10	CARP	75.94	786	2,236
1017		Lavatory		Est.	1	LS	0	600	0	600	8	9	CARP	75.94	699	1,299
1018																
1019	55.45	PAINTING / COATING							0	30,000		2,760			199,382	229,382
1020																
1021	55.45.1	Special Coatings	Allowance, Demin Areas	Est.	12,000	SF		2.5	0	30,000	0.20	2,760	PNTR	72.24	199,382	229,382
1022																
1027	55.60	MECHANICAL							2,672,000	0		9,522			903,449	3,575,449
1028																
1029	55.60.1	Water Treatment Equipment							2,600,000	0		8,913			847,668	3,447,668
1030		Demineralizer System	130 gpm Ultrafilter & RO System, w/ Cartridge Filters, Feed Pumps, Chemical Injection, Break Tank, and CIP Skids	Est.	1	LS	2600000		2,600,000	0	7750	8,913	WTRT	95.11	847,668	3,447,668
1031																
1032	55.60.2	Miscellaneous Pumps							72,000	0		610			55,781	127,781
1033		Demineralized Water Pumps	100%	B	2	Ea	15000		30,000	0	130	299	PUMP	91.52	27,364	57,364
1034		WTB Sump Pumps	50%	B	3	Ea.	14000		42,000	0	90	311	PUMP	91.52	28,417	70,417
1035																
1040	55.89	SUBTOTAL - DIRECT COSTS, WATER TREATMENT							2,747,000	1,650,108		21,459		85.54	1,835,469	6,232,578
1041																

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13																
14																
1042	55.90	CONSTRUCTION INDIRECTS, WATER TREATMENT							137,350	387,775		1,866			668,636	1,193,762
1043		Additional Crane Allowance			1	LS				0					0	0
1044		Mobilization / Demobilization - Included in Wage Rates Above														
1045		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
1046		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						1,866		85.54	160,000	160,000
1047		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					2,332				169,074	169,074
1048		Per Diem	None		0.00	HR						0			0	0
1049		Consumables - % of Subtotal Above			0.5	%				8,251					9,177	17,428
1050		Freight on Material - % of Subtotal Above			5.0	%				82,505						82,505
1051		Freight on Equipment - % of Subtotal Above			5.0	%			137,350							137,350
1052		Scaffolding - % of Subtotal Above			3.0	%				49,503					55,064	104,567
1053		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				247,516					275,320	522,837
1055	55.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, WATER TREATMENT							2,884,350	2,037,884		23,325		107.36	2,504,105	7,426,339
1056																
1057	55.99	SUBCONTRACTS	Demin Storage Tank						930,000	0		0			0	930,000
1058																
1059		Field Erected Tanks														
1060		Demineralized Water Storage Tank	Approx. 800,000 Gal. Vertical, API 650, cone roof, 50' dia x 56' high, incl stairs, ladders, manways, & cathodic protection. CS w/ Epoxy Coating, Heaters, & Exterior Finish Paint..	Est.	1	Ea.	930000		930,000	0		incl w/equip.		incl w/equip.		930,000
1061																
1062	55.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, WATER TREATMENT							3,814,350	2,037,884		23,325		107.36	2,504,105	8,356,339
1063																
1064																
1065																
1066	56.00	PRE-TREATMENT														20,806,170
1067																
1068	56.10	CIVIL							0	0		0			0	0
1069																
1070		River Water Intake Structure	See Subcontracts Below													Included Elsewhere
1071																

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13																
14																
1072	56.20	CONCRETE							0	1,826,276		24,687			2,038,148	3,864,424
1073																
1074	56.20.1	Clarifier Foundations (2 Total)	75' Dia. Steel Clarifier on Mat Fdn.						0	457,235		5,591			457,904	915,139
1075		Excavation		Est.	1,310	CY		0	0	0	0.2	301	EXFD	94.41	28,446	28,446
1076		Backfill		Est.	270	CY		0	0	0	0.15	47	EXFD	94.41	4,397	4,397
1077		Concrete		Est.	1180	CY	120	0	0	141,600	1.9	2,578	COND	73.57	189,686	331,286
1078		Reinforcing		Est.	74	TN	950	0	0	70,300	22.5	1,915	REIN	82.48	157,929	228,229
1079		Formwork		Est.	3260	SF	2.25	0	0	7,335	0.2	750	FORM	103.29	77,447	84,782
1080		Piles	16" Dia. X 68' Long Augercast Piles	Est.	100	EA	2380	0	0	238,000	incl w/matl	incl w/matl				238,000
1081																
1082	56.20.2	Sludge Holding Tank Foundations (2 Total)	45' Dia. Tanks on Mat Fdns.						0	150,600		2,082			180,176	330,776
1083		Excavation		Est.	550	CY	0	0	0	0	0.2	127	EXFD	94.41	11,943	11,943
1084		Backfill		Est.	170	CY	0	0	0	0	0.15	29	EXFD	94.41	2,769	2,769
1085		Concrete		Est.	350	CY	120	0	0	42,000	1.9	765	COND	73.57	56,263	98,263
1086		Reinforcing		Est.	20	TN	950	0	0	19,000	22.5	518	REIN	82.48	42,683	61,683
1087		Formwork		Est.	2800	SF	2.25	0	0	6,300	0.2	644	FORM	103.29	66,519	72,819
1088		Piles	16" Dia. X 68' Long Augercast Piles	Est.	35	EA	2380	0	0	83,300	incl w/matl	incl w/matl				83,300
1089																
1090	56.20.3	Raw Water Storage Tank Foundation	73' Dia. Tank on Mat Fdn.						0	285,513		2,740			225,290	510,802
1091		Excavation		Est.	520	CY	0	0	0	0	0.2	120	EXFD	94.41	11,291	11,291
1092		Backfill		Est.	130	CY	0	0	0	0	0.15	22	EXFD	94.41	2,117	2,117
1093		Concrete		Est.	580	CY	120	0	0	69,600	1.9	1,267	COND	73.57	93,235	162,835
1094		Reinforcing		Est.	35	TN	950	0	0	33,250	22.5	906	REIN	82.48	74,696	107,946
1095		Formwork		Est.	1850	SF	2.25	0	0	4,163	0.2	426	FORM	103.29	43,950	48,112
1096		Piles	16" Dia. X 68' Long Augercast Piles	Est.	75	EA	2380	0	0	178,500	incl w/matl	incl w/matl				178,500
1097																
1098	56.20.4	Clearwell Tank Foundations (2 Total)	45' Dia. Tank on Mat Fdn.						0	150,600		2,082			180,176	330,776
1099		Excavation		Est.	550	CY	0	0	0	0	0.2	127	EXFD	94.41	11,943	11,943
1100		Backfill		Est.	170	CY	0	0	0	0	0.15	29	EXFD	94.41	2,769	2,769
1101		Concrete		Est.	350	CY	120	0	0	42,000	1.9	765	COND	73.57	56,263	98,263
1102		Reinforcing		Est.	20	TN	950	0	0	19,000	22.5	518	REIN	82.48	42,683	61,683
1103		Formwork		Est.	2800	SF	2.25	0	0	6,300	0.2	644	FORM	103.29	66,519	72,819
1104		Piles	16" Dia. X 68' Long Augercast Piles	Est.	35	EA	2380	0	0	83,300	incl w/matl	incl w/matl				83,300
1105																
1106	56.20.5	Filter Press Building Foundation	Mat Foundation						0	192,363		2,564			214,066	406,428
1107		Excavation		Est.	450	CY	0	0	0	0	0.2	104	EXFD	94.41	9,771	9,771
1108		Backfill		Est.	120	CY	0	0	0	0	0.15	21	EXFD	94.41	1,954	1,954
1109		Concrete		Est.	450	CY	120	0	0	54,000	1.9	983	COND	73.57	72,338	126,338
1110		Elevated Slab Concrete		Est.	60	CY	120	0	0	7,200	1.9	131	CONP	82.94	10,873	18,073
1111		Reinforcing		Est.	33	TN	950	0	0	31,350	22.5	854	REIN	82.48	70,428	101,778
1112		Formwork		Est.	2050	SF	2.25	0	0	4,613	0.2	472	FORM	103.29	48,701	53,314
1113		Piles	16" Dia. X 68' Long Augercast Piles	Est.	40	EA	2380	0	0	95,200	incl w/matl	incl w/matl				95,200
1114																

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13																
14																
1115	56.20.6	Filter Press Building Equipment Pads							0	4,138		150			13,664	17,802
1116		Concrete		Est.	20	CY		120	0	2,400	1.9	44	COND	73.57	3,215	5,615
1117		Reinforcing		Est.	1	TN		950	0	950	22.5	26	REIN	82.48	2,134	3,084
1118		Formwork		Est.	350	SF		2.25	0	788	0.2	81	FORM	103.29	8,315	9,102
1119																
1120	56.20.7	Pre-Treatment Building Foundation	Mat Foundation						0	553,666		8,474			678,521	1,232,187
1121		Excavation		Est.	1,250	CY		0	0	0	0.2	288	EXFD	94.41	27,143	27,143
1122		Backfill		Est.	167	CY		0	0	0	0.15	29	EXFD	94.41	2,720	2,720
1123		Concrete		Est.	1335	CY		120	0	160,200	1.9	2,917	COND	73.57	214,602	374,802
1124		Reinforcing		Est.	80	TN		950	0	76,000	22.5	2,070	REIN	82.48	170,734	246,734
1125		Embeds		Est.	17	TN		5,000	0	85,000	120.00	2,346	CARP	75.94	178,155	263,155
1126		Formwork		Est.	3585	SF		2.25	0	8,066	0.2	825	FORM	103.29	85,168	93,234
1127		Piles	16" Dia. X 68' Long Augercast Piles	Est.	60	EA		3740	0	224,400	incl w/matl	incl w/matl				224,400
1128																
1129	56.20.8	Pre-Treatment Building Equipment Pads							0	32,163		1,004			88,351	120,513
1130		Concrete		Est.	170	CY		120	0	20,400	1.9	371	COND	73.57	27,328	47,728
1131		Reinforcing		Est.	8	TN		950	0	7,600	22.5	207	REIN	82.48	17,073	24,673
1132		Formwork		Est.	1850	SF		2.25	0	4,163	0.2	426	FORM	103.29	43,950	48,112
1133																
1134	56.30	STRUCTURAL STEEL							0	127,305		891			95,136	222,441
1135																
1136	56.30.1	Filter Press Building Steel	Framing, Upper Floor						0	127,305		891			95,136	222,441
1137		Steel Framing	Independent Upper Floor	Est.	40	TN		2610	0	104,400	17.000	782	STST	109.52	85,645	190,045
1138		Metal Floor Decking		Est.	2,100	SF		2.8	0	5,880	0.01	34	DCKG	84.57	2,859	8,739
1139		Handrail		Est.	150	LF		33.5	0	5,025	0.10	17	GALL	88.72	1,530	6,555
1140		Stair Treads, 3' Wide		Est.	50	EA		240	0	12,000	1.00	58	GALL	88.72	5,101	17,101
1141																
1142	56.40	ARCHITECTURAL							95,000	1,981,680		2,796			219,234	2,295,914
1143																
1144	56.40.1	Pre-Treatment Building							75,000	1,237,500		403			34,289	1,346,789
1145		Pre Engineered Building, Incl. HVAC, 115' x 100' x 25' High	Subcontract Price, Includes Installation Labor	Est.	11,500	SF		105	0	1,207,500	incl w/matl	incl w/matl				1,207,500
1146		Additional HVAC for Electrical Equipment Room	40T Packaged Unit for Electrical Equipment Room. Includes Allowance for Concrete Pad and Electrical Work	Est.	1	LS	75000	30000	75,000	30,000	350	403	HVAC	85.19	34,289	139,289
1147																
1148	56.40.2	Filter Press Building							20,000	430,000		345			29,391	479,391
1149		Pre Engineered Building, Incl. HVAC, 50' x 70' x 40' High	Subcontract Price, Includes Installation Labor	Est.	3,500	SF		120	0	420,000	incl w/matl	incl w/matl				420,000
1150		Additional HVAC for Electrical Equipment Room	Packaged Unit for Electrical Equipment Room. Includes Allowance for Concrete Pad and Electrical Work	Est.	1	LS	20000	10000	20,000	10,000	300	345	HVAC	85.19	29,391	59,391
1151																

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13																
14																
1152	56.40.3	Interior Finishes							0	226,180		1,998			151,711	377,891
1153		12" CMU	Glazed, Double Faced	Est.	7,320	SF	0	24	0	175,680	0.21	1,768	CARP	75.94	134,245	309,925
1154		Double Door		Est.	5	EA	0	2900	0	14,500	12	69	CARP	75.94	5,240	19,740
1155		Man Door		Est.	4	EA	0	1500	0	6,000	8	37	CARP	75.94	2,795	8,795
1156		Rolling Steel Door		Est.	3	EA	0	10000	0	30,000	36	124	CARP	75.94	9,432	39,432
1157																
1158	56.40.4	River Water Intake Structure Building	30'x30'x20' High						0	88,000		51			3,843	91,843
1159		Pre Engineered Building, Incl. HVAC	Subcontract Price, Includes Installation Labor	Est.	900	SF	0	85	0	76,500	incl w/matl	incl w/matl				76,500
1160		Man Door		Est.	1	EA	0	1500	0	1,500	8	9	CARP	75.94	699	2,199
1161		Rolling Steel Door		Est.	1	EA	0	10000	0	10,000	36	41	CARP	75.94	3,144	13,144
1162																
1163	56.45	PAINTING / COATING							0	20,000		1,840			132,922	152,922
1164																
1165	56.45.1	Special Coatings		Est.	8,000	SF		2.5	0	20,000	0.20	1,840	PNTR	72.24	132,922	152,922
1166																
1171	56.60	MECHANICAL							3,565,160	0		16,733			1,589,570	5,154,730
1172																
1173	56.60.1	Water Pre-Treatment Equipment							3,400,000	0		16,215			1,542,209	4,942,209
1174		River Water Pre-Treatment Equipment Package	5,200 GPM, w/ Chemical Dosing and Filter Presses	Est.	1	LS	3400000		3,400,000	0	14100	16,215	WTRT	95.11	1,542,209	4,942,209
1175																
1176	56.60.2	Miscellaneous Pumps							165,160	0		518			47,362	212,522
1177		Raw Water Pumps	100%	B	2	Ea	55080		110,160	0	150	345	PUMP	91.52	31,574	141,734
1178		Pretreatment Area Sump Pumps	50%	B	3	Ea.	18333		55,000	0	50	173	PUMP	91.52	15,787	70,787
1179																
1184	56.89	SUBTOTAL - DIRECT COSTS, PRE-TREATMENT							3,660,160	3,955,261		46,946		86.80	4,075,009	11,690,430
1185																
1186	56.90	CONSTRUCTION INDIRECTS, PRE-TREATMENT							183,008	929,486		4,082			1,483,246	2,595,740
1187		Additional Crane Allowance			1	LS				0					0	0
1188		Mobilization / Demobilization - Included in Wage Rates Above														
1189		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
1190		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						4,082		86.80	354,000	354,000
1191		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					5,103				375,369	375,369
1192		Per Diem	None		0.00	HR						0			0	0
1193		Consumables - % of Subtotal Above			0.5	%				19,776					20,375	40,151
1194		Freight on Material - % of Subtotal Above			5.0	%				197,763						197,763
1195		Freight on Equipment - % of Subtotal Above			5.0	%			183,008							183,008
1196		Scaffolding - % of Subtotal Above			3.0	%				118,658					122,250	240,908
1197		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				593,289					611,251	1,204,541

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13																
14																
1199	56.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, PRE-TREATMENT							3,843,168	4,884,748		51,028		108.92	5,558,255	14,286,170
1200																
1201	56.99	SUBCONTRACTS	Intake Structure, Raw Water Tank						6,520,000	0		0			0	6,520,000
1202																
1203		River Water Intake Structure	Allowance.	Est.	1	LS	5200000		5,200,000	0	incl w/equip.	incl w/equip.				5,200,000
1204																
1205		Field Erected Tanks														
1206		Raw Water Storage Tank	Approx. 1,440,000 Gal. Vertical, API 650, cone roof, 73' dia x 48' high, incl stairs, ladders, manways, & cathodic protection. CS w/ Epoxy Coating, Heaters, & Exterior Finish Paint.	Est.	1	Ea.	1320000		1,320,000	0	incl w/equip.	incl w/equip.				1,320,000
1207																
1208	56.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, PRE-TREATMENT							10,363,168	4,884,748		51,028		108.92	5,558,255	20,806,170
1209																
1210																
1211																
1212	60.00	PIPE RACK														4,057,757
1213																
1216	60.20	CONCRETE							0	164,650		2,165			179,545	344,195
1217																
1218	60.20.1	Piperack Foundations	Individual Footings. Majority of Pipe Rack Columns on Other Foundations						0	164,650		2,165			179,545	344,195
1219		Excavation		Est.	600	CY	0	0	0	0	0.20	138	EXFD	94.41	13,029	13,029
1220		Backfill		Est.	500	CY	0	0	0	0	0.15	86	EXFD	94.41	8,143	8,143
1221		Concrete		Est.	150	CY	120	0	18,000	0	1.90	328	COND	73.57	24,113	42,113
1222		Reinforcing		Est.	25	TN	950	0	23,750	0	22.50	647	REIN	82.48	53,354	77,104
1223		Formwork (Footing)		Est.	600	SF	2.25	0	1,350	0	0.20	138	FORM	103.29	14,254	15,604
1224		Formwork (Piers & Pedestals)		Est.	600	SF	2.25	0	1,350	0	0.20	138	FORM	103.29	14,254	15,604
1225		Embeds		Est.	5	TN	5,000	0	25,000	0	120.00	690	CARP	75.94	52,399	77,399
1226		Piles	16" Dia. X 68' Long Augercast Piles	Est.	40	EA	2380	0	95,200	0	incl w/matl	incl w/matl				95,200
1227																
1228	60.30	STRUCTURAL STEEL							0	1,377,170		9,600			1,020,127	2,397,297
1229																
1230	60.30.1	Structural Steel, Pipe Rack	625' L x 24' W x 40' H, 2 Levels						0	1,377,170		9,600			1,020,127	2,397,297
1231		Framing		Est.	440	TN	2,650	0	1,166,000	0	16	8,096	STST	109.52	886,674	2,052,674
1232		Grating	1-1/4" Galvanized	Est.	6,900	SF	0	14	96,600	0	0.14	1,111	GALL	88.72	98,559	195,159
1233		Handrail		Est.	3,420	LF	0	33.5	114,570	0	0.10	393	GALL	88.72	34,894	149,464
1234																

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13																
14																
1237	60.45	PAINTING / COATING							0	75,000		4,313			311,535	386,535
1238																
1239	60.45.1	Touch-up Painting	Allowance	Est.	75,000	SF		1	0	75,000	0.05	4,313	PNTR	72.24	311,535	386,535
1240																
1251	60.89	SUBTOTAL - DIRECT COSTS, PIPE RACK							0	1,616,820		16,078		93.99	1,511,206	3,128,026
1252																
1253	60.90	CONSTRUCTION INDIRECTS, PIPE RACK							0	379,953		1,398			549,778	929,731
1254		Additional Crane Allowance			1	LS				0					0	0
1255		Mobilization / Demobilization - Included in Wage Rates Above														
1256		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
1257		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						1,398		93.99	131,000	131,000
1258		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%						1,748			139,205	139,205
1259		Per Diem	None		0.00	HR						0			0	0
1260		Consumables - % of Subtotal Above			0.5	%				8,084					7,556	15,640
1261		Freight on Material - % of Subtotal Above			5.0	%				80,841						80,841
1262		Freight on Equipment - % of Subtotal Above			5.0	%			0						0	0
1263		Scaffolding - % of Subtotal Above			3.0	%				48,505					45,336	93,841
1264		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				242,523					226,681	469,204
1266	60.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, PIPE RACK							0	1,996,773		17,476		117.93	2,060,984	4,057,757
1267																
1268	60.99	SUBCONTRACTS							0	0		0			0	0
1271																
1272	60.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, PIPE RACK							0	1,996,773		17,476		117.93	2,060,984	4,057,757
1273																
1274																
1275																
1276	70.00	ELECTRICAL POWER DISTRIBUTION														69,939,656
1277																
1280	70.20	CONCRETE							0	697,495		17,303			1,558,324	2,255,819
1281																
1282	70.20.1	GSU Foundations (3 Total)	Includes Mat, Piers, Firewall, & Containment						0	259,978		7,943			720,747	980,725
1283		Excavation		Est.	1,045	CY		0	0	0	0.20	240	EXFD	94.41	22,691	22,691
1284		Backfill		Est.	470	CY		0	0	0	0.15	81	EXFD	94.41	7,654	7,654
1285		Concrete		Est.	644	CY		120	0	77,280	1.90	1,407	COND	73.57	103,523	180,803
1286		Reinforcing		Est.	39	TN		950	0	37,050	22.50	1,009	REIN	82.48	83,233	120,283

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13																
14																
1287		Formwork		Est.	17,230	SF		2.25	0	38,768	0.20	3,963	FORM	103.29	409,328	448,095
1288		Embeds		Est.	9	TN		5,000	0	45,000	120.00	1,242	CARP	75.94	94,317	139,317
1289		Piles	16" Dia. X 68' Long Augercast Piles	Est.	26	EA		2380	0	61,880	incl w/matl	incl w/matl				61,880
1290																
1291	70.20.2	Aux Transformer Foundations (2 Total)	Includes Mat, Piers, Firewall, & Containment						0	68,178		2,377			226,418	294,596
1292		Excavation		Est.	300	CY		0	0	0	0.20	69	EXFD	94.41	6,514	6,514
1293		Backfill		Est.	80	CY		0	0	0	0.15	14	EXFD	94.41	1,303	1,303
1294		Concrete		Est.	200	CY		120	0	24,000	1.90	437	COND	73.57	32,150	56,150
1295		Reinforcing		Est.	10	TN		950	0	9,500	22.50	259	REIN	82.48	21,342	30,842
1296		Formwork		Est.	6,950	SF		2.25	0	15,638	0.20	1,599	FORM	103.29	165,109	180,747
1297		Piles	16" Dia. X 68' Long Augercast Piles	Est.	8	EA		2380	0	19,040	incl w/matl	incl w/matl				19,040
1298																
1299	70.20.3	Transformer PDC Foundation	Mat Foundation w/ Conc. Piers for Elevated PDC						0	142,625		2,262			197,965	340,590
1300		Excavation		Est.	350	CY		0	0	0	0.20	81	EXFD	94.41	7,600	7,600
1301		Backfill		Est.	50	CY		0	0	0	0.15	9	EXFD	94.41	814	814
1302		Concrete		Est.	330	CY		120	0	39,600	1.90	721	COND	73.57	53,048	92,648
1303		Reinforcing		Est.	25	TN		950	0	23,750	22.50	647	REIN	82.48	53,354	77,104
1304		Formwork		Est.	3,500	SF		2.25	0	7,875	0.20	805	FORM	103.29	83,148	91,023
1305		Piles	16" Dia. X 68' Long Augercast Piles	Est.	30	EA		2380	0	71,400	incl w/matl	incl w/matl				71,400
1306																
1307	70.20.4	HRSR PDC Foundations (2 Total)	Mat Foundation w/ Conc. Piers for Elevated PDC						0	115,340		2,347			206,384	321,724
1308		Excavation		Est.	350	CY		0	0	0	0.20	81	EXFD	94.41	7,600	7,600
1309		Backfill		Est.	80	CY		0	0	0	0.15	14	EXFD	94.41	1,303	1,303
1310		Concrete		Est.	335	CY		120	0	40,200	1.90	732	COND	73.57	53,851	94,051
1311		Reinforcing		Est.	25	TN		950	0	23,750	22.50	647	REIN	82.48	53,354	77,104
1312		Formwork		Est.	3,800	SF		2.25	0	8,550	0.20	874	FORM	103.29	90,275	98,825
1313		Piles	16" Dia. X 68' Long Augercast Piles	Est.	18	EA		2380	0	42,840	incl w/matl	incl w/matl				42,840
1314																
1315	70.20.5	CT Chiller PDC Foundations	Mat Foundation w/ Conc. Piers for Elevated PDC						0	94,600		1,876			163,875	258,475
1316		Excavation		Est.	370	CY		0	0	0	0.20	85	EXFD	94.41	8,034	8,034
1317		Backfill		Est.	100	CY		0	0	0	0.15	17	EXFD	94.41	1,629	1,629
1318		Concrete		Est.	280	CY		120	0	33,600	1.90	612	COND	73.57	45,010	78,610
1319		Reinforcing		Est.	20	TN		950	0	19,000	22.50	518	REIN	82.48	42,683	61,683
1320		Formwork		Est.	2,800	SF		2.25	0	6,300	0.20	644	FORM	103.29	66,519	72,819
1321		Piles	16" Dia. X 68' Long Augercast Piles	Est.	15	EA		2380	0	35,700	incl w/matl	incl w/matl				35,700
1322																
1323	70.20.6	Iso-Phase Bus / Cable Bus Foundations	Individual Drilled Concrete Piers, 30" Dia. X 10' Long						0	7,900		173			13,392	21,292
1324		Excavation		Est.	50	CY		0	0	0	0.20	12	EXFD	94.41	1,086	1,086
1325		Backfill		Est.	0	CY		0	0	0	0.15	0	EXFD	94.41	0	0
1326		Concrete		Est.	50	CY		120	0	6,000	1.90	109	COND	73.57	8,038	14,038
1327		Reinforcing		Est.	2	TN		950	0	1,900	22.50	52	REIN	82.48	4,268	6,168

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12	Account No.	Item Description	Scope Definition	Cost Type	Quantity	Unit of Measure	Unit Equipment Cost	Unit Material Cost	Total Equipment Cost	Total Material Cost	Unit Man-hours (Base)	Total Man-hours, w/ Productivity	Crew Code	Crew Wage Rate	Total Construction & Erection Cost	Total Projected Cost
13																
14																
1328																
1329	70.20.7	Emergency Diesel Generator Foundation							0	8,875		326			29,543	38,418
1330		Excavation		Est.	50	CY		0	0	0	0.20	12	EXFD	94.41	1,086	1,086
1331		Backfill		Est.	20	CY		0	0	0	0.15	3	EXFD	94.41	326	326
1332		Concrete		Est.	45	CY		120	0	5,400	1.90	98	COND	73.57	7,234	12,634
1333		Reinforcing		Est.	2	TN		950	0	1,900	22.50	52	REIN	82.48	4,268	6,168
1334		Formwork		Est.	700	SF		2.25	0	1,575	0.20	161	FORM	103.29	16,630	18,205
1335																
1336	70.30	STRUCTURAL STEEL							0	178,732		1,494			143,322	322,054
1337																
1338	70.30.1	Miscellaneous Steel for GSU Containments (3 Total)							0	67,120		610			56,706	123,826
1339		Framing		Est.	5	TN		3710	0	18,550	22.000	127	STST	109.52	13,854	32,404
1340		Grating	1-1/2" Galvanized	Est.	3,000	SF		16.19	0	48,570	0.14	483	GALL	88.72	42,852	91,422
1341																
1342	70.30.2	Miscellaneous Steel for Aux Transformer Containments (2 Total)							0	23,610		212			19,826	43,436
1343		Framing		Est.	2	TN		3710	0	7,420	22.000	51	STST	109.52	5,542	12,962
1344		Grating	1-1/2" Galvanized	Est.	1,000	SF		16.19	0	16,190	0.14	161	GALL	88.72	14,284	30,474
1345																
1346	70.30.3	Miscellaneous Steel for Excitation Transformer Containment							0	6,712		61			5,671	12,383
1347		Framing		Est.	0.5	TN		3710	0	1,855	22.000	13	STST	109.52	1,385	3,240
1348		Grating	1-1/2" Galvanized	Est.	300	SF		16.19	0	4,857	0.14	48	GALL	88.72	4,285	9,142
1349																
1350	70.30.4	HRSG PDC Galleries (2 Total)							0	22,150		170			16,679	38,829
1351		Framing		Est.	3	TN		3710	0	11,130	22.000	76	STST	109.52	8,313	19,443
1352		Grating	1-1/4" Galvanized	Est.	500	SF		14	0	7,000	0.14	81	GALL	88.72	7,142	14,142
1353		Handrail		Est.	120	LF		33.5	0	4,020	0.10	14	GALL	88.72	1,224	5,244
1354																
1355	70.30.5	Transformer PDC Galleries							0	22,150		170			16,679	38,829
1356		Framing		Est.	3	TN		3710	0	11,130	22.000	76	STST	109.52	8,313	19,443
1357		Grating	1-1/4" Galvanized	Est.	500	SF		14	0	7,000	0.14	81	GALL	88.72	7,142	14,142
1358		Handrail		Est.	120	LF		33.5	0	4,020	0.10	14	GALL	88.72	1,224	5,244
1359																
1360	70.30.6	HVAC PDC Support Framing & Galleries							0	24,060		174			18,037	42,097
1361		Framing		Est.	5	TN		3710	0	18,550	22.000	127	STST	109.52	13,854	32,404
1362		Grating	1-1/4" Galvanized	Est.	250	SF		14	0	3,500	0.14	40	GALL	88.72	3,571	7,071
1363		Handrail		Est.	60	LF		33.5	0	2,010	0.10	7	GALL	88.72	612	2,622
1364																
1365	70.30.7	CT Chiller PDC Galleries							0	12,930		98			9,725	22,655
1366		Framing		Est.	2	TN		3710	0	7,420	22.000	51	STST	109.52	5,542	12,962
1367		Grating	1-1/4" Galvanized	Est.	250	SF		14	0	3,500	0.14	40	GALL	88.72	3,571	7,071
1368		Handrail		Est.	60	LF		33.5	0	2,010	0.10	7	GALL	88.72	612	2,622
1369																

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13																
14																
1374	70.50	ELECTRICAL							26,945,595	5,854,955		239,031			22,552,061	55,352,611
1375																
1376		Electrical Equipment							26,845,995	0		42,703			3,614,531	30,460,526
1377																
1378	70.50.1	Generator Circuit Breakers (18KV)	GCB: 1A, 1B	Est.	2	Ea.	550000		1,100,000	0	550	1,265	EHEC	85.26	107,854	1,207,854
1379																
1380	70.50.2	Generator Step Up Transformers							7,000,000	0		8,579			731,446	7,731,446
1381		CT Generator Step Up Transformers (GSU: 1A, 1B) ▼-Y	18kV-353.63kV @ 165/220/275MVA, 2-winding	Est.	2	Ea.	2200000		4,400,000	0	2,180	5,014	EHEC	85.26	427,494	4,827,494
1382		ST Generator Step Up Transformer (GSU: 1S) ▼-Y	22kV-353.63kV @ 235/310/390MVA, 2-winding	Est.	1	Ea.	2600000		2,600,000	0	3,100	3,565	EHEC	85.26	303,952	2,903,952
1383																
1384	70.50.3	Unit Substation Transformers	Equipment Cost Included Below w/ 480V Switchgear						0	0		3,439			293,167	293,167
1385		UST: 21A, 21B, 22A, 22B, 23A, 23B, 24A & 24B	6.9kV-480V @ 2000/2600KVA	Est.	8	Ea.	0		0	0	250	2,300	EHEC	85.26	196,098	196,098
1386		UST: 26A, 26B, 27A, 27B	6.9kV-480V @ 1500/2000KVA	Est.	4	Ea.	0		0	0	165	759	EHEC	85.26	64,712	64,712
1387		UST: 25A, 25B (Option 2: Water Pre Treatment BLDG)	6.9kV-480V @ 1500/2000KVA	Est.	2	Ea.	0		0	0	165	380	EHEC	85.26	32,356	32,356
1388																
1389	70.50.4	Unit Auxiliary Transformers (UAT: 1A, 1B)	18KV-7.07kV @ 42/56, 21/28, 21/28MVA	B	2	Ea.	690000		1,380,000	0	980	2,254	EHEC	85.26	192,176	1,572,176
1390																
1391	70.50.5	6.9kV Switchgear							4,754,430	0		0			0	4,754,430
1392		6.9kV Switchgear, 3000A MAIN & 3000A TI BKR, Double Ended	11A, 11B, 12A, 12B - Installed in PDC's	Est.	2	EA	1074610		2,149,220	0					0	2,149,220
1393		6.9kV Switchgear, 1600A MAIN & 3000A TI BKR, Single Ended	13A, 13B - Installed in PDC's (CW Pumps)	Est.	2	EA	449915		899,830	0					0	899,830
1394		6.9kV Switchgear, 1600A MAIN & 3000A TI BKR, Single Ended	14A, 14B - Installed in PDC's (Chillers)	Est.	2	EA	444545		889,090	0					0	889,090
1395		6.9kV Switchgear, 1600A MAIN & 3000A TI BKR, Single Ended	15A, 15B - Installed in PDC's (Water Pretreatment)	Est.	2	EA	408145		816,290	0					0	816,290
1396																
1397	70.50.6	480V Switchgear							2,954,100	0		345			28,825	2,982,925
1398		480V Switchgear, 4000A MAIN & 4000A TI BKR	31A, 31B - Installed in PDC's	Est.	1	EA	493800		493,800	0					0	493,800
1399		480V Switchgear, 4000A MAIN & 4000A TI BKR	32A, 32B - Installed in PDC's	Est.	1	EA	463800		463,800	0					0	463,800
1400		480V Switchgear, 4000A MAIN & 4000A TI BKR	33A, 33B, 34A, 34B - Installed in PDC's	Est.	2	EA	403800		807,600	0					0	807,600
1401		480V Switchgear, 3000A MAIN & 3000A TI BKR	35A, 35B (Water Pretreatment BLDG)	Est.	1	EA	396300		396,300	0	300	345	EHEA	83.55	28,825	425,125
1402		480V Switchgear, 3000A MAIN & 3000A TI BKR	36A, 36B, 37A, 37B (Chiller BLDG) - Installed in PDC	Est.	2	EA	396300		792,600	0					0	792,600
1403																
1404	70.50.7	Isolated Phase Bus Duct	Includes Main & Tap Buses, in Single Phase Feet	Est.	1,470	LF	1061.2245		1,560,000	0	4.40	7,438	EHEA	83.55	621,462	2,181,462
1405																
1406	70.50.8	480V-800A, Motor Control Centers	480V, 3Phase - Installed in PDC's	Est.	34	EA	57500		1,955,000	0						1,955,000
1407																

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13																
14																
1408	70.50.9	Non-Seg/Cable Bus	3000A	Est.	1	LS	706010		706,010	0	9,110	10,477	EHEA	83.55	875,312	1,581,322
1409																
1410	70.50.10	Emergency Power System	125VDC- 4500AH	Est.	1	LS	432668		432,668	0	750	863	EHEA	83.55	72,062	504,730
1411		2 Battery Chargers	Included Above													Included Above
1412		UPS	Included Above													Included Above
1413		Alternet Source Transformer (45KVA, 480/120VAC)	Included Above													Included Above
1414		Satellite UPS (Pre Treatment BLDG)	Included Above													Included Above
1415																
1416	70.50.11	PDCs	Per ESK-004	Est.	8890	SF	375		3,333,750	0	0.5	5,112	EHEC	85.26	435,828	3,769,578
1417		Transformer Power Distribution PDC	36"W X 100L X 14"H= 3600 SF		1	EA										Included Above
1418		HRSG Power Distribution Center PDC	24"W X 58"L X 14"H=1392 SF		2	EA										Included Above
1419		HRSG PDC- Upper	8"W X 6"L X 10"H=48 SF		2	EA										Included Above
1420		CTG HVAC PDC	10"W X 31"L X 14"H= 310 SF		1	EA										Included Above
1421		Chiller PDC	30"W X 70"L X 14"H= 2100SF		1	EA										
1422																
1423	70.50.12	Panelboards							209,000	0		288			24,021	233,021
1424		AC/UPS Panelboards/Switchboards		Est.	1	LS	209000		209,000	0	250	288	EHEA	83.55	24,021	233,021
1425		DC Panelboards/Switchboards	Included Above	Est.	1	LS										Included Above
1426																
1427	70.50.13	Generator/Transformer Relay & Protection Panels		Est.	1	LS	175680		175,680	0	220	253	INEL	93.03	23,537	199,217
1428																
1429	70.50.14	Communication		Est.	1	LS	160110		160,110	0	230	265	EHEA	83.55	22,099	182,209
1430																
1431	70.50.15	Digital Fault Recorder		Est.	1	LS	155247		155,247	0	200	230	EHEA	83.55	19,217	174,464
1432																
1433	70.50.16	Diesel Generator	1,500 kW Capacity	Est.	1	LS	825000		825,000	0	1250	1,438	EHEA	83.55	120,103	945,103
1434																
1435	70.50.17	Security System	Allowance	Est.	1	LS	145000		145,000	0	400	460	WIRE	103.10	47,426	192,426
1436																
1437		Electrical BOP							99,600	5,854,955		196,328			18,937,529	24,892,084
1438																
1439	70.50.18	Cable	Per ESK-013		718,009	LF			0	3,398,894		102,731			10,591,539	13,990,433
1440		MV Power Cable		Est.	110,511	LF			0	1,009,084		20,769			2,141,257	3,150,341
1441		1/C #1550 KCMIL 2KV		Est.	1,530	LF		19.15	0	29,300	0.190	334	WIRE	103.10	34,467	63,766
1442		1/C #1000 KCMIL 8KV		Est.	6,105	LF		15.96	0	97,436	0.173	1,215	WIRE	103.10	125,224	222,660
1443		1/C #750 KCMIL 8KV		Est.	35,700	LF		13.87	0	495,159	0.173	7,103	WIRE	103.10	732,269	1,227,428
1444		1/C #500 KCMIL 8KV		Est.	16,500	LF		9.39	0	154,935	0.170	3,226	WIRE	103.10	332,575	487,510
1445		1/C #250 KCMIL 8KV		Est.	28,980	LF		5.46	0	158,231	0.170	5,666	WIRE	103.10	584,122	742,353
1446		1/C #1/0 KCMIL 8KV		Est.	21,695	LF		2.5	0	54,238	0.117	2,919	WIRE	103.10	300,955	355,193
1447		Terminations		Est.	1	LS				19,786		307	WIRE	103.10	31,644	51,430
1448									0							

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13																
14																
1449		600V Large Power Cable	Per ESK-013	Est.	71,711	LF			0	1,230,234		41,573			4,286,212	5,516,446
1450		3/C # 500 KCMIL - 600V		Est.	22,880	LF		28.79	0	658,715	0.630	16,577	WIRE	103.10	1,709,043	2,367,759
1451		3/C # 250 KCMIL - 600V		Est.	23,010	LF		14.98	0	344,690	0.630	16,671	WIRE	103.10	1,718,754	2,063,444
1452		3/C # 4/0 KCMIL - 600V		Est.	7,500	LF		14.76	0	110,700	0.480	4,140	WIRE	103.10	426,834	537,534
1453		1/C # 500 KCMIL - 600V		Est.	2,600	LF		8.24	0	21,424	0.160	478	WIRE	103.10	49,323	70,747
1454		1/C # 250 KCMIL - 600V		Est.	15,720	LF		4.49	0	70,583	0.160	2,892	WIRE	103.10	298,215	368,797
1455		Terminations		Est.	1	LS				24,122		815	WIRE	103.10	84,043	108,166
1456																
1457		600V Small Power Cable	Per ESK-005	Est.	535,787	LF			0	1,159,577		40,389			4,164,070	5,323,646
1458		2/C # 10 W/G, 600V		Est.	90,753	LF		1.85	0	167,894	0.027	2,818	WIRE	103.10	290,525	458,419
1459		2/C # 12 W/G, 600V		Est.	37,414	LF		0.66	0	24,693	0.030	1,291	WIRE	103.10	133,080	157,773
1460		3/C # 2 W/G, 600V		Est.	12,793	LF		5.84	0	74,709	0.350	5,149	WIRE	103.10	530,864	605,573
1461		3/C # 6 W/G, 600V		Est.	44,730	LF		3.37	0	150,740	0.090	4,630	WIRE	103.10	477,307	628,047
1462		3/C # 8 W/G, 600V		Est.	8,737	LF		2.65	0	23,152	0.053	532	WIRE	103.10	54,900	78,052
1463		3/C # 10 W/G, 600V		Est.	79,000	LF		2.06	0	162,740	0.053	4,815	WIRE	103.10	496,432	659,172
1464		3/C # 2/0 W/G, 600V		Est.	4,513	LF		9.26	0	41,787	0.520	2,699	WIRE	103.10	278,219	320,006
1465		1/C # 1/0 W/G, 600V		Est.	38,260	LF		2.18	0	83,407	0.120	5,280	WIRE	103.10	544,356	627,762
1466		3/C # 2/0 W/G, W/S, 1KV		Est.	1,089	LF		9.26	0	10,085	0.520	651	WIRE	103.10	67,144	77,229
1467		2/C # 10 W/G, 600V		Est.	3,259	LF		1.85	0	6,029	0.027	101	WIRE	103.10	10,433	16,463
1468		2/C # 12 W/G, 600V		Est.	16,542	LF		0.66	0	10,917	0.030	571	WIRE	103.10	58,838	69,755
1469		2/C # 14, 600V		Est.	21,512	LF		0.56	0	12,047	0.027	668	WIRE	103.10	68,865	80,912
1470		3/C # 2 W/G, 600V		Est.	454	LF		5.84	0	2,653	0.350	183	WIRE	103.10	18,850	21,503
1471		3/C # 6 W/G, 600V		Est.	1,047	LF		3.37	0	3,527	0.090	108	WIRE	103.10	11,167	14,694
1472		3/C # 10 W/G, 600V		Est.	6,803	LF		2.06	0	14,015	0.053	415	WIRE	103.10	42,752	56,767
1473		3/C # 2/0 W/G, 600V		Est.	840	LF		9.26	0	7,774	0.520	502	WIRE	103.10	51,758	59,532
1474		4/C # 10, 600V		Est.	8,723	LF		2.21	0	19,277	0.064	642	WIRE	103.10	66,190	85,467
1475		4/C # 14, 600V		Est.	15,676	LF		0.8	0	12,541	0.032	577	WIRE	103.10	59,476	72,017
1476		7/C # 14, 600V		Est.	9,604	LF		1.24	0	11,909	0.040	442	WIRE	103.10	45,547	57,456
1477		12/C # 14, 600V		Est.	3,429	LF		1.92	0	6,584	0.070	276	WIRE	103.10	28,462	35,046
1478		1/C # 14, 600V		Est.	6,885	LF		0.14	0	964	0.024	190	WIRE	103.10	19,592	20,556
1479		1/C # 14, W/S, 600V, FP		Est.	2,401	LF		0.14	0	336	0.024	66	WIRE	103.10	6,833	7,169
1480		1/C #14, 600V, JMPR		Est.	21	LF		0.14	0	3	0.024	1	WIRE	103.10	59	62
1481		2/C # 10 W/G, 600V, AEP CABLE		Est.	2,328	LF		1.85	0	4,306	0.027	72	WIRE	103.10	7,451	11,757
1482		3/C # 6 W/G, W/S, 1000V		Est.	368	LF		3.37	0	1,240	0.090	38	WIRE	103.10	3,927	5,167
1483		1 PR # 16, W/S, 600V		Est.	829	LF		0.17	0	141	0.027	26	WIRE	103.10	2,654	2,795
1484		FIBER 12MM, 12SM		Est.	1,061	LF		5.11	0	5,423	0.140	171	WIRE	103.10	17,615	23,038
1485		FO-12 FIBER MULTIMODE		Est.	5,327	LF		5.11	0	27,221	0.140	858	WIRE	103.10	88,423	115,644
1486		FO-2 FIBER MULTIMODE		Est.	58	LF		5.11	0	294	0.140	9	WIRE	103.10	954	1,248
1487		FIBER 24MM, 24SM		Est.	458	LF		10.19	0	4,664	0.280	147	WIRE	103.10	15,195	19,859
1488		FO-12 FIBER MULTIMODE		Est.	3,062	LF		5.11	0	15,646	0.140	493	WIRE	103.10	50,822	66,468
1489		FIBER 24MM, 24SM		Est.	1,840	LF		10.19	0	18,750	0.280	592	WIRE	103.10	61,085	79,834
1490		1/C # 2/0, 25KV		Est.	115	LF		4.86	0	559	0.117	15	WIRE	103.10	1,595	2,154
1491		2/C # 14, 600V		Est.	69	LF		0.56	0	39	0.027	2	WIRE	103.10	221	260
1492		2/C # 10 W/G, 600V, AEP CABLE		Est.	2,185	LF		1.85	0	4,042	0.027	68	WIRE	103.10	6,995	11,037
1493		4/C # 14, 600V, PDC CABLE		Est.	54	LF		0.8	0	43	0.032	2	WIRE	103.10	205	248
1494		16/C # 14, 600V, AEP CABLE		Est.	2,185	LF		2.33	0	5,091	0.080	201	WIRE	103.10	20,725	25,816

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4	Cost Type: Est=Estimated, B=Bid and													Revision No.:	B	
5	OPB=Other Project Bid													Revision Date:	06/17/11	
6	DOR:													Run Date:	06/17/11	
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13																
14																
1495		1 PR # 16, W/S, 600V		Est.	33,350	LF		0.17	0	5,670	0.027	1,036	WIRE	103.10	106,762	112,431
1496		1 PR # 16, W/S, 600V, TYPE K		Est.	13,156	LF		0.92	0	12,104	0.027	409	WIRE	103.10	42,117	54,221
1497		1 PR # 18, W/IOS, 600V, TYPE KXH		Est.	2,950	LF		0.87	0	2,566	0.027	92	WIRE	103.10	9,442	12,008
1498		1 PR # 16, W/IOS, 600V, TYPE SIH		Est.	77	LF		0.82	0	63	0.027	2	WIRE	103.10	247	310
1499		1 TR # 16, W/S, 600V		Est.	2,087	LF		0.17	0	355	0.027	65	WIRE	103.10	6,680	7,035
1500		2 PR # 16, W/IOS, 600V		Est.	13,372	LF		1.44	0	19,256	0.053	815	WIRE	103.10	84,032	103,288
1501		4 PR # 16, W/IOS, 600V		Est.	16,242	LF		1.44	0	23,388	0.053	990	WIRE	103.10	102,064	125,452
1502		4 PR # 16, W/IOS, 600V, TYPE K		Est.	847	LF		6.87	0	5,821	0.027	26	WIRE	103.10	2,712	8,534
1503		4 TR # 16, W/IOS, 600V		Est.	3,711	LF		3.94	0	14,620	0.053	226	WIRE	103.10	23,317	37,937
1504		8 PR # 16, W/IOS, 600V		Est.	9,448	LF		8.95	0	84,559	0.053	576	WIRE	103.10	59,370	143,929
1505		8 PR # 16, W/IOS, 600V, AEP CABLE		Est.	2,162	LF		8.95	0	19,350	0.053	132	WIRE	103.10	13,586	32,936
1506		8 PR # 16, W/IOS, 600V, TYPE KX		Est.	853	LF		14.8	0	12,625	0.027	26	WIRE	103.10	2,731	15,356
1507		COAX CABLE TYPE RG6		Est.	340	LF		0.77	0	262	0.027	11	WIRE	103.10	1,090	1,352
1508		SPG CABLE (COAX)		Est.	938	LF		0.77	0	722	0.027	29	WIRE	103.10	3,003	3,725
1509		CAT CABLE (Ethernet Cable)		Est.	1,831	LF		0.13	0	238	0.027	57	WIRE	103.10	5,861	6,100
1510		Termination		Est.	1	LT			0	22,737		597	WIRE	103.10	61,538	84,275
1511																
1512	70.50.19	Heat Tracing	Per ESK-007						99,600	586,802		16,525			1,703,684	2,390,086
1513		Freeze Protection, Heat Tracing (Option 2)														
1514		Heat Tracing XFMR- 45KVA-208/120V		Est.	8	EA	5000		40,000	0	16.00	147	WIRE	103.10	15,176	55,176
1515		Heat Tracing Distribution Panel-208/120VAC-30CKT BRK		Est.	8	EA	1200		9,600	0	8.00	74	WIRE	103.10	7,588	17,188
1516		Heat Tracing Zone control Panel		Est.	2	EA	25000		50,000	0	24.00	55	WIRE	103.10	5,691	55,691
1517		Heat Tracing MI Cable		Est.	41,251	LF		9.5	0	391,885	0.20	9,488	WIRE	103.10	978,185	1,370,069
1518		Heat Tracing Self Limiting Cable		Est.	13,750	LF		11.25	0	154,688	0.20	3,163	WIRE	103.10	326,054	480,741
1519		Heat Tracing Junction Boxes + MTG supports		Est.	596	EA		12.5	0	7,450	2.75	1,885	WIRE	103.10	194,328	201,778
1520		Heat Tracing Power Circuits & Thermostats		Est.	1	LS		29800	0	29,800	1,192	1,371	WIRE	103.10	141,329	171,129
1521		Test & calibrations + label & tag with documentations		Est.	1	LS		2980	0	2,980	298	343	WIRE	103.10	35,332	38,312
1522																
1523	70.50.20	Conduit-Above Ground	Per ESK-022						0	463,022		19,200			1,537,955	2,000,977
1524		3/4" RGS Conduit		Est.	21,000	LF		3.48	0	73,080	0.194	4,685	ECND	80.10	375,277	448,357
1525		1" RGS Conduit		Est.	21,000	LF		4.92	0	103,320	0.239	5,772	ECND	80.10	462,325	565,645
1526		1-1/2" RGS Conduit		Est.	5,600	LF		8.5	0	47,600	0.284	1,829	ECND	80.10	146,500	194,100
1527		2" RGS Conduit		Est.	5,600	LF		10.95	0	61,320	0.352	2,267	ECND	80.10	181,577	242,897
1528		2-1/2" RGS Conduit		Est.	845	LF		18.4	0	15,548	0.458	445	ECND	80.10	35,649	51,197
1529		3" RGS Conduit		Est.	845	LF		22.85	0	19,308	0.645	627	ECND	80.10	50,205	69,513
1530		3-1/2" RGS Conduit		Est.	604	LF		27.4	0	16,550	0.739	513	ECND	80.10	41,116	57,666
1531		4" RGS Conduit		Est.	1,208	LF		32.30	0	39,018	0.807	1,121	ECND	80.10	89,799	128,817
1532		5" RGS Conduit		Est.	604	LF		57	0	34,428	1.127	783	ECND	80.10	62,703	97,131
1533		6" RGS Conduit		Est.	604	LF		87.5	0	52,850	1.668	1,159	ECND	80.10	92,803	145,653
1534																
1535	70.50.21	Embedded Conduits	Per ESK-012						0	86,149		2,874			230,169	316,318
1536		2" RGS Conduit		Est.	6,818	LF		10.95	0	74,657	0.352	2,760	ECND	80.10	221,070	295,727
1537		4" PVC Conduit		Est.	978	LF		11.75	0	11,492	0.101	114	ECND	80.10	9,099	20,590
1538																

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13																
14																
1539	70.50.22	Cable Tray							0	510,488		36,214			2,937,423	3,447,911
1540		CT/STG Area	Per ESK-014						0	332,667		21,946			1,758,778	2,091,444
1541		Sizes 6" & 9"		Est.	1,100	LF		16.005	0	17,606	0.888	1,123	ECND	80.10	89,978	107,583
1542		Sizes 12"		Est.	4,271	LF		21.34	0	91,143	1.110	5,452	ECND	80.10	436,700	527,843
1543		Sizes 18"		Est.	2,577	LF		24.38	0	62,827	1.450	4,297	ECND	80.10	344,202	407,029
1544		Sizes 24"		Est.	3,146	LF		27.79	0	87,427	1.750	6,331	ECND	80.10	507,139	594,566
1545		Sizes 30"		Est.	401	LF		30.69	0	12,307	1.950	899	ECND	80.10	72,029	84,336
1546		Sizes 36"		Est.	1,481	LF		34.15	0	50,576	2.100	3,577	ECND	80.10	286,487	337,063
1547		Cable Tray #4/0 KCMIL Bare Copper Wire		Est.	3,400	EA		3.08		10,481	0.06	235	EHEA	83.55	19,601	30,081
1548		Cable Tray #6 AWG Bare Copper Wire		Est.	500	EA		0.6		300	0.055	32	EHEA	83.55	2,642	2,942
1549		Water Treating Area	Per ESK-015						0	58,904		3,960			317,422	376,326
1550		Size 12"		Est.	439	LF		21.34	0	9,368	1.110	560	ECND	80.10	44,887	54,255
1551		Size 18"		Est.	685	LF		24.38	0	16,700	1.450	1,142	ECND	80.10	91,493	108,194
1552		Size 24"		Est.	623	LF		27.79	0	17,313	1.750	1,254	ECND	80.10	100,428	117,742
1553		Size 30"		Est.	44	LF		30.69	0	1,350	1.950	99	ECND	80.10	7,903	9,254
1554		Size 36"		Est.	346	LF		34.15	0	11,816	2.100	836	ECND	80.10	66,931	78,747
1555		Cable Tray #4/0 KCMIL Bare Copper Wire		Est.	700	LF		3.08	0	2,158	0.06	48	EHEA	83.55	4,035	6,193
1556		Cable Tray #6 AWG Bare Copper Wire		Est.	330	LF		0.6	0	198	0.055	21	EHEA	83.55	1,744	1,942
1557		Water Pre-Treatment Area	Per ESK-016						0	45,461		2,886			241,160	286,621
1558		Size 6"		Est.	216	LF		16.01	0	3,457	0.89	221	EHEA	83.55	18,429	21,886
1559		Size 12"		Est.	1,052	LF		21.34	0	22,450	1.11	1,343	EHEA	83.55	112,197	134,647
1560		Size 18"		Est.	202	LF		24.38	0	4,925	1.45	337	EHEA	83.55	28,143	33,067
1561		Size 24"		Est.	410	LF		27.79	0	11,394	1.75	825	EHEA	83.55	68,939	80,333
1562		Size 36"		Est.	44	LF		34.15	0	1,503	2.10	106	EHEA	83.55	8,878	10,381
1563		Cable Tray #4/0 KCMIL Bare Copper Wire		Est.	500	LF		3.08	0	1,541	0.06	35	EHEA	83.55	2,882	4,424
1564		Cable Tray #6 AWG Bare Copper Wire		Est.	320	LF		0.6	0	192	0.055	20	EHEA	83.55	1,691	1,883
1565		Cooling Tower Area	Per ESK-017						0	73,456		7,421			620,064	693,520
1566		Size 6"		Est.	498	LF		16.01	0	7,970	2.10	1,203	EHEA	83.55	100,483	108,454
1567		Size 12"		Est.	882	LF		21.34	0	18,822	2.10	2,130	EHEA	83.55	177,964	196,786
1568		Size 18"		Est.	1,300	LF		24.38	0	31,694	2.10	3,140	EHEA	83.55	262,305	293,999
1569		Size 24"		Est.	169	LF		27.79	0	4,697	1.750	340	EHEA	83.55	28,416	33,113
1570		Size 30"		Est.	168	LF		30.69	0	5,156	2.10	406	EHEA	83.55	33,898	39,054
1571		Size 36"		Est.	46	LF		34.15	0	1,571	2.10	111	EHEA	83.55	9,282	10,852
1572		Cable Tray #4/0 KCMIL Bare Copper Wire		Est.	1,100	LF		3.08	0	3,391	0.06	76	EHEA	83.55	6,341	9,732
1573		Cable Tray #6 AWG Bare Copper Wire		Est.	260	LF		0.6	0	156	0.055	16	EHEA	83.55	1,374	1,530
1574																
1575	70.50.23	Lighting and Distribution	Per ESK-011	Est.	1	LS		672000	0	672,000	12,650	14,548	WIRE	103.10	1,499,847	2,171,847
1576																
1577	70.50.24	Laydown Area Lighting	Costs Covered in Site Overheads (In Crew Wage Rates)						0	0		0			0	0
1578																
1579	70.50.25	Miscellaneous Electrical Devices	Welding Receptacles, Junction Boxes, etc.	Est.	1	LS		100000	0	100,000	2,000	2,300	WIRE	103.10	237,130	337,130
1580																

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13																
14																
1581	70.50.26	Lightning Protection	Per ESK-011	Est.	1	LS		30100	0	30,100	1,560	1,794	WIRE	103.10	184,961	215,061
1582																
1583	70.50.27	Electrical Allowance for Relocated Hydrogen Storage Facility	Includes Lighting	Est.	1	LS		7500	0	7,500	125	144	WIRE	103.10	14,821	22,321
1584																
1593	70.89	SUBTOTAL - DIRECT COSTS, ELECTRICAL POWER DISTRIBUTION								26,945,595		6,731,182		94.07	24,253,707	57,930,484
1594																
1595	70.90	CONSTRUCTION INDIRECTS, ELECTRICAL POWER DISTRIBUTION								1,347,280		1,581,828			8,830,065	11,759,172
1596		Additional Crane Allowance			1	LS				0					0	0
1597		Mobilization / Demobilization - Included in Wage Rates Above														
1598		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
1599		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						22,420		94.07	2,109,000	2,109,000
1600		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					28,025				2,234,129	2,234,129
1601		Per Diem	None		0.00	HR						0			0	0
1602		Consumables - % of Subtotal Above			0.5	%				33,656					121,269	154,924
1603		Freight on Material - % of Subtotal Above			5.0	%				336,559					336,559	336,559
1604		Freight on Equipment - % of Subtotal Above			5.0	%			1,347,280						1,347,280	1,347,280
1605		Scaffolding - % of Subtotal Above			3.0	%				201,935					727,611	929,547
1606		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				1,009,677					3,638,056	4,647,733
1608	70.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, ELECTRICAL POWER DISTRIBUTION								28,292,875		8,313,010		118.05	33,083,771	69,689,656
1609																
1610	70.99	SUBCONTRACTS	GSU Heavy Haul							0		0			250,000	250,000
1611																
1612		Heavy Haul Subcontract for GSU Offloading & Staging	Allowance		1	LS									250,000	250,000
1613																
1614	70.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, ELECTRICAL POWER DISTRIBUTION								28,292,875		8,313,010		118.94	33,333,771	69,939,656
1615																
1616																

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13																
14																
1617																
1618	75.00	DCS														18,900,497
1619																
1622	75.20	CONCRETE						0	7,420			223			19,299	26,719
1623																
1624	75.20.1	CEMS Foundation (2 Total)						0	7,420			223			19,299	26,719
1625		Excavation		Est.	40	CY	0	0	0	0.20	9	EXFD	94.41	869	869	
1626		Backfill		Est.	8	CY	0	0	0	0.15	1	EXFD	94.41	130	130	
1627		Concrete		Est.	40	CY	120	0	4,800	1.90	87	COND	73.57	6,430	11,230	
1628		Reinforcing		Est.	2	TN	950	0	1,900	22.50	52	REIN	82.48	4,268	6,168	
1629		Formwork		Est.	320	SF	2.25	0	720	0.20	74	FORM	103.29	7,602	8,322	
1630																
1637	75.50	ELECTRICAL						0	1,781,161			53,256			5,044,625	6,825,787
1638																
1639	75.50.1	600V Small Power Cable	Per ESK-005		639,880	LF		0	1,306,814			33,862			3,491,190	4,798,004
1640		2/C # 14, 600V		Est.	86,049	LF	0.56	0	48,187	0.027	2,672	WIRE	103.10	275,465	323,652	
1641		4/C # 14, 600V		Est.	62,704	LF	0.80	0	50,163	0.032	2,308	WIRE	103.10	237,904	288,067	
1642		7/C # 14, 600V		Est.	38,416	LF	1.24	0	47,635	0.040	1,767	WIRE	103.10	182,189	229,825	
1643		12/C # 14, 600V		Est.	13,717	LF	1.92	0	26,337	0.070	1,104	WIRE	103.10	113,847	140,184	
1644		FIBER 12MM, 12SM		Est.	4,245	LF	5.11	0	21,691	0.140	683	WIRE	103.10	70,461	92,153	
1645		FO-12 FIBER MULTIMODE		Est.	19,310	LF	5.11	0	98,673	0.140	3,109	WIRE	103.10	320,527	419,200	
1646		FO-2 FIBER MULTIMODE		Est.	230	LF	5.11	0	1,175	0.140	37	WIRE	103.10	3,818	4,993	
1647		FIBER 24MM, 24SM		Est.	1,831	LF	10.19	0	18,656	0.280	590	WIRE	103.10	60,779	79,435	
1648		FO-12 FIBER MULTIMODE		Est.	21,310	LF	5.11	0	108,894	0.140	3,431	WIRE	103.10	353,727	462,621	
1649		2/C # 14, 600V		Est.	276	LF	0.56	0	155	0.027	9	WIRE	103.10	884	1,038	
1650		4/C # 14, 600V, PDC CABLE		Est.	216	LF	0.80	0	173	0.032	8	WIRE	103.10	820	993	
1651		1 PR # 16, W/S, 600V		Est.	133,400	LF	0.17	0	22,678	0.027	4,142	WIRE	103.10	427,047	449,725	
1652		1 PR # 16, W/S, 600V, TYPE K		Est.	52,626	LF	0.92	0	48,416	0.027	1,634	WIRE	103.10	168,469	216,885	
1653		1 PR # 18, W/IOS, 600V, TYPE KXH		Est.	11,798	LF	0.87	0	10,264	0.027	366	WIRE	103.10	37,769	48,033	
1654		1 PR # 16, W/IOS, 600V, TYPE SIH		Est.	308	LF	0.82	0	253	0.027	10	WIRE	103.10	987	1,239	
1655		1 TR # 16, W/S, 600V		Est.	8,623	LF	0.17	0	1,466	0.027	268	WIRE	103.10	27,605	29,071	
1656		2 PR # 16, W/IOS, 600V		Est.	53,490	LF	1.44	0	77,025	0.053	3,260	WIRE	103.10	336,126	413,152	
1657		4 PR # 16, W/IOS, 600V		Est.	21,769	LF	1.44	0	31,347	0.053	1,327	WIRE	103.10	136,795	168,143	
1658		4 PR # 16, W/IOS, 600V, TYPE K		Est.	3,389	LF	6.87	0	23,284	0.027	105	WIRE	103.10	10,850	34,134	
1659		4 TR # 16, W/IOS, 600V		Est.	64,969	LF	3.94	0	255,978	0.053	3,960	WIRE	103.10	408,262	664,239	
1660		8 PR # 16, W/IOS, 600V		Est.	37,792	LF	8.95	0	338,236	0.053	2,303	WIRE	103.10	237,481	575,718	
1661		8 PR # 16, W/IOS, 600V, TYPE KX		Est.	3,412	LF	14.80	0	50,502	0.027	106	WIRE	103.10	10,924	61,425	
1662		Termination		Est.	1	LT			25,624		664	WIRE	103.10	68,455	94,079	
1663																
1664	75.50.2	Conduit-Above Ground	Per ESK-023					0	474,347			19,394			1,553,436	2,027,783
1665		3/4" RGS Conduit- (C, K)		Est.	21,000	LF	3.48	0	73,080	0.194	4,685	ECND	80.10	375,277	448,357	
1666		1" RGS Conduit- (C, K)		Est.	21,000	LF	4.92	0	103,320	0.239	5,772	ECND	80.10	462,325	565,645	
1667		1-1/2" RGS Conduit (C, K)		Est.	5,600	LF	8.5	0	47,600	0.284	1,829	ECND	80.10	146,500	194,100	
1668		2" RGS Conduit- (C, K)		Est.	5,600	LF	10.95	0	61,320	0.352	2,267	ECND	80.10	181,577	242,897	
1669		2-1/2" RGS Conduit ((C, K)		Est.	845	LF	18.4	0	15,548	0.458	445	ECND	80.10	35,649	51,197	
1670		3" RGS Conduit- (C, K)		Est.	845	LF	22.85	0	19,308	0.645	627	ECND	80.10	50,205	69,513	

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13																
14																
1671		3-1/2" RGS Conduit (C, K)		Est.	755	LF		27.4	0	20,687	0.739	642	ECND	80.10	51,395	72,082
1672		4" RGS Conduit- (C, K)		Est.	755	LF		32.3	0	24,387	0.807	701	ECND	80.10	56,124	80,511
1673		5" RGS Conduit- (C, K)		Est.	755	LF		57	0	43,035	1.127	979	ECND	80.10	78,379	121,414
1674		6" RGS Conduit (C, K)		Est.	755	LF		87.5	0	66,063	1.668	1,448	ECND	80.10	116,004	182,067
1675																
1676	75.55	INSTRUMENTATION							5,533,200	888,266		24,874			2,109,064	8,530,530
1677																
1678	75.55.1	DCS	Based on 4,057 IO Points	Est.	1	LS	2780000		2,780,000	0	3,100	3,565	INEL	93.03	331,652	3,111,652
1679																
1680	75.55.2	High Fidelity Simulator		Est.	1	LS	1346000		1,346,000	0	1,500	1,725	INEL	93.03	160,477	1,506,477
1681																
1682	75.55.3	CEMS	(2) Shelters, (2) Sets of Stack Monitoring Equipment	Est.	2	LS	330000		660,000	0	600	1,380	INEL	93.03	128,381	788,381
1683		CEMS on Auxiliary Boiler Stack	Not Included													Not Included
1684																
1685	75.55.4	BOP Field Mounted Instruments							747,200	593,460		12,068			986,809	2,327,469
1686		Analyzers		Est.	10	EA	3000		30,000	0	7	81	INPE	81.77	6,582	36,582
1687		Tubing w/Fittings, Adapters, Supports, & Insulation		Est.	300	LF		6.5	0	1,950	0.35	121	INPE	81.77	9,874	11,824
1688		Flow Elements		Est.	57	EA	3000		171,000	0	6	393	INPE	81.77	32,160	203,160
1689		Level Switches		Est.	41	EA	300		12,300	0	7	330	INPE	81.77	26,988	39,288
1690		Valves		Est.	82	EA		200	0	16,400	1	94	INPE	81.77	7,711	24,111
1691		Transmitters		Est.	289	EA	1700		491,300	0	7	2,326	INPE	81.77	190,234	681,534
1692		Tubing w/Fittings, Adapters, Supports, & Insulation		Est.	17,340	LF		6.5	0	112,710	0.35	6,979	INPE	81.77	570,701	683,411
1693		Valves		Est.	867	EA		200	0	173,400	1	997	INPE	81.77	81,529	254,929
1694		Temperature Elements		Est.	142	EA	300		42,600	0	0.50	82	INPE	81.77	6,677	49,277
1695		Instrument Stands / Racks / Heated Enclosures		Est.	1	LS		289000	0	289,000	578	665	INPE	81.77	54,353	343,353
1696																
1697	75.55.5	Vendor Furnished Field Mounted Instruments							0	294,806		6,136			501,745	796,551
1698		CTG Related Instruments	Installation Incl w/ Equipment	Est.	390	EA	0		0	0					0	0
1699		Tubing w/Fittings, Adapters, Supports, & Insulation		Est.	4,680	LF		6.5	0	30,420	0.35	1,884	INPE	81.77	154,030	184,450
1700		Valves		Est.	351	EA		200	0	70,200	1	404	INPE	81.77	33,006	103,206
1701		HRSG Related Instruments	Installation Incl w/ Equipment	Est.	462	EA	0		0	0					0	0
1702		Tubing w/Fittings, Adapters, Supports, & Insulation		Est.	5,544	LF		6.5	0	36,036	0.35	2,231	INPE	81.77	182,466	218,502
1703		Valves		Est.	416	EA		200	0	83,160	1	478	INPE	81.77	39,100	122,260
1704		Enclosures		Est.	50	EA		700	0	35,000	4	230	INPE	81.77	18,807	53,807
1705		STG Related Instruments	Installation Incl w/ Equipment	Est.	105	EA	0		0	0					0	0
1706		Tubing w/Fittings, Adapters, Supports, & Insulation		Est.	1,260	LF		6.5	0	8,190	0.35	507	INPE	81.77	41,470	49,660
1707		Valves		Est.	95	EA		200	0	18,900	1	109	INPE	81.77	8,886	27,786
1708		BOP Vendor Related Instruments	Installation Incl w/ Equipment	Est.	50	EA	0		0	0					0	0
1709		Tubing w/Fittings, Adapters, Supports, & Insulation		Est.	600	LF		6.5	0	3,900	0.35	242	INPE	81.77	19,747	23,647
1710		Valves		Est.	45	EA		200	0	9,000	1	52	INPE	81.77	4,232	13,232
1711																
1718	75.89	SUBTOTAL - DIRECT COSTS, DCS							5,533,200	2,676,847		78,353		91.55	7,172,989	15,383,036
1719																

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13																
14																
1720	75.90	CONSTRUCTION INDIRECTS, DCS							276,660	629,059		6,813			2,611,742	3,517,462
1721		Additional Crane Allowance			1	LS				0					0	0
1722		Mobilization / Demobilization - Included in Wage Rates Above														
1723		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
1724		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						6,813		91.55	624,000	624,000
1725		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					8,517				660,740	660,740
1726		Per Diem	None		0.00	HR						0			0	0
1727		Consumables - % of Subtotal Above			0.5	%				13,384					35,865	49,249
1728		Freight on Material - % of Subtotal Above			5.0	%				133,842						133,842
1729		Freight on Equipment - % of Subtotal Above			5.0	%			276,660							276,660
1730		Scaffolding - % of Subtotal Above			3.0	%				80,305					215,190	295,495
1731		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				401,527					1,075,948	1,477,475
1733	75.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, DCS							5,809,860	3,305,906		85,167		114.89	9,784,731	18,900,497
1734																
1735	75.99	SUBCONTRACTS							0	0		0			0	0
1739																
1740	75.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, DCS							5,809,860	3,305,906		85,167		114.89	9,784,731	18,900,497
1741																
1742																
1743																
1744	80.00	BOP														79,383,535
1745																
1748	80.20	CONCRETE							0	292,703		7,077			613,815	906,517
1749																
1750	80.20.1	CTG Inlet Air Chiller Foundations	Individual Drilled Concrete Piers, 36" Dia. X 10' Long						0	16,750		325			25,533	42,283
1751		Excavation		Est.	100	CY	0	0	0	0	0.2	23	EXFD	94.41	2,171	2,171
1752		Backfill		Est.	0	CY	0	0	0	0	0.15	0	EXFD	94.41	0	0
1753		Concrete		Est.	100	CY	120	0	12,000	0	1.5	173	COND	73.57	12,691	24,691
1754		Reinforcing		Est.	5	TN	950	0	4,750	0	22.5	129	REIN	82.48	10,671	15,421
1755																
1756	80.20.2	Ammonia Storage Tank Foundation	Includes Mat, Piers, Pump Pads, and Curbs						0	58,038		1,278			118,706	176,744
1757		Excavation		Est.	200	CY	0	0	0	0	0.2	46	EXFD	94.41	4,343	4,343
1758		Backfill		Est.	40	CY	0	0	0	0	0.15	7	EXFD	94.41	651	651
1759		Concrete		Est.	155	CY	120	0	18,600	0	1.5	267	COND	73.57	19,671	38,271

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13																
14																
1760		Reinforcing		Est.	9	TN		950	0	8,550	22.5	233	REIN	82.48	19,208	27,758
1761		Formwork		Est.	3150	SF		2.25	0	7,088	0.2	725	FORM	103.29	74,834	81,921
1762		Piles	16" Dia. X 68' Long Augercast Piles	Est.	10	EA		2380	0	23,800	incl w/matl	incl w/matl				23,800
1763																
1764	80.20.3	Waste Water Sump							0	46,465		2,223			208,343	254,808
1765		Excavation		Est.	1100	CY		0	0	0	0.2	253	EXFD	94.41	23,886	23,886
1766		Backfill		Est.	700	CY		0	0	0	0.15	121	EXFD	94.41	11,400	11,400
1767		Concrete		Est.	140	CY		120	0	16,800	1.5	242	COND	73.57	17,767	34,567
1768		Reinforcing		Est.	20	TN		950	0	19,000	22.5	518	REIN	82.48	42,683	61,683
1769		Formwork		Est.	4500	SF		2.25	0	10,125	0.2	1,035	FORM	103.29	106,905	117,030
1770		Formwork Shoring	Allowance	Est.	120	SF		4.5	0	540	0.40	55	FORM	103.29	5,702	6,242
1771																
1772	80.20.4	Aux Boiler Foundation	Mat Foundation, 65' x 30'						0	83,125		882			74,836	157,961
1773		Excavation		Est.	250	CY		0	0	0	0.2	58	EXFD	94.41	5,429	5,429
1774		Backfill		Est.	80	CY		0	0	0	0.15	14	EXFD	94.41	1,303	1,303
1775		Concrete		Est.	200	CY		120	0	24,000	1.5	345	COND	73.57	25,382	49,382
1776		Reinforcing		Est.	10	TN		950	0	9,500	22.5	259	REIN	82.48	21,342	30,842
1777		Formwork		Est.	900	SF		2.25	0	2,025	0.2	207	FORM	103.29	21,381	23,406
1778		Piles	16" Dia. X 68' Long Augercast Piles	Est.	20	EA		2380	0	47,600	incl w/matl	incl w/matl				47,600
1779																
1780	80.20.5	Bulk Gas Storage Pad							0	30,275		748			63,832	94,107
1781		Excavation		Est.	200	CY		0	0	0	0.2	46	EXFD	94.41	4,343	4,343
1782		Backfill		Est.	20	CY		0	0	0	0.15	3	EXFD	94.41	326	326
1783		Concrete		Est.	180	CY		120	0	21,600	1.5	311	COND	73.57	22,843	44,443
1784		Reinforcing		Est.	7	TN		950	0	6,650	22.5	181	REIN	82.48	14,939	21,589
1785		Formwork		Est.	900	SF		2.25	0	2,025	0.2	207	FORM	103.29	21,381	23,406
1786																
1787	80.20.6	New Foundation for Relocated Hydrogen Storage Facility							0	8,050		242			17,767	25,817
1788		Concrete, In Place		Est.	35	CY		230	0	8,050	6	242	COND	73.57	17,767	25,817
1789																
1790	80.20.7	BOP Foundation Embedments							0	50,000		1,380			104,797	154,797
1791		Embeds		Est.	10	TN		5,000	0	50,000	120.00	1,380	CARP	75.94	104,797	154,797
1792																
1793	80.30	STRUCTURAL STEEL							0	3,350		12			1,020	4,370
1794																
1795	80.30.1	Waste Water Sump Handrails							0	3,350		12			1,020	4,370
1796		Handrail		Est.	100	SF	0	33.5	0	3,350	0.10	12	GALL	88.72	1,020	4,370
1797																
1798	80.40	ARCHITECTURAL							0	123,750		0			0	123,750
1799																
1800	80.40.1	Bulk Gas Storage Enclosure							0	123,750		0			0	123,750
1801		Pre Engineered Building, 55' x 30' x 20' High (Siding on 3 Sides, Open 4th Side)	Subcontract Price, Includes Installation Labor	Est.	1,650	SF		75	0	123,750	incl w/matl	incl w/matl				123,750
1802																

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13																	
14																	
1803	80.45	PAINTING / COATING							0	150,000		8,625			623,070	773,070	
1804																	
1805	80.45.1	Touch-up & Finish Painting		Est.	150,000	SF			1	0	150,000	0.05	8,625	PNTR	72.24	623,070	773,070
1806																	
1811	80.60	MECHANICAL							12,761,760	0		18,906			1,880,332	14,642,092	
1812																	
1813	80.60.1	CTG Inlet Air Chiller Equipment Package		Est.	2	LS	4200000		8,400,000	0	3,000	6,900	MECH	93.18	642,942	9,042,942	
1814																	
1815	80.60.2	Auxiliary Boiler	60,000 lb/hr	Est.	1	LS	1475000		1,475,000	0	5,050	5,808	SGEN	113.63	659,906	2,134,906	
1816																	
1817	80.60.3	Heat Exchangers							620,000	0		690			64,294	684,294	
1818		CCW Heat Exchanger	Shell & Tube Design, 100% Each.	Est.	2	Ea.	310000		620,000	0	300	690	MECH	93.18	64,294	684,294	
1819																	
1820	80.60.4	Miscellaneous Pumps							566,760	0		1,058			96,828	663,588	
1821		Auxiliary Cooling Water	100%, Vertical	Est.	2	Ea.	177000		354,000	0	260	598	PUMP	91.52	54,729	408,729	
1822		Closed Cooling Water		B	2	Ea.	106380		212,760	0	200	460	PUMP	91.52	42,099	254,859	
1823																	
1824	80.60.5	Shop Fabricated Tanks							15,000	0		23			2,142	17,142	
1825		CCW Head Tank	100%	Est.	1	Ea.	15000		15,000	0	20	23	TANK	93.14	2,142	17,142	
1826																	
1827	80.60.6	Bulk Gas Storage Provisions							90,000	0		518			48,221	138,221	
1828		Nitrogen Storage	Storage Tubes w/ manifolds & Regulators	Est.	1	LS	30000		30,000	0	150	173	MECH	93.18	16,074	46,074	
1829		Hydrogen Storage	Storage Tubes w/ manifolds & Regulators	Est.	1	LS	30000		30,000	0	150	173	MECH	93.18	16,074	46,074	
1830		CO2 Storage	Storage Tubes w/ manifolds & Regulators	Est.	1	LS	30000		30,000	0	150	173	MECH	93.18	16,074	46,074	
1831																	
1832	80.60.7	Ammonia Storage & Forwarding Equipment							450,000	0		978			91,083	541,083	
1833		Aqueous Ammonia Storage & Forwarding Skid	Includes 20,000 gal. CS Tank for 10 Day Storage	Est.	1	LS	450000		450,000	0	850	978	MECH	93.18	91,083	541,083	
1834																	
1835	80.60.8	Air Compressors & Dryers							420,000	0		1,495			139,304	559,304	
1836		Air Compressor	100%, 900 SCFM, Including aftercoolers and moisture separators.	Est.	2	Ea.	210000		420,000	0	650	1,495	MECH	93.18	139,304	559,304	
1837		Air Receiver	Included Above		1	Ea.										Included Above	
1838		Air Dryers	Included Above		2	Ea.										Included Above	
1839																	
1840	80.60.9	Chemical Feed & Sample Systems							725,000	0		863			82,032	807,032	
1841		Chemical Feed System	Chemical Feed system for FW and CW	Est.	1	LS	425000		425,000	0	300	345	WTRT	95.11	32,813	457,813	
1842		Steam & Water Analysis System	Complete System as Required	Est.	1	Ea.	300000		300,000	0	450	518	WTRT	95.11	49,219	349,219	
1843																	
1844	80.60.10	Relocate Existing Hydrogen Storage Facility		Est.	1	LS	0		0	0	500	575	MECH	93.18	53,579	53,579	
1845																	

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13																
14																
1846	80.70	PIPING							9,193,550	13,408,460		195,842			19,247,381	41,849,391
1847																
1848	80.70.1	Alloy Piping							0	6,417,875		37,946			3,729,319	10,147,194
1849		Large Bore Alloy Pipe (Above Ground)		4,292	LF					6,291,000		31,500			3,095,831	9,386,831
1850		Main Steam System	P91, 20" dia., Sch. 160	200	LF		2865	0		573,000	10.00	2,300	SPNG	98.28	226,044	799,044
1851		Main Steam System	P91, 18" dia., Sch. 160	440	LF		2330	0		1,025,200	8.90	4,503	SPNG	98.28	442,594	1,467,794
1852		Main Steam System	P91, 16" dia., Sch. 160	200	LF		2070	0		414,000	8.00	1,840	SPNG	98.28	180,835	594,835
1853		Main Steam System	P91, 12" dia., Sch. 160	100	LF		1210	0		121,000	6.00	690	SPNG	98.28	67,813	188,813
1854		Main Steam System	P91, 6" dia., Sch. XXS	250	LF		334	0		83,500	3.10	891	SPNG	98.28	87,592	171,092
1855		Hot Reheat System	P91, 30" dia., 0.9" Wall	170	LF		2650	0		450,500	8.40	1,642	SPNG	98.28	161,395	611,895
1856		Hot Reheat System	P91, 26" dia., 0.9" Wall	460	LF		2160	0		993,600	7.70	4,073	SPNG	98.28	400,324	1,393,924
1857		Hot Reheat System	P91, 24" dia., 0.9" Wall	180	LF		1990	0		358,200	7.10	1,470	SPNG	98.28	144,442	502,642
1858		Hot Reheat System	P91, 12" dia., Sch. 80	42	LF		690	0		28,980	4.20	203	SPNG	98.28	19,937	48,917
1859		Cold Reheat System	P11, 32" dia., 1.0" Wall	180	LF		1800	0		324,000	9.00	1,863	SPNG	98.28	183,096	507,096
1860		Cold Reheat System	P11, 20" dia., Sch. 40	680	LF		805	0		547,400	5.20	4,066	SPNG	98.28	399,646	947,046
1861		Cold Reheat System	P11, 12" dia., Sch. 40	100	LF		300	0		30,000	3.10	357	SPNG	98.28	35,037	65,037
1862		HR Bypass System	P91, 34" dia., Sch. XS	80	LF		1610	0		128,800	6.25	575	SPNG	98.28	56,511	185,311
1863		HR Bypass System	P22, 34" dia., Sch. Std	40	LF		820	0		32,800	5.30	244	SPNG	98.28	23,961	56,761
1864		HR Bypass System	P91, 24" dia., 0.9" Wall	480	LF		1680	0		806,400	7.30	4,030	SPNG	98.28	396,029	1,202,429
1865		MS Bypass System	P91, 18" dia., Sch. 60	60	LF		1140	0		68,400	5.50	380	SPNG	98.28	37,297	105,697
1866		MS Bypass System	P91, 18" dia., Sch. 40	60	LF		840	0		50,400	4.60	317	SPNG	98.28	31,194	81,594
1867		MS Bypass System	P91, 16" dia., Sch. 160	60	LF		1850	0		111,000	7.70	531	SPNG	98.28	52,216	163,216
1868		Equipment Drains System	P91, 10" dia., Sch 40	255	LF		306	0		78,030	2.60	762	SPNG	98.28	74,934	152,964
1869		Equipment Drains System	P22, 10" dia., Sch. 40	255	LF		258	0		65,790	2.60	762	SPNG	98.28	74,934	140,724
1870		Small Bore Alloy Pipe (Above Ground)		4,200	LF					126,875		6,446			633,488	760,363
1871		Hot Reheat System	P91, 2" dia., Sch 80	1,450	LF		40	0		58,000	1.40	2,335	SPNG	98.28	229,435	287,435
1872		Main Steam System	P91, 1-1/2" dia., Sch 80	1,300	LF		29	0		37,700	1.30	1,944	SPNG	98.28	191,007	228,707
1873		Cold Reheat System	P11, 2" dia., Sch 80	1,450	LF		21.5	0		31,175	1.30	2,168	SPNG	98.28	213,046	244,221
1874																
1875	80.70.2	BOP Piping							0	4,457,385		129,643			12,741,360	17,198,745
1876																
1877		Large Bore BOP Pipe 2-1/2"& Larger - Above Ground		29,630	LF			0		3,470,745		79,782			7,840,952	11,311,697
1878		Ammonia System	SS, 3" dia., Sch 40S	170	LF		49	0		8,330	1.63	319	SPNG	98.28	31,318	39,648
1879		Auxiliary Cooling Water System	CS, 18" dia., Sch. Std.	440	LF		312	0		137,280	4.11	2,080	SPNG	98.28	204,389	341,669
1880		Auxiliary Steam System	CS, 10" dia., Sch. 40	700	LF		110	0		77,000	2.40	1,932	SPNG	98.28	189,877	266,877
1881		Auxiliary Steam System	CS, 3" dia., Sch. 40	1,700	LF		20	0		34,000	1.34	2,620	SPNG	98.28	257,464	291,464
1882		Boiler Drains System	CS, 10" dia., Sch. 40	60	LF		110	0		6,600	2.40	166	SPNG	98.28	16,275	22,875
1883		Bottle Gas System	SS, 3" dia., Sch 40S	600	LF		49	0		29,400	1.63	1,125	SPNG	98.28	110,536	139,936
1884		Chilled Water System	CS, 20" dia., Sch. Std.	200	LF		376	0		75,200	4.70	1,081	SPNG	98.28	106,241	181,441
1885		Chilled Water System	CS, 12" dia., Sch. Std.	300	LF		189	0		56,700	2.80	966	SPNG	98.28	94,938	151,638
1886		Chilled Water System	CS, 4" dia., Sch. 40	120	LF		23	0		2,760	1.48	204	SPNG	98.28	20,073	22,833
1887		Circulating Water System	CS, 96" dia., Sch. Std	110	LF		560	0		61,600	8.10	1,025	SPNG	98.28	100,703	162,303
1888		Circulating Water System	CS, 66" dia., Sch. Std	210	LF		400	0		84,000	7.00	1,691	SPNG	98.28	166,142	250,142
1889		Circulating Water System	CS, 54" dia., Sch. Std	60	LF		355	0		21,300	6.20	428	SPNG	98.28	42,044	63,344
1890		Circulating Water System	CS, 30" dia., Sch. Std	210	LF		396	0		83,160	4.58	1,106	SPNG	98.28	108,705	191,865
1891		Circulating Water System	CS, 16" dia., Sch. Std	100	LF		245	0		24,500	3.45	397	SPNG	98.28	38,993	63,493
1892		Circulating Water System	CS, 12" dia., Sch. Std	90	LF		189	0		17,010	2.80	290	SPNG	98.28	28,482	45,492

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14																
1893		Circulating Water System	CS, 10" dia., Sch. 40		60	LF		110	0	6,600	2.40	166	SPNG	98.28	16,275	22,875
1894		Circulating Water System	CS, 4" dia., Sch. 40		200	LF		23	0	4,600	1.48	340	SPNG	98.28	33,455	38,055
1895		Closed Cooling Water System	CS, 26" dia., Sch. Std.		570	LF		345	0	196,650	3.80	2,491	SPNG	98.28	244,806	441,456
1896		Closed Cooling Water System	CS, 20" dia., Sch. Std.		400	LF		376	0	150,400	4.70	2,162	SPNG	98.28	212,481	362,881
1897		Closed Cooling Water System	CS, 14" dia., Sch. Std.		600	LF		217	0	130,200	3.12	2,153	SPNG	98.28	211,577	341,777
1898		Closed Cooling Water System	CS, 12" dia., Sch. Std.		500	LF		189	0	94,500	2.80	1,610	SPNG	98.28	158,231	252,731
1899		Closed Cooling Water System	CS, 8" dia., Sch. 40		700	LF		61.5	0	43,050	1.92	1,546	SPNG	98.28	151,902	194,952
1900		Closed Cooling Water System	CS, 4" dia., Sch. 40		1,800	LF		23	0	41,400	1.48	3,064	SPNG	98.28	301,091	342,491
1901		Condensate System	A106C CS, 28" dia., Sch. Std.		75	LF		405.9	0	30,443	4.06	350	SPNG	98.28	34,415	64,858
1902		Condensate System	A106C CS, 18" dia., Sch. Std.		30	LF		458.7	0	13,761	5.25	181	SPNG	98.28	17,801	31,562
1903		Condensate System	A106C CS, 14" dia., Sch. Std.		410	LF		226.6	0	92,906	2.87	1,353	SPNG	98.28	132,993	225,899
1904		Condensate System	A106C CS, 12" dia., Sch. Std.		90	LF		207.9	0	18,711	2.80	290	SPNG	98.28	28,482	47,193
1905		Condensate System	A106C CS, 10" dia., Sch. 40		480	LF		121	0	58,080	2.40	1,325	SPNG	98.28	130,201	188,281
1906		Condensate System	A106C CS, 8" dia., Sch. 40		220	LF		67.65	0	14,883	1.92	486	SPNG	98.28	47,740	62,623
1907		Condensate System	A106C CS, 6" dia., Sch. 40		80	LF		45.87	0	3,670	1.61	148	SPNG	98.28	14,557	18,227
1908		Condensate System	A106C CS, 4" dia., Sch. 40		320	LF		25.3	0	8,096	1.48	545	SPNG	98.28	53,527	61,623
1909		Condensate System	A106C CS, 3" dia., Sch. 40		80	LF		22	0	1,760	1.34	123	SPNG	98.28	12,116	13,876
1910		Condenser Vacuum System	CS, 14" dia., Sch. 40		200	LF		206	0	41,200	2.87	660	SPNG	98.28	64,875	106,075
1911		Condenser Vacuum System	CS, 10" dia., Sch. 40		60	LF		110	0	6,600	2.40	166	SPNG	98.28	16,275	22,875
1912		Condenser Vacuum System	CS, 8" dia., Sch. 40		140	LF		61.5	0	8,610	1.92	309	SPNG	98.28	30,380	38,990
1913		Condenser Vacuum System	CS, 4" dia., Sch. 40		250	LF		23	0	5,750	1.48	426	SPNG	98.28	41,818	47,568
1914		Deminerlized Water System	SS, 3" dia., Sch 40S		710	LF		49	0	34,790	1.63	1,331	SPNG	98.28	130,800	165,590
1915		Equipment Drains System	CS, 10" dia., Sch. 40		255	LF		110	0	28,050	2.40	704	SPNG	98.28	69,169	97,219
1916		Feed Water System	A106C CS, 12" dia., Sch. Std.		200	LF		207.9	0	41,580	2.80	644	SPNG	98.28	63,292	104,872
1917		Feed Water System	A106C CS, 10" dia., Sch. 160		160	LF		392.7	0	62,832	6.00	1,104	SPNG	98.28	108,501	171,333
1918		Feed Water System	A106C CS, 10" dia., Sch. 40		80	LF		121	0	9,680	2.40	221	SPNG	98.28	21,700	31,380
1919		Feed Water System	A106C CS, 6" dia., Sch. 160		1,560	LF		187	0	291,720	3.12	5,597	SPNG	98.28	550,101	841,821
1920		Feed Water System	A106C CS, 4" dia., Sch. 160		1,040	LF		91.3	0	94,952	2.57	3,074	SPNG	98.28	302,085	397,037
1921		Feed Water System	A106C CS, 4" dia., Sch. 40		480	LF		25.3	0	12,144	1.48	817	SPNG	98.28	80,291	92,435
1922		Feed Water System	A106C CS, 3" dia., Sch. 40		200	LF		22	0	4,400	1.34	308	SPNG	98.28	30,290	34,690
1923		Fire Protection System	CS, 16" dia., Sch. Std.		20	LF		245	0	4,900	3.45	79	SPNG	98.28	7,799	12,699
1924		Fire Protection System	CS, 12" dia., Sch. Std.		100	LF		189	0	18,900	2.80	322	SPNG	98.28	31,646	50,546
1925		Fire Protection System	CS, 8" dia., Sch. 40		50	LF		61.5	0	3,075	1.92	110	SPNG	98.28	10,850	13,925
1926		Fuel Gas System	CS, 14" dia., Sch. 60		40	LF		325	0	13,000	4.60	212	SPNG	98.28	20,796	33,796
1927		Fuel Gas System	SS, 8" dia., Sch. 80S		280	LF		270	0	75,600	3.70	1,191	SPNG	98.28	117,091	192,691
1928		Fuel Gas System	CS, 8" dia., Sch. 60		280	LF		76.7	0	21,476	2.18	702	SPNG	98.28	68,989	90,465
1929		Fuel Gas System	CS, 6" dia., Sch. 60		280	LF		51.2	0	14,336	1.80	580	SPNG	98.28	56,963	71,299
1930		Fuel Gas System	CS, 4" dia., Sch. 60		200	LF		30.8	0	6,160	1.62	373	SPNG	98.28	36,619	42,779
1931		HR Steam Bypass System	CS, 34" dia., Sch. Std.		200	LF		687	0	137,400	10.80	2,484	SPNG	98.28	244,128	381,528
1932		Instrument Air System	SS, 6" dia., Sch 40S		235	LF		111	0	26,085	2.02	546	SPNG	98.28	53,652	79,737
1933		Instrument Air System	SS, 4" dia., Sch 40S		850	LF		68.3	0	58,055	1.82	1,779	SPNG	98.28	174,845	232,900
1934		Instrument Air System	SS, 3" dia., Sch 40S		1,100	LF		49	0	53,900	1.63	2,062	SPNG	98.28	202,648	256,548
1935		LP Steam System	CS, 20" dia., Sch. Std.		230	LF		376	0	86,480	4.69	1,241	SPNG	98.28	121,917	208,397
1936		LP Steam System	CS, 16" dia., Sch. Std.		500	LF		245	0	122,500	3.45	1,984	SPNG	98.28	194,963	317,463
1937		LP Steam System	CS, 12" dia., Sch. Std.		530	LF		189	0	100,170	2.80	1,707	SPNG	98.28	167,725	267,895
1938		LP Steam Bypass System	CS, 16" dia., Sch. Std.		220	LF		245	0	53,900	3.45	873	SPNG	98.28	85,784	139,684

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14																
1939		LP Steam Bypass System	CS, 12" dia., Sch. Std.		480	LF	189	0	90,720	2.80	1,546	SPNG	98.28	151,902	242,622	
1940		Oily Water System	CS, 6" dia., Sch. 40		80	LF	41.7	0	3,336	1.61	148	SPNG	98.28	14,557	17,893	
1941		Potable Water System (Tepid Recirc)	SS, 3" dia., Sch 40S		450	LF	49	0	22,050	1.63	844	SPNG	98.28	82,902	104,952	
1942		Raw Water System	CS, 14" dia., Sch. Std.		190	LF	206	0	39,140	2.87	627	SPNG	98.28	61,631	100,771	
1943		Service Air System	CS, 6" dia., Sch. 40		235	LF	41.7	0	9,800	1.61	435	SPNG	98.28	42,762	52,561	
1944		Service Air System	CS, 4" dia., Sch. 40		1,050	LF	23	0	24,150	1.48	1,787	SPNG	98.28	175,636	199,786	
1945		Service Air System	CS, 3" dia., Sch. 40		1,800	LF	20	0	36,000	1.34	2,774	SPNG	98.28	272,609	308,609	
1946		Service Water System	SS, 6" dia., Sch 40S		120	LF	111	0	13,320	2.02	279	SPNG	98.28	27,397	40,717	
1947		Service Water System	SS, 4" dia., Sch 40S		1,050	LF	68.3	0	71,715	1.82	2,198	SPNG	98.28	215,985	287,700	
1948		Service Water System	SS, 3" dia., Sch 40S		1,800	LF	49	0	88,200	1.63	3,374	SPNG	98.28	331,607	419,807	
1949		Waste Water System	CS, 4" dia., Sch. 40		240	LF	23	0	5,520	1.48	408	SPNG	98.28	40,145	45,665	
1950		Small Bore BOP Pipe 2" & Smaller - Above Ground			33,950	LF	0	0	986,640		49,862			4,900,408	5,887,048	
1951		Auxiliary Steam System	CS, 2" dia., Sch. 80		950	LF	22.2	0	21,090	1.26	1,377	SPNG	98.28	135,287	156,377	
1952		Chemical Feed System	SS, 2" dia., Sch. 80S		1,200	LF	67.3	0	80,760	2.00	2,760	SPNG	98.28	271,253	352,013	
1953		Chemical Feed System	A20, 2" dia., Sch. 80S		350	LF	87	0	30,450	2.20	886	SPNG	98.28	87,027	117,477	
1954		Chemical Feed System	CPVC, 2" dia., Sch. 80		350	LF	2	0	700	0.50	201	SPNG	98.28	19,779	20,479	
1955		Chilled Water System	CS, 2" dia., Sch. 80		50	LF	22.2	0	1,110	1.26	72	SPNG	98.28	7,120	8,230	
1956		Closed Cooling Water System	CS, 2" dia., Sch. 80		2,800	LF	22.2	0	62,160	1.26	4,057	SPNG	98.28	398,742	460,902	
1957		Cold Reheat System	CS, 2" dia., Sch. 80		1,950	LF	22.2	0	43,290	1.26	2,826	SPNG	98.28	277,695	320,985	
1958		Condensate System	CS, 1-1/2" dia., Sch. 80		1,450	LF	19.3	0	27,985	1.16	1,934	SPNG	98.28	190,103	218,088	
1959		Deminerlized Water System	SS, 1-1/2" dia., Sch. 40S		1,600	LF	33.7	0	53,920	1.32	2,429	SPNG	98.28	238,702	292,622	
1960		Feedwater System	CS, 2" dia., Sch. 80		2,050	LF	22.2	0	45,510	1.26	2,970	SPNG	98.28	291,936	337,446	
1961		Fuel Gas System	SS, 2" dia., Sch. 80S		500	LF	67.3	0	33,650	2.00	1,150	SPNG	98.28	113,022	146,672	
1962		Fuel Gas System	CS, 2" dia., Sch. 80		850	LF	22.2	0	18,870	1.26	1,232	SPNG	98.28	121,047	139,917	
1963		Fuel Oil System	CS, 2" dia., Sch. 80		850	LF	22.2	0	18,870	1.26	1,232	SPNG	98.28	121,047	139,917	
1964		HRSG Vents & Drains System	CS, 1-1/2" dia., Sch. 80		500	LF	19.3	0	9,650	1.16	667	SPNG	98.28	65,553	75,203	
1965		Bulk Gas System	SS, 2" dia., Sch. 80S		2,400	LF	67.3	0	161,520	2.00	5,520	SPNG	98.28	542,506	704,026	
1966		Instrument Air System	SS, 1-1/2" dia., Sch. 40S		6,200	LF	33.7	0	208,940	1.32	9,412	SPNG	98.28	924,972	1,133,912	
1967		LP Steam System	CS, 2" dia., Sch. 80		2,000	LF	22.2	0	44,400	1.26	2,898	SPNG	98.28	284,815	329,215	
1968		Potable Water System	SS, 2" dia., Sch. 40S		100	LF	48.8	0	4,880	1.44	166	SPNG	98.28	16,275	21,155	
1969		Process Sampling System	CS, 1/2" avg. dia. (Sample Tubing)		4,450	LF	6.5	0	28,925	0.60	3,071	SPNG	98.28	301,769	330,694	
1970		Raw Water System	CS, 2" dia., Sch. 80		150	LF	22.2	0	3,330	1.26	217	SPNG	98.28	21,361	24,691	
1971		Service Air System	CS, 1-1/2" dia., Sch. 80		2,400	LF	19.3	0	46,320	1.16	3,202	SPNG	98.28	314,653	360,973	
1972		Service Water System	SS, 2" dia., Sch. 80S		500	LF	67.3	0	33,650	2.00	1,150	SPNG	98.28	113,022	146,672	
1973		Waste Water System	CS, 2" dia., Sch. 80		300	LF	22.2	0	6,660	1.26	435	SPNG	98.28	42,722	49,382	
1974																
1975	80.70.3	Pipe Supports, HP (Engineered Supports)		Est.	1	Lot		1710000	0	1,710,000	2,475	2,846	SPNG	98.28	279,729	1,989,729
1976																
1977	80.70.4	Pipe Supports, LP		Est.	1	Lot		780000	0	780,000	4,875	5,606	SPNG	98.28	550,982	1,330,982
1978																
1979	80.70.5	C/T Interconnecting Piping	Mat'l Supplied w/ CT's	Est.	2	LS		0	0	0	2,000	4,600	SPNG	98.28	452,088	452,088
1980																
1981	80.70.6	Valves & Specialties							9,193,550	43,200		15,200		1,493,902	10,730,652	
1982		Turbine Bypass Valves	Per CCI, 04/28/11	B	6	Ea.	162100		972,600	0	200	1,380	SPNG	98.28	135,626	1,108,226
1983		Turbine Bypass Attemperator Valves	Per CCI, 04/28/11	B	6	Ea.	9325		55,950	0	8	55	SPNG	98.28	5,425	61,375
1984		CR Check Valves		Est.	1	LS	72000		72,000	0	72	83	SPNG	98.28	8,138	80,138

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13																
14																
1985		Reheater Relief Valves		B	4	Ea.	15500		62,000	0	16	74	SPNG	98.28	7,233	69,233
1986		Large OD CW Butterfly Valves, W/ Operators		Est.	18	Ea.	25500		459,000	0	14.4	298	SPNG	98.28	29,295	488,295
1987		Large Bore HP Valves 2-1/2" & Larger		Est.	114	Ea.	27000		3,078,000	0	14.4	1,888	SPNG	98.28	185,537	3,263,537
1988		Small Bore HP Valves <2-1/2"		Est.	450	Ea.	2500		1,125,000	0	6	3,105	SPNG	98.28	305,159	1,430,159
1989		Control Valves		Est.	80	Ea.	15000		1,200,000	0	12	1,104	SPNG	98.28	108,501	1,308,501
1990		Large Bore BOP Valves 2-1/2" & Larger		Est.	375	Ea.	3500		1,312,500	0	6	2,588	SPNG	98.28	254,300	1,566,800
1991		Small Bore BOP Valves <2-1/2"		Est.	900	Ea.	325		292,500	0	3	3,105	SPNG	98.28	305,159	597,659
1992		Circulating Water Expansion Joints		Est.	8	LS		5,400	0	43,200	30	276	SPNG	98.28	27,125	70,325
1993		Specialties		Est.	60	Ea.	4000		240,000	0	14	966	SPNG	98.28	94,938	334,938
1994		Boiler Feed Pump Suction Duplex Strainers		Est.	4	Ea.	36000		144,000	0	27	124	SPNG	98.28	12,206	156,206
1995		Condensate Pump Suction Duplex Strainers		Est.	3	Ea.	36000		108,000	0	27	93	SPNG	98.28	9,155	117,155
1996		CCW Duplex Strainers		Est.	2	Ea.	36000		72,000	0	27	62	SPNG	98.28	6,103	78,103
1997																
1998	80.80	INSULATION							0	1,367,250		62,804			5,036,576	6,403,826
1999																
2000	80.80.1	Thermal Insulation/Lagging	Allowance	Est.	42,750	SF		19	0	812,250	1.03	50,637	INSL	79.78	4,039,850	4,852,100
2001																
2002	80.80.2	HRSG Piping & Drum Insulation and Lagging	Allowance	Est.	2	LS		180000	0	360,000	3,600	8,280	INSL	79.78	660,578	1,020,578
2003																
2004	80.80.3	HRSG Stack Insulation to Damper Elevation	Allowance	Est.	13,000	SF		15	0	195,000	0	3,887	DINS	86.48	336,148	531,148
2005																
2006	80.89	SUBTOTAL - DIRECT COSTS, BOP							21,955,310	15,345,512		293,266		93.44	27,402,194	64,703,016
2007																
2008	80.90	CONSTRUCTION INDIRECTS, BOP							1,097,766	3,606,195		25,501			9,976,558	14,680,519
2009		Additional Crane Allowance			1	LS				0					0	0
2010		Mobilization / Demobilization - Included in Wage Rates Above														
2011		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
2012		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						25,501		93.44	2,383,000	2,383,000
2013		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					31,877				2,524,152	2,524,152
2014		Per Diem	None		0.00	HR						0			0	0
2015		Consumables - % of Subtotal Above			0.5	%				76,728					137,011	213,739
2016		Freight on Material - % of Subtotal Above			5.0	%				767,276						767,276
2017		Freight on Equipment - % of Subtotal Above			5.0	%			1,097,766							1,097,766
2018		Scaffolding - % of Subtotal Above			3.0	%				460,365					822,066	1,282,431
2019		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				2,301,827					4,110,329	6,412,156
2021	80.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, BOP							23,053,076	18,951,707		318,768		117.26	37,378,752	79,383,535
2022																

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13																
14																
2023	80.99	SUBCONTRACTS							0	0		0			0	0
2027																
2028	80.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, BOP							23,053,076	18,951,707		318,768		117.26	37,378,752	79,383,535
2029																
2030																
2031																
2032	90.00	COMMON														47,801,784
2033																
2036	90.20	CONCRETE							0	3,806,736		54,022			4,293,545	8,100,281
2037																
2038	90.20.1	Combustion Turbine Building Foundation	Mat Foundation						0	1,512,788		21,839			1,728,606	3,241,393
2039		Excavation		Est.	2,900	CY	0	0	0	0	0.2	667	EXFD	94.41	62,971	62,971
2040		Backfill		Est.	400	CY	0	0	0	0	0.15	69	EXFD	94.41	6,514	6,514
2041		Concrete		Est.	4275	CY	120	0	513,000	0	1.9	9,341	COND	73.57	687,208	1,200,208
2042		Reinforcing		Est.	311	TN	950	0	295,450	0	22.5	8,047	REIN	82.48	663,727	959,177
2043		Embeds		Est.	20	TN	5,000	0	100,000	0	120.00	2,760	CARP	75.94	209,594	309,594
2044		Formwork		Est.	4150	SF	2.25	0	9,338	0	0.2	955	FORM	103.29	98,590	107,928
2045		Piles	16" Dia. X 68' Long Augercast Piles	Est.	250	EA	2380	0	595,000	0	incl w/matl	incl w/matl				595,000
2046																
2047	90.20.2	Steam Turbine Building Foundation (Incl. Control Room)	Mat Foundation						0	1,383,913		16,373			1,300,864	2,684,777
2048		Excavation		Est.	2,600	CY	0	0	0	0	0.2	598	EXFD	94.41	56,457	56,457
2049		Backfill		Est.	385	CY	0	0	0	0	0.15	66	EXFD	94.41	6,270	6,270
2050		Concrete		Est.	2975	CY	120	0	357,000	0	1.9	6,500	COND	73.57	478,233	835,233
2051		Reinforcing		Est.	215	TN	950	0	204,250	0	22.5	5,563	REIN	82.48	458,847	663,097
2052		Embeds		Est.	20	TN	5,000	0	100,000	0	120.00	2,760	CARP	75.94	209,594	309,594
2053		Formwork		Est.	3850	SF	2.25	0	8,663	0	0.2	886	FORM	103.29	91,463	100,126
2054		Piles	16" Dia. X 68' Long Augercast Piles	Est.	300	EA	2380	0	714,000	0	incl w/matl	incl w/matl				714,000
2055																
2056	90.20.3	Steam Turbine Building Slabs							0	87,740		1,889			146,828	234,568
2057		Concrete		Est.	462	CY	120	0	55,440	0	1.9	1,009	COND	73.57	74,267	129,707
2058		Reinforcing		Est.	34	TN	950	0	32,300	0	22.5	880	REIN	82.48	72,562	104,862
2059																
2060	90.20.4	Admin / Warehouse / Storage Building Foundation	60' x 100' Foundation Without Piles						0	136,338		3,470			278,229	414,567
2061		Excavation		Est.	550	CY	0	0	0	0	0.2	127	EXFD	94.41	11,943	11,943
2062		Backfill		Est.	130	CY	0	0	0	0	0.15	22	EXFD	94.41	2,117	2,117
2063		Concrete		Est.	550	CY	120	0	66,000	0	1.9	1,202	COND	73.57	88,413	154,413
2064		Reinforcing		Est.	45	TN	950	0	42,750	0	22.5	1,164	REIN	82.48	96,038	138,788
2065		Embeds		Est.	5	TN	5000	0	25,000	0	120.00	690	CARP	75.94	52,399	77,399
2066		Formwork		Est.	1150	SF	2.25	0	2,588	0	0.2	265	FORM	103.29	27,320	29,908
2067																
2068	90.20.5	Service / Fire Water Storage Tank Foundation	50' Dia. Tank on Mat						0	135,368		1,055			87,321	222,689
2069		Excavation		Est.	290	CY	0	0	0	0	0.2	67	EXFD	94.41	6,297	6,297
2070		Backfill		Est.	85	CY	0	0	0	0	0.15	15	EXFD	94.41	1,384	1,384

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13																
14																
2071		Concrete		Est.	240	CY		120	0	28,800	1.9	524	COND	73.57	38,580	67,380
2072		Reinforcing		Est.	10	TN		950	0	9,500	22.5	259	REIN	82.48	21,342	30,842
2073		Formwork		Est.	830	SF		2.25	0	1,868	0.2	191	FORM	103.29	19,718	21,586
2074		Piles	16" Dia. X 68' Long Augercast Piles	Est.	40	EA		2380	0	95,200	incl w/matl	incl w/matl				95,200
2075																
2076	90.20.6	Fire Water Pumphouse Foundation							0	7,423		199			16,626	24,049
2077		Excavation		Est.	60	CY		0	0	0	0.2	14	EXFD	94.41	1,303	1,303
2078		Backfill		Est.	10	CY		0	0	0	0.15	2	EXFD	94.41	163	163
2079		Concrete		Est.	50	CY		120	0	6,000	1.9	109	COND	73.57	8,038	14,038
2080		Reinforcing		Est.	1	TN		950	0	950	22.5	26	REIN	82.48	2,134	3,084
2081		Formwork		Est.	210	SF		2.25	0	473	0.2	48	FORM	103.29	4,989	5,461
2082																
2083	90.20.7	Service Water Pump Foundation							0	3,800		120			10,475	14,275
2084		Excavation		Est.	15	CY		0	0	0	0.2	3	EXFD	94.41	326	326
2085		Backfill		Est.	3	CY		0	0	0	0.15	1	EXFD	94.41	49	49
2086		Concrete		Est.	20	CY		120	0	2,400	1.9	44	COND	73.57	3,215	5,615
2087		Reinforcing		Est.	1	TN		950	0	950	22.5	26	REIN	82.48	2,134	3,084
2088		Formwork		Est.	200	SF		2.25	0	450	0.2	46	FORM	103.29	4,751	5,201
2089																
2090	90.20.8	Tower Crane Foundation	Allowance	Est.	1	LS		200,000	0	200,000	1050	1,208	CONP	82.94	100,150	300,150
2091																
2092	90.20.9	New Foundation for Relocated Warehouse							0	339,369		7,870			624,445	963,813
2093		Excavation & Backfill		Est.	1,152	CY		0	0	0	0.15	199	EXFD	94.41	18,761	18,761
2094		Concrete		Est.	1419	CY		120	0	170,280	1.9	3,101	COND	73.57	228,105	398,385
2095		Mud Mat		Est.	175	CY		120	0	21,000	1.5	302	COND	73.57	22,209	43,209
2096		Reinforcing		Est.	134	TN		950	0	127,300	22.5	3,467	REIN	82.48	285,979	413,279
2097		Embeds		Est.	7095	LB		2.50	0	17,738	0.06	490	CARP	75.94	37,177	54,914
2098		Formwork		Est.	1356	SF		2.25	0	3,051	0.2	312	FORM	103.29	32,214	35,265
2099																
2100	90.30	STRUCTURAL STEEL							0	6,961,016		52,118			5,625,259	12,586,275
2101																
2102	90.30.1	Combustion Turbine Building Steel	75' x 300' x 80' H plus 55' x 300' x 40' H						0	3,730,800		27,710			3,013,411	6,744,211
2103		Steel Framing		Est.	1,450	TN	0	2460	0	3,567,000	16.00	26,680	STST	109.52	2,921,994	6,488,994
2104		Grating	1-1/4" Galvanized	Est.	3,000	SF	0	14	0	42,000	0.14	483	GALL	88.72	42,852	84,852
2105		Handrail		Est.	1,800	LF	0	33.5	0	60,300	0.10	207	GALL	88.72	18,365	78,665
2106		Stair Treads, 3' Wide		Est.	200	EA	0	240	0	48,000	1.00	230	GALL	88.72	20,406	68,406
2107		Ladder, w/ Cage		Est.	150	LF	0	90	0	13,500	0.64	110	GALL	88.72	9,795	23,295
2108																
2109	90.30.2	Steam Turbine Building Steel	100' x 205' x 98' H ST Bldg., 90' x 26' x 30' H Aux. Bay, 100' x 55' x 42' H Control Bldg.						0	3,230,216		24,408			2,611,849	5,842,065
2110		Steel Framing		Est.	1,170	TN	0	2460	0	2,878,200	16.00	21,528	STST	109.52	2,357,747	5,235,947
2111		Metal Floor Decking		Est.	20,870	SF	0	2.8	0	58,436	0.014	336	DCKG	84.57	28,416	86,852

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14																
2112		Grating	1-1/4" Galvanized	Est.	12,720	SF	0	14	0	178,080	0.14	2,048	GALL	88.72	181,691	359,771
2113		Handrail		Est.	1,800	LF	0	33.5	0	60,300	0.10	207	GALL	88.72	18,365	78,665
2114		Stair Treads, 3' Wide		Est.	200	EA	0	240	0	48,000	1.00	230	GALL	88.72	20,406	68,406
2115		Ladder, w/ Cage		Est.	80	LF	0	90	0	7,200	0.64	59	GALL	88.72	5,224	12,424
2116																
2117	90.40	ARCHITECTURAL							0	3,523,853		36,501			3,545,140	7,068,993
2118																
2119	90.40.1	Combustion Turbine Building							0	1,301,792		10,991			1,061,713	2,363,505
2120		Insulated Metal Siding		Est.	56,200	SF	0	12.2	0	685,640	0.09	5,817	SDNG	96.99	564,162	1,249,802
2121		Insulated Metal Standing Seam Roof		Est.	39,300	SF	0	14.64	0	575,352	0.11	4,971	SDNG	96.99	482,181	1,057,533
2122		Double Door		Est.	2	EA	0	2900	0	5,800	12	28	CARP	75.94	2,096	7,896
2123		Man Door		Est.	10	EA	0	1500	0	15,000	8	92	CARP	75.94	6,986	21,986
2124		Rolling Steel Door		Est.	2	EA	0	10000	0	20,000	36	83	CARP	75.94	6,288	26,288
2125																
2126	90.40.2	Steam Turbine Building							0	1,381,194		12,449			1,130,963	2,512,157
2127		Insulated Metal Siding		Est.	50,000	SF	0	12.2	0	610,000	0.09	5,175	SDNG	96.99	501,923	1,111,923
2128		Insulated Metal Standing Seam Roof		Est.	28,000	SF	0	14.64	0	409,920	0.11	3,542	SDNG	96.99	343,539	753,459
2129		12" CMU		Est.	9,050	SF	0	24	0	217,200	0.21	2,186	MSRY	77.09	168,486	385,686
2130		Gypsum Board		Est.	8,200	SF	0	0.65	0	5,330	0.03	283	CARP	75.94	21,483	26,813
2131		Metal Stud/Runner		Est.	5,150	LF	0	0.76	0	3,914	0.024	142	CARP	75.94	10,794	14,708
2132		Suspended Acoustical Tile Ceiling		Est.	7,450	SF	0	4	0	29,800	0.05	428	SSCL	74.88	32,077	61,877
2133		Double Door		Est.	4	EA	0	2900	0	11,600	12	55	CARP	75.94	4,192	15,792
2134		Man Door		Est.	28	EA	0	1500	0	42,000	8	258	CARP	75.94	19,562	61,562
2135		Rolling Steel Door		Est.	2	EA	0	10000	0	20,000	36	83	CARP	75.94	6,288	26,288
2136		Water Closet		Est.	7	EA	0	1450	0	10,150	9	72	CARP	75.94	5,502	15,652
2137		Urinal		Est.	7	EA	0	640	0	4,480	8	64	CARP	75.94	4,891	9,371
2138		Lavatory		Est.	7	EA	0	600	0	4,200	8	64	CARP	75.94	4,891	9,091
2139		Shower		Est.	3	EA	0	2050	0	6,150	12	41	CARP	75.94	3,144	9,294
2140		Kitchen Sink		Est.	2	EA	0	650	0	1,300	6	14	CARP	75.94	1,048	2,348
2141		Mop Sink		Est.	1	EA	0	650	0	650	6	7	CARP	75.94	524	1,174
2142		Lockers		Est.	15	EA	0	300	0	4,500	2	35	CARP	75.94	2,620	7,120
2143																
2144	90.40.3	Admin / Warehouse / Storage Building							0	745,242		2,453			190,594	935,836
2145		Pre Engineered Building, Incl. HVAC, 60' x 100' x 15'/25' High	Subcontract Price, Includes Installation Labor	Est.	6,000	SF		85	0	510,000	incl w/matl	incl w/matl				510,000
2146		Additional HVAC for Grade Mounted Equipment	Includes Allowance for Concrete Pad and Electrical Work	Est.	1	LS	0	30000	0	30,000	300	345	HVAC	85.19	29,391	59,391
2147		Glazed Curtainwall		Est.	1,050	SF	0	24	0	25,200	0.21	254	MSRY	77.09	19,548	44,748
2148		12" CMU		Est.	3,100	SF	0	24	0	74,400	0.21	749	MSRY	77.09	57,713	132,113
2149		Gypsum Board		Est.	12,200	SF	0	0.65	0	7,930	0.03	421	CARP	75.94	31,963	39,893
2150		Metal Stud/Runner		Est.	4,450	LF	0	0.76	0	3,382	0.024	123	CARP	75.94	9,327	12,709
2151		Suspended Acoustical Tile Ceiling		Est.	150	SF	0	4	0	600	0.05	9	SSCL	74.88	646	1,246
2152		Man Door		Est.	20	EA	0	1500	0	30,000	8	184	CARP	75.94	13,973	43,973
2153		Rolling Steel Door		Est.	4	EA	0	10000	0	40,000	36	166	CARP	75.94	12,576	52,576
2154		Water Closet		Est.	7	EA	0	1450	0	10,150	9	72	CARP	75.94	5,502	15,652
2155		Urinal		Est.	2	EA	0	640	0	1,280	8	18	CARP	75.94	1,397	2,677

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13																
14																
2156		Lavatory		Est.	4	EA	0	600	0	2,400	8	37	CARP	75.94	2,795	5,195
2157		Shower		Est.	2	EA	0	2050	0	4,100	12	28	CARP	75.94	2,096	6,196
2158		Kitchen Sink		Est.	1	EA	0	650	0	650	6	7	CARP	75.94	524	1,174
2159		Mop Sink		Est.	1	EA	0	650	0	650	6	7	CARP	75.94	524	1,174
2160		Lockers		Est.	15	EA	0	300	0	4,500	2	35	CARP	75.94	2,620	7,120
2161																
2162	90.40.4	Relocate Existing Warehouse Building	150' L x 75' W x 25' H						0	95,625		10,609			1,161,870	1,257,495
2163		Carefully Remove Building Siding, Steel, & Roof and Piece Mark for Relocation		Est.	11,250	SF	0	0	0	0	0.22	2,846	STST	109.52	311,721	311,721
2164		Assemble Removed Building Steel, Roofing, Siding, Windows, and Doors, Including Overhead Doors.	Includes 10-15% New Material Allowance As Some Removed Pieces May Not Be Salvagable.	Est.	11,250	SF	0	8.5	0	95,625	0.6	7,763	STST	109.52	850,149	945,774
2165																
2166	90.45	PAINTING / COATING							0	225,000		12,938			934,605	1,159,605
2167																
2168	90.45.1	Touch-up & Finish Painting	Allowance	Est.	225,000	SF		1	0	225,000	0.05	12,938	PNTR	72.24	934,605	1,159,605
2169																
2174	90.60	MECHANICAL							3,125,000	30,000		10,028			938,736	4,093,736
2175																
2176	90.60.1	Fire Pumps w/ Enclosure, Fire Protection and Detection		Est.	1	LS	810000	0	810,000	0	800	920	PUMP	91.52	84,198	894,198
2177																
2178	90.60.2	Miscellaneous Pumps							20,000	0					12,630	32,630
2179		Service Water	100%	B	2	Ea	10000		20,000	0	60	138	PUMP	91.52	12,630	32,630
2180																
2181	90.60.3	Cranes & Hoists							1,245,000	0		5,175			481,252	1,726,252
2182		C/T	70/20 TN Capacity Bridge Crane	Est.	1	LS	520000		520,000	0	2,100	2,415	MECH	93.18	225,030	745,030
2183		Steam Turbine	60/20 TN Capacity Bridge Crane	Est.	1	LS	475000		475,000	0	1,900	2,185	MECH	93.18	203,598	678,598
2184		Miscellaneous Hoists and Trolleys	Allowance	Est.	1	LS	250000		250,000	0	500	575	PUMP	91.52	52,624	302,624
2185																
2186	90.60.4	Fuel Gas Check Metering Station		Est.	1	LS	800000		800,000	0	1,500	1,725	MECH	93.18	160,736	960,736
2187																
2188	90.60.5	Potable Water Tepid Recirculation System		Est.	1	LS	250000		250,000	0	600	690	MECH	93.18	64,294	314,294
2189																
2190	90.60.6	Plumbing & Fixtures		Est.	1	LS		30,000	0	30,000	1,200	1,380	SPNG	98.28	135,626	165,626
2191																
2196	90.89	SUBTOTAL - DIRECT COSTS, COMMON							3,125,000	14,546,605		165,607		92.61	15,337,285	33,008,890
2197																

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13																
14																
2198	90.90	CONSTRUCTION INDIRECTS, COMMON							156,250	3,418,452		14,401			7,284,191	10,858,893
2199		Additional Crane Allowance	Tower Crane, 18 Months, Including Operator		1	LS				0					1,700,000	1,700,000
2200		Mobilization / Demobilization - Included in Wage Rates Above														
2201		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
2202		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						14,401		92.61	1,334,000	1,334,000
2203		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					18,001				1,412,793	1,412,793
2204		Per Diem	None		0.00	HR						0			0	0
2205		Consumables - % of Subtotal Above			0.5	%				72,733					76,686	149,419
2206		Freight on Material - % of Subtotal Above			5.0	%				727,330						727,330
2207		Freight on Equipment - % of Subtotal Above			5.0	%			156,250							156,250
2208		Scaffolding - % of Subtotal Above			3.0	%				436,398					460,119	896,517
2209		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				2,181,991					2,300,593	4,482,584
2211	90.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, COMMON							3,281,250	17,965,057		180,008		125.67	22,621,477	43,867,784
2212																
2213	90.99	SUBCONTRACTS	Service/Fire Water Tank, Fire Protection Systems, & Site Bussing Services						3,934,000	0		0			0	3,934,000
2214																
2215		Field Erected Tanks														
2216		Service/Fire Water Storage Tank	Approx. 800,000 Gal. Vertical, API 650, cone roof, 50' dia x 56' high, incl stairs, ladders, manways, & cathodic protection. CS w/ Epoxy Coating, Heaters, & Exterior Finish Paint.	Est.	1	Ea.	930000		930,000	0	incl w/equip.	incl w/equip.				930,000
2217																
2218		Fire Protection														
2219		Fire Protection & Detection	Based on a Single Site Subcontract, Including Building Systems, Transformer Deluge, Detection, and Portable Extinguishers.	Est.	1	LS	1750000		1,750,000	0	incl w/equip.	incl w/equip.				1,750,000
2220																
2221		Bussing Services Between Remote Parking Areas and Plant Construction Area	Allowance for 33 Month Construction Period Based on 2 Busses Operating Continuously for 5x10 Work Week. Includes Equipment, Supplies, and Labor (Drivers, Fuel, & Maintenance).	Est.	33	MO	38000		1,254,000	0	incl w/equip.	incl w/equip.				1,254,000

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13																
14																
2222																
2223	90.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, COMMON							7,215,250	17,965,057		180,008		125.67	22,621,477	47,801,784
2224																
2225																
2226																
2227		OVERALL PROJECT SUBTOTALS														593,365,149
2228																
2229	OP.89	SUBTOTAL - DIRECT COSTS, OVERALL PROJECT SUBTOTALS							290,180,765	62,337,059		1,484,806		94.94	140,965,663	493,483,488
2230																
2231	OP.90	CONSTRUCTION INDIRECTS, OVERALL PROJECT SUBTOTALS							7,716,758	14,649,209		129,114			53,021,694	75,387,661
2232		Additional Crane Allowance			1	LS				0					1,700,000	1,700,000
2233		Mobilization / Demobilization - Included in Wage Rates Above														
2234		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
2235		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						129,114		94.94	12,258,000	12,258,000
2236		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					161,392				12,985,046	12,985,046
2237		Per Diem	None		0.00	HR						0			0	0
2238		Consumables - % of Subtotal Above			0.5	%				311,685					704,828	1,016,514
2239		Freight on Material - % of Subtotal Above			5.0	%				3,116,853						3,116,853
2240		Freight on Equipment - % of Subtotal Above			5.0	%			7,716,758							7,716,758
2241		Scaffolding - % of Subtotal Above			3.0	%				1,870,112					4,228,970	6,099,082
2242		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				9,350,559					21,144,849	30,495,408
2244	OP.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, OVERALL PROJECT SUBTOTALS							297,897,523	76,986,268		1,613,919		120.20	193,987,357	568,871,149
2245																
2246	OP.99	TOTAL SUBCONTRACTS OVERALL PROJECT SUBTOTALS							19,534,000	150,000		0			4,810,000	24,494,000
2247																
2248	OP.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, OVERALL PROJECT SUBTOTALS							317,431,523	77,136,268		1,613,919		123.18	198,797,357	593,365,149
2249																
2250																

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13																
14																
2251																
2252	PI.00	OVERALL PROJECT INDIRECT COSTS														37,480,100
2253																
2254	PI.01	Engineering, Design, and Procurement Services			1	LS										28,000,000
2255	PI.02	Field Engineering Support for Construction Management			1	LS										2,000,000
2256	PI.03	Field Engineering Support for S-U/Commissioning			1	LS										1,750,000
2257	PI.04	Craft Start-Up Support	Cost Included on Owner's Costs													Not Included
2258		Initial Fills			0.3	%										1,780,100
2259		Operator Training & Manuals			1	LS										450,000
2260		Subcontracts			1	LS										500,000
2261		Site Survey	Included Above													Included Above
2262		Geotechnical Investigation	Included Above													Included Above
2263		Underground Utility Investigation	Included Above													Included Above
2264		Noise Abatement Consultant	Included Above													Included Above
2265		Noise Abatement for 85 DBA Requirements			1	LS										3,000,000
2266		Interest On Retention	Not Included													Not Included
2267		TFA	Included with Equipment Costs		1	LS										Included with Equipment Costs
2268																
2269		TOTAL OVERALL PROJECT INDIRECT COSTS														37,480,100
2270																
2271																
2272																
2273		TOTAL OVERALL PROJECT DIRECT AND INDIRECT COSTS														630,845,249
2274																
2275		Spare Parts							4,761,500							4,761,500
2276		Operating Spare Parts - Capitalized			0.90	%			2,856,900							2,856,900
2277		Operating Spare Parts - First Year of Operation			0.60	%			1,904,600							1,904,600
2278																
2279		Contingency														79,552,900
2280		Project Contingency @ 12.52%	Contingency applied to Direct and Indirect Costs, Based on 95% Confidence Factor from Range Analysis		12.52	%										79,552,900
2281																
2282		Escalation														66,888,756
2283		Equipment	Based on 4.4% Annual Rate		1	LS			33,227,696							33,227,696
2284		Material	Based on 6.2% Annual Rate		1	LS				15,439,898						15,439,898
2285		Labor	Based on 2.4% Annual Rate		1	LS								14,772,106		14,772,106
2286		Indirects	Based on 2.7% Annual Rate		1	LS										3,449,056
2287																
2288		Subtotal Project Cost														782,048,405

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13																
14																
2289																
2290		Owner's Costs	Not Included													0
2291																
2292		AFUDC (Interest During Construction)	Not Included													0
2293																
2294		Total Project Cost														782,048,405
2295																
2296																
2297																
2298		ADDITIONAL REFERENCE COSTS:														
2299																
2300																
2301	A	Removal of Existing Fuel Oil Tank							1,200,000	80,000		2,645			477,370	1,757,370
2302		Tank Demolition	By AEP. Demo Cost Expected to be Offset by Scrap Value of Tank.													By AEP
2303		Existing Fuel Oil Tank Area Restoration							1,200,000	80,000		2,645			477,370	1,757,370
			Allowance for soil remediation and disposal in an EPA approved landfill. Subcontract cost includes labor. Used lower end of the range \$118-355/CY. Cost could be lower (\$59-118/CY) if sold to a bituminous concrete batch plant.													
2304		Soil Remediation in Tank Area		Est.	8,000	CY	150	0	1,200,000	0						1,200,000
2305		Remove Dike & Recompact Fill in Tank Area		Est.	3,500	CY	0	0	0	0	0.60	2,415	ETWK	180.48	435,859	435,859
2306		Fill From Off-Site Source		Est.	5,000	CY	0	16	0	80,000	0.04	230	ETWK	180.48	41,510	121,510
2307																



Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-2
Fuel Oil Option Detailed Capital Cost Estimate
F-Class Iteration No. 31156A

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13																
14																
15	10.00	GENERAL SITE WORK														353,586
16																
17	10.10	CIVIL						0	84,050			2,027			183,056	267,106
18																
19	10.10.1	Erosion & Sediment Control - Fuel Oil Tank Area						0	4,300			113			7,286	11,586
20		Silt Fence		Est.	1,300	LF		1	0	1,300	0.02	30	LAND	64.65	1,933	3,233
21		Rock Check Dams		Est.	6	EA		500	0	3,000	12	83	LAND	64.65	5,353	8,353
22																
23	10.10.2	Site Grading - Fuel Oil Tank Area						0	51,000			857			88,020	139,020
24		Topsoil & Organic Stripping	Area Already Developed as Laydown Area	Est.	0	CY		0	0	0	0.05	0	ETWK	180.48	0	0
25		Cut	Minor Earthwork Allowance	Est.	1,000	CY		0	0	0	0.080	92	ETWK	180.48	16,604	16,604
26		Fill	Minor Earthwork Allowance	Est.	1,000	CY		16.5	0	16,500	0.080	92	ETWK	180.48	16,604	33,104
27		Riprap	Permanent Riprap to be Installed in Steep Areas of Diversion Ditches	Est.	350	CY		30	0	10,500	0.300	121	RRAP	74.77	9,028	19,528
28		Shotcrete	4" Thick Diversion Ditch Lining	Est.	800	SY		30	0	24,000	0.600	552	CONP	82.94	45,783	69,783
29																
30	10.10.3	Fuel Oil Truck Unloading Slab	12" Reinforced Concrete (10' x 150')	Est.	115	CY		250	0	28,750	8.000	1,058	CONP	82.94	87,751	116,501
31																
50	10.89	SUBTOTAL - DIRECT COSTS, GENERAL SITE WORK						0	84,050			2,027		90.29	183,056	267,106
51																
52	10.90	CONSTRUCTION INDIRECTS, GENERAL SITE WORK						0	19,752			176			66,728	86,479
53		Additional Crane Allowance			1	LS				0					0	0
54		Mobilization / Demobilization - Included in Wage Rates Above														
55		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
56		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						176		90.29	16,000	16,000
57		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					220				16,862	16,862
58		Per Diem	None		0.00	HR						0			0	0
59		Consumables - % of Subtotal Above			0.5	%				420					915	1,336
60		Freight on Material - % of Subtotal Above			5.0	%				4,203						4,203
61		Freight on Equipment - % of Subtotal Above			5.0	%			0							0
62		Scaffolding - % of Subtotal Above			3.0	%				2,522					5,492	8,013
63		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				12,608					27,458	40,066
65	10.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, GENERAL SITE WORK						0	103,802			2,204		113.34	249,784	353,586
66																
67	10.99	SUBCONTRACTS						0	0			0			0	0
70																
71	10.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, GENERAL SITE WORK						0	103,802			2,204		113.34	249,784	353,586

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13																
14																
72																
73																
74																
75	11.00	UNDERGROUND														403,644
76																
77	11.10	CIVIL							2,265	71,650		2,434			229,249	303,164
78																
79		Site Drainage System														
80	11.10.1	Fuel Oil Containment and Unloading Drainage							2,265	71,650		2,434			229,249	303,164
81		Piping	6" CS	Est.	400	LF		52	0	20,800	1.190	547	YDPP	94.07	51,494	72,294
82		Piping	8" CS	Est.	600	LF		69	0	41,400	1.260	869	YDPP	94.07	81,784	123,184
83		Catchbasins	3' x 3' Internal	Est.	2	EA		1575	0	3,150	20.000	46	YDPP	94.07	4,327	7,477
84		Manholes	4' Internal Diameter	Est.	4	EA		1575	0	6,300	20.000	92	YDPP	94.07	8,654	14,954
85		Post Indicator Valve		Est.	3	EA	750	0	2,250	0	6.000	21	YDPP	94.07	1,947	4,197
86		Excavation / Backfill		Est.	2238	CY		0	0	0	0.30	772	EXFD	94.41	72,895	72,895
87		Bedding Material		Est.	112	CY		0	15	0	0.67	86	EXFD	94.41	8,147	8,162
88																
107	11.89	SUBTOTAL - DIRECT COSTS, UNDERGROUND							2,265	71,650		2,434		94.19	229,249	303,164
108																
109	11.90	CONSTRUCTION INDIRECTS, UNDERGROUND							113	16,838		212			83,528	100,479
110		Additional Crane Allowance			1	LS				0					0	0
111		Mobilization / Demobilization - Included in Wage Rates Above														
112		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
113		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						212		94.19	20,000	20,000
114		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					265				21,117	21,117
115		Per Diem	None		0.00	HR						0			0	0
116		Consumables - % of Subtotal Above			0.5	%				358					1,146	1,504
117		Freight on Material - % of Subtotal Above			5.0	%				3,583						3,583
118		Freight on Equipment - % of Subtotal Above			5.0	%			113							113
119		Scaffolding - % of Subtotal Above			3.0	%				2,150					6,877	9,027
120		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				10,748					34,387	45,135
122	11.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, UNDERGROUND							2,378	88,488		2,646		118.23	312,778	403,644
123																
124	11.99	SUBCONTRACTS							0	0		0			0	0
128																
129	11.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, UNDERGROUND							2,378	88,488		2,646		118.23	312,778	403,644
130																
131																

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13																
14																
418	55.00	WATER TREATMENT														2,009,070
419																
422	55.20	CONCRETE						0	392,193			2,010		163,106	555,298	
423																
424	55.20.1	Demin. Water Storage Tank (CT Water Injection) Foundation	70' Dia. Tank on Mat					0	388,550			1,915		154,971	543,521	
425		Excavation		Est.	500	CY	0	0	0	0.2	115	EXFD	94.41	10,857	10,857	
426		Backfill		Est.	120	CY	0	0	0	0.15	21	EXFD	94.41	1,954	1,954	
427		Concrete		Est.	550	CY	120	0	66,000	1.5	949	COND	73.57	69,800	135,800	
428		Reinforcing		Est.	25	TN	950	0	23,750	22.5	647	REIN	82.48	53,354	77,104	
429		Formwork		Est.	800	SF	2.25	0	1,800	0.2	184	FORM	103.29	19,005	20,805	
430		Piles	HP14x73x100'LG Driven Pile	Est.	55	EA	5400	0	297,000	incl w/matl	incl w/matl				297,000	
431																
432	55.20.2	Demin. Pump Foundation						0	3,643			94		8,135	11,778	
433		Excavation		Est.	15	CY	0	0	0	0.2	3	EXFD	94.41	326	326	
434		Backfill		Est.	3	CY	0	0	0	0.15	1	EXFD	94.41	49	49	
435		Concrete		Est.	20	CY	120	0	2,400	1.5	35	COND	73.57	2,538	4,938	
436		Reinforcing		Est.	1	TN	950	0	950	22.5	26	REIN	82.48	2,134	3,084	
437		Formwork		Est.	130	SF	2.25	0	293	0.2	30	FORM	103.29	3,088	3,381	
438																
449	55.60	MECHANICAL						155,000	0			311		28,703	183,703	
450																
451	55.60.1	Fuel Oil Demin Water Injection Pumps	2x 100%	Est.	2	Ea	15000	30,000	0	60	138	PUMP	91.52	12,630	42,630	
452																
453	55.60.2	Fuel Oil Truck Unloading Skid		Est.	1	Ea	125000	125,000	0	150	173	MECH	93.18	16,074	141,074	
454																
459	55.89	SUBTOTAL - DIRECT COSTS, WATER TREATMENT						155,000	392,193			2,320		82.67	191,809	739,002
460																
461	55.90	CONSTRUCTION INDIRECTS, WATER TREATMENT						7,750	92,165			202		70,153	170,068	
462		Additional Crane Allowance			1	LS			0					0	0	
463		Mobilization / Demobilization - Included in Wage Rates Above														
464		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
465		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						202		82.67	17,000	17,000
466		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					252				17,668	17,668
467		Per Diem	None		0.00	HR						0		0	0	
468		Consumables - % of Subtotal Above			0.5	%			1,961					959	2,920	
469		Freight on Material - % of Subtotal Above			5.0	%			19,610						19,610	
470		Freight on Equipment - % of Subtotal Above			5.0	%			7,750						7,750	
471		Scaffolding - % of Subtotal Above			3.0	%								5,754	17,520	
472		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%									28,771	87,600

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13																
14																
474	55.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, WATER TREATMENT							162,750	484,358		2,522		103.88	261,962	909,070
475																
476	55.99	SUBCONTRACTS	Demin Storage Tank						1,100,000	0		0			0	1,100,000
477																
478		Field Erected Tanks														
479		Demineralized Water Storage Tank	Approx. 1,100,000 Gal. Vertical, API 650, cone roof, incl stairs, ladders, manways, & cathodic protection. CS w/ Epoxy Coating, Heaters, & Exterior Finish Paint.	Est.	1	Ea.	1100000		1,100,000	0	incl w/equip.	incl w/equip.				1,100,000
480																
481	55.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, WATER TREATMENT							1,262,750	484,358		2,522		103.88	261,962	2,009,070
482																
483																
579																
580	70.00	ELECTRICAL POWER DISTRIBUTION														177,229
581																
592	70.50	ELECTRICAL							57,500	18,007		756			69,388	144,894
593																
594		Electrical Equipment							57,500	0		69			5,730	63,230
595																
596	70.50.1	480V-800A, Motor Control Centers		Est.	1	EA	57500		57,500	0	60.000	69	EHEB	83.05	5,730	63,230
597																
598		Electrical BOP							0	18,007		687			63,657	81,664
599																
600	70.50.2	Cable			4,000	LF			0	10,792		374			38,510	49,302
601		600V Small Power Cable		Est.	4,000	LF			0	10,792		374			38,510	49,302
602		3/C # 6 W/G, 600V		Est.	2,000	LF		3.37	0	6,740	0.090	207	WIRE	103.10	21,342	28,082
603		12/C # 14, 600V		Est.	2,000	LF		1.92	0	3,840	0.070	161	WIRE	103.10	16,599	20,439
604		Termination		Est.	1	LT			0	212		6	WIRE	103.10	569	781
605																
606	70.50.3	Conduit-Above Ground							0	7,215		314			25,147	32,362
607		3/4" RGS Conduit		Est.	500	LF		3.48	0	1,740	0.194	112	ECND	80.10	8,935	10,675
608		2" RGS Conduit		Est.	500	LF		10.95	0	5,475	0.352	202	ECND	80.10	16,212	21,687
609																
618	70.89	SUBTOTAL - DIRECT COSTS, ELECTRICAL POWER DISTRIBUTION							57,500	18,007		756		91.73	69,388	144,894
619																

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620	70.90	CONSTRUCTION INDIRECTS, ELECTRICAL POWER DISTRIBUTION							2,875	4,232		66		25,228	32,335	
621		Additional Crane Allowance			1	LS				0				0	0	
622		Mobilization / Demobilization - Included in Wage Rates Above														
623		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
624		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						66		91.73	6,000	
625		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					82				6,392	
626		Per Diem	None		0.00	HR						0		0	0	
627		Consumables - % of Subtotal Above			0.5	%				90				347	437	
628		Freight on Material - % of Subtotal Above			5.0	%				900					900	
629		Freight on Equipment - % of Subtotal Above			5.0	%			2,875						2,875	
630		Scaffolding - % of Subtotal Above			3.0	%				540				2,082	2,622	
631		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				2,701				10,408	13,109	
633	70.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, ELECTRICAL POWER DISTRIBUTION							60,375	22,238		822		115.07	94,616	
634																
635	70.99	SUBCONTRACTS							0	0		0		0	0	
638																
639	70.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, ELECTRICAL POWER DISTRIBUTION							60,375	22,238		822		115.07	94,616	
640																
641																
642																
643	75.00	DCS													411,614	
644																
657	75.55	INSTRUMENTATION							299,000	1,000		782		70,807	370,807	
658																
659	75.55.1	DCS	Based on 50 IO Points	Est.	1	LS	25000		25,000	0	30	35	INEL	93.03	3,210	
660																
661	75.55.2	CEMS	Incremental Increase	Est.	2	LS	135000		270,000	0	250.00	575	INEL	93.03	53,492	
662																
663	75.55.3	Fuel Oil BOP Field Mounted Instruments	Allowance	Est.	1	LS	4000	1000	4,000	1,000	150.00	173	INPE	81.77	14,105	
664																
671	75.89	SUBTOTAL - DIRECT COSTS, DCS							299,000	1,000		782		90.55	70,807	
672																

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13																
14																
673	75.90	CONSTRUCTION INDIRECTS, DCS							14,950	235		68			25,622	40,807
674		Additional Crane Allowance			1	LS				0					0	0
675		Mobilization / Demobilization - Included in Wage Rates Above														
676		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
677		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						68		90.55	6,000	6,000
678		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					85				6,522	6,522
679		Per Diem	None		0.00	HR						0			0	0
680		Consumables - % of Subtotal Above			0.5	%				5					354	359
681		Freight on Material - % of Subtotal Above			5.0	%				50						50
682		Freight on Equipment - % of Subtotal Above			5.0	%			14,950							14,950
683		Scaffolding - % of Subtotal Above			3.0	%				30					2,124	2,154
684		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				150					10,621	10,771
686	75.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, DCS							313,950	1,235		850		113.45	96,429	411,614
687																
688	75.99	SUBCONTRACTS							0	0		0			0	0
692																
693	75.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, DCS							313,950	1,235		850		113.45	96,429	411,614
694																
695																
696																
697	80.00	BOP														7,272,765
698																
701	80.20	CONCRETE							0	1,171,450		16,986			1,485,959	2,657,409
702																
703	80.20.1	Fuel Oil Tank Foundations (2 Total)	70' Dia. Tank on Mat						0	757,250		3,995			323,150	1,080,400
704		Excavation		Est.	1000	CY	0	0	0	0	0.2	230	EXFD	94.41	21,714	21,714
705		Backfill		Est.	240	CY	0	0	0	0	0.15	41	EXFD	94.41	3,909	3,909
706		Concrete		Est.	1120	CY	120	0	134,400	1.5	1,932	COND	73.57	142,137	276,537	
707		Reinforcing		Est.	55	TN	950	0	52,250	22.5	1,423	REIN	82.48	117,379	169,629	
708		Formwork		Est.	1600	SF	2.25	0	3,600	0.2	368	FORM	103.29	38,011	41,611	
709		Piles	HP14x73x100'LG Driven Pile	Est.	105	EA	5400	0	567,000	incl w/matl	incl w/matl					567,000
710																
711	80.20.2	Fuel Oil Tank Containment Slab	8" Slab, 250' x 250'						0	233,558		4,728			376,437	609,994
712		Excavation		Est.	1400	CY	0	0	0	0	0.2	322	EXFD	94.41	30,400	30,400
713		Backfill		Est.	0	CY	0	0	0	0	0.15	0	EXFD	94.41	0	0
714		Concrete		Est.	1340	CY	120	0	160,800	1.5	2,312	COND	73.57	170,057	330,857	
715		Reinforcing		Est.	75	TN	950	0	71,250	22.5	1,941	REIN	82.48	160,063	231,313	
716		Formwork		Est.	670	SF	2.25	0	1,508	0.2	154	FORM	103.29	15,917	17,424	
717																

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11																
	Account No.	Item Description	Scope Definition	Cost Type	Quantity	Unit of Measure	Unit Equipment Cost	Unit Material Cost	Total Equipment Cost	Total Material Cost	Unit Man-hours (Base)	Total Man-hours, w/ Productivity	Crew Code	Crew Wage Rate	Total Construction & Erection Cost	Total Projected Cost
718	80.20.3	Fuel Oil Tank Containment Walls	10' High Wall on Footing x 1,000' Long						0	170,075		8,018			765,859	935,934
719		Excavation		Est.	1300	CY	0	0	0	0	0.2	299	EXFD	94.41	28,229	28,229
720		Backfill		Est.	900	CY	0	0	0	0	0.15	155	EXFD	94.41	14,657	14,657
721		Concrete		Est.	560	CY	120	0	67,200	67,200	1.5	966	COND	73.57	71,069	138,269
722		Reinforcing		Est.	55	TN	950	0	52,250	52,250	22.5	1,423	REIN	82.48	117,379	169,629
723		Formwork		Est.	22500	SF	2.25	0	50,625	50,625	0.2	5,175	FORM	103.29	534,526	585,151
724																
725	80.20.4	Fuel Oil Unloading Foundation							0	10,568		245			20,512	31,080
726		Excavation		Est.	40	CY	0	0	0	0	0.2	9	EXFD	94.41	869	869
727		Backfill		Est.	10	CY	0	0	0	0	0.15	2	EXFD	94.41	163	163
728		Concrete		Est.	60	CY	120	0	7,200	7,200	1.5	104	COND	73.57	7,614	14,814
729		Reinforcing		Est.	3	TN	950	0	2,850	2,850	22.5	78	REIN	82.48	6,403	9,253
730		Formwork		Est.	230	SF	2.25	0	518	518	0.2	53	FORM	103.29	5,464	5,982
731																
736	80.45	PAINTING / COATING							0	20,000		1,150			83,076	103,076
737																
738	80.45.1	Touch-up & Finish Painting		Est.	20,000	SF	1	0	20,000	20,000	0.05	1,150	PNTR	72.24	83,076	103,076
739																
744	80.60	MECHANICAL							225,000	0		460			42,099	267,099
745																
746	80.60.1	Fuel Oil Forwarding Pumps	2x 100%	Est.	2	Ea.	112500		225,000	225,000	200	460	PUMP	91.52	42,099	267,099
747																
748	80.70	PIPING							32,900	92,724		3,476			341,598	467,222
749																
750	80.70.1	BOP Piping							0	92,724		3,361			330,295	423,019
751																
752		Large Bore BOP Pipe 2-1/2" & Larger - Above Ground			980	LF				53,854		1,985			195,121	248,975
753		Demineralized Water System (Injection for Oil Firing)	SS, 4" dia., Sch 40S		220	LF		68.3	0	15,026	1.82	460	SPNG	98.28	45,254	60,280
754		Fuel Oil System	CS, 10" dia., Sch. 40		80	LF		110	0	8,800	2.40	221	SPNG	98.28	21,700	30,500
755		Fuel Oil System	CS, 8" dia., Sch. 40		160	LF		61.5	0	9,840	1.92	353	SPNG	98.28	34,720	44,560
756		Fuel Oil System	CS, 6" dia., Sch. 40		440	LF		41.7	0	18,348	1.61	815	SPNG	98.28	80,065	98,413
757		Fuel Oil System	CS, 4" dia., Sch. 40		80	LF		23	0	1,840	1.48	136	SPNG	98.28	13,382	15,222
758																
759		Small Bore BOP Pipe 2" & Smaller - Above Ground			850	LF				18,870		1,232			121,047	139,917
760		Fuel Oil System	CS, 2" dia., Sch. 80		850	LF		22.2	0	18,870	1.26	1,232	SPNG	98.28	121,047	139,917
761																
762	80.70.2	Pipe Supports, LP		Est.	1	Lot		20000	0	20,000	125	144	SPNG	98.28	14,128	34,128
763																
764	80.70.3	Valves & Specialties							32,900	0		115			11,302	44,202
765		Large Bore BOP Valves 2-1/2">		Est.	6	Ea.	3500		21,000	0	6	41	SPNG	98.28	4,069	25,069
766		Small Bore BOP Valves <2-1/2"		Est.	12	Ea.	325		3,900	0	3	41	SPNG	98.28	4,069	7,969
767		Specialties		Est.	2	Ea.	4000		8,000	0	14	32	SPNG	98.28	3,165	11,165
768																

A	B	C	D	E	F	H	I	L	M	O	Q	R	S	T	U	
1														Estimate No.:	31156A	
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3														First Issue Date:	06/02/11	
4	Cost Type: Est=Estimated, B=Bid and													Revision No.:	A	
5	OPB=Other Project Bid													Revision Date:		
6	DOR:													Run Date:	06/02/11	
7														Preparer:	TJM	
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9																
10																
11																
12	<u>Account No.</u>	<u>Item Description</u>	<u>Scope Definition</u>	<u>Cost Type</u>	<u>Quantity</u>	<u>Unit of Measure</u>	<u>Unit Equipment Cost</u>	<u>Unit Material Cost</u>	<u>Total Equipment Cost</u>	<u>Total Material Cost</u>	<u>Unit Man-hours (Base)</u>	<u>Total Man-hours, w/ Productivity</u>	<u>Crew Code</u>	<u>Crew Wage Rate</u>	<u>Total Construction & Erection Cost</u>	<u>Total Projected Cost</u>
13																
14																
769	80.80	INSULATION							0	19,000		1,185			94,499	113,499
770																
771	80.80.1	Thermal Insulation/Lagging	Allowance	Est.	1,000	SF		19	0	19,000	1.03	1,185	INSL	79.78	94,499	113,499
772																
773	80.89	SUBTOTAL - DIRECT COSTS, BOP							257,900	1,303,174		23,256		88.03	2,047,231	3,608,305
774																
775	80.90	CONSTRUCTION INDIRECTS, BOP							12,895	306,246		2,022			745,318	1,064,459
776		Additional Crane Allowance			1	LS				0					0	0
777		Mobilization / Demobilization - Included in Wage Rates Above														
778		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
779		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						2,022		88.03	178,000	178,000
780		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					2,528				188,581	188,581
781		Per Diem	None		0.00	HR						0			0	0
782		Consumables - % of Subtotal Above			0.5	%				6,516					10,236	16,752
783		Freight on Material - % of Subtotal Above			5.0	%				65,159						65,159
784		Freight on Equipment - % of Subtotal Above			5.0	%			12,895							12,895
785		Scaffolding - % of Subtotal Above			3.0	%				39,095					61,417	100,512
786		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				195,476					307,085	502,561
788	80.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, BOP							270,795	1,609,420		25,279		110.47	2,792,550	4,672,765
789																
790	80.99	SUBCONTRACTS	Fuel Oil Tank and Fire Protection (Foam)						2,600,000	0		0			0	2,600,000
791																
792		Field Erected Tanks														
793		Fuel Oil Storage Tank	Approx. 1,000,000 Gal. Vertical, API 650, cone roof, 50' dia x 56' high, incl stairs, ladders, manways, & cathodic protection. CS w/ Epoxy Coating, Heaters, & Exterior Finish Paint.	Est.	2	Ea.	1100000		2,200,000	0	incl w/equip.	incl w/equip.				2,200,000
794		Fuel Oil Fire Protection	Foam (Fluoroprotein Foam) Skid and Accessories	Est.	1	LS	400000		400,000	0	incl w/equip.	incl w/equip.				400,000
795																
796	80.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, BOP							2,870,795	1,609,420		25,279		110.47	2,792,550	7,272,765
797																
798																

A	B	C	D	E	F	H	I	L	M	O	Q	R	S	T	U	
1														Estimate No.:	31156A	
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3														First Issue Date:	06/02/11	
4	Cost Type: Est=Estimated, B=Bid and OPB=Other Project Bid													Revision No.:	A	
5														Revision Date:		
6	DOR:													Run Date:	06/02/11	
7														Preparer:	TJM	
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	<u>Account No.</u>	<u>Item Description</u>	<u>Scope Definition</u>	<u>Cost Type</u>	<u>Quantity</u>	<u>Unit of Measure</u>	<u>Unit Equipment Cost</u>	<u>Unit Material Cost</u>	<u>Total Equipment Cost</u>	<u>Total Material Cost</u>	<u>Unit Man-hours (Base)</u>	<u>Total Man-hours, w/ Productivity</u>	<u>Crew Code</u>	<u>Crew Wage Rate</u>	<u>Total Construction & Erection Cost</u>	<u>Total Projected Cost</u>
12																
13																
14																
847																
848		OVERALL PROJECT SUBTOTALS														10,627,907
849																
850	OP.89	SUBTOTAL - DIRECT COSTS, OVERALL PROJECT SUBTOTALS							771,665	1,870,073		31,576		88.41	2,791,541	5,433,279
851																
852	OP.90	CONSTRUCTION INDIRECTS, OVERALL PROJECT SUBTOTALS							38,583	439,467		2,746			1,016,578	1,494,628
853		Additional Crane Allowance			1	LS				0					0	0
854		Mobilization / Demobilization - Included in Wage Rates Above														
855		Cost Due to Overtime Working 5x10 Hour Days			1	LS										
856		Cost Due to Overtime Inefficiency - Specify % Inefficiency			8.00	%						2,746		88.41	243,000	243,000
857		Cost Due to Overtime Pay @ 1.5 Times Overtime Pay Rate - Specify % Additional Hours Paid on Actual Hours Worked			10.00	%					3,432				257,143	257,143
858		Per Diem	None		0.00	HR						0			0	0
859		Consumables - % of Subtotal Above			0.5	%				9,350					13,958	23,308
860		Freight on Material - % of Subtotal Above			5.0	%				93,504						93,504
861		Freight on Equipment - % of Subtotal Above			5.0	%			38,583							38,583
862		Scaffolding - % of Subtotal Above			3.0	%				56,102					83,746	139,848
863		Contractor's General and Administrative Expense & Profit - % of Above Subtotal			15	%				280,511					418,731	699,242
865	OP.98	TOTAL DIRECT & CONSTRUCTION INDIRECT COSTS, OVERALL PROJECT SUBTOTALS							810,248	2,309,540		34,322		110.95	3,808,119	6,927,907
866																
867	OP.99	TOTAL SUBCONTRACTS OVERALL PROJECT SUBTOTALS							3,700,000	0		0			0	3,700,000
868																
869	OP.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, OVERALL PROJECT SUBTOTALS							4,510,248	2,309,540		34,322		110.95	3,808,119	10,627,907
870																
871																

A	B	C	D	E	F	H	I	L	M	O	Q	R	S	T	U	
1														Estimate No.:	31156A	
2														Project No.:	12721-001	
3														First Issue Date:	06/02/11	
4	Cost Type: Est=Estimated, B=Bid and OPB=Other Project Bid DOR:													Revision No.:	A	
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7														Preparer:	TJM	
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11																
12	<u>Account No.</u>	<u>Item Description</u>	<u>Scope Definition</u>	<u>Cost Type</u>	<u>Quantity</u>	<u>Unit of Measure</u>	<u>Unit Equipment Cost</u>	<u>Unit Material Cost</u>	<u>Total Equipment Cost</u>	<u>Total Material Cost</u>	<u>Unit Man-hours (Base)</u>	<u>Total Man-hours, w/ Productivity</u>	<u>Crew Code</u>	<u>Crew Wage Rate</u>	<u>Total Construction & Erection Cost</u>	<u>Total Projected Cost</u>
13																
14																
872																
873	PI.00	OVERALL PROJECT INDIRECT COSTS														0
874																
875	PI.01	Engineering, Design, and Procurement Services	Cost Included in Main Project Estimate													Included in Main Estimate
876	PI.02	Field Engineering Support for Construction Management	Cost Included in Main Project Estimate													Included in Main Estimate
877	PI.03	Field Engineering Support for S-U/Commissioning	Cost Included in Main Project Estimate													Included in Main Estimate
878	PI.04	Craft Start-Up Support	Cost Included on Owner's Costs													Not Included
879		Initial Fills	Cost Included in Main Project Estimate													Included in Main Estimate
880		Operator Training & Manuals	Cost Included in Main Project Estimate													Included in Main Estimate
881		Subcontracts	Cost Included in Main Project Estimate													Included in Main Estimate
882		Site Survey	Included Above													Included Above
883		Geotechnical Investigation	Included Above													Included Above
884		Underground Utility Investigation	Included Above													Included Above
885		Noise Abatement Consultant	Included Above													Included Above
886		Noise Abatement for 85 DBA Requirements	Cost Included in Main Project Estimate													Included in Main Estimate
887		Interest On Retention	Not Included													Not Included
888		TFA	Included with Equipment Costs		1	LS										Included with Equipment Costs
889																
890		TOTAL OVERALL PROJECT INDIRECT COSTS														0
891																
892																

Wage Rates Based on: 11BigSandy
Labor Productivity = 1.15

A	B	C	D	E	F	H	I	L	M	O	Q	R	S	T	U	
1														Estimate No.:	31156A	
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7														Preparer:	TJM	
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10																
11																
	<u>Account No.</u>	<u>Item Description</u>	<u>Scope Definition</u>	<u>Cost Type</u>	<u>Quantity</u>	<u>Unit of Measure</u>	<u>Unit Equipment Cost</u>	<u>Unit Material Cost</u>	<u>Total Equipment Cost</u>	<u>Total Material Cost</u>	<u>Unit Man-hours (Base)</u>	<u>Total Man-hours, w/ Productivity</u>	<u>Crew Code</u>	<u>Crew Wage Rate</u>	<u>Total Construction & Erection Cost</u>	<u>Total Projected Cost</u>
12																
13																
14																
893																
894		TOTAL OVERALL PROJECT DIRECT AND INDIRECT COSTS														10,627,907
895																
896		Spare Parts							67,700							67,700
897		Operating Spare Parts - Capitalized			0.90	%			40,600							40,600
898		Operating Spare Parts - First Year of Operation			0.60	%			27,100							27,100
899																
900		Contingency														1,975,600
901		Project Contingency @ 18.47%	Contingency applied to Direct and Indirect Costs, Based on Range Analysis		18.47	%										1,975,600
902																
903		Escalation														1,188,953
904		Equipment	Based on 4.4% Annual Rate		1	LS			464,991							464,991
905		Material	Based on 6.2% Annual Rate		1	LS				447,210						447,210
906		Labor	Based on 2.4% Annual Rate		1	LS								270,539		270,539
907		Indirects	Based on 2.7% Annual Rate		1	LS										6,213
908																
909		Subtotal Project Cost														13,860,160
910																
911		Owner's Costs	Not Included													0
912																
913		AFUDC (Interest During Construction)	Not Included													0
914																
915		Total Project Cost														13,860,160
916																



Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-3
Option 2 Summary Capital Cost Estimate
F-Class Iteration No. 31155B

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
10.00	GENERAL SITE WORK					
10.10	CIVIL					
10.10.1	Existing Fuel Oil Tank Removal and Area Restoration	Priced Separately After Estimate Totals				
10.10.2	Construction Parking & Laydown Areas Preparation		\$ -	\$ 1,923,056	\$ 2,511,644	\$ 4,434,700
10.10.3	Erosion & Sediment Control - CC Area		\$ -	\$ 66,400	\$ 41,806	\$ 108,206
10.10.4	Site Grading		\$ -	\$ -	\$ 531,333	\$ 531,333
10.10.5	Roads & Surfacing		\$ -	\$ 1,254,000	\$ 717,868	\$ 1,971,868
10.10.6	Fencing		\$ -	\$ 179,500	\$ 82,790	\$ 262,290
10.10.7	New Concrete Encasement	16' x 4' x 40' - For Existing Ash Pipe Road Crossing	\$ -	\$ 20,745	\$ 52,001	\$ 72,746
10.10.8	Stormwater Drainage Trench		\$ -	\$ 936,000	\$ 1,332,537	\$ 2,268,537
10.10.9	Stormwater Runoff Pond		\$ -	\$ 29,856	\$ 236,541	\$ 266,397
10.10.10	Stormwater Pond Pump Structure		\$ 150,000	\$ 62,085	\$ 225,856	\$ 437,941
10.10.11	Temporary Construction Guard House		\$ -	\$ 20,000	\$ 43,666	\$ 63,666
10.10.12	Concrete Filled Pipe Bollards	Includes Installation Labor	\$ -	\$ 25,000	\$ -	\$ 25,000
10.89	SUBTOTAL - DIRECT COSTS, GENERAL SITE WORK		\$ 150,000	\$ 4,516,642	\$ 5,776,041	\$ 10,442,683
10.90	CONSTRUCTION INDIRECTS, GENERAL SITE WORK		\$ 7,500	\$ 1,061,411	\$ 2,102,627	\$ 3,171,538
10.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
10.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, GENERAL SITE WORK		\$ 157,500	\$ 5,578,053	\$ 7,878,668	\$ 13,614,221

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
11.00	UNDERGROUND					
11.10	CIVIL					
11.10.1	Oily Water Sewer System		\$ 7,500	\$ 306,875	\$ 939,824	\$ 1,254,199
11.10.2	Removal of Existing Storm Sewers		\$ -	\$ -	\$ 81,253	\$ 81,253
11.10.3	Sanitary Sewer System		\$ -	\$ 27,150	\$ 576,417	\$ 603,567
11.10.4	Mechanical Excavation (for process pipe trenches)		\$ -	\$ -	\$ 1,810,647	\$ 1,810,647
11.10.5	Relocation of Miscellaneous Underground Utilities		\$ -	\$ 125,000	\$ 138,173	\$ 263,173
11.20	CONCRETE					
11.20.1	Concrete Thrust Blocks for Piping Systems		\$ -	\$ 9,000	\$ 25,382	\$ 34,382
11.50	ELECTRICAL					
11.50.1	Electrical Ductbanks & Trenches		\$ -	\$ 607,925	\$ 3,125,803	\$ 3,733,728
11.50.2	Conduits		\$ -	\$ 1,120,725	\$ 1,236,274	\$ 2,356,999
11.50.3	Grounding		\$ -	\$ 211,008	\$ 681,706	\$ 892,713
11.50.4	Cathodic Protection		\$ -	\$ 150,000	\$ 165,991	\$ 315,991
11.60	MECHANICAL					
11.60.1	Oil/Water Separator Including Lift Stations	(3) Included	\$ 150,000	\$ -	\$ 181,743	\$ 331,743
11.60.2	Packaged Sanitary Sewage Treatment Plant		\$ 100,000	\$ -	\$ 43,751	\$ 143,751
11.70	PIPING					
11.70.1	Large Bore BOP Pipe 2-1/2" & Larger - Below Ground		\$ -	\$ 3,743,170	\$ 6,818,644	\$ 10,561,814
11.70.2	New Buried Hydrogen Line from Relocated Hydrogen Storage Area to Existing Plant		\$ -	\$ 62,065	\$ 157,276	\$ 219,341
11.89	SUBTOTAL - DIRECT COSTS, UNDERGROUND		\$ 257,500	\$ 6,362,918	\$ 15,982,883	\$ 22,603,301
11.90	CONSTRUCTION INDIRECTS, UNDERGROUND		\$ 12,875	\$ 1,495,286	\$ 5,819,096	\$ 7,327,257
11.99	SUBCONTRACTS	Jack & Bore Under RR Tracks	\$ -	\$ 150,000	\$ 350,000	\$ 500,000
11.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, UNDERGROUND		\$ 270,375	\$ 8,008,203	\$ 22,151,979	\$ 30,430,557

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
21.00	CTG A					
21.20	CONCRETE					
21.20.1	Combustion Turbine A Foundation	Isolated Mat Foundation, 110' x 35'	\$ -	\$ 278,550	\$ 355,032	\$ 633,582
21.20.2	Combustion Turbine A Piers / Pedestal		\$ -	\$ 161,550	\$ 502,262	\$ 663,812
21.20.3	Combustion Turbine A Excitation & Isolation Transformer Foundations	Includes Mat, Piers, Firewalls, and Containment	\$ -	\$ 20,050	\$ 75,475	\$ 95,525
21.20.4	Combustion Turbine A Miscellaneous Equipment Pads		\$ -	\$ 6,175	\$ 16,218	\$ 22,393
21.30	STRUCTURAL STEEL					
21.30.1	Miscellaneous Steel for Transformer Containments		\$ -	\$ 6,712	\$ 5,671	\$ 12,383
21.60	MECHANICAL					
21.60.1	Combustion Turbine & Accessories	GE 7FA.05 C/T. - Nominal 210 mW, Firing Natural Gas or Fuel Oil, w/Dry Low Nox Burners, Inlet Air Filters, Standard Accessories.	\$ 59,000,000	\$ -	\$ 3,062,547	\$ 62,062,547
21.60.2	Fuel Gas Conditioning	Skid Mounted, Includes Separators, Coalescing Filters, & Dewpoint Heater. Serves (1) C/T's	\$ 1,000,000	\$ -	\$ 69,652	\$ 1,069,652
21.60.3	Heat Exchangers	Performance Heaters	\$ -	\$ -	\$ 48,221	\$ 48,221
21.60.4	Shop Fabricated Tanks	Water Wash Drain Tank	\$ 15,000	\$ -	\$ 6,427	\$ 21,427
21.89	SUBTOTAL - DIRECT COSTS, CTG A		\$ 60,015,000	\$ 473,037	\$ 4,141,504	\$ 64,629,541
21.90	CONSTRUCTION INDIRECTS, CTG A		\$ 125,750	\$ 111,164	\$ 1,507,673	\$ 1,744,586
21.99	SUBCONTRACTS	Heavy Haul	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
21.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, CTG A		\$ 60,140,750	\$ 584,201	\$ 6,649,176	\$ 67,374,127

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 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
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 Cost Estimate Summary

Estimate No.: 31155B
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 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
22.00	CTG B					
22.20	CONCRETE					
22.20.1	Combustion Turbine B Foundation	Isolated Mat Foundation, 110' x 35'	\$ -	\$ 278,550	\$ 355,032	\$ 633,582
22.20.2	Combustion Turbine B Piers / Pedestal		\$ -	\$ 161,550	\$ 502,262	\$ 663,812
22.20.3	Combustion Turbine B Excitation & Isolation Transformer Foundations	Includes Mat, Piers, Firewalls, and Containment	\$ -	\$ 20,050	\$ 75,475	\$ 95,525
22.20.4	Combustion Turbine B Miscellaneous Equipment Pads		\$ -	\$ 6,175	\$ 16,218	\$ 22,393
22.30	STRUCTURAL STEEL					
22.30.1	Miscellaneous Steel for Transformer Containments		\$ -	\$ 6,712	\$ 5,671	\$ 12,383
22.60	MECHANICAL					
22.60.1	Combustion Turbine & Accessories	GE 7FA.05 C/T. - Nominal 210 mW, Firing Natural Gas or Fuel Oil, w/Dry Low Nox Burners, Inlet Air Filters, Standard Accessories.	\$ 59,000,000	\$ -	\$ 3,059,332	\$ 62,059,332
22.60.2	Fuel Gas Conditioning	Skid Mounted, Includes Separators, Coalescing Filters, &	\$ 1,000,000	\$ -	\$ 69,652	\$ 1,069,652
22.60.3	Heat Exchangers	Performance Heaters	\$ -	\$ -	\$ 48,221	\$ 48,221
22.60.4	Shop Fabricated Tanks	Water Wash Drain Tank	\$ 15,000	\$ -	\$ 6,427	\$ 21,427
22.89	SUBTOTAL - DIRECT COSTS, CTG B		\$ 60,015,000	\$ 473,037	\$ 4,138,289	\$ 64,626,326
22.90	CONSTRUCTION INDIRECTS, CTG B		\$ 125,750	\$ 111,164	\$ 1,506,782	\$ 1,743,695
22.99	SUBCONTRACTS	Heavy Haul	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
22.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, CTG B		\$ 60,140,750	\$ 584,201	\$ 6,645,071	\$ 67,370,021

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Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
31.00	HRSG A					
31.20	CONCRETE					
31.20.1	HRSG A Foundation (Incl. Stack)	Mat Foundation, 160' x 45'	\$ -	\$ 503,563	\$ 546,181	\$ 1,049,744
31.20.2	Boiler Feed Pump Enclosure Foundation	Foundation 65'x28'	\$ -	\$ 76,510	\$ 91,989	\$ 168,499
31.20.3	Misc HRSG Equipment Pads / Foundations		\$ -	\$ 25,295	\$ 97,519	\$ 122,814
31.30	STRUCTURAL STEEL					
31.30.1	Blowdown Tant Pit / Trenches		\$ -	\$ 48,153	\$ 34,512	\$ 82,665
31.40	ARCHITECTURAL					
31.40.1	Boiler Feed Pump Enclosure		\$ -	\$ 147,560	\$ -	\$ 147,560
31.60	MECHANICAL		\$ -	\$ -	\$ -	\$ -
31.60.1	HRSG & Accessories	3-Press HRSG wReheat. Supplemental Duct Burners Incl. Integral Deaerator Incl. SCR and CO Catalyst Incl. 200 Foot Steel Stack Incl.	\$ 22,500,000	\$ -	\$ 9,173,350	\$ 31,673,350
31.60.2	Boiler Feed Pumps & Accessories	Incl. VFD's	\$ 1,940,000	\$ -	\$ 204,181	\$ 2,144,181
31.60.3	Shop Fabricated Tanks	HRSG Blowdown Tank	\$ 50,000	\$ -	\$ 7,498	\$ 57,498
31.60.4	Miscellaneous Pumps	Blowdown Sump Pumps	\$ 110,000	\$ -	\$ 15,787	\$ 125,787
31.89	SUBTOTAL - DIRECT COSTS, HRSG A		\$ 24,600,000	\$ 801,081	\$ 10,171,017	\$ 35,572,098
31.90	CONSTRUCTION INDIRECTS, HRSG A		\$ 984,000	\$ 188,254	\$ 3,702,541	\$ 4,874,795
31.99	SUBCONTRACTS	Heavy Haul	\$ -	\$ -	\$ 730,000	\$ 730,000
31.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, HRSG A		\$ 25,584,000	\$ 989,334	\$ 14,603,559	\$ 41,176,893

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Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
32.00	HRSG B					
32.20	CONCRETE					
32.20.1	HRSG B Foundation (Incl. Stack)	Mat Foundation, 160' x 45'	\$ -	\$ 503,563	\$ 546,181	\$ 1,049,744
32.20.2	Boiler Feed Pump Enclosure Foundation	Foundation 65'x28'	\$ -	\$ 76,510	\$ 91,989	\$ 168,499
32.20.3	Misc HRSG Equipment Pads / Foundations		\$ -	\$ 25,295	\$ 97,519	\$ 122,814
32.30	STRUCTURAL STEEL					
32.30.1	Blowdown Tant Pit / Trenches		\$ -	\$ 48,153	\$ 34,512	\$ 82,665
32.40	ARCHITECTURAL					
32.40.1	Boiler Feed Pump Enclosure		\$ -	\$ 147,560	\$ -	\$ 147,560
32.60	MECHANICAL					
32.60.1	HRSG & Accessories	3-Press HRSG wReheat. Supplemental Duct Burners Incl. Integral Deaerator Incl. SCR and CO Catalyst Incl. 200 Foot Steel Stack Incl.	\$ 22,500,000	\$ -	\$ 9,173,350	\$ 31,673,350
32.60.2	Boiler Feed Pumps & Accessories	Incl. VFD's	\$ 1,940,000	\$ -	\$ 204,181	\$ 2,144,181
32.60.3	Shop Fabricated Tanks	HRSG Blowdown Tank	\$ 50,000	\$ -	\$ 7,498	\$ 57,498
32.60.4	Miscellaneous Pumps	Blowdown Sump Pumps	\$ -	\$ -	\$ -	\$ -
32.89	SUBTOTAL - DIRECT COSTS, HRSG B		\$ 24,490,000	\$ 801,081	\$ 10,155,230	\$ 35,446,311
32.90	CONSTRUCTION INDIRECTS, HRSG B		\$ 979,600	\$ 188,254	\$ 3,697,166	\$ 4,865,020
32.99	SUBCONTRACTS	Heavy Haul	\$ -	\$ -	\$ 730,000	\$ 730,000
32.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, HRSG B		\$ 25,469,600	\$ 989,334	\$ 14,582,396	\$ 41,041,331

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Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
41.00	STEAM TURBINE					
41.20	CONCRETE					
41.20.1	STG Pedestal Foundation	Isolated Mat Foundation, 100' x 40'	\$ -	\$ 449,323	\$ 415,390	\$ 864,713
41.20.2	STG Pedestal	40' High Conc. Pedestal	\$ -	\$ 426,253	\$ 1,324,186	\$ 1,750,439
41.20.3	STG Excitation Transformer Foundation	Includes Mat, Piers, Firewalls, and Containment	\$ -	\$ 8,155	\$ 35,216	\$ 43,371
41.20.4	STG Equipment Pads		\$ -	\$ 5,935	\$ 14,949	\$ 20,884
41.60	MECHANICAL					
41.60.1	Steam Turbine	Approx. 320 MW Condensing Reheat Steam Turbine with Standard Accessories, Down	\$ 47,100,000	\$ -	\$ 3,611,191	\$ 50,711,191
41.60.2	Condenser & Accessories	w/ SS Tubes	\$ 4,964,200	\$ -	\$ 587,754	\$ 5,551,954
41.60.3	Pumps		\$ 523,800	\$ -	\$ 111,773	\$ 635,573
41.60.4	Condensate Polishing Equipment		\$ 2,550,000	\$ -	\$ 144,662	\$ 2,694,662
41.89	SUBTOTAL - DIRECT COSTS, STEAM TURBINE		\$ 55,138,000	\$ 889,665	\$ 6,245,121	\$ 62,272,786
41.90	CONSTRUCTION INDIRECTS, STEAM TURBINE		\$ 2,205,520	\$ 209,071	\$ 2,273,616	\$ 4,688,208
41.99	SUBCONTRACTS	STG Heavy Haul	\$ -	\$ -	\$ 750,000	\$ 750,000
41.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, STEAM TURBINE		\$ 57,343,520	\$ 1,098,736	\$ 9,268,738	\$ 67,710,994

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Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
50.00	COOLING TOWER					
50.20	CONCRETE					
50.20.1	Cooling Tower Pump Structure		\$ -	\$ 374,600	\$ 1,047,688	\$ 1,422,288
50.20.2	Mech. Draft Cooling Tower Basin, Incl. Overflow Sump	10 Cell Tower, 310' x 140' w/ 6' High Wall, 1' Thick	\$ -	\$ 1,114,564	\$ 1,505,419	\$ 2,619,983
50.30	STRUCTURAL STEEL					
50.30.1	Miscellaneous Steel for Cooling Tower Pump Intake		\$ -	\$ 8,100	\$ 3,469	\$ 11,569
50.60	MECHANICAL					
50.60.1	Cooling Tower Fire Protection System	Not Included	\$ -	\$ -	\$ -	Not Included
50.60.2	Trash Screens		\$ 60,000	\$ -	\$ 32,147	\$ 92,147
50.60.3	Circulating Water Chemical Feed System	Tanks Only	\$ 52,000	\$ -	\$ 4,284	\$ 56,284
50.60.4	Pumps		\$ 1,437,000	\$ -	\$ 174,712	\$ 1,611,712
50.89	SUBTOTAL - DIRECT COSTS, COOLING TOWER		\$ 1,549,000	\$ 1,497,264	\$ 2,767,719	\$ 5,813,983
50.90	CONSTRUCTION INDIRECTS, COOLING TOWER		\$ 77,450	\$ 351,857	\$ 1,007,976	\$ 1,437,283
50.99	SUBCONTRACTS	Cooling Tower, FRP Counterflow	\$ 8,150,000	\$ -	\$ -	\$ 8,150,000
50.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, COOLING TOWER		\$ 9,776,450	\$ 1,849,121	\$ 3,775,696	\$ 15,401,266

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Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
55.00	WATER TREATMENT					
55.20	CONCRETE					
55.20.1	Water Treatment Building Foundation	Mat Foundation, 110' x 85'	\$ -	\$ 374,493	\$ 490,297	\$ 864,790
55.20.2	Misc. Equipment Pads in Building		\$ -	\$ 11,050	\$ 26,771	\$ 37,821
55.20.3	Chemical Storage Foundation		\$ -	\$ 17,830	\$ 37,343	\$ 55,173
55.20.4	Demin. Water Storage Tank Foundation		\$ -	\$ 136,728	\$ 77,766	\$ 214,493
55.20.5	Demin. Pump Foundation		\$ -	\$ 3,643	\$ 8,135	\$ 11,778
55.40	ARCHITECTURAL					
55.40.1	Water Treatment Building		\$ 75,000	\$ 1,076,366	\$ 92,325	\$ 1,243,690
55.45	PAINTING / COATING					
55.45.1	Special Coatings		\$ -	\$ 30,000	\$ 199,382	\$ 229,382
55.60	MECHANICAL					
55.60.1	Water Treatment Equipment	130 gpm Ultrafilter & RO System, w/ Cartridge Filters, Feed Pumps, Chemical Injection, Break Tank, and CIP Skids	\$ 2,600,000	\$ -	\$ 847,668	\$ 3,447,668
55.60.2	Miscellaneous Pumps		\$ 72,000	\$ -	\$ 55,781	\$ 127,781
55.89	SUBTOTAL - DIRECT COSTS, WATER TREATMENT		\$ 2,747,000	\$ 1,650,108	\$ 1,835,469	\$ 6,232,578
55.90	CONSTRUCTION INDIRECTS, WATER TREATMENT		\$ 137,350	\$ 387,775	\$ 668,636	\$ 1,193,762
55.99	SUBCONTRACTS	Demin Storage Tank	\$ 930,000	\$ -	\$ -	\$ 930,000
55.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, WATER TREATMENT		\$ 3,814,350	\$ 2,037,884	\$ 2,504,105	\$ 8,356,339

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56.00	PRE-TREATMENT					
56.20	CONCRETE					
56.20.1	Clarifier Foundations (2 Total)	75' Dia. Steel Clarifier on Mat Fdn.	\$ -	\$ 457,235	\$ 457,904	\$ 915,139
56.20.2	Sludge Holding Tank Foundations (2 Total)		\$ -	\$ 150,600	\$ 180,176	\$ 330,776
56.20.3	Raw Water Storage Tank Foundation		\$ -	\$ 285,513	\$ 225,290	\$ 510,802
56.20.4	Clearwell Tank Foundations (2 Total)		\$ -	\$ 150,600	\$ 180,176	\$ 330,776
56.20.5	Filter Press Building Foundation		\$ -	\$ 192,363	\$ 214,066	\$ 406,428
56.20.6	Filter Press Building Equipment Pads		\$ -	\$ 4,138	\$ 13,664	\$ 17,802
56.20.7	Pre-Treatment Building Foundation		\$ -	\$ 553,666	\$ 678,521	\$ 1,232,187
56.20.8	Pre-Treatment Building Equipment Pads		\$ -	\$ 32,163	\$ 88,351	\$ 120,513
56.30	STRUCTURAL STEEL					
56.30.1	Filter Press Building Steel	Framing, Upper Floor	\$ -	\$ 127,305	\$ 95,136	\$ 222,441
56.40	ARCHITECTURAL					
56.40.1	Pre-Treatment Building		\$ 75,000	\$ 1,237,500	\$ 34,289	\$ 1,346,789
56.40.2	Filter Press Building		\$ 20,000	\$ 430,000	\$ 29,391	\$ 479,391
56.40.3	Interior Finishes		\$ -	\$ 226,180	\$ 151,711	\$ 377,891
56.40.4	River Water Intake Structure Building		\$ -	\$ 88,000	\$ 3,843	\$ 91,843
56.45	PAINTING / COATING					
56.45.1	Special Coatings		\$ -	\$ 20,000	\$ 132,922	\$ 152,922
56.60	MECHANICAL					
56.60.1	Water Pre-Treatment Equipment	5,200 GPM, w/ Chemical Dosing and Filter Presses	\$ 3,400,000	\$ -	\$ 1,542,209	\$ 4,942,209
56.60.2	Miscellaneous Pumps		\$ 165,160	\$ -	\$ 47,362	\$ 212,522
56.89	SUBTOTAL - DIRECT COSTS, PRE-TREATMENT		\$ 3,660,160	\$ 3,955,261	\$ 4,075,009	\$ 11,690,430
56.90	CONSTRUCTION INDIRECTS, PRE-TREATMENT		\$ 183,008	\$ 929,486	\$ 1,483,246	\$ 2,595,740
56.99	SUBCONTRACTS	Intake Structure, Raw Water Tank	\$ 6,520,000	\$ -	\$ -	\$ 6,520,000
56.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, PRE-TREATMENT		\$ 10,363,168	\$ 4,884,748	\$ 5,558,255	\$ 20,806,170

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60.00	PIPE RACK					
60.20	CONCRETE					
60.20.1	Piperack Foundations	Individual Footings. Majority of Pipe Rack Columns on Other	\$ -	\$ 164,650	\$ 179,545	\$ 344,195
60.30	STRUCTURAL STEEL					
60.30.1	Structural Steel, Pipe Rack	625' L x 24' W x 40' H, 2 Levels	\$ -	\$ 1,377,170	\$ 1,020,127	\$ 2,397,297
60.45	PAINTING / COATING					
60.45.1	Touch-up Painting		\$ -	\$ 75,000	\$ 311,535	\$ 386,535
60.89	SUBTOTAL - DIRECT COSTS, PIPE RACK		\$ -	\$ 1,616,820	\$ 1,511,206	\$ 3,128,026
60.90	CONSTRUCTION INDIRECTS, PIPE RACK		\$ -	\$ 379,953	\$ 549,778	\$ 929,731
60.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
60.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, PIPE RACK		\$ -	\$ 1,996,773	\$ 2,060,984	\$ 4,057,757

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70.00	ELECTRICAL POWER DISTRIBUTION					
70.20	CONCRETE					
70.20.1	GSU Foundations (3 Total)	Includes Mat, Piers, Firewall, & Containment	\$ -	\$ 259,978	\$ 720,747	\$ 980,725
70.20.2	Aux Transformer Foundations (2 Total)	Includes Mat, Piers, Firewall, & Containment	\$ -	\$ 68,178	\$ 226,418	\$ 294,596
70.20.3	Transformer PDC Foundation		\$ -	\$ 142,625	\$ 197,965	\$ 340,590
70.20.4	HRSG PDC Foundations (2 Total)		\$ -	\$ 115,340	\$ 206,384	\$ 321,724
70.20.5	CT Chiller PDC Foundations		\$ -	\$ 94,600	\$ 163,875	\$ 258,475
70.20.6	Iso-Phase Bus / Cable Bus Foundations		\$ -	\$ 7,900	\$ 13,392	\$ 21,292
70.20.7	Emergency Diesel Generator Foundation		\$ -	\$ 8,875	\$ 29,543	\$ 38,418
70.30	STRUCTURAL STEEL					
70.30.1	Miscellaneous Steel for GSU Containments (3 Total)		\$ -	\$ 67,120	\$ 56,706	\$ 123,826
70.30.2	Miscellaneous Steel for Aux Transformer Containments (2 Total)		\$ -	\$ 23,610	\$ 19,826	\$ 43,436
70.30.3	Miscellaneous Steel for Excitation Transformer Containment		\$ -	\$ 6,712	\$ 5,671	\$ 12,383
70.30.4	HRSG PDC Galleries (2 Total)		\$ -	\$ 22,150	\$ 16,679	\$ 38,829
70.30.5	Transformer PDC Galleries		\$ -	\$ 22,150	\$ 16,679	\$ 38,829
70.30.6	HVAC PDC Support Framing & Galleries		\$ -	\$ 24,060	\$ 18,037	\$ 42,097
70.30.7	CT Chiller PDC Galleries		\$ -	\$ 12,930	\$ 9,725	\$ 22,655
70.50	ELECTRICAL					
70.50.1	Generator Circuit Breakers (18KV)		\$ 1,100,000	\$ -	\$ 107,854	\$ 1,207,854
70.50.2	Generator Step Up Transformers		\$ 7,000,000	\$ -	\$ 731,446	\$ 7,731,446
70.50.3	Unit Substation Transformers		\$ -	\$ -	\$ 293,167	\$ 293,167
70.50.4	Unit Auxiliary Transformers (UAT: 1A, 1B)		\$ 1,380,000	\$ -	\$ 192,176	\$ 1,572,176
70.50.5	6.9kV Switchgear		\$ 4,754,430	\$ -	\$ -	\$ 4,754,430
70.50.6	480V Switchgear		\$ 2,954,100	\$ -	\$ 28,825	\$ 2,982,925
70.50.7	Isolated Phase Bus Duct		\$ 1,560,000	\$ -	\$ 621,462	\$ 2,181,462
70.50.8	480V-800A, Motor Control Centers		\$ 1,955,000	\$ -	\$ -	\$ 1,955,000
70.50.9	Non-Seg/Cable Bus		\$ 706,010	\$ -	\$ 875,312	\$ 1,581,322
70.50.10	Emergency Power System		\$ 432,668	\$ -	\$ 72,062	\$ 504,730

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70.50.11	PDCs		\$ 3,333,750	\$ -	\$ 435,828	\$ 3,769,578
70.50.12	Panelboards		\$ 209,000	\$ -	\$ 24,021	\$ 233,021
70.50.13	Generator/Transformer Relay & Protection Panels		\$ 175,680	\$ -	\$ 23,537	\$ 199,217
70.50.14	Communication		\$ 160,110	\$ -	\$ 22,099	\$ 182,209
70.50.15	Digital Fault Recorder		\$ 155,247	\$ -	\$ 19,217	\$ 174,464
70.50.16	Diesel Generator		\$ 825,000	\$ -	\$ 120,103	\$ 945,103
70.50.17	Security System		\$ 145,000	\$ -	\$ 47,426	\$ 192,426
70.50.18	Cable		\$ -	\$ 3,398,894	\$ 10,591,539	\$ 13,990,433
70.50.19	Heat Tracing		\$ 99,600	\$ 586,802	\$ 1,703,684	\$ 2,390,086
70.50.20	Conduit-Above Ground		\$ -	\$ 463,022	\$ 1,537,955	\$ 2,000,977
70.50.21	Embedded Conduits		\$ -	\$ 86,149	\$ 230,169	\$ 316,318
70.50.22	Cable Tray		\$ -	\$ 510,488	\$ 2,937,423	\$ 3,447,911
70.50.23	Lighting and Distribution		\$ -	\$ 672,000	\$ 1,499,847	\$ 2,171,847
70.50.24	Laydown Area Lighting	Costs Covered in Site Overheads (In Crew Wage Rates)	\$ -	\$ -	\$ -	\$ -
70.50.25	Miscellaneous Electrical Devices		\$ -	\$ 100,000	\$ 237,130	\$ 337,130
70.50.26	Lightning Protection		\$ -	\$ 30,100	\$ 184,961	\$ 215,061
70.50.27	Electrical Allowance for Relocated Hydrogen Storage Facility		\$ -	\$ 7,500	\$ 14,821	\$ 22,321
70.89	SUBTOTAL - DIRECT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 26,945,595	\$ 6,731,182	\$ 24,253,707	\$ 57,930,484
70.90	CONSTRUCTION INDIRECTS, ELECTRICAL POWER DISTRIBUTION		\$ 1,347,280	\$ 1,581,828	\$ 8,830,065	\$ 11,759,172
70.99	SUBCONTRACTS	GSU Heavy Haul	\$ -	\$ -	\$ 250,000	\$ 250,000
70.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 28,292,875	\$ 8,313,010	\$ 33,333,771	\$ 69,939,656

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
75.00	DCS					
75.20	CONCRETE					
75.20.1	CEMS Foundation (2 Total)		\$ -	\$ 7,420	\$ 19,299	\$ 26,719
75.50	ELECTRICAL					
75.50.1	600V Small Power Cable		\$ -	\$ 1,306,814	\$ 3,491,190	\$ 4,798,004
75.50.2	Conduit-Above Ground		\$ -	\$ 474,347	\$ 1,553,436	\$ 2,027,783
75.55	INSTRUMENTATION					
75.55.1	DCS		\$ 2,780,000	\$ -	\$ 331,652	\$ 3,111,652
75.55.2	High Fidelity Simulator		\$ 1,346,000	\$ -	\$ 160,477	\$ 1,506,477
75.55.3	CEMS		\$ 660,000	\$ -	\$ 128,381	\$ 788,381
75.55.4	BOP Field Mounted Instruments		\$ 747,200	\$ 593,460	\$ 986,809	\$ 2,327,469
75.55.5	Vendor Furnished Field Mounted Instruments		\$ -	\$ 294,806	\$ 501,745	\$ 796,551
75.89	SUBTOTAL - DIRECT COSTS, DCS		\$ 5,533,200	\$ 2,676,847	\$ 7,172,989	\$ 15,383,036
75.90	CONSTRUCTION INDIRECTS, DCS		\$ 276,660	\$ 629,059	\$ 2,611,742	\$ 3,517,462
75.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
75.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, DCS		\$ 5,809,860	\$ 3,305,906	\$ 9,784,731	\$ 18,900,497

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
80.00	BOP					
80.20	CONCRETE					
80.20.1	CTG Inlet Air Chiller Foundations		\$ -	\$ 16,750	\$ 25,533	\$ 42,283
80.20.2	Ammonia Storage Tank Foundation		\$ -	\$ 58,038	\$ 118,706	\$ 176,744
80.20.3	Waste Water Sump		\$ -	\$ 46,465	\$ 208,343	\$ 254,808
80.20.4	Aux Boiler Foundation	Mat Foundation, 65' x 30'	\$ -	\$ 83,125	\$ 74,836	\$ 157,961
80.20.5	Bulk Gas Storage Pad		\$ -	\$ 30,275	\$ 63,832	\$ 94,107
80.20.6	New Foundation for Relocated Hydrogen Storage Facility		\$ -	\$ 8,050	\$ 17,767	\$ 25,817
80.20.7	BOP Foundation Embedments		\$ -	\$ 50,000	\$ 104,797	\$ 154,797
80.30	STRUCTURAL STEEL					
80.30.1	Waste Water Sump Handrails		\$ -	\$ 3,350	\$ 1,020	\$ 4,370
80.40	ARCHITECTURAL					
80.40.1	Bulk Gas Storage Enclosure		\$ -	\$ 123,750	\$ -	\$ 123,750
80.45	PAINTING / COATING					
80.45.1	Touch-up & Finish Painting		\$ -	\$ 150,000	\$ 623,070	\$ 773,070
80.60	MECHANICAL					
80.60.1	CTG Inlet Air Chiller Equipment Package		\$ 8,400,000	\$ -	\$ 642,942	\$ 9,042,942
80.60.2	Auxiliary Boiler	60,000 lb/hr	\$ 1,475,000	\$ -	\$ 659,906	\$ 2,134,906
80.60.3	Heat Exchangers		\$ 620,000	\$ -	\$ 64,294	\$ 684,294
80.60.4	Miscellaneous Pumps		\$ 566,760	\$ -	\$ 96,828	\$ 663,588
80.60.5	Shop Fabricated Tanks		\$ 15,000	\$ -	\$ 2,142	\$ 17,142
80.60.6	Bulk Gas Storage Provisions	Storage Tubes w/ manifolds & Regulators	\$ 90,000	\$ -	\$ 48,221	\$ 138,221
80.60.7	Ammonia Storage & Forwarding Equipment	Includes 20,000 gal. CS Tank for 10 Day Storage	\$ 450,000	\$ -	\$ 91,083	\$ 541,083
80.60.8	Air Compressors & Dryers		\$ 420,000	\$ -	\$ 139,304	\$ 559,304
80.60.9	Chemical Feed & Sample Systems		\$ 725,000	\$ -	\$ 82,032	\$ 807,032
80.60.10	Relocate Existing Hydrogen Storage Facility		\$ -	\$ -	\$ 53,579	\$ 53,579

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
80.70	PIPING					
80.70.1	Alloy Piping		\$ -	\$ 6,417,875	\$ 3,729,319	\$ 10,147,194
80.70.2	BOP Piping		\$ -	\$ 4,457,385	\$ 12,741,360	\$ 17,198,745
80.70.3	Pipe Supports, HP (Engineered Supports)		\$ -	\$ 1,710,000	\$ 279,729	\$ 1,989,729
80.70.4	Pipe Supports, LP		\$ -	\$ 780,000	\$ 550,982	\$ 1,330,982
80.70.5	C/T Interconnecting Piping		\$ -	\$ -	\$ 452,088	\$ 452,088
80.70.6	Valves & Specialties		\$ 9,193,550	\$ 43,200	\$ 1,493,902	\$ 10,730,652
80.80	INSULATION					
80.80.1	Thermal Insulation/Lagging		\$ -	\$ 812,250	\$ 4,039,850	\$ 4,852,100
80.80.2	HRSG Piping & Drum Insulation and Lagging		\$ -	\$ 360,000	\$ 660,578	\$ 1,020,578
80.80.3	HRSG Stack Insulation to Damper Elevation		\$ -	\$ 195,000	\$ 336,148	\$ 531,148
80.89	SUBTOTAL - DIRECT COSTS, BOP		\$ 21,955,310	\$ 15,345,512	\$ 27,402,194	\$ 64,703,016
80.90	CONSTRUCTION INDIRECTS, BOP		\$ 1,097,766	\$ 3,606,195	\$ 9,976,558	\$ 14,680,519
80.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
80.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, BOP		\$ 23,053,076	\$ 18,951,707	\$ 37,378,752	\$ 79,383,535

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
90.00	COMMON					
90.20	CONCRETE					
90.20.1	Combustion Turbine Building Foundation		\$ -	\$ 1,512,788	\$ 1,728,606	\$ 3,241,393
90.20.2	Steam Turbine Building Foundation (Incl. Control Room)		\$ -	\$ 1,383,913	\$ 1,300,864	\$ 2,684,777
90.20.3	Steam Turbine Building Slabs		\$ -	\$ 87,740	\$ 146,828	\$ 234,568
90.20.4	Admin / Warehouse / Storage Building Foundation		\$ -	\$ 136,338	\$ 278,229	\$ 414,567
90.20.5	Service / Fire Water Storage Tank Foundation		\$ -	\$ 135,368	\$ 87,321	\$ 222,689
90.20.6	Fire Water Pumphouse Foundation		\$ -	\$ 7,423	\$ 16,626	\$ 24,049
90.20.7	Service Water Pump Foundation		\$ -	\$ 3,800	\$ 10,475	\$ 14,275
90.20.8	Tower Crane Foundation		\$ -	\$ 200,000	\$ 100,150	\$ 300,150
90.20.9	New Foundation for Relocated Warehouse		\$ -	\$ 339,369	\$ 624,445	\$ 963,813
90.30	STRUCTURAL STEEL					
90.30.1	Combustion Turbine Building Steel	75' x 300' x 80' H plus 55' x 300' x 40' H	\$ -	\$ 3,730,800	\$ 3,013,411	\$ 6,744,211
90.30.2	Steam Turbine Building Steel	100' x 205' x 98' H ST Bldg., 90' x 26' x 30' H Aux. Bay, 100' x 55' x 42' H Control Bldg.	\$ -	\$ 3,230,216	\$ 2,611,849	\$ 5,842,065
90.40	ARCHITECTURAL					
90.40.1	Combustion Turbine Building		\$ -	\$ 1,301,792	\$ 1,061,713	\$ 2,363,505
90.40.2	Steam Turbine Building		\$ -	\$ 1,381,194	\$ 1,130,963	\$ 2,512,157
90.40.3	Admin / Warehouse / Storage Building		\$ -	\$ 745,242	\$ 190,594	\$ 935,836
90.40.4	Relocate Existing Warehouse Building	150' L x 75' W x 25' H	\$ -	\$ 95,625	\$ 1,161,870	\$ 1,257,495
90.45	PAINTING / COATING					
90.45.1	Touch-up & Finish Painting		\$ -	\$ 225,000	\$ 934,605	\$ 1,159,605
90.60	MECHANICAL					
90.60.1	Fire Pumps w/ Enclosure, Fire Protection and Detection		\$ 810,000	\$ -	\$ 84,198	\$ 894,198
90.60.2	Miscellaneous Pumps		\$ 20,000	\$ -	\$ 12,630	\$ 32,630
90.60.3	Cranes & Hoists		\$ 1,245,000	\$ -	\$ 481,252	\$ 1,726,252
90.60.4	Fuel Gas Check Metering Station		\$ 800,000	\$ -	\$ 160,736	\$ 960,736

Sargent & Lundy, LLC

AEP
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
Conceptual Project Cost Estimate
Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
90.60.5	Potable Water Tepid Recirculation System		\$ 250,000	\$ -	\$ 64,294	\$ 314,294
90.60.6	Plumbing & Fixtures		\$ -	\$ 30,000	\$ 135,626	\$ 165,626
90.89	SUBTOTAL - DIRECT COSTS, COMMON		\$ 3,125,000	\$ 14,546,605	\$ 15,337,285	\$ 33,008,890
90.90	CONSTRUCTION INDIRECTS, COMMON		\$ 156,250	\$ 3,418,452	\$ 7,284,191	\$ 10,858,893
90.99	SUBCONTRACTS	Service/Fire Water Tank, Fire Protection Systems, & Site Bussing Services	\$ 3,934,000	\$ -	\$ -	\$ 3,934,000
90.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, COMMON		\$ 7,215,250	\$ 17,965,057	\$ 22,621,477	\$ 47,801,784

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31155B
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: B
 Revision Date: 6/17/2011
 Run Date: 6/17/2011
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
	OVERALL PROJECT SUBTOTALS					
OP.89	DIRECT COSTS		\$ 290,180,765	\$ 62,337,059	\$ 140,965,663	\$ 493,483,488
OP.90	CONSTRUCTION INDIRECTS		\$ 7,716,758	\$ 14,649,209	\$ 53,021,694	\$ 75,387,661
OP.99	SUBCONTRACTS		\$ 19,534,000	\$ 150,000	\$ 4,810,000	\$ 24,494,000
OP.00	SUBTOTAL PROJECT COSTS		\$ 317,431,523	\$ 77,136,268	\$ 198,797,357	\$ 593,365,149
PI.00	OVERALL PROJECT INDIRECT COSTS					\$ 37,480,100
	Spare Parts					\$ 4,761,500
	Contingency					\$ 79,552,900
	Escalation					\$ 66,888,756
	Subtotal Project Cost					\$ 782,048,405
	Owner's Costs	Not Included				\$ -
	AFUDC (Interest During Construction)	Not Included				\$ -
	Total Project Cost					\$ 782,048,405

ADDITIONAL REFERENCE COSTS:

A	Removal of Existing Fuel Oil Tank		\$ 1,200,000	\$ 80,000	\$ 477,370	\$ 1,757,370
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Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-4
Fuel Oil Option Summary Capital Cost Estimate
F-Class Iteration No. 31156A

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 Fuel Oil Option (Based on Option 4 Estimate)
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31156A
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: A
 Revision Date:
 Run Date: 6/2/11
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
10.00	GENERAL SITE WORK					
10.10	CIVIL					
10.10.1	Erosion & Sediment Control - Fuel Oil Tank Area		\$ -	\$ 4,300	\$ 7,286	\$ 11,586
10.10.2	Site Grading - Fuel Oil Tank Area		\$ -	\$ 51,000	\$ 88,020	\$ 139,020
10.10.3	Fuel Oil Truck Unloading Slab	12" Reinforced Concrete (10' x 150')	\$ -	\$ 28,750	\$ 87,751	\$ 116,501
10.89	SUBTOTAL - DIRECT COSTS, GENERAL SITE WORK		\$ -	\$ 84,050	\$ 183,056	\$ 267,106
10.90	CONSTRUCTION INDIRECTS, GENERAL SITE WORK		\$ -	\$ 19,752	\$ 66,728	\$ 86,479
10.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
10.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, GENERAL SITE WORK		\$ -	\$ 103,802	\$ 249,784	\$ 353,586
11.00	UNDERGROUND					
11.10	CIVIL					
11.10.1	Fuel Oil Containment and Unloading Drainage		\$ 2,265	\$ 71,650	\$ 229,249	\$ 303,164
11.89	SUBTOTAL - DIRECT COSTS, UNDERGROUND		\$ 2,265	\$ 71,650	\$ 229,249	\$ 303,164
11.90	CONSTRUCTION INDIRECTS, UNDERGROUND		\$ 113	\$ 16,838	\$ 83,528	\$ 100,479
11.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
11.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, UNDERGROUND		\$ 2,378	\$ 88,488	\$ 312,778	\$ 403,644
55.00	WATER TREATMENT					
55.20	CONCRETE					
55.20.1	Demin. Water Storage Tank (CT Water Injection) Foundation		\$ -	\$ 388,550	\$ 154,971	\$ 543,521
55.20.2	Demin. Pump Foundation		\$ -	\$ 3,643	\$ 8,135	\$ 11,778
55.60	MECHANICAL					
55.60.1	Fuel Oil Demin Water Injection Pumps	2x 100%	\$ 30,000	\$ -	\$ 12,630	\$ 42,630
55.60.2	Fuel Oil Truck Unloading Skid		\$ 125,000	\$ -	\$ 16,074	\$ 141,074
55.89	SUBTOTAL - DIRECT COSTS, WATER TREATMENT		\$ 155,000	\$ 392,193	\$ 191,809	\$ 739,002
55.90	CONSTRUCTION INDIRECTS, WATER TREATMENT		\$ 7,750	\$ 92,165	\$ 70,153	\$ 170,068
55.99	SUBCONTRACTS	Demin Storage Tank, 1,100,000 gal. Capacity.	\$ 1,100,000	\$ -	\$ -	\$ 1,100,000

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 Fuel Oil Option (Based on Option 4 Estimate)
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31156A
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: A
 Revision Date:
 Run Date: 6/2/11
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
55.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, WATER TREATMENT		\$ 1,262,750	\$ 484,358	\$ 261,962	\$ 2,009,070
70.00	ELECTRICAL POWER DISTRIBUTION					
70.50	ELECTRICAL					
70.50.1	480V-800A, Motor Control Centers		\$ 57,500	\$ -	\$ 5,730	\$ 63,230
70.50.2	Cable		\$ -	\$ 10,792	\$ 38,510	\$ 49,302
70.50.3	Conduit-Above Ground		\$ -	\$ 7,215	\$ 25,147	\$ 32,362
70.89	SUBTOTAL - DIRECT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 57,500	\$ 18,007	\$ 69,388	\$ 144,894
70.90	CONSTRUCTION INDIRECTS, ELECTRICAL POWER DISTRIBUTION		\$ 2,875	\$ 4,232	\$ 25,228	\$ 32,335
70.99	SUBCONTRACTS	\$ -	\$ -	\$ -	\$ -	\$ -
70.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 60,375	\$ 22,238	\$ 94,616	\$ 177,229
75.00	DCS					
75.55	INSTRUMENTATION					
75.55.1	DCS	Based on 50 IO Points	\$ 25,000	\$ -	\$ 3,210	\$ 28,210
75.55.2	CEMS	Incremental Increase	\$ 270,000	\$ -	\$ 53,492	\$ 323,492
75.55.3	Fuel Oil BOP Field Mounted Instruments	Allowance	\$ 4,000	\$ 1,000	\$ 14,105	\$ 19,105
75.89	SUBTOTAL - DIRECT COSTS, DCS		\$ 299,000	\$ 1,000	\$ 70,807	\$ 370,807
75.90	CONSTRUCTION INDIRECTS, DCS		\$ 14,950	\$ 235	\$ 25,622	\$ 40,807
75.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -
75.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, DCS		\$ 313,950	\$ 1,235	\$ 96,429	\$ 411,614

Sargent & Lundy, LLC

AEP
 Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
 Fuel Oil Option (Based on Option 4 Estimate)
 Conceptual Project Cost Estimate
 Cost Estimate Summary

Estimate No.: 31156A
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: A
 Revision Date:
 Run Date: 6/2/11
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
80.00	BOP					
80.20	CONCRETE					
80.20.1	Fuel Oil Tank Foundations (2 Total)		\$ -	\$ 757,250	\$ 323,150	\$ 1,080,400
80.20.2	Fuel Oil Tank Containment Slab	8" Slab, 250' x 250'	\$ -	\$ 233,558	\$ 376,437	\$ 609,994
80.20.3	Fuel Oil Tank Containment Walls	10' High Wall on Footing x 1,000' Long	\$ -	\$ 170,075	\$ 765,859	\$ 935,934
80.20.4	Fuel Oil Unloading Foundation		\$ -	\$ 10,568	\$ 20,512	\$ 31,080
80.45	PAINTING / COATING					
80.45.1	Touch-up & Finish Painting		\$ -	\$ 20,000	\$ 83,076	\$ 103,076
80.60	MECHANICAL					
80.60.1	Fuel Oil Forwarding Pumps	2x 100%	\$ 225,000	\$ -	\$ 42,099	\$ 267,099
80.70	PIPING					
80.70.1	BOP Piping		\$ -	\$ 92,724	\$ 330,295	\$ 423,019
80.70.2	Pipe Supports, LP		\$ -	\$ 20,000	\$ 14,128	\$ 34,128
80.70.3	Valves & Specialties		\$ 32,900	\$ -	\$ 11,302	\$ 44,202
80.80	INSULATION					
80.80.1	Thermal Insulation/Lagging	Allowance	\$ -	\$ 19,000	\$ 94,499	\$ 113,499
80.89	SUBTOTAL - DIRECT COSTS, BOP		\$ 257,900	\$ 1,303,174	\$ 2,047,231	\$ 3,608,305
80.90	CONSTRUCTION INDIRECTS, BOP		\$ 12,895	\$ 306,246	\$ 745,318	\$ 1,064,459
80.99	SUBCONTRACTS	2x 1,000,000 gal. Capacity Fuel Oil Tanks and Foam Fire Protection System	\$ 2,600,000	\$ -	\$ -	\$ 2,600,000
80.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, BOP		\$ 2,870,795	\$ 1,609,420	\$ 2,792,550	\$ 7,272,765

Sargent & Lundy, LLC

AEP
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration
Fuel Oil Option (Based on Option 4 Estimate)
Conceptual Project Cost Estimate
Cost Estimate Summary

Estimate No.: 31156A
 Project No.: 12721-001
 First Issue Date: 6/2/11
 Revision No.: A
 Revision Date:
 Run Date: 6/2/11
 Preparer: TJM
 Reviewer: MNO

Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost
	OVERALL PROJECT SUBTOTALS					
OP.89	DIRECT COSTS		\$ 771,665	\$ 1,870,073	\$ 2,791,541	\$ 5,433,279
OP.90	CONSTRUCTION INDIRECTS		\$ 38,583	\$ 439,467	\$ 1,016,578	\$ 1,494,628
OP.99	SUBCONTRACTS		\$ 3,700,000	\$ -	\$ -	\$ 3,700,000
OP.00	SUBTOTAL PROJECT COSTS		\$ 4,510,248	\$ 2,309,540	\$ 3,808,119	\$ 10,627,907
PI.00	OVERALL PROJECT INDIRECT COSTS					\$ -
	Spare Parts					\$ 67,700
	Contingency					\$ 1,975,600
	Escalation					\$ 1,188,953
	Subtotal Project Cost					\$ 13,860,160
	Owner's Costs	Not Included				\$ -
	AFUDC (Interest During Construction)	Not Included				\$ -
	Total Project Cost					\$ 13,860,160



Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-5
Option 2 Capital Cost Estimate Comparison
F-Class Iteration to G-Class

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		Conceptual Project Cost Estimate Cost Estimate Summary		12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
10.00	GENERAL SITE WORK						
10.10	CIVIL						
10.10.1	Existing Fuel Oil Tank Removal and Area Restoration	Priced Separately After Estimate Totals					
10.10.2	Construction Parking & Laydown Areas Preparation		\$ 4,434,700	\$ 4,434,700	\$ -		
10.10.3	Erosion & Sediment Control - CC Area		\$ 108,206	\$ 108,206	\$ -		
10.10.4	Site Grading		\$ 531,333	\$ 531,333	\$ -		
10.10.5	Roads & Surfacing		\$ 1,971,868	\$ 1,971,868	\$ -		
10.10.6	Fencing		\$ 262,290	\$ 262,290	\$ -		
10.10.7	New Concrete Encasement	16' x 4' x 40' - For Existing Ash Pipe Road Crossing	\$ 72,746	\$ 72,746	\$ -		
10.10.8	Stormwater Drainage Trench		\$ 2,268,537	\$ 2,268,537	\$ -		
10.10.9	Stormwater Runoff Pond		\$ 266,397	\$ 266,397	\$ -		
10.10.10	Stormwater Pond Pump Structure		\$ 437,941	\$ 437,941	\$ -		
10.10.11	Temporary Construction Guard House		\$ 63,666	\$ 63,666	\$ -		
10.10.12	Concrete Filled Pipe Bollards	Includes Installation Labor	\$ 25,000	\$ 25,000	\$ -		
10.89	SUBTOTAL - DIRECT COSTS, GENERAL SITE WORK		\$ 10,442,683	\$ 10,442,683	\$ -		
10.90	CONSTRUCTION INDIRECTS, GENERAL SITE WORK		\$ 3,171,538	\$ 3,171,538	\$ -		
10.99	SUBCONTRACTS		\$ -	\$ -	\$ -		
10.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, GENERAL SITE WORK		\$ 13,614,221	\$ 13,614,221	\$ -		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		Conceptual Project Cost Estimate Cost Estimate Summary		12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
11.00	UNDERGROUND						
11.10	CIVIL						
11.10.1	Oily Water Sewer System		\$ 1,254,199	\$ 1,254,199	\$ -		
11.10.2	Removal of Existing Storm Sewers		\$ 81,253	\$ 81,253	\$ -		
11.10.3	Sanitary Sewer System		\$ 603,567	\$ 603,567	\$ -		
11.10.4	Mechanical Excavation (for process pipe trenches)		\$ 1,810,647	\$ 1,810,647	\$ -		
11.10.5	Relocation of Miscellaneous Underground Utilities		\$ 263,173	\$ 263,173	\$ -		
11.20	CONCRETE						
11.20.1	Concrete Thrust Blocks for Piping Systems		\$ 34,382	\$ 34,382	\$ -		
11.50	ELECTRICAL						
11.50.1	Electrical Ductbanks & Trenches		\$ 3,733,728	\$ 3,733,728	\$ -		
11.50.2	Conduits		\$ 2,356,999	\$ 2,356,999	\$ -		
11.50.3	Grounding		\$ 892,713	\$ 892,713	\$ -		
11.50.4	Cathodic Protection		\$ 315,991	\$ 315,991	\$ -		
11.60	MECHANICAL						
11.60.1	Oil/Water Separator Including Lift Stations	(3) Included	\$ 331,743	\$ 331,743	\$ -		
11.60.2	Packaged Sanitary Sewage Treatment Plant		\$ 143,751	\$ 143,751	\$ -		
11.70	PIPING						
11.70.1	Large Bore BOP Pipe 2-1/2" & Larger - Below Ground		\$ 10,561,814	\$ 11,082,794	\$ (520,980)	Reduced line sizes of Aux Cooling Water, Chilled Water, Circ Water, and Fuel Gas Systems for reduced flows.	
11.70.2	New Buried Hydrogen Line from Relocated Hydrogen Storage Area to Existing Plant		\$ 219,341	\$ 219,341	\$ -		
11.89	SUBTOTAL - DIRECT COSTS, UNDERGROUND		\$ 22,603,301	\$ 23,124,280	\$ (520,980)		
11.90	CONSTRUCTION INDIRECTS, UNDERGROUND		\$ 7,327,257	\$ 7,476,289	\$ (149,032)		
11.99	SUBCONTRACTS	Jack & Bore Under RR Tracks	\$ 500,000	\$ 500,000	\$ -		
11.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, UNDERGROUND		\$ 30,430,557	\$ 31,100,569	\$ (670,012)		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		Conceptual Project Cost Estimate Cost Estimate Summary		12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
21.00	CTG A						
21.20	CONCRETE						
21.20.1	Combustion Turbine A Foundation	Isolated Mat Foundation, 110' x 35'	\$ 633,582	\$ 633,582	\$ -		
21.20.2	Combustion Turbine A Piers / Pedestal		\$ 663,812	\$ 663,812	\$ -		
21.20.3	Combustion Turbine A Excitation & Isolation Transformer Foundations	Includes Mat, Piers, Firewalls, and Containment	\$ 95,525	\$ 95,525	\$ -		
21.20.4	Combustion Turbine A Miscellaneous Equipment Pads		\$ 22,393	\$ 22,393	\$ -		
21.30	STRUCTURAL STEEL						
21.30.1	Miscellaneous Steel for Transformer Containments		\$ 12,383	\$ 12,383	\$ -		
21.60	MECHANICAL						
21.60.1	Combustion Turbine & Accessories	GE 7FA.05 C/T. - Nominal 210 mW, Firing Natural Gas or Fuel Oil, w/Dry Low Nox Burners, Inlet Air Filters, Standard Accessories.	\$ 62,062,547	\$ 74,140,788	\$ (12,078,240)	Changed CT to 7FA.05 at \$57.5M delivered. Reduced inlet chiller coil cost for smaller capacity.	
21.60.2	Fuel Gas Conditioning	Skid Mounted, Includes Separators, Coalescing Filters, & Dewpoint Heater. Serves (1) C/T's	\$ 1,069,652	\$ 1,225,010	\$ (155,358)	Reduced cost for lower flow and pressure.	
21.60.3	Heat Exchangers	Performance Heaters	\$ 48,221	\$ 48,221	\$ -		
21.60.4	Shop Fabricated Tanks	Water Wash Drain Tank	\$ 21,427	\$ 21,427	\$ -		
21.89	SUBTOTAL - DIRECT COSTS, CTG A		\$ 64,629,541	\$ 76,863,139	\$ (12,233,598)		
21.90	CONSTRUCTION INDIRECTS, CTG A		\$ 1,744,586	\$ 1,851,506	\$ (106,920)		
21.99	SUBCONTRACTS	Heavy Haul	\$ 1,000,000	\$ 1,000,000	\$ -		
21.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, CTG A		\$ 67,374,127	\$ 79,714,645	\$ (12,340,518)		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		Conceptual Project Cost Estimate Cost Estimate Summary		12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class	REMARKS	
22.00	CTG B						
22.20	CONCRETE						
22.20.1	Combustion Turbine B Foundation	Isolated Mat Foundation, 110' x 35'	\$ 633,582	\$ 633,582	\$ -		
22.20.2	Combustion Turbine B Piers / Pedestal		\$ 663,812	\$ 663,812	\$ -		
22.20.3	Combustion Turbine B Excitation & Isolation Transformer Foundations	Includes Mat, Piers, Firewalls, and Containment	\$ 95,525	\$ 95,525	\$ -		
22.20.4	Combustion Turbine B Miscellaneous Equipment Pads		\$ 22,393	\$ 22,393	\$ -		
22.30	STRUCTURAL STEEL						
22.30.1	Miscellaneous Steel for Transformer Containments		\$ 12,383	\$ 12,383	\$ -		
22.60	MECHANICAL						
22.60.1	Combustion Turbine & Accessories	GE 7FA.05 C/T. - Nominal 210 mW, Firing Natural Gas or Fuel Oil, w/Dry Low Nox Burners, Inlet Air Filters, Standard Accessories.	\$ 62,059,332	\$ 74,137,573	\$ (12,078,240)	Changed CT to 7FA.05 at \$57.5M delivered. Reduced inlet chiller coil cost for smaller capacity.	
22.60.2	Fuel Gas Conditioning	Skid Mounted, Includes Separators, Coalescing Filters, & Dewpoint	\$ 1,069,652	\$ 1,225,010	\$ (155,358)	Reduced cost for lower flow and pressure.	
22.60.3	Heat Exchangers	Performance Heaters	\$ 48,221	\$ 48,221	\$ -		
22.60.4	Shop Fabricated Tanks	Water Wash Drain Tank	\$ 21,427	\$ 21,427	\$ -		
22.89	SUBTOTAL - DIRECT COSTS, CTG B		\$ 64,626,326	\$ 76,859,924	\$ (12,233,598)		
22.90	CONSTRUCTION INDIRECTS, CTG B		\$ 1,743,695	\$ 1,850,616	\$ (106,920)		
22.99	SUBCONTRACTS	Heavy Haul	\$ 1,000,000	\$ 1,000,000	\$ -		
22.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, CTG B		\$ 67,370,021	\$ 79,710,540	\$ (12,340,518)		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
		Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		12721-001	12721-001		
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				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
31.00	HRSG A						
31.20	CONCRETE						
31.20.1	HRSG A Foundation (Incl. Stack)	Mat Foundation, 160' x 45'	\$ 1,049,744	\$ 1,176,909	\$ (127,165)	Reduced size for smaller HRSG	
31.20.2	Boiler Feed Pump Enclosure Foundation	Foundation 65'x28'	\$ 168,499	\$ 168,499	\$ -		
31.20.3	Misc HRSG Equipment Pads / Foundations		\$ 122,814	\$ 122,814	\$ -		
31.30	STRUCTURAL STEEL						
31.30.1	Blowdown Tant Pit / Trenches		\$ 82,665	\$ 82,665	\$ -		
31.40	ARCHITECTURAL						
31.40.1	Boiler Feed Pump Enclosure		\$ 147,560	\$ 147,560	\$ -		
31.60	MECHANICAL		\$ -	\$ -	\$ -		
31.60.1	HRSG & Accessories	3-Press HRSG wReheat. Supplemental Duct Burners Incl. Integral Deaerator Incl. SCR and CO Catalyst Incl. 200 Foot Steel Stack Incl.	\$ 31,673,350	\$ 36,333,297	\$ (4,659,947)	Reduced cost for smaller HRSG to \$22.5M.	
31.60.2	Boiler Feed Pumps & Accessories	Incl. VFD's	\$ 2,144,181	\$ 2,445,546	\$ (301,364)	Reduced cost for smaller capacity.	
31.60.3	Shop Fabricated Tanks	HRSG Blowdown Tank	\$ 57,498	\$ 57,498	\$ -		
31.60.4	Miscellaneous Pumps	Blowdown Sump Pumps	\$ 125,787	\$ 125,787	\$ -		
31.89	SUBTOTAL - DIRECT COSTS, HRSG A		\$ 35,572,098	\$ 40,660,575	\$ (5,088,477)		
31.90	CONSTRUCTION INDIRECTS, HRSG A		\$ 4,874,795	\$ 5,557,608	\$ (682,813)		
31.99	SUBCONTRACTS	Heavy Haul	\$ 730,000	\$ 850,000	\$ (120,000)	Reduced cost for smaller HRSG.	
31.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, HRSG A		\$ 41,176,893	\$ 47,068,183	\$ (5,891,290)		

Account No.		Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS
32.00		HRSG B					
32.20		CONCRETE					
32.20.1		HRSG B Foundation (Incl. Stack)	Mat Foundation, 160' x 45'	\$ 1,049,744	\$ 1,176,909	\$ (127,165)	Reduced size for smaller HRSG
32.20.2		Boiler Feed Pump Enclosure Foundation	Foundation 65'x28'	\$ 168,499	\$ 168,499	\$ -	
32.20.3		Misc HRSG Equipment Pads / Foundations		\$ 122,814	\$ 122,814	\$ -	
32.30		STRUCTURAL STEEL					
32.30.1		Blowdown Tant Pit / Trenches		\$ 82,665	\$ 82,665	\$ -	
32.40		ARCHITECTURAL					
32.40.1		Boiler Feed Pump Enclosure		\$ 147,560	\$ 147,560	\$ -	
32.60		MECHANICAL					
32.60.1		HRSG & Accessories	3-Press HRSG wReheat. Supplemental Duct Burners Incl. Integral Deaerator Incl. SCR and CO Catalyst Incl. 200 Foot Steel Stack Incl.	\$ 31,673,350	\$ 36,333,297	\$ (4,659,947)	Reduced cost for smaller HRSG to \$22.5M.
32.60.2		Boiler Feed Pumps & Accessories	Incl. VFD's	\$ 2,144,181	\$ 2,445,546	\$ (301,364)	Reduced cost for smaller capacity.
32.60.3		Shop Fabricated Tanks	HRSG Blowdown Tank	\$ 57,498	\$ 57,498	\$ -	
32.60.4		Miscellaneous Pumps	Blowdown Sump Pumps	\$ -	\$ -	\$ -	
32.89		SUBTOTAL - DIRECT COSTS, HRSG B		\$ 35,446,311	\$ 40,534,788	\$ (5,088,477)	
32.90		CONSTRUCTION INDIRECTS, HRSG B		\$ 4,865,020	\$ 5,546,833	\$ (681,813)	
32.99		SUBCONTRACTS	Heavy Haul	\$ 730,000	\$ 850,000	\$ (120,000)	Reduced cost for smaller HRSG.
32.00		TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, HRSG B		\$ 41,041,331	\$ 46,931,621	\$ (5,890,290)	

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
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				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
41.00	STEAM TURBINE						
41.20	CONCRETE						
41.20.1	STG Pedestal Foundation	Isolated Mat Foundation, 100' x 40'	\$ 864,713	\$ 864,713	\$ -		
41.20.2	STG Pedestal	40' High Conc. Pedestal	\$ 1,750,439	\$ 1,997,687	\$ (247,248)	Reduced cost for smaller capacity.	
41.20.3	STG Excitation Transformer Foundation	Includes Mat, Piers, Firewalls, and Containment	\$ 43,371	\$ 43,371	\$ -		
41.20.4	STG Equipment Pads		\$ 20,884	\$ 20,884	\$ -		
41.60	MECHANICAL						
41.60.1	Steam Turbine	Approx. 320 MW Condensing Reheat Steam Turbine with Standard Accessories, Down	\$ 50,711,191	\$ 62,985,545	\$ (12,274,354)	Reduced cost for smaller output (320 MW vs 400 MW)	
41.60.2	Condenser & Accessories	w/ SS Tubes	\$ 5,551,954	\$ 6,434,929	\$ (882,976)	Reduced cost for smaller capacity.	
41.60.3	Pumps		\$ 635,573	\$ 718,782	\$ (83,208)	Reduced condensate pump costs for smaller capacity.	
41.60.4	Condensate Polishing Equipment		\$ 2,694,662	\$ 3,060,736	\$ (366,074)	Reduced cost for smaller capacity.	
41.89	SUBTOTAL - DIRECT COSTS, STEAM TURBINE		\$ 62,272,786	\$ 76,126,646	\$ (13,853,860)		
41.90	CONSTRUCTION INDIRECTS, STEAM TURBINE		\$ 4,688,208	\$ 5,552,610	\$ (864,403)		
41.99	SUBCONTRACTS	STG Heavy Haul	\$ 750,000	\$ 750,000	\$ -		
41.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, STEAM TURBINE		\$ 67,710,994	\$ 82,429,256	\$ (14,718,263)		
50.00	COOLING TOWER						
50.20	CONCRETE						
50.20.1	Cooling Tower Pump Structure		\$ 1,422,288	\$ 1,422,288	\$ -		
50.20.2	Mech. Draft Cooling Tower Basin, Incl. Overflow Sump	10 Cell Tower, 310' x 140' w/ 6' High Wall, 1' Thick	\$ 2,619,983	\$ 3,167,166	\$ (547,183)	Reduced size for fewer cells.	
50.30	STRUCTURAL STEEL						
50.30.1	Miscellaneous Steel for Cooling Tower Pump Intake		\$ 11,569	\$ 11,569	\$ -		
50.60	MECHANICAL						
50.60.1	Cooling Tower Fire Protection System	Not Included	Not Included	Not Included	Not Included		
50.60.2	Trash Screens		\$ 92,147	\$ 92,147	\$ -		
50.60.3	Circulating Water Chemical Feed System	Tanks Only	\$ 56,284	\$ 56,284	\$ -		
50.60.4	Pumps		\$ 1,611,712	\$ 1,822,761	\$ (211,050)	Reduced circ water pump costs for smaller capacity.	
50.89	SUBTOTAL - DIRECT COSTS, COOLING TOWER		\$ 5,813,983	\$ 6,572,215	\$ (758,233)		
50.90	CONSTRUCTION INDIRECTS, COOLING TOWER		\$ 1,437,283	\$ 1,623,468	\$ (186,185)		
50.99	SUBCONTRACTS	Cooling Tower, FRP Counterflow	\$ 8,150,000	\$ 9,314,000	\$ (1,164,000)	Reduced cost for fewer cells (10 cell vs 12)	
50.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, COOLING TOWER		\$ 15,401,266	\$ 17,509,684	\$ (2,108,418)		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
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				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
55.00	WATER TREATMENT						
55.20	CONCRETE						
55.20.1	Water Treatment Building Foundation	Mat Foundation, 110' x 85'	\$ 864,790	\$ 1,013,125	\$ (148,336)	Reduced size for smaller capacity.	
55.20.2	Misc. Equipment Pads in Building		\$ 37,821	\$ 37,821	\$ -		
55.20.3	Chemical Storage Foundation		\$ 55,173	\$ 55,173	\$ -		
55.20.4	Demin. Water Storage Tank Foundation		\$ 214,493	\$ 214,493	\$ -		
55.20.5	Demin. Pump Foundation		\$ 11,778	\$ 11,778	\$ -		
55.40	ARCHITECTURAL						
55.40.1	Water Treatment Building		\$ 1,243,690	\$ 1,422,190	\$ (178,500)	Reduced size for smaller capacity.	
55.45	PAINTING / COATING						
55.45.1	Special Coatings		\$ 229,382	\$ 229,382	\$ -		
55.60	MECHANICAL						
55.60.1	Water Treatment Equipment	130 gpm Ultrafilter & RO System, w/ Cartridge Filters, Feed Pumps, Chemical Injection, Break Tank, and CIP Skids	\$ 3,447,668	\$ 3,989,989	\$ (542,321)	Reduced cost for smaller capacity.	
55.60.2	Miscellaneous Pumps		\$ 127,781	\$ 127,781	\$ -		
55.89	SUBTOTAL - DIRECT COSTS, WATER TREATMENT		\$ 6,232,578	\$ 7,101,734	\$ (869,156)		
55.90	CONSTRUCTION INDIRECTS, WATER TREATMENT		\$ 1,193,762	\$ 1,351,275	\$ (157,514)		
55.99	SUBCONTRACTS	Demin Storage Tank	\$ 930,000	\$ 930,000	\$ -		
55.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, WATER TREATMENT		\$ 8,356,339	\$ 9,383,009	\$ (1,026,670)		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
		Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		12721-001	12721-001		
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				B	B		
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				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
56.00	PRE-TREATMENT						
56.20	CONCRETE						
56.20.1	Clarifier Foundations (2 Total)	75' Dia. Steel Clarifier on Mat Fdn.	\$ 915,139	\$ 1,061,393	\$ (146,254)	Reduced size for smaller capacity.	
56.20.2	Sludge Holding Tank Foundations (2 Total)		\$ 330,776	\$ 330,776	\$ -		
56.20.3	Raw Water Storage Tank Foundation		\$ 510,802	\$ 510,802	\$ -		
56.20.4	Clearwell Tank Foundations (2 Total)		\$ 330,776	\$ 330,776	\$ -		
56.20.5	Filter Press Building Foundation		\$ 406,428	\$ 406,428	\$ -		
56.20.6	Filter Press Building Equipment Pads		\$ 17,802	\$ 17,802	\$ -		
56.20.7	Pre-Treatment Building Foundation		\$ 1,232,187	\$ 1,461,249	\$ (229,061)	Reduced size for smaller capacity.	
56.20.8	Pre-Treatment Building Equipment Pads		\$ 120,513	\$ 120,513	\$ -		
56.30	STRUCTURAL STEEL						
56.30.1	Filter Press Building Steel	Framing, Upper Floor	\$ 222,441	\$ 222,441	\$ -		
56.40	ARCHITECTURAL						
56.40.1	Pre-Treatment Building		\$ 1,346,789	\$ 1,588,289	\$ (241,500)	Reduced size for smaller capacity.	
56.40.2	Filter Press Building		\$ 479,391	\$ 479,391	\$ -		
56.40.3	Interior Finishes		\$ 377,891	\$ 377,891	\$ -		
56.40.4	River Water Intake Structure Building		\$ 91,843	\$ 91,843	\$ -		
56.45	PAINTING / COATING						
56.45.1	Special Coatings		\$ 152,922	\$ 152,922	\$ -		
56.60	MECHANICAL						
56.60.1	Water Pre-Treatment Equipment	5,200 GPM, w/ Chemical Dosing and Filter Presses	\$ 4,942,209	\$ 5,707,775	\$ (765,566)	Reduced cost for smaller capacity.	
56.60.2	Miscellaneous Pumps		\$ 212,522	\$ 212,522	\$ -		
56.89	SUBTOTAL - DIRECT COSTS, PRE-TREATMENT		\$ 11,690,430	\$ 13,072,811	\$ (1,382,381)		
56.90	CONSTRUCTION INDIRECTS, PRE-TREATMENT		\$ 2,595,740	\$ 2,883,348	\$ (287,608)		
56.99	SUBCONTRACTS	Intake Structure, Raw Water Tank	\$ 6,520,000	\$ 7,320,000	\$ (800,000)	Reduced intake structure cost for smaller capacity.	
56.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, PRE-TREATMENT		\$ 20,806,170	\$ 23,276,160	\$ (2,469,989)		

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AEP Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area Conceptual Project Cost Estimate Cost Estimate Summary				12721-001		12721-001			
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				B		B			
				6/17/2011		5/19/2011			
				6/17/2011		6/1/2011			
				TJM		TJM			
				MNO		BJD			
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS			
60.00	PIPE RACK								
60.20	CONCRETE								
60.20.1	Piperack Foundations	Individual Footings. Majority of Pipe Rack Columns on Other	\$ 344,195	\$ 344,195	\$ -				
60.30	STRUCTURAL STEEL								
60.30.1	Structural Steel, Pipe Rack	625' L x 24' W x 40' H, 2 Levels	\$ 2,397,297	\$ 2,583,903	\$ (186,607)	Reduced steel tonnage for lighter loads.			
60.45	PAINTING / COATING								
60.45.1	Touch-up Painting		\$ 386,535	\$ 386,535	\$ -				
60.89	SUBTOTAL - DIRECT COSTS, PIPE RACK		\$ 3,128,026	\$ 3,314,633	\$ (186,607)				
60.90	CONSTRUCTION INDIRECTS, PIPE RACK		\$ 929,731	\$ 983,978	\$ (54,247)				
60.99	SUBCONTRACTS		\$ -	\$ -	\$ -				
60.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, PIPE RACK		\$ 4,057,757	\$ 4,298,611	\$ (240,854)				

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
		Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		12721-001	12721-001		
		Conceptual Project Cost Estimate Cost Estimate Summary		6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
70.00	ELECTRICAL POWER DISTRIBUTION						
70.20	CONCRETE						
70.20.1	GSU Foundations (3 Total)	Includes Mat, Piers, Firewall, & Containment	\$ 980,725	\$ 1,122,524	\$ (141,800)	Reduced sizes for smaller capacity.	
70.20.2	Aux Transformer Foundations (2 Total)	Includes Mat, Piers, Firewall, & Containment	\$ 294,596	\$ 294,596	\$ -		
70.20.3	Transformer PDC Foundation		\$ 340,590	\$ 340,590	\$ -		
70.20.4	HRSB PDC Foundations (2 Total)		\$ 321,724	\$ 321,724	\$ -		
70.20.5	CT Chiller PDC Foundations		\$ 258,475	\$ 258,475	\$ -		
70.20.6	Iso-Phase Bus / Cable Bus Foundations		\$ 21,292	\$ 21,292	\$ -		
70.20.7	Emergency Diesel Generator Foundation		\$ 38,418	\$ 38,418	\$ -		
70.30	STRUCTURAL STEEL						
70.30.1	Miscellaneous Steel for GSU Containments (3 Total)		\$ 123,826	\$ 123,826	\$ -		
70.30.2	Miscellaneous Steel for Aux Transformer Containments (2 Total)		\$ 43,436	\$ 43,436	\$ -		
70.30.3	Miscellaneous Steel for Excitation Transformer Containment		\$ 12,383	\$ 12,383	\$ -		
70.30.4	HRSB PDC Galleries (2 Total)		\$ 38,829	\$ 38,829	\$ -		
70.30.5	Transformer PDC Galleries		\$ 38,829	\$ 38,829	\$ -		
70.30.6	HVAC PDC Support Framing & Galleries		\$ 42,097	\$ 42,097	\$ -		
70.30.7	CT Chiller PDC Galleries		\$ 22,655	\$ 22,655	\$ -		
70.50	ELECTRICAL						
70.50.1	Generator Circuit Breakers (18KV)		\$ 1,207,854	\$ 1,207,854	\$ -		
70.50.2	Generator Step Up Transformers		\$ 7,731,446	\$ 9,437,803	\$ (1,706,358)	Reduced cost for smaller capacity.	
70.50.3	Unit Substation Transformers		\$ 293,167	\$ 293,167	\$ -		
70.50.4	Unit Auxiliary Transformers (UAT: 1A, 1B)		\$ 1,572,176	\$ 1,572,176	\$ -		
70.50.5	6.9KV Switchgear		\$ 4,754,430	\$ 4,754,430	\$ -		
70.50.6	480V Switchgear		\$ 2,982,925	\$ 2,982,925	\$ -		
70.50.7	Isolated Phase Bus Duct		\$ 2,181,462	\$ 2,181,462	\$ -		
70.50.8	480V-800A, Motor Control Centers		\$ 1,955,000	\$ 1,955,000	\$ -		
70.50.9	Non-Seg/Cable Bus		\$ 1,581,322	\$ 1,581,322	\$ -		
70.50.10	Emergency Power System		\$ 504,730	\$ 504,730	\$ -		
70.50.11	PDCs		\$ 3,769,578	\$ 3,769,578	\$ -		
70.50.12	Panelboards		\$ 233,021	\$ 233,021	\$ -		
70.50.13	Generator/Transformer Relay & Protection Panels		\$ 199,217	\$ 199,217	\$ -		
70.50.14	Communication		\$ 182,209	\$ 182,209	\$ -		
70.50.15	Digital Fault Recorder		\$ 174,464	\$ 174,464	\$ -		
70.50.16	Diesel Generator		\$ 945,103	\$ 945,103	\$ -		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		Conceptual Project Cost Estimate Cost Estimate Summary		12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
70.50.17	Security System		\$ 192,426	\$ 192,426	\$ -		
70.50.18	Cable		\$ 13,990,433	\$ 14,489,609	\$ (499,176)	Reduced unit cost of large power cables for smaller sizes.	
70.50.19	Heat Tracing		\$ 2,390,086	\$ 2,390,086	\$ -		
70.50.20	Conduit-Above Ground		\$ 2,000,977	\$ 2,000,977	\$ -		
70.50.21	Embedded Conduits		\$ 316,318	\$ 316,318	\$ -		
70.50.22	Cable Tray		\$ 3,447,911	\$ 3,447,911	\$ -		
70.50.23	Lighting and Distribution		\$ 2,171,847	\$ 2,171,847	\$ -		
70.50.24	Laydown Area Lighting	Costs Covered in Site Overheads (In Crew Wage Rates)	\$ -	\$ -	\$ -		
70.50.25	Miscellaneous Electrical Devices		\$ 337,130	\$ 337,130	\$ -		
70.50.26	Lightning Protection		\$ 215,061	\$ 215,061	\$ -		
70.50.27	Electrical Allowance for Relocated Hydrogen Storage Facility		\$ 22,321	\$ 22,321	\$ -		
70.89	SUBTOTAL - DIRECT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 57,930,484	\$ 60,277,817	\$ (2,347,334)		
70.90	CONSTRUCTION INDIRECTS, ELECTRICAL POWER DISTRIBUTION		\$ 11,759,172	\$ 12,091,640	\$ (332,468)		
70.99	SUBCONTRACTS	GSU Heavy Haul	\$ 250,000	\$ 250,000	\$ -		
70.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 69,939,656	\$ 72,619,457	\$ (2,679,801)		
75.00	DCS						
75.20	CONCRETE						
75.20.1	CEMS Foundation (2 Total)		\$ 26,719	\$ 26,719	\$ -		
75.50	ELECTRICAL						
75.50.1	600V Small Power Cable		\$ 4,798,004	\$ 4,798,004	\$ -		
75.50.2	Conduit-Above Ground		\$ 2,027,783	\$ 2,027,783	\$ -		
75.55	INSTRUMENTATION						
75.55.1	DCS		\$ 3,111,652	\$ 3,111,652	\$ -		
75.55.2	High Fidelity Simulator		\$ 1,506,477	\$ 1,506,477	\$ -		
75.55.3	CEMS		\$ 788,381	\$ 788,381	\$ -		
75.55.4	BOP Field Mounted Instruments		\$ 2,327,469	\$ 2,327,469	\$ -		
75.55.5	Vendor Furnished Field Mounted Instruments		\$ 796,551	\$ 796,551	\$ -		
75.89	SUBTOTAL - DIRECT COSTS, DCS		\$ 15,383,036	\$ 15,383,036	\$ -		
75.90	CONSTRUCTION INDIRECTS, DCS		\$ 3,517,462	\$ 3,517,462	\$ -		
75.99	SUBCONTRACTS		\$ -	\$ -	\$ -		
75.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, DCS		\$ 18,900,497	\$ 18,900,497	\$ -		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		Conceptual Project Cost Estimate Cost Estimate Summary		12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
80.00	BOP						
80.20	CONCRETE						
80.20.1	CTG Inlet Air Chiller Foundations		\$ 42,283	\$ 42,283	\$ -		
80.20.2	Ammonia Storage Tank Foundation		\$ 176,744	\$ 176,744	\$ -		
80.20.3	Waste Water Sump		\$ 254,808	\$ 254,808	\$ -		
80.20.4	Aux Boiler Foundation	Mat Foundation, 65' x 30'	\$ 157,961	\$ 157,961	\$ -		
80.20.5	Bulk Gas Storage Pad		\$ 94,107	\$ 94,107	\$ -		
80.20.6	New Foundation for Relocated Hydrogen Storage Facility		\$ 25,817	\$ 25,817	\$ -		
80.20.7	BOP Foundation Embedments		\$ 154,797	\$ 154,797	\$ -		
80.30	STRUCTURAL STEEL						
80.30.1	Waste Water Sump Handrails		\$ 4,370	\$ 4,370	\$ -		
80.40	ARCHITECTURAL						
80.40.1	Bulk Gas Storage Enclosure		\$ 123,750	\$ 123,750	\$ -		
80.45	PAINTING / COATING						
80.45.1	Touch-up & Finish Painting		\$ 773,070	\$ 773,070	\$ -		
80.60	MECHANICAL						
80.60.1	CTG Inlet Air Chiller Equipment Package		\$ 9,042,942	\$ 10,470,099	\$ (1,427,157)	Reduced cost for smaller capacity.	
80.60.2	Auxiliary Boiler	60,000 lb/hr	\$ 2,134,906	\$ 2,535,047	\$ (400,141)	Reduced cost for smaller capacity.	
80.60.3	Heat Exchangers		\$ 684,294	\$ 684,294	\$ -		
80.60.4	Miscellaneous Pumps		\$ 663,588	\$ 728,408	\$ (64,820)	Reduced aux cooling water pump costs for smaller capacity.	
80.60.5	Shop Fabricated Tanks		\$ 17,142	\$ 17,142	\$ -		
80.60.6	Bulk Gas Storage Provisions	Storage Tubes w/ manifolds & Regulators	\$ 138,221	\$ 138,221	\$ -		
80.60.7	Ammonia Storage & Forwarding Equipment	Includes 20,000 gal. CS Tank for 10 Day Storage	\$ 541,083	\$ 541,083	\$ -		
80.60.8	Air Compressors & Dryers		\$ 559,304	\$ 559,304	\$ -		
80.60.9	Chemical Feed & Sample Systems		\$ 807,032	\$ 807,032	\$ -		
80.60.10	Relocate Existing Hydrogen Storage Facility		\$ 53,579	\$ 53,579	\$ -		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area Conceptual Project Cost Estimate Cost Estimate Summary				12721-001	12721-001		
				6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
80.70	PIPING						
80.70.1	Alloy Piping		\$ 10,147,194	\$ 11,219,152	\$ (1,071,958)	Reduced line sizes of MS, HR, CR, and Bypass piping for reduced flows.	
80.70.2	BOP Piping		\$ 17,198,745	\$ 17,641,814	\$ (443,070)	Reduced line sizes of Aux Cooling Water, Chilled Water, Circ Water, Closed Cooling Water, Condensate, Fuel Gas, HR Bypass, LP Steam, and Raw Water Systems for reduced flows.	
80.70.3	Pipe Supports, HP (Engineered Supports)		\$ 1,989,729	\$ 2,210,811	\$ (221,081)	Reduced by 10% for reduced line sizes.	
80.70.4	Pipe Supports, LP		\$ 1,330,982	\$ 1,365,110	\$ (34,128)	Reduced by 2.5% for reduced line sizes.	
80.70.5	C/T Interconnecting Piping		\$ 452,088	\$ 452,088	\$ -		
80.70.6	Valves & Specialties		\$ 10,730,652	\$ 11,195,478	\$ (464,826)	Reduced CR Check Valves, CW Butterfly Valves, Large Bore HP Valves, and Feedwater, Condensate, and Closed Cooling Strainers by 10% for reduced sizes.	
80.80	INSULATION						
80.80.1	Thermal Insulation/Lagging		\$ 4,852,100	\$ 5,107,473	\$ (255,374)	Reduced by 5% for reduced line sizes.	
80.80.2	HRSG Piping & Drum Insulation and Lagging		\$ 1,020,578	\$ 1,133,976	\$ (113,398)	Reduced by 10% for reduced equipment sizing.	
80.80.3	HRSG Stack Insulation to Damper Elevation		\$ 531,148	\$ 531,148	\$ -		
80.89	SUBTOTAL - DIRECT COSTS, BOP		\$ 64,703,016	\$ 69,198,968	\$ (4,495,951)		
80.90	CONSTRUCTION INDIRECTS, BOP		\$ 14,680,519	\$ 15,492,943	\$ (812,425)		
80.99	SUBCONTRACTS		\$ -	\$ -	\$ -		
80.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, BOP		\$ 79,383,535	\$ 84,691,911	\$ (5,308,376)		

Sargent & Lundy, LLC		AEP		31155B	31118B	TJM 06/17/11	
		Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration 2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area		12721-001	12721-001		
		Conceptual Project Cost Estimate Cost Estimate Summary		6/2/11	5/10/11		
				B	B		
				6/17/2011	5/19/2011		
				6/17/2011	6/1/2011		
				TJM	TJM		
				MNO	BJD		
Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS	
90.00	COMMON						
90.20	CONCRETE						
90.20.1	Combustion Turbine Building Foundation		\$ 3,241,393	\$ 3,241,393	\$ -		
90.20.2	Steam Turbine Building Foundation (Incl. Control Room)		\$ 2,684,777	\$ 2,684,777	\$ -		
90.20.3	Steam Turbine Building Slabs		\$ 234,568	\$ 234,568	\$ -		
90.20.4	Admin / Warehouse / Storage Building Foundation		\$ 414,567	\$ 414,567	\$ -		
90.20.5	Service / Fire Water Storage Tank Foundation		\$ 222,689	\$ 222,689	\$ -		
90.20.6	Fire Water Pumphouse Foundation		\$ 24,049	\$ 24,049	\$ -		
90.20.7	Service Water Pump Foundation		\$ 14,275	\$ 14,275	\$ -		
90.20.8	Tower Crane Foundation		\$ 300,150	\$ 300,150	\$ -		
90.20.9	New Foundation for Relocated Warehouse		\$ 963,813	\$ 963,813	\$ -		
90.30	STRUCTURAL STEEL						
90.30.1	Combustion Turbine Building Steel	75' x 300' x 80' H plus 55' x 300' x 40' H	\$ 6,744,211	\$ 6,744,211	\$ -		
90.30.2	Steam Turbine Building Steel	100' x 205' x 98' H ST Bldg., 90' x 26' x 30' H Aux. Bay, 100' x 55' x 42' H Control Bldg.	\$ 5,842,065	\$ 5,842,065	\$ -		
90.40	ARCHITECTURAL						
90.40.1	Combustion Turbine Building		\$ 2,363,505	\$ 2,363,505	\$ -		
90.40.2	Steam Turbine Building		\$ 2,512,157	\$ 2,512,157	\$ -		
90.40.3	Admin / Warehouse / Storage Building		\$ 935,836	\$ 935,836	\$ -		
90.40.4	Relocate Existing Warehouse Building	150' L x 75' W x 25' H	\$ 1,257,495	\$ 1,257,495	\$ -		
90.45	PAINTING / COATING						
90.45.1	Touch-up & Finish Painting		\$ 1,159,605	\$ 1,159,605	\$ -		
90.60	MECHANICAL						
90.60.1	Fire Pumps w/ Enclosure, Fire Protection and Detection		\$ 894,198	\$ 894,198	\$ -		
90.60.2	Miscellaneous Pumps		\$ 32,630	\$ 32,630	\$ -		
90.60.3	Cranes & Hoists		\$ 1,726,252	\$ 1,792,683	\$ (66,431)	Reduced ST bridge crane cost for smaller capacity (60 Ton vs 70 Ton)	
90.60.4	Fuel Gas Check Metering Station		\$ 960,736	\$ 960,736	\$ -		
90.60.5	Potable Water Tepid Recirculation System		\$ 314,294	\$ 314,294	\$ -		
90.60.6	Plumbing & Fixtures		\$ 165,626	\$ 165,626	\$ -		
90.89	SUBTOTAL - DIRECT COSTS, COMMON		\$ 33,008,890	\$ 33,075,322	\$ (66,431)		
90.90	CONSTRUCTION INDIRECTS, COMMON		\$ 10,858,893	\$ 10,869,082	\$ (10,189)		
90.99	SUBCONTRACTS	Service/Fire Water Tank, Fire Protection Systems, & Site Bussing Services	\$ 3,934,000	\$ 3,934,000	\$ -		
90.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, COMMON		\$ 47,801,784	\$ 47,878,404	\$ (76,620)		

Sargent & Lundy, LLC	AEP	31155B	31118B	TJM 06/17/11
Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration	12721-001	12721-001		
2x2x1 7FA.05 CC in Option 2 Location - BS Plant FGD Area	6/2/11	5/10/11		
Conceptual Project Cost Estimate	B	B		
Cost Estimate Summary	6/17/2011	5/19/2011		
	6/17/2011	6/1/2011		
	TJM	TJM		
	MNO	BJD		

Account No.	Item Description	Scope Definition	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class	REMARKS
	OVERALL PROJECT SUBTOTALS					
OP.89	DIRECT COSTS		\$ 493,483,488	\$ 552,608,571	\$ (59,125,084)	
OP.90	CONSTRUCTION INDIRECTS		\$ 75,387,661	\$ 79,820,198	\$ (4,432,537)	
OP.99	SUBCONTRACTS		\$ 24,494,000	\$ 26,698,000	\$ (2,204,000)	
OP.00	SUBTOTAL PROJECT COSTS		\$ 593,365,149	\$ 659,126,769	\$ (65,761,620)	
PI.00	OVERALL PROJECT INDIRECT COSTS		\$ 37,480,100	\$ 37,677,400	\$ (197,300)	
	Spare Parts		\$ 4,761,500	\$ 5,541,900	\$ (780,400)	
	Contingency		\$ 79,552,900	\$ 87,906,100	\$ (8,353,200)	
	Escalation		\$ 66,888,756	\$ 66,888,756	\$ -	
	Subtotal Project Cost		\$ 782,048,405	\$ 857,140,925	\$ (75,092,520)	
	Owner's Costs	Not Included	\$ -	\$ -	\$ -	
	AFUDC (Interest During Construction)	Not Included	\$ -	\$ -	\$ -	
	Total Project Cost		\$ 782,048,405	\$ 857,140,925	\$ (75,092,520)	

ADDITIONAL REFERENCE COSTS:						
A	Removal of Existing Fuel Oil Tank		\$ 1,757,370	\$ 1,757,370	\$ -	



Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-6
Fuel Oil Option Capital Cost Estimate Comparison
F-Class to G-Class

Sargent & Lundy, LLC		AEP Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration Fuel Oil Option (Based on Option 4 Estimate) Conceptual Project Cost Estimate Cost Estimate Summary					Estimate No.: 31156A Project No.: 12721-001 First Issue Date: 6/2/11 Revision No.: A Revision Date: 01/00/00 Run Date: 6/2/11 Preparer: TJM Reviewer: MNO		31120B 12721-001 5/10/11 B 05/19/11 6/2/11 TJM BJD		TJM 06/02/11	
Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class	REMARKS			
10.00	GENERAL SITE WORK											
10.10	CIVIL											
10.10.1	Erosion & Sediment Control - Fuel Oil Tank Area		\$ -	\$ 4,300	\$ 7,286	\$ 11,586	\$ 11,586	\$ -				
10.10.2	Site Grading - Fuel Oil Tank Area		\$ -	\$ 51,000	\$ 88,020	\$ 139,020	\$ 139,020	\$ -				
10.10.3	Fuel Oil Truck Unloading Slab	12" Reinforced Concrete (10' x 150')	\$ -	\$ 28,750	\$ 87,751	\$ 116,501	\$ 116,501	\$ -				
10.89	SUBTOTAL - DIRECT COSTS, GENERAL SITE WORK		\$ -	\$ 84,050	\$ 183,056	\$ 267,106	\$ 267,106	\$ -				
10.90	CONSTRUCTION INDIRECTS, GENERAL SITE WORK		\$ -	\$ 19,752	\$ 66,728	\$ 86,479	\$ 86,479	\$ -				
10.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
10.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, GENERAL SITE WORK		\$ -	\$ 103,802	\$ 249,784	\$ 353,586	\$ 353,586	\$ -				
11.00	UNDERGROUND											
11.10	CIVIL											
11.10.1	Fuel Oil Containment and Unloading Drainage		\$ 2,265	\$ 71,650	\$ 229,249	\$ 303,164	\$ 303,164	\$ -				
11.89	SUBTOTAL - DIRECT COSTS, UNDERGROUND		\$ 2,265	\$ 71,650	\$ 229,249	\$ 303,164	\$ 303,164	\$ -				
11.90	CONSTRUCTION INDIRECTS, UNDERGROUND		\$ 113	\$ 16,838	\$ 83,528	\$ 100,479	\$ 100,479	\$ -				
11.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
11.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, UNDERGROUND		\$ 2,378	\$ 88,488	\$ 312,778	\$ 403,644	\$ 403,644	\$ -				
55.00	WATER TREATMENT											
55.20	CONCRETE											
55.20.1	Demin. Water Storage Tank (CT Water Injection) Foundation		\$ -	\$ 388,550	\$ 154,971	\$ 543,521	\$ 543,521	\$ -				
55.20.2	Demin. Pump Foundation		\$ -	\$ 3,643	\$ 8,135	\$ 11,778	\$ 11,778	\$ -				
55.60	MECHANICAL											
55.60.1	Fuel Oil Demin Water Injection Pumps	2x 100%	\$ 30,000	\$ -	\$ 12,630	\$ 42,630	\$ 42,630	\$ -				
55.60.2	Fuel Oil Truck Unloading Skid		\$ 125,000	\$ -	\$ 16,074	\$ 141,074	\$ 141,074	\$ -				
55.89	SUBTOTAL - DIRECT COSTS, WATER TREATMENT		\$ 155,000	\$ 392,193	\$ 191,809	\$ 739,002	\$ 739,002	\$ -				
55.90	CONSTRUCTION INDIRECTS, WATER TREATMENT		\$ 7,750	\$ 92,165	\$ 70,153	\$ 170,068	\$ 170,068	\$ -				
55.99	SUBCONTRACTS	Demin Storage Tank, 1,100,000 gal. Capacity.	\$ 1,100,000	\$ -	\$ -	\$ 1,100,000	\$ 1,320,000	\$ (220,000)	Reduced costs for smaller capacity.			
55.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, WATER TREATMENT		\$ 1,262,750	\$ 484,358	\$ 261,962	\$ 2,009,070	\$ 2,229,070	\$ (220,000)				

Sargent & Lundy, LLC		AEP Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration Fuel Oil Option (Based on Option 4 Estimate) Conceptual Project Cost Estimate Cost Estimate Summary					Estimate No.: 31156A Project No.: 12721-001 First Issue Date: 6/2/11 Revision No.: A Revision Date: 01/00/00 Run Date: 6/2/11 Preparer: TJM Reviewer: MNO		31120B 12721-001 5/10/11 B 05/19/11 6/2/11 TJM BJD		TJM 06/02/11	
Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS			
70.00	ELECTRICAL POWER DISTRIBUTION											
70.50	ELECTRICAL											
70.50.1	480V-800A, Motor Control Centers		\$ 57,500	\$ -	\$ 5,730	\$ 63,230	\$ 63,230	\$ -				
70.50.2	Cable		\$ -	\$ 10,792	\$ 38,510	\$ 49,302	\$ 49,302	\$ -				
70.50.3	Conduit-Above Ground		\$ -	\$ 7,215	\$ 25,147	\$ 32,362	\$ 32,362	\$ -				
70.89	SUBTOTAL - DIRECT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 57,500	\$ 18,007	\$ 69,388	\$ 144,894	\$ 144,894	\$ -				
70.90	CONSTRUCTION INDIRECTS, ELECTRICAL POWER DISTRIBUTION		\$ 2,875	\$ 4,232	\$ 25,228	\$ 32,335	\$ 32,335	\$ -				
70.99	SUBCONTRACTS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
70.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, ELECTRICAL POWER DISTRIBUTION		\$ 60,375	\$ 22,238	\$ 94,616	\$ 177,229	\$ 177,229	\$ -				
75.00	DCS											
75.55	INSTRUMENTATION											
75.55.1	DCS	Based on 50 IO Points	\$ 25,000	\$ -	\$ 3,210	\$ 28,210	\$ 28,210	\$ -				
75.55.2	CEMS	Incremental Increase	\$ 270,000	\$ -	\$ 53,492	\$ 323,492	\$ 323,492	\$ -				
75.55.3	Fuel Oil BOP Field Mounted Instruments	Allowance	\$ 4,000	\$ 1,000	\$ 14,105	\$ 19,105	\$ 19,105	\$ -				
75.89	SUBTOTAL - DIRECT COSTS, DCS		\$ 299,000	\$ 1,000	\$ 70,807	\$ 370,807	\$ 370,807	\$ -				
75.90	CONSTRUCTION INDIRECTS, DCS		\$ 14,950	\$ 235	\$ 25,622	\$ 40,807	\$ 40,807	\$ -				
75.99	SUBCONTRACTS		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
75.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, DCS		\$ 313,950	\$ 1,235	\$ 96,429	\$ 411,614	\$ 411,614	\$ -				
80.00	BOP											
80.20	CONCRETE											
80.20.1	Fuel Oil Tank Foundations (2 Total)		\$ -	\$ 757,250	\$ 323,150	\$ 1,080,400	\$ 1,080,400	\$ -				
80.20.2	Fuel Oil Tank Containment Slab	8" Slab, 250' x 250'	\$ -	\$ 233,558	\$ 376,437	\$ 609,994	\$ 609,994	\$ -				
80.20.3	Fuel Oil Tank Containment Walls	10' High Wall on Footing x 1,000' Long	\$ -	\$ 170,075	\$ 765,859	\$ 935,934	\$ 935,934	\$ -				
80.20.4	Fuel Oil Unloading Foundation		\$ -	\$ 10,568	\$ 20,512	\$ 31,080	\$ 31,080	\$ -				
80.45	PAINTING / COATING											
80.45.1	Touch-up & Finish Painting		\$ -	\$ 20,000	\$ 83,076	\$ 103,076	\$ 103,076	\$ -				
80.60	MECHANICAL											
80.60.1	Fuel Oil Forwarding Pumps	2x 100%	\$ 225,000	\$ -	\$ 42,099	\$ 267,099	\$ 267,099	\$ -				
80.70	PIPING											
80.70.1	BOP Piping		\$ -	\$ 92,724	\$ 330,295	\$ 423,019	\$ 423,019	\$ -				
80.70.2	Pipe Supports, LP		\$ -	\$ 20,000	\$ 14,128	\$ 34,128	\$ 34,128	\$ -				
80.70.3	Valves & Specialties		\$ 32,900	\$ -	\$ 11,302	\$ 44,202	\$ 44,202	\$ -				
80.80	INSULATION											
80.80.1	Thermal Insulation/Lagging	Allowance	\$ -	\$ 19,000	\$ 94,499	\$ 113,499	\$ 113,499	\$ -				
80.89	SUBTOTAL - DIRECT COSTS, BOP		\$ 257,900	\$ 1,303,174	\$ 2,047,231	\$ 3,608,305	\$ 3,608,305	\$ -				
80.90	CONSTRUCTION INDIRECTS, BOP		\$ 12,895	\$ 306,246	\$ 745,318	\$ 1,064,459	\$ 1,064,459	\$ -				
80.99	SUBCONTRACTS	2x 1,000,000 gal. Capacity Fuel Oil Tanks and Foam Fire Protection System	\$ 2,600,000	\$ -	\$ -	\$ 2,600,000	\$ 3,040,000	\$ (440,000)	Reduced costs for smaller capacity.			
80.00	TOTAL DIRECT, CONSTRUCTION INDIRECT, AND SUBCONTRACT COSTS, BOP		\$ 2,870,795	\$ 1,609,420	\$ 2,792,550	\$ 7,272,765	\$ 7,712,765	\$ (440,000)				

Sargent & Lundy, LLC		AEP Big Sandy Combined Cycle Brownfield Build Plant - F-Class Iteration Fuel Oil Option (Based on Option 4 Estimate) Conceptual Project Cost Estimate Cost Estimate Summary					Estimate No.: 31156A Project No.: 12721-001 First Issue Date: 6/2/11 Revision No.: A Revision Date: 01/00/00 Run Date: 6/2/11 Preparer: TJM Reviewer: MNO		31120B 12721-001 5/10/11 B 05/19/11 6/2/11 TJM BJD		TJM 06/02/11	
Account No.	Item Description	Scope Definition	Total Equipment Cost	Total Material Cost	Total Construction & Erection Cost	Total Projected Cost - F-CLASS	Total Projected Cost - G-CLASS	DELTA COST - F-Class minus G-Class)	REMARKS			
	OVERALL PROJECT SUBTOTALS											
OP.89	DIRECT COSTS		\$ 771,665	\$ 1,870,073	\$ 2,791,541	\$ 5,433,279	\$ 5,433,279	\$ -				
OP.90	CONSTRUCTION INDIRECTS		\$ 38,583	\$ 439,467	\$ 1,016,578	\$ 1,494,628	\$ 1,494,628	\$ -				
OP.99	SUBCONTRACTS		\$ 3,700,000	\$ -	\$ -	\$ 3,700,000	\$ 4,360,000	\$ (660,000)				
OP.00	SUBTOTAL PROJECT COSTS		\$ 4,510,248	\$ 2,309,540	\$ 3,808,119	\$ 10,627,907	\$ 11,287,907	\$ (660,000)				
PI.00	OVERALL PROJECT INDIRECT COSTS					\$ -	\$ -	\$ -				
	Spare Parts					\$ 67,700	\$ 77,500	\$ (9,800)				
	Contingency					\$ 1,975,600	\$ 2,099,300	\$ (123,700)				
	Escalation					\$ 1,188,953	\$ 1,188,953	\$ -				
	Subtotal Project Cost					\$ 13,860,160	\$ 14,653,660	\$ (793,500)				
	Owner's Costs	Not Included				\$ -	\$ -	\$ -				
	AFUDC (Interest During Construction)	Not Included				\$ -	\$ -	\$ -				
	Total Project Cost					\$ 13,860,160	\$ 14,653,660	\$ (793,500)				



Big Sandy Unit
Kentucky Power Company
American Electric Power Service Corporation
Combined Cycle Brownfield Build
Cost Estimate Study
F-Class Iteration
June 20, 2011

ATTACHMENT 1-7
Cost Estimate Takeout Pricing
F-Class Iteration

CT INLET AIR CHILLER TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
ELECTRICAL					
Medium Voltage Switchgear/MCCs	2 - single ended type + 2 Feeders from 11A/12B	\$944,045		Included in PDC	
Low Voltage Transformers	4 - Outdoor Cast Coil Type	Included Below		Included in PDC	
Low Voltage Switchgear	2 - Double Ended Type	\$832,230		Included in PDC	
Low Voltage Cable Bus Duct		\$100,529		Included in PDC	
480 Volt Motor Control Centers	8 - MCC Lineups	\$483,000		Included in PDC	
UPS Panelboard	1	\$5,250		Included in PDC	
DC Panels	1	\$5,250		Included in PDC	
Alternate Source Panels	1	\$5,250		Included in PDC	
Chiller Power Distribution Center (PDC)	1	\$826,875		\$140,013	
Mimic Panels	1	\$14,700		Included in PDC	
Electrical Cable					
1/C 750 KCMIL - 8KV	10,500 LF		\$179,859	\$292,907	
1/C 250 KCMIL - 8KV	3,420 LF		\$23,061	\$91,030	
3/C 500 KCMIL - 600V	1,440 LF		\$55,647	\$160,216	
3/C 250 KCMIL - 600V	2,700 LF		\$54,286	\$300,406	
3/C #4/0 - 600V	5,400 LF		\$106,971	\$452,786	
LV CABLE	2% of Project Cable Balance		\$28,641	\$113,262	
DCS CABLE	2% of Project Cable Balance		\$32,278	\$94,959	
Race way					
Underground Duct Bank	3% of Project Ductbank Balance		\$20,563	\$126,579	
Cable Tray	30" - 700' ; 24" - 350'		\$38,544	\$247,734	
Above Ground Conduit	2% of Project Conduit Balance		\$11,436	\$41,832	
DCS					
Remote IO Cabinet	1 LS	\$113,190			Required for Switchgear Control and Interface to Chiller PLC
Controls	Allowance - Local Control to DCS Interface	\$26,250		\$6,800	
Miscellaneous					
Grounding	1 LS - Ground Conductor (500'), welds, rods		\$3,341	\$11,886	
Security	1 LS - Card Readers	\$2,000		\$500	
Communications	1 LS - FDC, Lan, Telephone	\$10,000		\$15,000	

CT INLET AIR CHILLER TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
MECHANICAL					
Chillers		\$8,820,000		\$874,401	
Inlet Chilling Coils		\$3,150,000		\$102,014	
Underground Piping			\$176,030	\$395,292	
Abovegrade Piping			\$166,305	\$300,903	
Supports & Valves			\$29,250	\$14,625	
STRUCTURAL / CIVIL					
Structural Steel			\$0	\$0	
Foundations			\$158,204	\$303,957	
Incremental Equipment Cost					
Unit Auxiliary Transformers	Increased MVA rating	\$400,000		N/A	\$16,500 / MW x 12 MW
Medium Voltage Switchgear	Increased cost due to Voltage Increase	\$580,000		N/A	7.50%
Motors	Increased cost due to Voltage Increase	\$1,335,120		N/A	8%
Medium Voltage Cable	Increased cost due to Voltage Increase		\$105,000	N/A	3%
Low Voltage Transformers	Increased cost due to Voltage Increase	\$21,600		N/A	3%
Subtotals					
		\$17,675,289	\$1,189,415	\$4,087,104	
Total Direct & Construction Indirect Cost				\$22,951,807	
Overall Project Indirects	Assume No Change			\$0	
Spare Parts	At 1.5% of Equipment Cost			\$265,129	
Contingency	At 12.62% (from Option 4)			\$2,929,977	
Escalation	At 10.18% of Direct Costs (from Option 4)			\$2,336,494	Pro-rated value
Total Cost Impact				\$28,483,408	

Note 1: Pricing includes estimate markups for construction indirect costs.

Note 2: Values above reflect Takeout Pricing - Values are currently included in main project cost estimates.

CONDENSATE POLISHER TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
ELECTRICAL					
Motor Control Center	1 - Allowance	\$60,375		\$7,840	
Cable Tray & Conduits	Allowance		\$49,400	\$163,200	
Cables	Allowance		\$12,350	\$47,600	
Controls	Allowance - Local Control to DCS Interface	\$26,250		\$6,800	
MECHANICAL					
Condensate Polishing Equipment		\$2,677,500		\$196,740	
Condensate Pump Head Increase	15% Incremental Equipment Cost	\$75,884		\$0	
Piping & Isolation Valves	Allowance		\$123,500	\$217,600	
STRUCTURAL / CIVIL					
Steam Turbine Building	Eliminate 90' x 26' x 30' Auxiliary Bay				
Structural Steel	3% of ST Building Framing (by volume)		\$106,637	\$96,196	
Siding & Roofing	3% of ST Building Total (by volume)		\$37,788	\$34,495	
Steam Turbine Building Foundation	8% of ST Building Foundation (by area)		\$191,565	\$135,391	
Subtotals					
		\$2,840,009	\$521,240	\$905,863	
Total Direct & Construction Indirect Cost				\$4,267,112	
Overall Project Indirects	Assume No Change			\$0	
Spare Parts	At 1.5% of Equipment Cost			\$42,600	
Contingency	At 12.62% (from Option 4)			\$543,886	
Escalation	At 10.18% of Direct Costs (from Option 4)			\$434,392	Pro-rated value
Total Cost Impact				\$5,287,989	

Note 1: Pricing includes estimate markups for construction indirect costs.

Note 2: Values above reflect Takeout Pricing - Values are currently included in main project cost estimates.

AUXILIARY BOILER TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
ELECTRICAL					
Motor Control Center	1 - Allowance	\$60,375		\$7,840	
Conduits & Ductbanks	Allowance		\$61,750	\$217,600	
Cables	Allowance		\$18,525	\$68,000	
Controls	Allowance - Local Control to DCS Interface	\$26,250		\$6,800	
MECHANICAL					
Auxiliary Boiler Equipment		\$1,838,550		\$1,066,304	
Auxiliary Steam Piping	Large and Small Bore		\$163,131	\$792,374	
Demineralized Water Piping	100' - SS, 3" dia., Sch 40S		\$5,928	\$25,054	
Valves & BOP Systems	Allowance		\$61,750	\$34,000	
STRUCTURAL / CIVIL					
Auxiliary Boiler Foundation			\$143,908	\$101,777	
Subtotals					
		\$1,925,175	\$454,993	\$2,319,749	
Total Direct & Construction Indirect Cost				\$4,699,917	
Overall Project Indirects	Assume No Change			\$0	
Spare Parts	At 1.5% of Equipment Cost			\$28,878	
Contingency	At 12.62% (from Option 4)			\$596,774	
Escalation	At 10.18% of Direct Costs (from Option 4)			\$478,452	Pro-rated value
Total Cost Impact				\$5,804,020	

Note 1: Pricing includes estimate markups for construction indirect costs.

Note 2: Values above reflect Takeout Pricing - Values are currently included in main project cost estimates.

DCS HIGH FIDELITY SIMULATOR TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
ELECTRICAL					
High Fidelity Simulator		\$1,413,300		\$218,249	
MECHANICAL					
STRUCTURAL / CIVIL					
Subtotals					
		\$1,413,300	\$0	\$218,249	
Total Direct & Construction Indirect Cost					
				\$1,631,549	
Overall Project Indirects	Assume No Change			\$0	
Spare Parts	At 1.5% of Equipment Cost			\$21,200	
Contingency	At 12.62% (from Option 4)			\$208,577	
Escalation	At 10.18% of Direct Costs (from Option 4)			\$166,092	Pro-rated value
Total Cost Impact					
				\$2,027,417	

Note 1: Pricing includes estimate markups for construction indirect costs.

Note 2: Values above reflect Takeout Pricing - Values are currently included in main project cost estimates.

SS SERVICE WATER PIPING TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
ELECTRICAL					
MECHANICAL					
SS Piping:					
SS, 6" dia., Sch 40S	120 LF		\$16,450	\$37,260	
SS, 4" dia., Sch 40S	1,050 LF		\$88,568	\$293,740	
SS, 3" dia., Sch 40S	1,800 LF		\$108,927	\$450,986	
SS, 2" dia., Sch. 80S	500 LF		\$41,558	\$153,710	
Less Same Lines in Carbon Steel:					
CS, 6" dia., Sch 40	-120 LF		-\$6,180	-\$29,697	
CS, 4" dia., Sch 40	-1,050 LF		-\$29,825	-\$238,865	
CS, 3" dia., Sch 40	-1,800 LF		-\$44,460	-\$370,748	
CS, 2" dia., Sch. 80	-500 LF		-\$13,709	-\$96,837	
STRUCTURAL / CIVIL					
Subtotals					
		\$0	\$161,329	\$199,547	
Total Direct & Construction Indirect Cost					
				\$360,877	
Overall Project Indirects	Assume No Change			\$0	
Spare Parts	At 1.5% of Equipment Cost			\$0	
Contingency	At 12.62% (from Option 4)			\$45,543	
Escalation	At 10.18% of Direct Costs (from Option 4)			\$36,737	Pro-rated value
Total Cost Impact					
				\$443,157	

Note 1: Pricing includes estimate markups for construction indirect costs.

Note 2: Values above reflect Takeout Pricing - Values are currently included in main project cost estimates.

SECONDARY FUEL OIL TAKEOUT PRICING - F-Class Iteration

ITEM DESCRIPTION	QUANTITY / SCOPE	EQUIPMENT COST	MATERIAL COST	LABOR COST	REMARKS
ELECTRICAL					
Power & Control Wiring to Auxiliary Fuel Oil Skids	Allowance		\$24,700	\$54,400	
MECHANICAL					
Combustion Turbines	Dual Fuel Capability, (2) CT's	\$6,000,000		\$87,440	Assume 300 hours per CT for auxiliary skid installation.
Fuel Oil Piping, Underground	1,000' - Encased CS, 8" dia. Sch 40		\$271,700	\$235,401	
Fuel Oil Piping, Underground	600' - Encased CS, 6" dia. Sch 40		\$88,920	\$123,586	
Fuel Oil Demin Water Piping, Underground	1,200' - HDPE, SDR11, 4" dia.		\$4,150	\$70,621	
STRUCTURAL / CIVIL					
CT Misc. Equipment Pads	20 CY		\$5,083	\$14,704	Fdns for auxiliary skids.
Subtotals					
		\$6,000,000	\$394,553	\$586,152	
Total Direct & Construction Indirect Cost				\$6,980,705	
Overall Project Indirects	Assume No Change			\$0	
Spare Parts	At 1.5% of Equipment Cost			\$90,000	
Contingency	At 12.62% (from Option 4)			\$892,323	
Escalation	At 10.18% of Direct Costs (from Option 4)			\$710,636	Pro-rated value
Total Cost Impact				\$8,673,663	

Note 1: Pricing includes estimate markups for construction indirect costs.

Note 2: Values above reflect Takeout Pricing - Values are currently included in main project cost estimates.