ATTACHMENT

ENGINEERING ANALYSIS FOR CONTROL TECHNOLOGY

SAVANNAH RIVER MILL

JUNE 2007

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1.0 ENGINEERING ANALYSIS METHODOLOGY

Georgia Environmental Protection Division (EPD) has requested an analysis using four factors to determine potential emission reductions that are reasonable for selected emission units at the Savannah River Mill. The fourth factor, "remaining useful life", indicates that a detailed engineering analysis is required if the expected remaining useful life is beyond the year 2018. The Mill believes that the emission units of interest will continue operating beyond 2018. Thus, GP has prepared this engineering analysis.

The control technology engineering analysis in this application follows the "top-down" approach. The "top-down" approach starts with the most stringent control technology alternative that has been applied to same or similar sources and provides a basis for determining if such an alternative is "reasonable". Following are the basic steps of a "top-down" analysis:

1) Identify all control technologies
   a) All typically in use
   b) Determined as BACT and listed in USEPA *RACT/BACT/LAER Clearinghouse*
   c) In use at Georgia-Pacific Corporation facilities
2) Eliminate technically or economically infeasible options
3) Rank remaining control technologies by control effectiveness
4) Evaluate most effective controls and document results (including non-air quality effects)
5) Identify reasonable measures

GP performed the 5 steps for each visibility-affecting pollutant individually. Georgia EPD has determined that sulfur dioxide (SO_2) is the only relevant pollutant. The following sections provide a detailed engineering analysis for the Nos. 3, 4 and 5 Boilers.

2.0 ENGINEERING ANALYSIS FOR NOS. 3, 4 AND 5 BOILER (IDs B001, B002, B003)

2.1 SOURCE DESCRIPTION

The Mill operates Nos. 3, 4 and 5 Boilers to generate supplemental steam for the facility. The boilers work together with other steam sources to supply a mill-wide common header of steam. Each of the Boilers has the same heat input rating of 422.0 million British thermal units per hour (MM Btu/ hour) and uses a baghouse (BH-01, BH-02, and BH-03) to control particulate matter emissions associated with the fly ash. Each of the Boilers uses a limestone injection system (LS-01, LS-02, and LS-03) to control sulfur dioxide and acid gas emissions, such as hydrochloric acid, hydrofluoric acid, and sulfuric acid mist. Each Boiler also has a mechanism in place to supply delivered sand into the fluidized beds. Each Boiler also has a turbine generator set that can produce up to 45 megawatts of electrical power for the Mill.

Boiler No. 3 is a circulating, fluidized bed Boiler that was manufactured by Foster-Wheeler. It was installed at the Mill in 1987 when the Mill first began operation. The Boiler primarily burns petroleum coke (pet coke) and coal, but it is also permitted to combust No. 2 fuel oil, wood/bark, tire-derived fuel, and peat.

Boiler No. 4 is a bubbling, fluidized bed Boiler that was manufactured by Combustion Power Corporation. It was installed at the Mill in 1991 (Boiler was permitted as part of the initial permit application). The Boiler primarily burns petroleum coke, but it is also permitted to combust coal, No. 2 fuel oil, wood/bark, peat, and natural gas.

Boiler No. 5 is a circulating, fluidized bed Boiler that was manufactured by Foster-Wheeler. It was installed at the Mill in 1995 (Boiler was permitted as part of the initial permit application). The Boiler primarily burns petroleum coke and coal, but it is also permitted to combust wood/bark, No. 2 fuel oil, tire-derived fuel, peat, and natural gas.

Table 1 presents 2005, 2006 actual emissions and the current permitted emission limits.

Table 1. 2005 Fuel Usage and SO2 Emissions on Boilers 3, 4 and 5, Savannah River

	Boiler 3	Boiler 4	Boiler 5
Hours of Operation	8341	7684	8433
Pet Coke (tons)	98100	113268	109352
Annual Avg PC %S	6.1	5.95	6.1
Coal (tons)	18263	0	19401
Annual Avg Coal %S	1.55	0	1.55
Actual Emissions (TPY) (a)	1659	1195	1190
Est. % removal	87%	91%	91%
2007 Permit Limit (tpy)	2152	1671	1671

(a) Sulfur Emissions based on CEM data

The Boiler is currently in compliance with the Boiler MACT PM standard, well ahead of the compliance date of September 13, 2007.

2.2 TECHNOLOGY REVIEW

Step 1a-Identification of Control Technologies-Typical Technologies in Use in the United States

Emission control equipment that may be considered to control sulfur dioxide emissions from boilers includes wet and dry scrubbers and flue gas desulfurization techniques such as lime injection. The use of clean fuels can also be considered as an additional alternative to add-on controls.

Step 1b-Identification of Control Technologies-Review of RACT/BACT/LAER Clearinghouse (RBLC)

Searches of the RBLC were conducted to identify control technologies for the control of SO_2 emissions from combination boilers. The specific category searched was

- External Combustion- -11

The clearinghouse listed the use of clean fuels, wet and dry scrubbers and flue gas desulfurization techniques such as duct sorbent injection as the control technologies.

Step 1c-Identification of Control Technologies-Review of Technologies in Use at Georgia-Pacific Corporation Facilities

Georgia-Pacific operates numerous combination boilers and bark boilers within the US. SO_2 control technologies include wet scrubbing, dry scrubbing, lime injection, and the use of clean fuels.

Step 2-Technical Feasibility Analysis-Eliminate Technically Infeasible Options

All of the technology options are technically feasible. The most significant site-specific issue is the congested nature of the operating area. The layout of the Boilers are very congested and this limits the possible locations for installing new equipment for various scenarios.

Step 3 – Ranking the Technically Feasible Alternatives to Establish a Control Hierarchy

The ranking of the technologies and removal rates are:

1. Caustic scrubbing with caustic at approximately 95%+
2. Circulating Fluidized Bed scrubbing with Hydrated Lime at approximately 95%
3. Cleaner fuels at approximately 30% to 95%

{note the mill is continuing to evaluate 2 additional technologies not presented here}

Step 4-Control Effectiveness Evaluation

Caustic Spray Tower Scrubber

GP has worked closely with one scrubber supplier, Turbosonic, to determine high SO_2 removal options for use with wet scrubbers for these specific boilers. The Spray Tower Scrubber, as estimated, reduces the amount of SO_2 from the flue gas stream by passing the gas through a liquid that contains alkali. The flue gas enters radially at the bottom of the unit flowing vertically upward through the vessel, and counter-current to an alkali solution. The clean (scrubbed) flue gas is passed through a chevron-type mist eliminator for removal of large water droplets prior to exiting through the top of the scrubber vessel. The mist eliminator is equipped with an internal water wash header that is activated intermittently to wash away potential formations of reaction salts. The alkali solution, by way of contacting the flue gas surface, promotes the absorption of the acid gas and the reduction of SO_2 from the gas stream. The alkali solution used for this study is dilute caustic. The caustic solution is introduced into the top of the vessel by way of multiple zoned headers that contain multiple spray nozzles per header. These nozzles are arranged to ensure that the flue gas stream is in complete contact with the downward flowing solution. The solution drains to the bottom of the absorber vessel's reservoir where it is recycled back to the spray headers by pumps. The absorber vessel and all of its associated parts are constructed of 316L stainless steel.

A 50% Caustic solution is used as the scrubbing medium to achieve the required absorption of SO_2. The 50% Caustic is added to the Scrubber's top spray header allowing the exiting flue gas to see the highest pH. The system maintains the appropriate concentration of dissolved solids in the recycle solution by blowing down some of the liquid based on reservoir conductivity. The 50% Caustic is

conveyed to the scrubber's upper header by a metering pump initiated by a pH analyzer loop located in the recycle reservoir. In order to account for the evaporation that occurs during the scrubbing cycle, makeup water is provided to the recycle reservoir based on a level control loop located in the recycle reservoir.

The clean flue gas exits the Scrubber and enters a new 316L stainless steel Stack mounted on top of the new Spray Tower Scrubber outlet. The Stack will terminate at an elevation of 199 feet above grade. Aircraft warning lights and a warning light maintenance platform are not expected. The stack is sized for a flue gas velocity of approximately 35 ft/sec. The lower velocity in the Stack is critical to prevent water carry over from Stack sidewalls (as would occur when operating at higher velocities) or what is referred to as "raining" from the Stack exit. Stainless steel material was chosen to allow for good resistance to acid attack that is possibly present in the saturated flue gas. Placement of the stack on top of the Scrubber is critical to the overall design due to the fact that any water formation on the Stack wall will drain back to the Scrubber located below. Keeping the Stack wet from bottom to top is also a benefit for prevention of material acid attack based on the fact that acid attack occurs mainly in the wet/dry interface in a Stack.

The Scrubber, ID Fan and Stack location would be determined at a future date.. This analysis assumes the footprint will be located within 500 feet of the boiler building. A new steel frame structure will support the Scrubber and Stack. An access stairway is included in the factored estimate. The Spray Tower Scrubber has a 30' by 27' footprint and the Scrubber absorber vessel stands approximately 61' tall. The steel structure will terminate at the Stack testing platform level. The scrubber is completely field welded in place due to its large size. New 10' x 10' ductwork is added to transfer flue gas from the existing roof mounted baghouse chamber outlet to a new ID fan inlet and from the ID Fan outlet to the Spray Tower Scrubber's inlet. Installation of the Spray Tower Scrubber unit will involve modifying the existing baghouse chamber outlet from an upward outlet to a horizontal outlet to facilitate better flue gas flow to the new scrubber system. Money is included in the estimate to study the effect of reconfiguring the baghouse outlet. Ductwork support steel is also included in the factored estimate.

In order to account for the increased pressure drop created by the additional ductwork (4" w.c. drop through ductwork) and the Spray Tower Scrubber (3" w.c. drop through Scrubber), a new ID fan will be included. The ID Fan will be sized to overcome all of the pre-existing equipment and ductwork pressure drops and the additional 7" w.c. loss through the Spray Tower Scrubber and the new ductwork. A new variable speed drive will be installed on the fan. The incremental cost of the fan horsepower

required for the additional Scrubber and associated ductwork pressure drop is included in the operating cost for the Spray Tower Scrubber. Money is included in the estimate as an allowance to evaluate and tighten-up the boiler systems to prevent air infiltration.

The 50% Caustic will be pumped from a new 50% Caustic Tank located near the new scrubber area. The tank will be enclosed in a new dike. The tank has multiple in-tank electric heaters installed to maintain appropriate caustic temperature. Two (2) new Caustic Metering Pumps will take suction from the new tank. One (1) Metering Pump will operate at a time and furnish makeup caustic to the new Spray Tower Scrubber's top spray header.

Five (5) new Scrubber Recycle Pumps will be furnished. Four (4) pumps will operate at a time with one (1) on standby. Each pump will be dedicated to a single Scrubber spray header. As the Boiler is turned down or fuel sulfur content is lowered, pumps and their associated spray header can be shutdown to conserve horsepower. No new Make-up Water Booster Pumps are required. The mill water in the new scrubber area is available with pressure in excess of 100 psig. Mill water is used for Scrubber make-up due to evaporation during operation and for supply of water to the mist eliminator water wash header.

A new motor control center (MCC) Room and a new Rack Room was also included in the factored estimate in order to provide an area to house the electrical equipment for the new ID Fan drives and the new pump drives. A new 13,800 volt/480 volt transformer is also included in the estimate.
The following table summarizes the installation and annual costs.

Estimated Total Capital Investment and Annual Costs for Spray Tower, Savannah River Mill

Parameter	Boiler 3	Boiler 4	Boiler 5
Total Installed Costs ($)	14,685,000	14,959,000	15,580,000
Direct Annual Operating Costs ($/yr)			
Electricity	154,013	161155	154,013
Additional fan pressure	66,011	75374	56106
Caustic	830,469	679388	613170
Mill Water	1,014	958	1014
Wastewater Treatment	12,982	10249	12982
Operating Labor ($22/hr x 10 hr/wk)	11,440	11,440	11,440
Maintenance (1% of TIC)	146,850	149,590	155,800
Indirect Annual Operating Costs ($/yr)			
Capital Recovery (0.0944 TIC)	1,386,264	1,412,130	1,470,752
Property Taxes (1% TIC)	146,850	149,590	155,800
Administration (1% TIC)	146,850	149,590	155,800
Insurance (1% TIC)	146,850	149,590	155,800
Total Annual Costs ($/yr)	3,049,593	2,949,054	2,942,677

The analysis computed the cost effectiveness by dividing the total annual costs into the actual SO_2 uncontrolled emission rates for 2002 multiplied by the design removal rate. The following table summarizes these calculations.

Cost Effectiveness Values for Caustic Scrubbers, Savannah River Mill

Parameter	Boiler 3	Boiler 4	Boiler 5
Total Annual Costs ($/yr)	3,049,593	2,949,054	2,942,677
Tons Removed (tpy)	1,576	1,135	1,131
Cost Effectiveness ($/ton)	1,935	2,598	2,603

GP believes that adding a wet control system such as a scrubber may significantly impact the dissolved solid load to the Mill's wastewater treatment system. A non-air quality environmental effect of the wet scrubber will be the increase in total dissolved solids (*e.g.,* sodium salts) to the Savannah River. At this time, GP has not completed a refined engineering analysis or developed a possible chemical profile of blowdown from a wet scrubber. These impacts must be addressed as part of the next phase of engineering design.

Circulating Fluidized Bed Scrubbing with Hydrated Lime

GP commissioned Jacobs Engineering to conduct a detailed engineering cost estimate to install a circulating fluidized bed (CFB) scrubber, capable of over 95% control. GP has installed this technology on a new petroleum coke fluidized bed boiler in Port Hudson, Louisiana. The CFB scrubber is more sophisticated, requiring multiple systems to make up reagent and handle sticky ash. The following table summarizes the installation and operating costs.

Estimated Total Capital Investment and Annual Costs for CFB Scrubber
Savannah River Mill

Parameter	Boiler 3	Boiler 4	Boiler 5
Total Installed Costs ($)	34,437,000	35407000	35083000
Direct Annual Operating Costs ($/yr)			
Electricity	722,284	722284	722,917
Additional fan pressure	66,011	113062	65299
Hydrated Lime	1,686,300	1341176	1245066
Mill Water	756	863	697
Operating Labor ($22/hr x 20 hr/wk)	22,800	22,800	22,800
Maintenance (1% of TIC)	344,370	354,070	350,830
Indirect Annual Operating Costs ($/yr)			
Capital Recovery (0.0944 TIC)	3,250,853	3,342,421	3,311,835
Property Taxes (1% TIC)	344,370	354,070	350,830
Administration (1% TIC)	344,370	354,070	350,830
Insurance (1% TIC)	344,370	354,070	350,830
Total Annual Costs	7,126,564	6,958,966	6,772,014

The analysis computed the cost effectiveness by dividing the total annual costs into the actual SO_2 uncontrolled emission rates for 2002 multiplied by the design removal rate. The following table summarizes these calculations.

Cost Effectiveness Values for CFB Scrubbers, Savannah River Mill

Parameter	Boiler 3	Boiler 4	Boiler 5
Total Annual Costs ($/yr)	7,126,564	6,958,966	6,772,014
Tons Removed (tpy)	1,576	1,135	1,131
Cost Effectiveness ($/ton)	4,522	6,130	5,990

Clean Fuels

As mentioned above, the 3 boilers were originally started up on coal and then later switched to firing petroleum coke. Because of the nature of the fluidized bed design, the only fuels that can be accommodated in the boiler are cleaner forms of these solid fuels. The Mill has significant concerns with the use of switching to 100% coal use. These are:

- Petroleum coke has lower ash content than coal. Using coal will significantly increase the ash load irrespective of sulfur capture and cause more frequent baghouse bag changes and boiler tube inspections.
- Boiler 4 coal feed system is inadequately designed to handle coal
- During initial startup of Boiler 5, the baghouse seriously malfunctioned when firing coal only.
- Increased coal usage will potentially trigger Subpart Y requirements for coal usage will require an evaluation of all regulated transfer points and thermal dryers. The analysis does not include costs associated with compliance requirements for Subpart Y
- Carbon dioxide emissions will increase as coal replaces petroleum coke.

Annual costs include three components: 1) indirect costs associated with new equipment as needed for individual boiler; 2) incremental fuel costs; 3) limestone savings; 4) natural gas usage on other units to replace steam during additional boiler downtime to inspect for erosion.

The indirect annual costs are: capital recovery cost (0.0944 x TIC), administrative, property tax and insurance (2.5% x TIC), or equal to 0.1194 x TIC.

The following table summarizes the Annual costs calculations for a switch to 100% coal.

Calculated Annual Costs for Coal Conversion for Savannah River Mill Boilers

Parameter	Blr 3	Blr 4	Blr 5	
Capital Equipment	Installed Cost ($)			
New Feed System	NA	2,000,000	NA	
Baghouse Replacement	NA	NA	1,871,404	(a)
	Annual Cost ($)			
Direct Costs				
Replace Bags 1/yr due to increased erosion	160500	160500	160500	
Take Boiler Down for 3 day/yr for erosion inspection and use Natural Gas to substitute heat ($5/MMBtu)	151920	151920	151920	
Capital Recover Factor for Equipment	0	260000	243283	
Additional Indirect Costs (3% TIC)	0	60000	56142	
Total Annual Cost (non-fuel) $/yr	312420	632420	611845	
Fuel Use MMBtu/yr (based on design rate)	3696720	3696720	3696720	
Additional MMBtu on coal above baseline (assume increase to 90% of boiler capacity)	3327048	3327048	3327048	
Tons coal above baseline (avg 12899 Btu/lb)	128965	128965	128965	
Fuel Increase - $50/ton - Annual cost	6448267	6448267	6448267	
Limestone savings (tons/yr)	49804	32944	32784	
Limestone savings ($/yr) at $40/ton	1992166	1317766	1311366	
Total Annual Cost ($/yr)	4768521	5762921	5748746	
Baseline Emissions (tpy) - Post Control	1632	1210.5	1206.5	(b)
Proposed Emissions at 1.5% S (tpy) - Post Control	386.9	386.9	386.9	(c)
Emissions Removed (tpy)	1245.1	823.6	819.6	
Cost Effectiveness ($/ton)	3,830	6,997	7,014	

(a) **http://www.epa.gov/ttn/catc/dir1/ff-pulse.pdf**
(b) 2004, 2005 reported values
(c) Assume continued use of 90% removal from limestone

The Savannah River Mill believes that this fuel option for each boiler is not economically feasible.

Step 5-Identify Reasonable Measures

GP believes that each technically feasible option is not economically feasible. Thus, while the options have the potential to reduce emissions, each option is not reasonable.

3.0 SUMMARY OF REASONABLE MEASURES FOR SAVANNAH RIVER MILL

The analysis presented a "top-down" analysis for the Nos. 3, 4 and 5 Boiler. While there are several technically feasible options, each option above current technology in place is not economically feasible and thus not reasonable.

The following table summary presents the summary of the technically feasible options.

Summary of Engineering Analysis, Savannah River Mill.

Emission Unit	Existing Controls	Evaluated Technology	$/ton (per boiler)
Nos. 3, 4 and 5 Boiler	Limestone Injection	Caustic Scrubber (95%)	1,933 – 2,600
Nos. 3, 4 and 5 Boiler	Limestone Injection	CFB Scrubber	4,518 – 6,124
Nos. 3, 4 and 5 Boiler	Limestone Injection	Low Sulfur Fuel (*i.e.,* coal)	3,830 – 7,014

APPENDIX

Capital Cost Calculations for Wet Scrubber Options by Jacobs Engineering Group (2007)

TOTAL COST SUMMARY - JE PRIME CODE

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRU

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

PRIME CODE	DESCRIPTION	W-H	QTY	UNIT	LABOR	EQUIPMENT	MATERIAL	SUBCONTRACT	TOTAL COST
	DIRECT COSTS								
50	MAJOR EQUIPMENT	25,242	0	0	$1,367,376	$6,423,070	$96,346	$1,435,000	$9,321,792
51	DEMOLITION	3,083	0	0	$167,011	$0	$0	$0	$167,011
52	SITE EARTHMOVING	0	0	0	$0	$0	$0	$0	$0
53	SITE IMPROVEMENTS	0	0	0	$0	$0	$0	$350,470	$350,470
54	PILING, CAISSONS	0	9,788	LF	$0	$0	$0	$978,788	$978,788
55	BUILDINGS	0	1	LOT	$0	$0	$0	$0	$0
56	CONCRETE	6,091	508	CY	$279,654	$0	$279,654	$0	$559,308
57	MASONRY, REFRACTORY	0	0	0	$0	$0	$0	$0	$0
58	STRUCTURAL STEEL	9,844	281	TN	$493,453	$0	$1,399,400	$0	$1,892,854
59	ROOFING AND SIDING	0	0	0	$0	$0	$0	$0	$0
60	FIRE PROOFING	0	0	0	$0	$0	$0	$0	$0
61	PROCESS DUCTWORK (NON-BUILDING)	0	0	0	$0	$0	$0	$0	$0
62	PIPING	9,533	3,178	LF	$516,400	$0	$516,400	$0	$1,032,799
63	INSULATION - PIPE, EQUIPMENT & DUCTWORK	0	1	LOT	$0	$0	$0	$2,016,627	$2,016,627
64	INSTRUMENTATION	4,393	220	EA	$223,211	$486,260	$436,260	$0	$1,145,730
65	ELECTRICAL	4,770	19,081	LF	$242,367	$605,916	$484,733	$0	$1,333,016
66	PAINTING, PROTECTIVE COATINGS	1,015	37,287	SF	$46,609	$0	$46,609	$0	$93,218
67	FURNITURE, LAB & SHOP EQUIPMENT	0	0	0	$0	$0	$0	$0	$0
	TOTAL DIRECT COSTS	63,971			$3,336,080	$7,515,246	$3,259,402	$4,780,886	$18,891,614
	$ / WH	$52.15							
	CONSTRUCTION INDIRECT COSTS								
75	CONSTRUCTION SUPPORT LABOR	12,794			$518,538	$0	$0	$0	$518,538
76	TEMPORARY CONSTRUCTION FACILITIES (IN WAGE RATES)				$0	$0	$0	$0	$0
78	PREMIUM TIME				$203,529	$0	$0	$0	$203,529
79	CRAFT FRINGE BENEFITS (IN WAGE RATES)				$0	$0	$0	$0	$0
	CRAFT PER DIEM ($7 PER HOUR ON 100 % OF THE HOURS)				$0	$0	$0	$537,357	$537,357
80	PAYROLL TAXES & INSURANCE (IN WAGE RATES)				$0	$0	$0	$0	$0
83	SMALL TOOLS (IN WAGE RATES)				$0	$0	$0	$0	$0
84	CONSUMABLE SUPPLIES (IN WAGE RATES)				$0	$0	$0	$0	$0
85	CONSTRUCTION EQUIPMENT (IN WAGE RATES)				$0	$0	$0	$0	$0
87	FIELD STAFF (IN WAGE RATES)				$0	$0	$0	$0	$0
81	NON-PAYROLL TAX, INSURANCE & PERMITS				$0	$338,186	$146,673	$107,570	$592,429
93	CONSTRUCTION HOME OFFICE COST (IN WAGE RATES)				$0	$0	$0	$0	$0
71	CRAFT START-UP ASSISTANCE	1,200			$84,000	$0	$0	$0	$84,000
99	CONTRACTOR'S CONSTRUCTION FEE		10.0%	TCC - EQ.	$388,067	$0	$510,911	$542,581	$1,441,559
	TOTAL CONSTRUCTION INDIRECT COSTS	13,994			$1,194,134	$338,186	$657,584	$1,187,508	$3,377,412
	TOTAL CONSTRUCTION COSTS (TCC)	77,965			$4,530,214	$7,853,432	$3,916,986	$5,968,394	$22,269,026
	$ / WH	$78.51							
	PROJECT INDIRECT COSTS								
88	CONSTRUCTION MANAGEMENT		4.5%	TIC	$0	$0	$0	$1,551,000	$1,551,000
90	ENGINEERING PROFESSIONAL SERVICES		10.0%	TIC	$0	$0	$0	$3,445,000	$3,445,000
90	STUDY COST		0.1%	TIC	$0	$0	$0	$50,000	$50,000
96	OUTSIDE CONSULTANT SERVICES				$0	$0	$0	$100,000	$100,000
91	OWNER'S COST		3.0%	TIC	$0	$0	$0	$1,046,000	$1,046,000
70	SPARE PARTS				$0	$375,762	$0	$0	$375,762
71	NON-CRAFT START-UP ASSISTANCE				$149,850	$0	$0	$214,800	$364,650
86	ALLOWANCE FOR UNFORESEEN		8.5%	TIC	$468,006	$822,919	$391,699	$1,232,519	$2,915,144
98	ESCALATION		8.4%	TIC	$234,003	$822,919	$547,521	$616,260	$2,220,703
	AIR INFILTRATION ALLOWANCE				$0	$0	$0	$100,000	$100,000
	ROUND OFF				($73)	($34)	($206)	$27	($286)
	TOTAL PROJECT COSTS	77,965			$5,382,000	$9,875,000	$4,856,000	$14,324,000	$34,437,000
	$ / WH	$78.51							

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/08
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST - DETAILS														
1																
2		MAJOR EQUIPMENT														
3	50	EXPANSION JOINT - AIR HEATER OUTLET	1	EA	80.00	80	$54.17	$4,334	$7,000	$7,000	$0.00	$0	$0.00	$0	$11,334	$11,334
4	50															
5	50	DUCTWORK - AIR HEATER OUTLET TO CFB SCRUBBER INLET	168,000	LB	0.04	6,720	$54.17	$364,032	$3.50	$588,000	$0.00	$0	$0.00	$0	$5.67	$952,032
6	50															
7	50	EXPANSION JOINT - DUCTWORK TO CFB SCRUBBER INLET	2	EA	80.00	160	$54.17	$8,667	$4,000	$8,000	$0.00	$0	$0.00	$0	$5,334	$16,667
8	50															
9	50	CFB SCRUBBER - 12' DIAMETER	1	EA	15,000.00	15,000	$54.17	$812,571	$4,500,000	$4,500,000	$0.00	$0	$0.00	$0	$5,312,571	$5,312,571
10	50	EXPANSION JOINT - CFB SCRUBBER INLET	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
11	50	EXPANSION JOINT - CFB SCRUBBER BODY	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
12	50	CFB SCRUBBER SPRAY LANCES	3	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
13	50															
14	50	HYDRATED LIME STORAGE SILO	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
15	50															
16	50	HYDRATED LIME SILO VENT FILTER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
17	50															
18	50	HYDRATED LIME SILO VENT FILTER FAN	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
19	50	MOTOR - HYDRATED LIME SILO VENT FILTER FAN	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
20	50															
21	50	HYDRATED LIME INTERMEDIATE BIN	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
22	50	EXPANSION JOINTS - HYDRATED LIME INTERMEDIATE BIN	3	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
23	50															
24	50	HYDRATED LIME WEIGH FEEDER ROTARY FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
25	50	MOTOR - HYDRATED LIME WEIGH FEEDER ROTARY FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
26	50															
27	50	HYDRATED LIME WEIGH FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
28	50	MOTOR - HYDRATED LIME WEIGH FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
29	50	EXPANSION JOINT - HYDRATED LIME WEIGH FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
30	50															
31	50	HYDRATED LIME AIR SLIDE ROTARY FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
32	50	MOTOR - HYDRATED LIME AIR SLIDE ROTARY FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
33	50															
34	50	BYPASS HYDRATED LIME ROTARY FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
35	50	MOTOR - BYPASS HYDRATED LIME ROTARY FEEDER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
36	50															
37	50	HYDRATED LIME AIR SLIDE	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
38	50															
39	50	DUCTWORK - CFB SCRUBBER TO INLET OF ELECTROSTATIC PRECIPITATOR	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
40	50															
41	50	ELECTROSTATIC PRECIPITATOR (ESP)	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
42	50															

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST- DETAILS														
43	50	HOPPER FLUIDIZERS - ESP	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
44	50															
45	50	HOPPER HEATERS - ESP	8	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
46	50															
47	50	HOPPER VIBRATORS - ESP	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
48	50															
49	50	HOPPER HEATER CONTROL PANEL - ESP	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
50	50															
51	50	HOPPER ROTARY FEEDERS - ESP	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
52	50	MOTOR - HOPPER ROTARY FEEDERS	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
53	50															
54	50	RAPPING SYSTEM - ESP	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
55	50	RAPPER CONTROL PANEL	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
56	50															
57	50	PENTHOUSE PRESSURIZTION FANS - ESP	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
58	50	MOTOR - PENTHOUSE PRESSURIZTION FANS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
59	50															
60	50	PENTHOUSE PRESSURIZTION AIR HEATERS - ESP	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
61	50	PENTHOUSE PRESSURIZTION AIR HEATER ELEMENTS- ESP	6	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
62	50															
63	50	TRANSFORMER RECTIFIERS - ESP	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
64	50	TRANSFORMER RECTIFIERS CONTROL PANELS	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
65	50															
66	50	ESP AIR SLIDES	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
67	50	EXPANSION JOINTS - ESP AIR SLIDES AND HOPPERS	10	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
68	50															
69	50	LOW PRESSURE FLUIDIZING AIR FILTERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
70	50															
71	50	LOW PRESSURE FLUIDIZING AIR INLET SILENCERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
72	50															
73	50	LOW PRESSURE FLUIDIZING AIR FANS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
74	50	MOTORS - LOW PRESSURE FLUIDIZING AIR FANS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
75	50	EXPANSION JOINTS - LOW PRESSURE FLUIDIZING AIR FANS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
76	50															
77	50	LOW PRESSURE FLUIDIZING AIR HEATER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
78	50	ELEMENTS - LOW PRESSURE FLUIDIZING AIR HEATER	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
79	50															
80	50	MEDIUM PRESSURE FLUIDIZING AIR BLOWERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

G:\ESTIMATA\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIME CODE TCS

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST- DETAILS														
81	50	MOTORS - MEDIUM PRESSURE FLUIDIZING AIR BLOWERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
82	50	MEDIUM PRESSURE FLUIDIZING AIR INLET SILENCERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
83	50	MEDIUM PRESSURE FLUIDIZING AIR DISCHARGE SILENCERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
84	50	EXPANSION JOINTS - MEDIUM PRESSURE FLUIDIZING AIR DISCHARGE SILENCERS	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
85	50															
86	50	MEDIUM PRESSURE FLUIDIZING AIR FILTERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
87	50															
88	50	MEDIUM PRESSURE FLUIDIZING AIR HEATER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
89	50	ELEMENTS - MEDIUM PRESSURE FLUIDIZING AIR HEATER	4	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
90	50															
91	50	CFB SCRUBBER SPRAY WATER TANK	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
92	50	INLET FILTER - CFB SCRUBBER SPRAY WATER TANK	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
93	50															
94	50	CFB SPRAY WATER PUMPS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
95	50	MOTORS - CFB SPRAY WATER PUMPS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
96	50															
97	50	CFB SPRAY WATER FILTERS	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
98	50															
99	50	ASH SURGE BIN	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
100	50	FLUIDIZERS - ASH SURGE BIN	20	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
101	50															
102	50	RECIRCULATING DUCT - CFB SCRUBBER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
103	50	EXPANSION JOINTS - RECIRCULATING DUCT - CFB SCRUBBER	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
104	50															
105	50	RECIRCLATING DUCT DAMPER - CFB SCRUBBER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
106	50	MOTOR - RECIRCLATING DUCT DAMPER - CFB SCRUBBER	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
107	50															
108	50	DUCTWORK - ESP OUTLET TO ID FAN INLET	1	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
109	50	EXPANSION JOINTS - ID FAN INLET	2	EA	INC. W/ CFB SCRUBBER	0	$54.17	$0	INC. W/ CFB SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
110	50															
111	50	NEW ID FAN	1	EA	600.00	600	$54.17	$32,503	$290,000	$290,000	$0.00	$0	$0.00	$0	$322,503	$322,503
112	50	MOTOR, ID FAN, 2000 HP @ 1200 RPM	1	EA	264.00	264	$54.17	$14,301	$192,000	$192,000	$0.00	$0	$0.00	$0	$206,301	$206,301
113	50	LCI DRIVE	1	EA	250.00	250	$54.17	$13,543	$144,000	$144,000	$0.00	$0	$0.00	$0	$157,543	$157,543
114	50															
115	50	NEW ID FAN - INLET DAMPERS AND DRIVES	2	EA	100.00	200	$54.17	$10,834	INC. W/ ID FAN	$0	$0.00	$0	$0.00	$0	$5,417	$10,834
116	50															
117	50	DUCTWORK - ID FAN OUTLET TO STACK	3,000	LB	0.04	120	$54.17	$6,501	$3.50	$10,500	$0.00	$0	$0.00	$0	$5.67	$17,001
118	50	EXPANSION JOINT - ID FAN OUTLET TO STACK	1	EA	80.00	80	$54.17	$4,334	$5,000	$5,000	$0.00	$0	$0.00	$0	$9,334	$9,334
119	50															
120	50	STACK - 7' - 0" DIAMETER, CARBON STEEL, FREE STANDING, 199' TOP ELEVATION	1	EA	S / C	0	$54.17	$0	$0	$0	$0.00	$0	$735,000	$735,000	$735,000	$735,000
121	50	EXPANSION JOINT - STACK	1	EA	80.00	80	$54.17	$4,334	$5,000	$5,000	$0.00	$0	$0.00	$0	$9,334	$9,334
122	50															
123	50	ASH PIPING - ASH SURGE BIN TO EXISTING ASH SILO	1	LOT	900.00	900	$54.17	$48,754	$160,000	$160,000	$0.00	$0	$0.00	$0	$208,754	$208,754
124	50															
125	50	ASH VACUUM PUMP	2	EA	56.00	112	$54.17	$6,067	$70,000	$140,000	$0.00	$0	$0.00	$0	$73,034	$148,067

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATIG\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST - DETAILS														
126	50	MOTOR, ASH VACUUM PUMP, 100 HP	2	EA	30.00	60	$54.17	$3,250	$5,000	$10,000	$0.00	$0	$0.00	$0	$6,625	$13,250
127	50															
128	50															
129	50	FREIGHT	1	LOT	N/A	0	$54.17	$0	$363,570	$363,570	$0.00	$0	$0.00	$0	$363,570	$363,570
130	50	SHIMS AND GROUT	1	LOT	615.65	616	$54.17	$33,351	$0	$0	$96,346	$96,346	$0.00	$0	$129,697	$129,697
133	50	RIGGING AND HEAVY LIFTS	1	LOT	S/C	0	$54.17	$0	$0	$0	$0.00	$0	$700,000	$700,000	$700,000	$700,000
135																
136	50	TOTAL - MAJOR EQUIPMENT				25,242	$54.17	$1,367,376		$6,423,070		$96,346		$1,435,000		$9,321,792
151																
152																
153		DEMOLITION														
154																
156	51	DEMO EXISTING DUCTWORK - AIR HEATER TO BAGHOUSE	15,000	LB	0.02	300	$54.17	$16,251	$0	$0	$0.00	$0	$0.00	$0	$1.08	$16,251
157	51	DEMO EXISTING DUCTWORK - AIR HEATER TO BAGHOUSE - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	1,000	SF	0.20	200	$54.17	$10,834	$0	$0	$0.00	$0	$0.00	$0	$10.83	$10,834
158	51	DEMO EXISTING BAGHOUSE - 34' WIDE X 58' LONG X 47' TALL	1	EA	1,000.00	1,000	$54.17	$54,171	$0	$0	$0.00	$0	$0.00	$0	$54,171	$54,171
159	51	DEMO EXISTING BAGHOUSE - 34' WIDE X 58' LONG X 47' TALL - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	1	EA	500.00	500	$54.17	$27,086	$0	$0	$0.00	$0	$0.00	$0	$27,086	$27,086
160	51	DEMO EXISTING DUCTWORK - BAGHOUSE TO INLET OF ID FAN	5,250	LB	0.02	105	$54.17	$5,688	$0	$0	$0.00	$0	$0.00	$0	$1.08	$5,688
161	51	DEMO EXISTING DUCTWORK - - BAGHOUSE TO INLET OF ID FAN - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	350	SF	0.20	70	$54.17	$3,792	$0	$0	$0.00	$0	$0.00	$0	$10.83	$3,792
162	51	DEMO EXISTING ID FAN AND MOTOR	1	LOT	250.00	250	$54.17	$13,543	$0	$0	$0.00	$0	$0.00	$0	$13,543	$13,543
163	51	DEMO EXISTING ID FAN AND MOTOR - DUCTWORK	1,800	SF	0.20	360	$54.17	$19,502	$0	$0	$0.00	$0	$0.00	$0	$10.83	$19,502
164	51	DEMO EXISTING ID FAN AND MOTOR - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	1	LOT	150.00	150	$54.17	$8,126	$0	$0	$0.00	$0	$0.00	$0	$8,126	$8,126
165	51	DEMO EXISTING DUCTWORK - ID FAN TO STACK	160	SF	0.20	32	$54.17	$1,733	$0	$0	$0.00	$0	$0.00	$0	$10.83	$1,733
166	51	DEMO EXISTING DUCTWORK - ID FAN TO STACK - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	160	SF	0.10	16	$54.17	$867	$0	$0	$0.00	$0	$0.00	$0	$5.42	$867
167	51	DEMO EXISTING ASH VACUUM PUMPS & MOTORS	1	LOT	100.00	100	$54.17	$5,417	$0	$0	$0.00	$0	$0.00	$0	$5,417	$5,417
181																
182	51	TOTAL - DEMOLITION				3,083	$54.17	$167,011		$0		$0		$0		$167,011
194																
195																
196		SITE IMPROVEMENTS														
197																
210	53	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	0.00	0	$45.91	$0	$0	$0	$0	$0	$350,470	$350,470	$350,470	$350,470
211																
212	53	TOTAL - SITE IMPROVEMENTS				0	$0.00	$0		$0		$0		$350,470		$350,470
213																
214																
215		PILING, CAISSONS														
216																
221	54	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	0.00	0	$45.91	$0	$0	$0	$0	$0	$978,788	$978,788	$978,788	$978,788
222																
223	54	TOTAL - PILING, CAISSONS	9,788	LF		0	$0.00	$0		$0		$0	$100.00	$978,788		$978,788
224																
309		CONCRETE														
310																
315	56	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	6,091.45	6,091	$45.91	$279,654	$0	$0	$279,654	$279,654	$0	$0	$559,308	$559,308
316																
317	56	TOTAL - CONCRETE	508	CY	12.0	6,091	$45.91	$279,654		$0		$279,654		$0		$559,308
329																
330																
331		STRUCTURAL STEEL														
332																
356	58	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	9,843.55	9,844	$50.13	$493,453	$0	$0	$1,399,400	$1,399,400	$0	$0	$1,892,854	$1,892,854
357																
358	58	TOTAL - STRUCTURAL STEEL	281	TN	35.0	9,844	$50.13	$493,453		$0		$1,399,400		$0		$1,892,854
392																
393																
394		PIPING														
395																
432	62	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	9,532.70	9,533	$54.17	$516,400	$0	$0	$516,400	$516,400	$0	$0	$1,032,799	$1,032,799
433																
434	62	TOTAL - PIPING	3,178	LF	3.00	9,533	$54.17	$516,400		$0		$516,400		$0		$1,032,799
435																
436																
437		INSULATION - PIPE, EQUIPMENT & DUCTWORK														
438																
439																

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
O:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\(16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls)PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST- DETAILS														
440	63	INSULATION - DUCTWORK - AIR HEATER OUTLET TO CFB SCRUBBER INLET	11,200	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$560,000	$50.00	$560,000
441	63	INSULATION - CFB SCRUBBER	3,500	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$175,000	$50.00	$175,000
442	63	NEW ID FAN	1	LOT	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$25,000	$25,000	$25,000	$25,000
443	63	INSULATION - DUCTWORK - ID FAN OUTLET TO STACK	200	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$10,000	$50.00	$10,000
444	63	INSULATION - STACK - 7' - 9" DIAMETER, CARBON STEEL, FREE STANDING, 199' TOP ELEVATION	1	LOT	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	INC. W/ STACK	$0	$0.00	$0
445	63	INSULATION - HYDRATED LIME AIR SLIDE	420	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$21,000	$50.00	$21,000
446	63	INSULATION - DUCTWORK - CFB SCRUBBER TO INLET OF ELECTROSTATIC PRECIPITATOR	1,800	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$90,000	$50.00	$90,000
447	63	INSULATION - ELECTROSTATIC PRECIPITATOR (ESP)	15,000	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$750,000	$50.00	$750,000
448	63	INSULATION - ESP AIR SLIDES (2 EACH)	840	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$42,000	$50.00	$42,000
449	63	INSULATION - LOW PRESSURE FLUIDIZING AIR HEATER	48	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$2,400	$50.00	$2,400
450	63	INSULATION - MEDIUM PRESSURE FLUIDIZING AIR HEATER	48	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$2,400	$50.00	$2,400
451	63	INSULATION - CFB SCRUBBER SPRAY WATER TANK	1	EA	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$25,000	$25,000	$25,000	$25,000
452	63	INSULATION - ASH SURGE BIN (2 EACH)	2	EA	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$25,000	$50,000	$25,000	$50,000
453	63	INSULATION - RECIRCULATING DUCT - CFB SCRUBBER	1,200	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$60,000	$50.00	$60,000
454	63	INSULATION - DUCTWORK - ESP OUTLET TO ID FAN INLET	1,280	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$64,000	$50.00	$64,000
455	63															
456	63															
461	63	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	S / C	0	$45.91	$0	$0	$0	$0	$0	$139,827	$139,827	$139,827	$139,827
462																
463	63	TOTAL - INSULATION - PIPE, EQUIPMENT & DUCTWORK	1	LOT		0	$0.00	$0		$0		$0		$2,016,627		$2,016,627
464																
465																
466		INSTRUMENTATION														
467																
479	64	DRAFT SENSOR IN BOILER FURNACE	1	EA	100.00	100	$50.81	$5,081	$50,000	$50,000	$0.00	$0	$0.00	$0	$55,081	$55,081
480	64															
481	64	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	4,293.22	4,293	$50.81	$218,130	$436,260	$436,260	$436,260	$436,260	$0	$0	$1,090,550	$1,090,550
482																
483	64	TOTAL - INSTRUMENTATION	220	EA	20.00	4,393	$50.81	$223,211		$486,260		$436,260		$0		$1,145,730
484																
485																
486		ELECTRICAL														
487																
503	65	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	4,770.24	4,770	$50.81	$242,367	$805,916	$805,916	$484,733	$484,733	$0	$0	$1,333,016	$1,333,016
504																
505	65	TOTAL - ELECTRICAL	19,081	LF	0.25	4,770	$50.81	$242,367		$805,916		$484,733		$0		$1,333,016
506																
507																
508		PAINTING, PROTECTIVE COATINGS														
509																
514	66	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	1,015.24	1,015	$45.91	$46,609	$0	$0	$46,609	$46,609	$0	$0	$93,218	$93,218
515																
516	66	TOTAL - PAINTING, PROTECTIVE COATINGS	37,287	SF	0.03	1,015	$45.91	$46,609		$0		$46,609		$0	$2.50	$93,218
529																
530																
531																
532																
533																
534		TOTAL - DIRECT COST				63,971	$52.15	$3,336,080		$7,515,246		$3,259,402		$4,780,886		$18,891,614

CONTRACTOR'S CONSTRUCTION INDIRECT COST - CONSTRUCTION SUPPORT LABOR

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

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JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
75	**CONSTRUCTION SUPPORT LABOR**											
	(LABOR COST ONLY)											
	CAPITAL - CONSTRUCTION SUPPORT LABOR - ALLOWANCE @ 20 % OF DIRECT LABOR HOURS FOR BELOW LISTED ITEMS	63,971	WH	0.20	12,794	$40.53	$518,538	$0	$0	$0	$0	$518,538
	CONS EQUIP OPERATION - CRANE				0	$40.53	$0	$0	$0	$0	$0	$0
	WELDER QUALIFICATIONS				0	$40.53	$0	$0	$0	$0	$0	$0
	RAINED OUT LABOR				0	$40.53	$0	$0	$0	$0	$0	$0
	SAFETY TRAINING				0	$40.53	$0	$0	$0	$0	$0	$0
	SCAFFOLDING (Rental Incl. W/ Constr. Eq. Rental)				0	$40.53	$0	$0	$0	$0	$0	$0
	UNLOAD AND STORE BULK MATERIAL				0	$40.53	$0	$0	$0	$0	$0	$0
	WAREHOUSEMAN				0	$40.53	$0	$0	$0	$0	$0	$0
	TOOL MAN				0	$40.53	$0	$0	$0	$0	$0	$0
	FIRE WATCH				0	$40.53	$0	$0	$0	$0	$0	$0
	YARD CREWS				0	$40.53	$0	$0	$0	$0	$0	$0
	SPECIAL HAULING / RIGGING				0	$40.53	$0	$0	$0	$0	$0	$0
	STARTUP - CRAFTSMEN				0	$40.53	$0	$0	$0	$0	$0	$0
	CLEAN UP				0	$40.53	$0	$0	$0	$0	$0	$0
	EMPLOYMENT & RANDOM DRUG TESTS				0	$40.53	$0	$0	$0	$0	$0	$0
	MOVE IN / MOVE OUT LABOR				0	$40.53	$0	$0	$0	$0	$0	$0
	WATER / ICE				0	$40.53	$0	$0	$0	$0	$0	$0
75	**TOTAL - CONSTRUCTION SUPPORT LABOR**				12,794		$518,538		$0		$0	$518,538

CONTRACTOR'S CONSTRUCTION INDIRECT COST - PREMIUM TIME

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
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ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HEN
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION		TOTAL WEEKLY W.H.'S	TOTAL PREMIUM W.H.'S		PREMIUM COST ADDER	TOTAL COST
78	**PREMIUM & EFFICIENCY LOSS TIME CALCULATION WORKSHEET**						
	CAPITAL PREMIUM TIME COST:	BASED ON BARE WAGE RATE OF:				$23.06	
	TOTAL CRAFT HOURS:			76,765 HRS			
	CRAFT HOURS WORKED ON 40 HR WEEK **(0 HRS PT)**	0.0%	0	0	HRS		
	CRAFT HOURS WORKED ON 50 HR WEEK **(10 HRS PT)**	100.0%	76,765	15,353	HRS	$13.26	$203,529
	CRAFT HOURS WORKED ON 60 HR WEEK **(20 HRS PT)**	0.0%	0	0	HRS	$13.26	$0
	CRAFT HOURS WORKED ON 70 HR WEEK **(30 HRS PT)**	0.0%	0	0	HRS	$13.26	$0
	CRAFT HOURS WORKED ON 84 HR WEEK **(44 HRS PT)**	0.0%	0	0	HRS	$13.26	$0
		100.0%	76,765	15,353	HRS		
	TOTAL CAPITAL PREMIUM TIME COST						**$203,529**
78	**TOTAL**						**$203,529**

CONTRACTOR'S CONSTRUCTION INDIRECT COST - NON-PAYROLL TAX, INSURANCE AND PERMITS

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

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JE PRIME CODE	DESCRIPTION	QTY.	UNIT	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
81	NON-PAYROLL TAX, INSURANCE AND PERMITS									
	SALES & USE TAX									
	4.5% OF EQUIPMENT	$7,515,246	EQ $	4.50%	$338,186					$338,186
	4.5% OF MATERIAL	$3,259,402	MAT'L $			4.50%	$146,673			$146,673
	4.5% ON 50% OF SUBCONTRACTS	$2,390,443	SUB $					4.50%	$107,570	$107,570
81	TOTAL NON-PAYROLL TAX, INSURANCE AND PERMITS				$338,186		$146,673		$107,570	$592,429

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIMI

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
71	CRAFT START-UP ASSISTANCE													
	CRAFT START-UP SERVICES (8 CRAFT PERSONNEL @ 50 HOURS EACH)	3	WK	400.00	1,200	$70.00	$84,000	$0	$0	$0	$0	$0	$0	$84,000
71	TOTAL CRAFT START-UP ASSISTANCE						$84,000		$0		$0		$0	$84,000

CONTRACTOR'S CONSTRUCTION INDIRECT COST - CONTRACTOR'S CONSTRUCTION FEE

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	LABOR UNIT COST	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
99	CONTRACTOR'S CONSTRUCTION FEE											
	LABOR	$4,142,147	LAB$	9.4%	$388,067							$388,067
	MATERIAL	$3,406,075	MAT$					15.0%	$510,911			$510,911
	SUBCONTRACT	$5,425,812	SUB$							10.0%	$542,581	$542,581
99	TOTAL CONTRACTOR'S CONSTRUCTION FEE				$388,067		$0		$510,911		$542,581	$1,441,559

TOTAL CONTRACTOR'S CONSTRUCTION FEE AS A % OF TOTAL CONSTRUCTION COST - EQUIP. =	10%

TOTAL CONSTRUCTION COST LESS PROCESS EQUIPMENT = $14,415,593

PROJECT INDIRECT COST - CONSTRUCTION MANAGEMENT

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
88	TOTAL CONSTRUCTION MANAGEMENT												
	TOTAL - CONSTRUCTION MANAGEMENT	1	LOT		0	$0.00	$0	$0.00	$0	$1,551,000	$1,551,000	$1,551,000	$1,551,000
88	TOTAL - CONSTRUCTION MANAGEMENT				0		$0		$0		$1,551,000		$1,551,000

PROJECT INDIRECT COST - ENGINEERING PROFESSIONAL SERVICES

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIME CODE

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	LABOR UNIT COST	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
90	ENGINEERING PROFESSIONAL SERVICES															
	JACOBS	1	LOT		0	$0.00	$0.00	$0	$0	$0	$0	$0	$3,445,000	$3,445,000	$3,445,000	$3,445,000
90	TOTAL ENGINEERING PROFESSIONAL SERVICES							$0		$0		$0		$3,445,000		$3,445,000

PROJECT INDIRECT COST - STUDY COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
90	STUDY COST										
	STUDY COST	1	LOT	$0	$0	$0	$0	$0	$50,000	$50,000	$50,000
90	STUDY COST			$0		$0		$0		$50,000	$50,000

PROJECT INDIRECT COST - OUTSIDE CONSULTANT SERVICES

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
96	OUTSIDE CONSULTANT SERVICES										
	OUTSIDE CONSULTANT SERVICES	1	LOT	$0	$0	$0	$0	$0	$100,000	$100,000	$100,000
96	TOTAL OUTSIDE CONSULTANT SERVICES			$0		$0		$0		$100,000	$100,000

PROJECT INDIRECT COST - OWNER'S COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
91	OWNER'S COST										
	OWNER'S COST	1	LOT	$0	$0	$0	$0	$0	$1,046,000	$1,046,000	$1,046,000
91	TOTAL OWNER'S COST			$0		$0		$0		$1,046,000	$1,046,000

PROJECT INDIRECT COST - SPARE PARTS

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL -
BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REI

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
70	SPARE PARTS										
	SPARE PARTS - ALLOWANCE OF 5% OF EQUIPMENT COST	1	LOT	$0	$375,762	$375,762	$0	$0	$0	$0	$375,762
70	TOTAL SPARE PARTS			$0		$375,762		$0		$0	$375,762

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - I

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
71	NON-CRAFT START-UP ASSISTANCE													
	PROFESSIONAL SERVICES START-UP	6	WK	300.00	1,800	$83.25	$149,850	$0	$0	$0	$0	$0	$0	$149,850
	PROFESSIONAL SERVICES START-UP - EXPENSES	6	WK	0.00	0	$0.00	$0	$0	$0	$0	$0	$10,800	$64,800	$64,800
	VENDOR START-UP SERVICES	1	LOT		0	$0.00	$0	$0	$0	$0	$0	$150,000	$150,000	$150,000
71	TOTAL NON-CRAFT START-UP ASSISTANCE						$149,850		$0		$0		$214,800	$364,650

PROJECT INDIRECT COSTS - ALLOWANCE FOR UNFORESEEN

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

AFU G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls]PRIME CODE TCS

PRIME CODE	PRIME CODE	DESCRIPTION	LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST	PERCENTAGES LABOR	EQUIP.	MAT'L	S/C	DOLLARS LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST
		DIRECT COSTS														
98	50	MAJOR EQUIPMENT	$1,367,376	$6,423,070	$96,348	$1,435,000	$9,321,792	10.0%	10.0%	10.0%	10.0%	$136,738	$642,307	$9,635	$143,500	$932,179
98	51	DEMOLITION	$167,011	$0	$0	$0	$167,011	10.0%	10.0%	10.0%	10.0%	$16,701	$0	$0	$0	$16,701
98	52	SITE EARTHMOVING	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	53	SITE IMPROVEMENTS	$0	$0	$0	$350,470	$350,470	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$35,047	$35,047
98	54	PILING, CAISSONS	$0	$0	$0	$978,788	$978,788	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$97,879	$97,879
98	55	BUILDINGS	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	56	CONCRETE	$279,654	$0	$279,654	$0	$559,308	10.0%	10.0%	10.0%	10.0%	$27,965	$0	$27,965	$0	$55,931
98	57	MASONRY, REFRACTORY	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	58	STRUCTURAL STEEL	$493,453	$0	$1,399,400	$0	$1,892,854	10.0%	10.0%	10.0%	10.0%	$49,345	$0	$139,940	$0	$189,285
98	59	ROOFING AND SIDING	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	60	FIRE PROOFING	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	61	PROCESS DUCTWORK (NON-BUILDING)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	62	PIPING	$516,400	$0	$516,400	$0	$1,032,799	10.0%	10.0%	10.0%	10.0%	$51,640	$0	$51,640	$0	$103,280
98	63	INSULATION - PIPE, EQUIPMENT & DUCTWORK	$0	$0	$0	$2,016,627	$2,016,627	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$201,663	$201,663
98	64	INSTRUMENTATION	$223,211	$456,260	$436,260	$0	$1,145,730	10.0%	10.0%	10.0%	10.0%	$22,321	$45,626	$43,626	$0	$114,573
98	65	ELECTRICAL	$242,397	$605,916	$484,733	$0	$1,333,046	10.0%	10.0%	10.0%	10.0%	$24,237	$60,592	$48,473	$0	$133,302
98	66	PAINTING, PROTECTIVE COATINGS	$46,609	$0	$46,609	$0	$93,218	10.0%	10.0%	10.0%	10.0%	$4,661	$0	$4,661	$0	$9,322
98	67	FURNITURE, LAB & SHOP EQUIPMENT	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
		TOTAL DIRECT COSTS	$3,336,080	$7,515,246	$3,259,402	$4,780,886	$18,891,614					$333,608	$751,525	$325,940	$478,089	$1,889,161
		CONSTRUCTION INDIRECT COSTS														
98	75	CONSTRUCTION SUPPORT LABOR	$518,536	$0	$0	$0	$518,536	10.0%	10.0%	10.0%	10.0%	$51,854	$0	$0	$0	$51,854
98	76	TEMPORARY CONSTRUCTION FACILITIES (IN WAGE RATE	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	78	PREMIUM TIME	$203,529	$0	$0	$0	$203,529	10.0%	10.0%	10.0%	10.0%	$20,353	$0	$0	$0	$20,353
98	79	CRAFT FRINGE BENEFITS (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98		CRAFT PER DIEM ($7 PER HOUR ON 100 % OF THE HOURS	$0	$0	$0	$537,357	$537,357	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$53,736	$53,736
98	80	PAYROLL TAXES & INSURANCE (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	83	SMALL TOOLS (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	84	CONSUMABLE SUPPLIES (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	85	CONSTRUCTION EQUIPMENT (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	87	FIELD STAFF (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	81	NON-PAYROLL TAX, INSURANCE & PERMITS	$0	$338,186	$148,673	$107,570	$592,429	10.0%	10.0%	10.0%	10.0%	$0	$33,819	$14,867	$10,757	$59,243
98	93	CONSTRUCTION HOME OFFICE COST (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	71	CRAFT START-UP ASSISTANCE	$84,000	$0	$0	$0	$84,000	10.0%	10.0%	10.0%	10.0%	$8,400	$0	$0	$0	$8,400
98	99	CONTRACTOR'S CONSTRUCTION FEE	$388,067	$0	$510,911	$542,581	$1,441,559	10.0%	10.0%	10.0%	10.0%	$38,807	$0	$51,091	$54,258	$144,156
		TOTAL CONSTRUCTION INDIRECT COSTS										$119,413	$33,819	$65,758	$118,751	$337,741
		TOTAL CONSTRUCTION COSTS (TCC)	$4,530,214	$7,853,432	$3,916,986	$5,968,384	$22,269,026					$453,021	$785,343	$391,699	$596,839	$2,226,903
98	88	CONSTRUCTION MANAGEMENT	$0	$0	$0	$1,551,000	$1,551,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$155,100	$155,100
98	89	ENGINEERING PROFESSIONAL SERVICES	$0	$0	$0	$3,445,000	$3,445,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$344,500	$344,500
98	90	STUDY COST	$0	$0	$0	$50,000	$50,000	10.0%	10.0%	10.0%	0.0%	$0	$0	$0	$0	$0
98	96	OUTSIDE CONSULTANT SERVICES	$0	$0	$0	$100,000	$100,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$10,000	$10,000
98	91	OWNER'S COST	$0	$0	$0	$1,046,000	$1,046,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$104,600	$104,600
98	70	SPARE PARTS	$0	$375,762	$0	$0	$375,762	10.0%	10.0%	10.0%	10.0%	$0	$37,576	$0	$0	$37,576
98	71	NON-CRAFT START-UP ASSISTANCE	$149,850	$0	$0	$214,800	$364,650	10.0%	10.0%	10.0%	10.0%	$14,985	$0	$0	$21,480	$36,465
98	93	ALLOWANCE FOR UNFORESEEN	N/A													
98	98	ESCALATION	N/A													
98	99	EPC FEE	N/A													
		CAPITAL INTEREST	N/A													
		ROUND OFF	N/A													
98		**TOTAL PROJECT COSTS**	$4,680,064	$8,229,195	$3,916,986	$12,375,184	$29,201,438					$468,006	$822,919	$391,699	$1,232,519	$2,915,144

PROJECT INDIRECT COSTS - ESCALATION

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
ESC G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP\(16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER - ESP_R1.xls)PRIME CODE TCS

ESCALATION IS BASED ON THE ASSUMPTION THAT ALL WORK WILL BE COMPLETED BY DECEMBER 31, 2007

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

PRIME CODE	PRIME CODE	DESCRIPTION	LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST	PERCENTAGES LABOR	EQUIP.	MAT'L	S/C	DOLLARS LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST
		DIRECT COSTS														
98	50	MAJOR EQUIPMENT	$1,367,376	$6,423,070	$96,348	$1,435,000	$9,321,792	5.0%	10.0%	10.0%	5.0%	$68,369	$642,307	$9,635	$71,750	$792,060
98	51	DEMOLITION	$167,011	$0	$0	$0	$167,011	5.0%	10.0%	10.0%	5.0%	$8,351	$0	$0	$0	$8,351
98	52	SITE EARTHMOVING	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	53	SITE IMPROVEMENTS	$0	$0	$0	$350,470	$350,470	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$17,524	$17,524
98	54	PILING, CAISSONS	$0	$0	$0	$978,788	$978,788	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$48,939	$48,939
98	55	BUILDINGS	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	56	CONCRETE	$279,654	$0	$279,654	$0	$559,308	5.0%	10.0%	15.0%	5.0%	$13,983	$0	$41,948	$0	$55,931
98	57	MASONRY, REFRACTORY	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	58	STRUCTURAL STEEL	$493,453	$0	$1,399,400	$0	$1,892,854	5.0%	10.0%	15.0%	5.0%	$24,673	$0	$209,910	$0	$234,583
98	59	ROOFING AND SIDING	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	60	FIRE PROOFING	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	61	PROCESS DUCTWORK (NON-BUILDING)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	62	PIPING	$516,400	$0	$516,400	$0	$1,032,799	5.0%	10.0%	15.0%	5.0%	$25,820	$0	$77,460	$0	$103,280
98	63	INSULATION - PIPE, EQUIPMENT & DUCTWORK	$0	$0	$0	$2,016,627	$2,016,627	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$100,831	$100,831
98	64	INSTRUMENTATION	$223,211	$486,280	$436,280	$0	$1,145,730	5.0%	10.0%	15.0%	5.0%	$11,161	$48,628	$65,439	$0	$125,228
98	65	ELECTRICAL	$242,367	$805,916	$484,733	$0	$1,333,016	5.0%	10.0%	15.0%	5.0%	$12,118	$80,592	$72,710	$0	$145,420
98	66	PAINTING, PROTECTIVE COATINGS	$46,609	$0	$46,609	$0	$93,218	5.0%	10.0%	10.0%	5.0%	$2,330	$0	$4,661	$0	$6,991
98	67	FURNITURE, LAB & SHOP EQUIPMENT	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
		TOTAL DIRECT COSTS	$3,336,080	$7,515,246	$3,259,402	$4,780,886	$18,891,614					$166,804	$751,525	$481,763	$239,044	$1,639,135
		CONSTRUCTION INDIRECT COSTS														
98	75	CONSTRUCTION SUPPORT LABOR	$518,538	$0	$0	$0	$518,538	5.0%	10.0%	10.0%	5.0%	$25,927	$0	$0	$0	$25,927
98	76	TEMPORARY CONSTRUCTION FACILITIES (IN WAGE RATE	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	78	PREMIUM TIME	$203,529	$0	$0	$0	$203,529	5.0%	10.0%	10.0%	5.0%	$10,176	$0	$0	$0	$10,176
98	79	CRAFT FRINGE BENEFITS (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98		CRAFT PER DIEM ($7 PER HOUR ON 100 % OF THE HOURS	$0	$0	$0	$537,357	$537,357	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$26,868	$26,868
98	80	PAYROLL TAXES & INSURANCE (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	83	SMALL TOOLS (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	84	CONSUMABLE SUPPLIES (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	85	CONSTRUCTION EQUIPMENT (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	87	FIELD STAFF (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	91	NON-PAYROLL TAX, INSURANCE & PERMITS	$0	$338,166	$146,673	$107,570	$592,429	5.0%	10.0%	10.0%	5.0%	$0	$33,819	$14,667	$5,378	$53,864
98	93	CONSTRUCTION HOME OFFICE COST (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	71	CRAFT START-UP ASSISTANCE	$84,000	$0	$0	$0	$84,000	5.0%	10.0%	10.0%	5.0%	$4,200	$0	$0	$0	$4,200
98	99	CONTRACTOR'S CONSTRUCTION FEE	$388,067	$0	$510,911	$542,581	$1,441,559	5.0%	10.0%	10.0%	5.0%	$19,403	$0	$51,091	$27,129	$97,624
		TOTAL CONSTRUCTION INDIRECT COSTS										$59,707	$33,819	$65,758	$59,375	$218,659
		TOTAL CONSTRUCTION COSTS (TCC)	$4,530,214	$7,853,432	$3,916,988	$5,968,394	$22,269,026					$226,511	$785,343	$547,521	$298,420	$1,857,795
98	88	CONSTRUCTION MANAGEMENT	$0	$0	$0	$1,551,000	$1,551,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$77,550	$77,550
98	90	ENGINEERING PROFESSIONAL SERVICES	$0	$0	$0	$3,445,000	$3,445,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$172,250	$172,250
98	90	STUDY COST	$0	$0	$0	$50,000	$50,000	5.0%	0.0%	0.0%	0.0%	$0	$0	$0	$0	$0
98	96	OUTSIDE CONSULTANT SERVICES	$0	$0	$0	$100,000	$100,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$5,000	$5,000
98	81	OWNER'S COST	$0	$0	$0	$1,046,000	$1,046,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$52,300	$52,300
98	70	SPARE PARTS	$0	$375,762	$0	$0	$375,762	5.0%	10.0%	0.0%	0.0%	$0	$37,576	$0	$0	$37,576
98	71	NON-CRAFT START-UP ASSISTANCE	$149,850	$0	$0	$214,800	$364,650	5.0%	0.0%	0.0%	5.0%	$7,493	$0	$0	$10,740	$18,233
98	98	ALLOWANCE FOR UNFORESEEN	N / A													
98	98	ESCALATION	N / A													
98	99	EPC FEE	N / A													
		CAPITAL INTEREST	N / A													
		ROUND OFF	N / A													
98		TOTAL PROJECT COSTS	$4,680,064	$8,229,195	$3,916,988	$12,375,194	$29,201,438					$234,003	$822,919	$547,521	$618,260	$2,220,703

CONSTRUCTION "ALL-IN" WAGE RATE

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - CFB SCRUBBER / ESP
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300

	CRAFT CONCRETE / MASONRY			CRAFT STRUCTURAL STEEL			CRAFT PIPING & MECHANICAL			CRAFT INSTRUMENTATION			CRAFT ELECTRICAL			CRAFT SUPPORT (INC. OPERATORS)		
ITEM	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST
BASE JOURNEYMAN			$22.50			$22.50			$22.50			$22.50			$22.50			$21.50
COMPOSITE RATE		87.35%	$19.65		96.41%	$21.69		99.86%	$22.47		98.78%	$22.23		98.78%	$22.23		97.37%	$20.93
PAYROLL TAXES & INSURANCES:	33.60%																	
WORKMEN'S COMPENSATION		14.70%	$2.89		14.70%	$3.19		14.70%	$3.30		14.70%	$3.27		14.70%	$3.27		14.70%	$3.08
GENERAL LIABILITY		3.95%	$0.76		3.95%	$0.86		3.95%	$0.89		3.95%	$0.88		3.95%	$0.88		3.95%	$0.83
EXCESS LIABILITY		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
FICA		7.65%	$1.50		7.65%	$1.66		7.65%	$1.72		7.65%	$1.70		7.65%	$1.70		7.65%	$1.60
FUI		0.80%	$0.16		0.80%	$0.17		0.80%	$0.18		0.80%	$0.18		0.80%	$0.18		0.80%	$0.17
SUI		6.50%	$1.28		6.50%	$1.41		6.50%	$1.46		6.50%	$1.44		6.50%	$1.44		6.50%	$1.36
OTHER		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
FRINGES		12.50%	$2.46		12.50%	$2.71		12.50%	$2.81		12.50%	$2.78		12.50%	$2.78		12.50%	$2.62
PREMIUM TIME		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
CONSTRUCTION SUPPORT LABOR		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
TEMPORARY FACILITIES		7.50%	$1.47		7.50%	$1.63		7.50%	$1.69		7.50%	$1.67		7.50%	$1.67		7.50%	$1.57
SMALL TOOLS		7.50%	$1.47		7.50%	$1.63		7.50%	$1.69		7.50%	$1.67		7.50%	$1.67		7.50%	$1.57
CONSUMABLES		7.50%	$1.47		10.00%	$2.17		10.00%	$2.25		7.50%	$1.67		7.50%	$1.67		7.50%	$1.57
FIELD STAFF		25.00%	$4.91		25.00%	$5.42		35.00%	$7.86		35.00%	$7.78		35.00%	$7.78		25.00%	$5.23
EQUIPMENT RENTAL		40.00%	$7.86		35.00%	$7.59		35.00%	$7.86		25.00%	$5.56		25.00%	$5.56		0.00%	$0.00
CONSTRUCTION HOME OFFICE (ON TCS SHEET)		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
PER DIEM		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
CONTRACTOR FEE (ON TCS SHEET)		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
TOTAL WAGE RATE WITH FEE		233.60%	$45.91		231.10%	$50.13		241.10%	$54.17		228.60%	$50.81		228.60%	$50.81		193.60%	$40.53

TOTAL COST SUMMARY - JE PRIME CODE

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

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PRIME CODE	DESCRIPTION	W-H	QTY	UNIT	LABOR	EQUIPMENT	MATERIAL	SUBCONTRACT	TOTAL COST
	DIRECT COSTS								
50	MAJOR EQUIPMENT	11,654	0	0	$631,327	$2,056,930	$30,854	$1,175,000	$3,894,111
51	DEMOLITION	725	0	0	$39,274	$0	$0	$0	$39,274
52	SITE EARTHMOVING	0	0	0	$0	$0	$0	$0	$0
53	SITE IMPROVEMENTS	0	0	0	$0	$0	$0	$292,058	$292,058
54	PILING, CAISSONS	0	2,726	LF	$0	$0	$0	$272,588	$272,588
55	BUILDINGS	0	1	LOT	$0	$0	$0	$0	$0
56	CONCRETE	1,505	125	CY	$69,073	$0	$62,359	$0	$131,432
57	MASONRY, REFRACTORY	0	0	0	$0	$0	$0	$0	$0
58	STRUCTURAL STEEL	4,793	137	TN	$240,252	$0	$395,844	$0	$636,097
59	ROOFING AND SIDING	0	0	0	$0	$0	$0	$0	$0
60	FIRE PROOFING	0	0	0	$0	$0	$0	$0	$0
61	PROCESS DUCTWORK (NON-BUILDING)	0	0	0	$0	$0	$0	$0	$0
62	PIPING	9,283	3,094	LF	$502,849	$0	$502,849	$0	$1,005,698
63	INSULATION - PIPE, EQUIPMENT & DUCTWORK	0	1	LOT	$0	$0	$0	$713,823	$713,823
64	INSTRUMENTATION	1,250	62	EA	$63,492	$168,823	$116,823	$0	$347,139
65	ELECTRICAL	1,916	7,664	LF	$97,353	$243,382	$194,706	$0	$535,440
66	PAINTING, PROTECTIVE COATINGS	424	15,576	SF	$19,471	$0	$19,471	$0	$38,941
67	FURNITURE, LAB & SHOP EQUIPMENT	0	0	0	$0	$0	$0	$0	$0
	TOTAL DIRECT COSTS	31,549			$1,663,092	$2,467,135	$1,322,906	$2,453,469	$7,906,603
	$ / WH	$52.71							
	CONSTRUCTION INDIRECT COSTS								
75	CONSTRUCTION SUPPORT LABOR	6,310			$255,729	$0	$0	$0	$255,729
76	TEMPORARY CONSTRUCTION FACILITIES (IN WAGE RATES)				$0	$0	$0	$0	$0
78	PREMIUM TIME				$101,463	$0	$0	$0	$101,463
79	CRAFT FRINGE BENEFITS (IN WAGE RATES)				$0	$0	$0	$0	$0
	CRAFT PER DIEM ($7 PER HOUR ON 100 % OF THE HOURS)				$0	$0	$0	$265,010	$265,010
80	PAYROLL TAXES & INSURANCE (IN WAGE RATES)				$0	$0	$0	$0	$0
83	SMALL TOOLS (IN WAGE RATES)				$0	$0	$0	$0	$0
84	CONSUMABLE SUPPLIES (IN WAGE RATES)				$0	$0	$0	$0	$0
85	CONSTRUCTION EQUIPMENT (IN WAGE RATES)				$0	$0	$0	$0	$0
87	FIELD STAFF (IN WAGE RATES)				$0	$0	$0	$0	$0
81	NON-PAYROLL TAX, INSURANCE & PERMITS				$0	$111,021	$59,531	$55,203	$225,755
93	CONSTRUCTION HOME OFFICE COST (IN WAGE RATES)				$0	$0	$0	$0	$0
71	CRAFT START-UP ASSISTANCE	450			$31,500	$0	$0	$0	$31,500
99	CONTRACTOR'S CONSTRUCTION FEE		10.0%	TCC - EQ.	$205,034	$0	$207,366	$277,368	$689,767
	TOTAL CONSTRUCTION INDIRECT COSTS	6,760			$593,725	$111,021	$266,896	$597,582	$1,569,224
	TOTAL CONSTRUCTION COSTS (TCC)	38,309			$2,256,817	$2,578,156	$1,589,803	$3,051,051	$9,475,827
	$ / WH	$78.48							
	PROJECT INDIRECT COSTS								
88	CONSTRUCTION MANAGEMENT		4.5%	TIC	$0	$0	$0	$661,000	$661,000
90	ENGINEERING PROFESSIONAL SERVICES		10.0%	TIC	$0	$0	$0	$1,473,000	$1,473,000
90	STUDY COST		0.3%	TIC	$0	$0	$0	$50,000	$50,000
96	OUTSIDE CONSULTANT SERVICES				$0	$0	$0	$100,000	$100,000
91	OWNER'S COST		3.0%	TIC	$0	$0	$0	$445,364	$445,364
70	SPARE PARTS				$0	$123,357	$0	$0	$123,357
71	NON-CRAFT START-UP ASSISTANCE				$49,950	$0	$0	$69,200	$119,150
98	ALLOWANCE FOR UNFORESEEN		8.4%	TIC	$230,677	$270,151	$158,980	$579,961	$1,239,770
98	ESCALATION		6.1%	TIC	$115,338	$270,151	$222,609	$289,981	$898,080
	AIR INFILTRATION ALLOWANCE				$0	$0	$0	$100,000	$100,000
	ROUND OFF				$218	$184	($392)	($556)	($546)
	TOTAL PROJECT COSTS	38,309			$2,653,000	$3,242,000	$1,971,000	$6,819,000	$14,685,000
	$ / WH	$78.48							

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST - DETAILS														
1		MAJOR EQUIPMENT														
2																
3	50	BAGHOUSE OUTLET NOZZLE	2,100	LB	0.04	84	$54.17	$4,550	$3.50	$7,350	$0.00	$0	$0.00	$0	$5.67	$11,900
4	50															
5	50	EXPANSION JOINT - BAGHOUSE OUTLET	1	EA	80.00	80	$54.17	$4,334	$4,000	$4,000	$0.00	$0	$0.00	$0	$8,334	$8,334
6	50															
7	50	DUCTWORK - BAGHOUSE OUTLET TO INLET OF NEW ID FAN	126,000	LB	0.04	5,040	$54.17	$273,024	$3.50	$441,000	$0.00	$0	$0.00	$0	$5.67	$714,024
8	50															
9	50	EXPANSION JOINT - ID FAN INLET	2	EA	80.00	160	$54.17	$8,667	$3,000	$6,000	$0.00	$0	$0.00	$0	$7,334	$14,667
10	50															
11	50	NEW ID FAN	1	EA	600.00	600	$54.17	$32,503	$262,000	$262,000	$0.00	$0	$0.00	$0	$294,503	$294,503
12	50	MOTOR, ID FAN, 2000 HP @ 1200 RPM	1	EA	264.00	264	$54.17	$14,301	$192,000	$192,000	$0.00	$0	$0.00	$0	$206,301	$206,301
13	50	LCI DRIVE	1	EA	250.00	250	$54.17	$13,543	$144,000	$144,000	$0.00	$0	$0.00	$0	$157,543	$157,543
14	50															
15	50	NEW ID FAN - INLET DAMPERS AND DRIVES	2	EA	100.00	200	$54.17	$10,834	INC. W/ ID FAN	$0	$0.00	$0	$0.00	$0	$5,417	$10,834
16	50															
17	50	NEW ID FAN - BEARING LUBE SYSTEM PUMPS	2	EA	34.00	68	$54.17	$3,684	INC. W/ ID FAN	$0	$0.00	$0	$0.00	$0	$1,842	$3,684
18	50	MOTOR - NEW ID FAN - BEARING LUBE SYSTEM PUMPS, 5 HP @ 1800 RPM	2	EA	6.00	12	$54.17	$650	INC. W/ ID FAN	$0	$0.00	$0	$0.00	$0	$325.33	$650
19	50															
20	50	EXPANSION JOINT - ID FAN OUTLET	1	EA	80.00	80	$54.17	$4,334	$5,000	$5,000	$0.00	$0	$0.00	$0	$9,334	$9,334
21	50															
22	50	DUCTWORK - ID FAN TO SPRAY TOWER SCRUBBER INLET	22,500	LB	0.04	900	$54.17	$48,754	$3.50	$78,750	$0.00	$0	$0.00	$0	$5.67	$127,504
23	50															
24	50	EXPANSION JOINT - SPRAY TOWER SCRUBBER INLET	1	EA	80.00	80	$54.17	$4,334	$5,000	$5,000	$0.00	$0	$0.00	$0	$9,334	$9,334
25	50															
26	50	SPRAY TOWER SCRUBBER - 15'-6" DIAMETER X 43'-3" TALL, 316L SS - FOUR SPRAY ZONES	1	EA	2,700.00	2,700	$54.17	$146,263	$604,000	$604,000	$0.00	$0	$0.00	$0	$750,263	$750,263
27	50															
28	50	SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 1, 1320 GPM @ 150 FT TDH (GOULDS 3196 6 X 8 -13)	1	EA	56.00	56	$54.17	$3,034	$14,500	$14,500	$0.00	$0	$0.00	$0	$17,534	$17,534
29	50	MOTOR, SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 1, 100 HP @ 1800 RPM	1	EA	30.00	30	$54.17	$1,625	INCLUDED	$0	$0.00	$0	$0.00	$0	$1,625.14	$1,625
30	50															
31	50	SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 2, 1320 GPM @ 150 FT TDH (GOULDS 3196 6 X 8 -13)	1	EA	56.00	56	$54.17	$3,034	$14,500	$14,500	$0.00	$0	$0.00	$0	$17,534	$17,534
32	50	MOTOR, SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 2, 100 HP @ 1800 RPM	1	EA	30.00	30	$54.17	$1,625	INCLUDED	$0	$0.00	$0	$0.00	$0	$1,625.14	$1,625
33	50															
34	50	SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 3, 1320 GPM @ 150 FT TDH (GOULDS 3196 6 X 8 -13)	1	EA	56.00	56	$54.17	$3,034	$14,500	$14,500	$0.00	$0	$0.00	$0	$17,534	$17,534
35	50	MOTOR, SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 3, 100 HP @ 1800 RPM	1	EA	30.00	30	$54.17	$1,625	INCLUDED	$0	$0.00	$0	$0.00	$0	$1,625.14	$1,625
36	50															
37	50	SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 4, 1320 GPM @ 150 FT TDH (GOULDS 3196 6 X 8 -13)	1	EA	56.00	56	$54.17	$3,034	$14,500	$14,500	$0.00	$0	$0.00	$0	$17,534	$17,534
38	50	MOTOR, SPRAY TOWER SCRUBBER RECYCLE PUMP NO. 4, 100 HP @ 1800 RPM	1	EA	30.00	30	$54.17	$1,625	INCLUDED	$0	$0.00	$0	$0.00	$0	$1,625.14	$1,625
39	50															
40	50	50% CAUSTIC DAY TANK - 13' DIAMETER X 18' STRAIGHT SIDE, CARBON STEEL, 215,000 LBS FULL	1	EA	200.00	200	$54.17	$10,834	$55,000	$55,000	$0.00	$0	$0.00	$0	$65,834	$65,834
41	50															
42	50	BAYONET TANK HEATER NO. 1, 150 KW	1	EA	30.00	30	$54.17	$1,625	$11,200	$11,200	$0.00	$0	$0.00	$0	$12,825	$12,825
43	50															
44	50	BAYONET TANK HEATER NO. 2, 150 KW	1	EA	30.00	30	$54.17	$1,625	$11,200	$11,200	$0.00	$0	$0.00	$0	$12,825	$12,825
45	50															
46	50	BAYONET TANK HEATER NO. 3, 150 KW	1	EA	30.00	30	$54.17	$1,625	$11,200	$11,200	$0.00	$0	$0.00	$0	$12,825	$12,825
47	50															
48	50	BAYONET TANK HEATER NO. 4, 150 KW	1	EA	30.00	30	$54.17	$1,625	$11,200	$11,200	$0.00	$0	$0.00	$0	$12,825	$12,825
49	50															
50	50	50% CAUSTIC METERING PUMP NO. 1, 2 GPM @ 230 FT TDH	1	EA	32.00	32	$54.17	$1,733	$7,300	$7,300	$0.00	$0	$0.00	$0	$9,033	$9,033
51	50	MOTOR, 50% CAUSTIC METERING PUMP NO. 1, 2 HP @ 1800 RPM	1	EA	4.00	4	$54.17	$217	INCLUDED	$0	$0.00	$0	$0.00	$0	$216.69	$217
52	50	VFD, 50% CAUSTIC METERING PUMP NO. 1	1	EA	8.00	8	$54.17	$433	$5,000	$5,000	$0.00	$0	$0.00	$0	$5,433	$5,433
53	50															
54	50	50% CAUSTIC METERING PUMP NO. 2, 2 GPM @ 230 FT TDH	1	EA	32.00	32	$54.17	$1,733	$7,300	$7,300	$0.00	$0	$0.00	$0	$9,033	$9,033
55	50	MOTOR, 50% CAUSTIC METERING PUMP NO. 2, 2 HP @ 1800 RPM	1	EA	4.00	4	$54.17	$217	INCLUDED	$0	$0.00	$0	$0.00	$0	$216.69	$217
56	50	VFD, 50% CAUSTIC METERING PUMP NO. 2	1	EA	8.00	8	$54.17	$433	$5,000	$5,000	$0.00	$0	$0.00	$0	$5,433	$5,433
57	50															
58	50	SPRAY TOWER SCRUBBER INSTRUMENTATION	1	LOT	INC. W/ SPRAY TOWER SCRUBBER	0	$54.17	$0	INC. W/ SPRAY TOWER SCRUBBER	$0	$0.00	$0	$0.00	$0	$0	$0
59	50															
60	50	SPRAY TOWER SCRUBBER OVERFLOW SEAL POT	1	EA	20.00	20	$54.17	$1,083	$3,000	$3,000	$0.00	$0	$0.00	$0	$4,083	$4,083
61	50															
62	50	EXPANSION JOINT - SPRAY TOWER SCRUBBER OUTLET	1	EA	80.00	80	$54.17	$4,334	$6,000	$6,000	$0.00	$0	$0.00	$0	$10,334	$10,334
63	50															
64	50	STACK - 8'-3" DIAMETER, 316L SS, 136' SECTION, 199' TOP ELEVATION	1	EA	S / C	0	$54.17	$0	$0	$0	$0.00	$0	$775,000	$775,000	$775,000	$775,000
65	50															
66	50															
67	50	FREIGHT	1	LOT	N / A	0	$54.17	$0	$116,430	$116,430	$0.00	$0	$0.00	$0	$116,430	$116,430
68	50	SHIMS AND GROUT	1	LOT	284.25	284	$54.17	$15,398	$0	$0	$30,854	$30,854	$0.00	$0	$46,252	$46,252
71	50	RIGGING AND HEAVY LIFTS	1	LOT	S / C	0	$54.17	$0	$0	$0	$0.00	$0	$400,000	$400,000	$400,000	$400,000
73																
74	50	TOTAL - MAJOR EQUIPMENT				11,854	$54.17	$631,327		$2,056,930		$30,854		$1,175,000		$3,894,111
89																

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATA\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST - DETAILS														
90																
91		DEMOLITION														
92																
94	51	DEMO EXISTING ID FAN, INLET DAMPERS AND MOTOR	1	LOT	250.00	250	$54.17	$13,543	$0	$0	$0.00	$0	$0.00	$0	$13,543	$13,543
95	51	DEMO EXISTING ID FAN, INLET DAMPERS AND MOTOR - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	1	LOT	150.00	150	$54.17	$8,128	$0	$0	$0.00	$0	$0.00	$0	$8,128	$8,128
96	51	DEMO EXISTING BAGHOUSE OUTLET PLENUM, 1/4" DUCT. 27" IN AIR	2,100	LB	0.02	42	$54.17	$2,275	$0	$0	$0.00	$0	$0.00	$0	$1.08	$2,275
97	51	DEMO EXISTING BAGHOUSE OUTLET PLENUM, 1/4" DUCT. 27" IN AIR - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	140	SF	0.20	28	$54.17	$1,517	$0	$0	$0.00	$0	$0.00	$0	$10.83	$1,517
98	51	DEMO EXISTING DUCTWORK - BAGHOUSE TO ID FAN INLET	5,250	LB	0.02	105	$54.17	$5,688	$0	$0	$0.00	$0	$0.00	$0	$1.08	$5,688
99	51	DEMO EXISTING DUCTWORK - BAGHOUSE TO ID FAN INLET - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	350	SF	0.20	70	$54.17	$3,792	$0	$0	$0.00	$0	$0.00	$0	$10.83	$3,792
100	51	DEMO EXISTING DUCTWORK - ID FAN TO STACK	2,400	LB	0.02	48	$54.17	$2,600	$0	$0	$0.00	$0	$0.00	$0	$1.08	$2,600
101	51	DEMO EXISTING DUCTWORK - ID FAN TO STACK - INSULATION & LAGGING (ASSUMED NO ASBESTOS INSULATION TO BE REMOVED)	160	SF	0.20	32	$54.17	$1,733	$0	$0	$0.00	$0	$0.00	$0	$10.83	$1,733
116																
117	51	TOTAL - DEMOLITION				725	$54.17	$39,274		$0		$0		$0		$39,274
129																
130																
131		SITE IMPROVEMENTS														
132																
145	53	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	0.00	0	$45.91	$0	$0	$0	$0	$0	$292,058	$292,058	$292,058	$292,058
146																
147	53	TOTAL - SITE IMPROVEMENTS				0	$0.00	$0		$0		$0		$292,058		$292,058
148																
149																
150		PILING, CAISSONS														
151																
156	54	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	0.00	0	$45.91	$0	$0	$0	$0	$0	$272,588	$272,588	$272,588	$272,588
157																
158	54	TOTAL - PILING, CAISSONS	2,726	LF		0	$0.00	$0		$0		$0	$100.00	$272,588		$272,588
159																
160																
161	55	BUILDINGS														
162																
242																
243																
244		CONCRETE														
245																
246	56	CONTAINMENT DIKE FOR 50% CAUSTIC DAY TANK	12	CY	19.00	232	$45.91	$10,661	$0.00	$0	$323.00	$3,948	$0.00	$0	$1,195	$14,609
247	56															
250	56	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	1,272.33	1,272	$45.91	$58,412	$0	$0	$58,412	$58,412	$0	$0	$116,823	$116,823
251																
252	56	TOTAL - CONCRETE	125	CY	12.0	1,505	$45.91	$69,073		$0		$62,359		$0		$131,432
264																
265																
266		STRUCTURAL STEEL														
267																
291	58	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	4,792.62	4,793	$50.13	$240,252	$0	$0	$395,844	$395,844	$0	$0	$836,097	$836,097
292																
293	58	TOTAL - STRUCTURAL STEEL	137	TN	35.0	4,793	$50.13	$240,252		$0		$395,844		$0		$836,097
327																
328																
329		PIPING														
330																
367	62	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	9,282.55	9,283	$54.17	$502,849	$0	$0	$502,849	$502,849	$0	$0	$1,005,698	$1,005,698
368																
369	62	TOTAL - PIPING	3,094	LF	3.00	9,283	$54.17	$502,849		$0		$502,849		$0		$1,005,698
370																
371																
372		INSULATION - PIPE, EQUIPMENT & DUCTWORK														
373																
374																
375	63	INSULATION - BAGHOUSE OUTLET NOZZLE	140	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$7,000	$50.00	$7,000
376	63	INSULATION - DUCTWORK - BAGHOUSE OUTLET TO INLET OF NEW ID FAN	8,400	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$420,000	$50.00	$420,000
377	63	INSULATION - NEW ID FAN	1	LOT	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$25,000	$25,000	$25,000	$25,000
378	63	INSULATION - DUCTWORK - ID FAN TO SPRAY TOWER SCRUBBER INLET	1,500	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$75,000	$50.00	$75,000
379	63	INSULATION - 50% CAUSTIC DAY TANK - 13' DIAMETER X 18' STRAIGHT SIDE PLUS TOP & BOTTOM	1,400	SF	S / C	0	$45.91	$0	$0.00	$0	$0.00	$0	$50.00	$70,000	$50.00	$70,000
383	63															
388	63	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	S / C	0	$45.91	$0	$0	$0	$0	$0	$116,823	$116,823	$116,823	$116,823
389																

DETAIL DIRECT COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

LINE NO.	JE PRIME CODE	01 SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
		DIRECT COST- DETAILS														
390	63															
391		TOTAL - INSULATION - PIPE, EQUIPMENT & DUCTWORK	1	LOT		0	$0.00	$0		$0		$0		$713,823		$713,823
392																
393		INSTRUMENTATION														
394																
406	64	DRAFT SENSOR IN BOILER FURNACE	1	EA	100.00	100	$50.81	$5,081	$50,000	$50,000	$0.00	$0	$0.00	$0	$55,081	$55,081
407	64															
408	64	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	1,149.65	1,150	$50.81	$58,412	$116,823	$116,823	$116,823	$116,823	$0	$0	$292,058	$292,058
409																
410	64	TOTAL - INSTRUMENTATION	62	EA	20.00	1,250	$50.81	$63,492		$166,823		$116,823		$0		$347,139
411																
412																
413		ELECTRICAL														
414																
430	65	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	1,916.09	1,916	$50.81	$97,353	$243,382	$243,382	$194,706	$194,706	$0	$0	$535,440	$535,440
431																
432	65	TOTAL - ELECTRICAL	7,664	LF	0.25	1,916	$50.81	$97,353		$243,382		$194,706		$0		$535,440
433																
434																
435		PAINTING, PROTECTIVE COATINGS														
436																
441	66	*FACTORED FROM INSTALLED PROCESS EQUIPMENT COST*	1	LOT	424.11	424	$45.91	$19,471	$0	$0	$19,471	$19,471	$0	$0	$38,941	$38,941
442																
443	66	TOTAL - PAINTING, PROTECTIVE COATINGS	15,576	SF	0.03	424	$45.91	$19,471		$0		$19,471		$0	$2.50	$38,941
456																
457																
458																
459																
460																
461		TOTAL - DIRECT COST				31,549	$52.71	$1,663,092		$2,467,135		$1,322,906		$2,453,469		$7,906,603

CONTRACTOR'S CONSTRUCTION INDIRECT COST - CONSTRUCTION SUPPORT LABOR

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
75	**CONSTRUCTION SUPPORT LABOR**											
	(LABOR COST ONLY)											
	CAPITAL - CONSTRUCTION SUPPORT LABOR - ALLOWANCE @ 20 % OF DIRECT LABOR HOURS FOR BELOW LISTED ITEMS	31,549	WH	0.20	6,310	$40.53	$255,729	$0	$0	$0	$0	$255,729
	CONS EQUIP OPERATION - CRANE				0	$40.53	$0	$0	$0	$0	$0	$0
	WELDER QUALIFICATIONS				0	$40.53	$0	$0	$0	$0	$0	$0
	RAINED OUT LABOR				0	$40.53	$0	$0	$0	$0	$0	$0
	SAFETY TRAINING				0	$40.53	$0	$0	$0	$0	$0	$0
	SCAFFOLDING (Rental Incl. W/ Constr. Eq. Rental)				0	$40.53	$0	$0	$0	$0	$0	$0
	UNLOAD AND STORE BULK MATERIAL				0	$40.53	$0	$0	$0	$0	$0	$0
	WAREHOUSEMAN				0	$40.53	$0	$0	$0	$0	$0	$0
	TOOL MAN				0	$40.53	$0	$0	$0	$0	$0	$0
	FIRE WATCH				0	$40.53	$0	$0	$0	$0	$0	$0
	YARD CREWS				0	$40.53	$0	$0	$0	$0	$0	$0
	SPECIAL HAULING / RIGGING				0	$40.53	$0	$0	$0	$0	$0	$0
	STARTUP - CRAFTSMEN				0	$40.53	$0	$0	$0	$0	$0	$0
	CLEAN UP				0	$40.53	$0	$0	$0	$0	$0	$0
	EMPLOYMENT & RANDOM DRUG TESTS				0	$40.53	$0	$0	$0	$0	$0	$0
	MOVE IN / MOVE OUT LABOR				0	$40.53	$0	$0	$0	$0	$0	$0
	WATER / ICE				0	$40.53	$0	$0	$0	$0	$0	$0
75	**TOTAL - CONSTRUCTION SUPPORT LABOR**				6,310		$255,729		$0		$0	$255,729

CONTRACTOR'S CONSTRUCTION INDIRECT COST - PREMIUM TIME

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBI
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HEN
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION		TOTAL WEEKLY W.H.'S	TOTAL PREMIUM W.H.'S		PREMIUM COST ADDER	TOTAL COST
78	**PREMIUM & EFFICIENCY LOSS TIME CALCULATION WORKSHEET**						
	CAPITAL PREMIUM TIME COST:	BASED ON BARE WAGE RATE OF:				$23.31	
	TOTAL CRAFT HOURS:			37,859	HRS		
	CRAFT HOURS WORKED ON 40 HR WEEK **(0 HRS PT)**	0.0%	0	0	HRS		
	CRAFT HOURS WORKED ON 50 HR WEEK **(10 HRS PT)**	100.0%	37,859	7,572	HRS	$13.40	$101,463
	CRAFT HOURS WORKED ON 60 HR WEEK **(20 HRS PT)**	0.0%	0	0	HRS	$13.40	$0
	CRAFT HOURS WORKED ON 70 HR WEEK **(30 HRS PT)**	0.0%	0	0	HRS	$13.40	$0
	CRAFT HOURS WORKED ON 84 HR WEEK **(44 HRS PT)**	0.0%	0	0	HRS	$13.40	$0
		100.0%	37,859	7,572	HRS		
	TOTAL CAPITAL PREMIUM TIME COST						**$101,463**
78	**TOTAL**						**$101,463**

CONTRACTOR'S CONSTRUCTION INDIRECT COST - NON-PAYROLL TAX, INSURANCE AND PERMITS

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 -

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
81	**NON-PAYROLL TAX, INSURANCE AND PERMITS**									
	SALES & USE TAX									
	4.5% OF EQUIPMENT	$2,467,135	EQ $	4.50%	$111,021					$111,021
	4.5% OF MATERIAL	$1,322,906	MAT'L $			4.50%	$59,531			$59,531
	4.5% ON 50% OF SUBCONTRACTS	$1,226,735	SUB $					4.50%	$55,203	$55,203
81	**TOTAL NON-PAYROLL TAX, INSURANCE AND PERMITS**				**$111,021**		**$59,531**		**$55,203**	**$225,755**

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER_R1

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
71	CRAFT START-UP ASSISTANCE													
	CRAFT START-UP SERVICES (3 CRAFT PERSONNEL @ 50 HOURS EACH)	3	WK	150.00	450	$70.00	$31,500	$0	$0	$0	$0	$0	$0	$31,500
71	TOTAL CRAFT START-UP ASSISTANCE						$31,500		$0		$0		$0	$31,500

CONTRACTOR'S CONSTRUCTION INDIRECT COST - CONTRACTOR'S CONSTRUCTION FEE

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SC

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	LABOR UNIT COST	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
99	CONTRACTOR'S CONSTRUCTION FEE											
	LABOR	$2,051,784	LAB$	10.0%	$205,034							$205,034
	MATERIAL	$1,382,437	MAT$					15.0%	$207,366			$207,366
	SUBCONTRACT	$2,773,683	SUB$							10.0%	$277,368	$277,368
99	TOTAL CONTRACTOR'S CONSTRUCTION FEE				$205,034		$0		$207,366		$277,368	$689,767

TOTAL CONTRACTOR'S CONSTRUCTION FEE AS A % OF TOTAL CONSTRUCTION COST - EQUIP. = 10%

TOTAL CONSTRUCTION COST LESS PROCESS EQUIPMENT = $6,897,671

PROJECT INDIRECT COST - CONSTRUCTION MANAGEMENT

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REM

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
88	**TOTAL CONSTRUCTION MANAGEMENT**												
	TOTAL - CONSTRUCTION MANAGEMENT	1	LOT		0	$0.00	$0	$0.00	$0	$661,000	$661,000	$661,000	$661,000
88	**TOTAL - CONSTRUCTION MANAGEMENT**				0		$0		$0		$661,000		$661,000

PROJECT INDIRECT COST - ENGINEERING PROFESSIONAL SERVICES

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER_R1.xls]PF

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	LABOR UNIT COST	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	UNIT COST	TOTAL ALL COSTS
90	ENGINEERING PROFESSIONAL SERVICES															
	JACOBS	1	LOT		0	$0.00	$0.00	$0	$0	$0	$0	$0	$1,473,000	$1,473,000	$1,473,000	$1,473,000
90	TOTAL ENGINEERING PROFESSIONAL SERVICES							$0		$0		$0		$1,473,000		$1,473,000

PROJECT INDIRECT COST - STUDY COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 -

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
90	**STUDY COST**										
	STUDY COST	1	LOT	$0	$0	$0	$0	$0	$50,000	$50,000	$50,000
90	**STUDY COST**			**$0**		**$0**		**$0**		**$50,000**	**$50,000**

PROJECT INDIRECT COST - OUTSIDE CONSULTANT SERVICES

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 -

ESTIMATE DATE: 06/25/06
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ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
96	OUTSIDE CONSULTANT SERVICES										
	OUTSIDE CONSULTANT SERVICES	1	LOT	$0	$0	$0	$0	$0	$100,000	$100,000	$100,000
96	TOTAL OUTSIDE CONSULTANT SERVICES			$0		$0		$0		$100,000	$100,000

PROJECT INDIRECT COST - OWNER'S COST

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
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ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
91	**OWNER'S COST**										
	OWNER'S COST	1	LOT	$0	$0	$0	$0	$0	$445,364	$445,364	$445,364
91	**TOTAL OWNER'S COST**			$0		$0		$0		$445,364	$445,364

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL -
BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER
SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
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ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
70	SPARE PARTS										
	SPARE PARTS - ALLOWANCE OF 5% OF EQUIPMENT COST	1	LOT	$0	$123,357	$123,357	$0	$0	$0	$0	$123,357
70	TOTAL SPARE PARTS			$0		$123,357		$0		$0	$123,357

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWE

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HE
EST. FILE #: 07150

JE PRIME CODE	DESCRIPTION	QTY.	UNIT	W.H./ UNIT	TOTAL W.H.'s	COST/ W.H.	TOTAL DIRECT LABOR	PROCESS EQUIPMENT UNIT COST	TOTAL PROCESS EQUIPMENT	MATERIAL UNIT COST	TOTAL MATERIAL	SUB CONTRACT UNIT COST	TOTAL SUB CONTRACTS	TOTAL ALL COSTS
71	NON-CRAFT START-UP ASSISTANCE													
	PROFESSIONAL SERVICES START-UP	4	WK	150.00	600	$83.25	$49,950	$0	$0	$0	$0	$0	$0	$49,950
	PROFESSIONAL SERVICES START-UP - EXPENSES	4	WK	0.00	0	$0.00	$0	$0	$0	$0	$0	$4,800	$19,200	$19,200
	VENDOR START-UP SERVICES	1	LOT		0	$0.00	$0	$0	$0	$0	$0	$50,000	$50,000	$50,000
71	TOTAL NON-CRAFT START-UP ASSISTANCE						$49,950		$0		$0		$69,200	$119,150

PROJECT INDIRECT COSTS - ALLOWANCE FOR UNFORESEEN

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)
G:\ESTIMAT\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER_R1.xls]PRIME CODE TCS

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

AFU PRIME CODE	PRIME CODE	DESCRIPTION	LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST	PERCENTAGES LABOR	EQUIP.	MAT'L	S/C	DOLLARS LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST
		DIRECT COSTS														
98	50	MAJOR EQUIPMENT	$631,327	$2,056,930	$30,854	$1,175,000	$3,894,111	10.0%	10.0%	10.0%	10.0%	$63,133	$205,693	$3,085	$117,500	$389,411
98	51	DEMOLITION	$39,274	$0	$0	$0	$39,274	10.0%	10.0%	10.0%	10.0%	$3,927	$0	$0	$0	$3,927
98	52	SITE EARTHMOVING	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	53	SITE IMPROVEMENTS	$0	$0	$0	$292,058	$292,058	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$29,206	$29,206
98	54	PILING, CAISSONS	$0	$0	$0	$272,588	$272,588	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$27,259	$27,259
98	55	BUILDINGS	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	56	CONCRETE	$69,073	$0	$62,359	$0	$131,432	10.0%	10.0%	10.0%	10.0%	$6,907	$0	$6,236	$0	$13,143
98	57	MASONRY, REFRACTORY	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	58	STRUCTURAL STEEL	$240,252	$0	$395,844	$0	$636,097	10.0%	10.0%	10.0%	10.0%	$24,025	$0	$39,584	$0	$63,610
98	59	ROOFING AND SIDING	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	60	FIRE PROOFING	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	61	PROCESS DUCTWORK (NON-BUILDING)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	62	PIPING	$502,849	$0	$502,849	$0	$1,005,698	10.0%	10.0%	10.0%	10.0%	$50,285	$0	$50,285	$0	$100,570
98	63	INSULATION - PIPE, EQUIPMENT & DUCTWORK	$0	$0	$0	$713,823	$713,823	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$71,382	$71,382
98	64	INSTRUMENTATION	$63,492	$166,823	$116,823	$0	$347,138	10.0%	10.0%	10.0%	10.0%	$6,349	$16,682	$11,682	$0	$34,714
98	65	ELECTRICAL	$97,353	$243,382	$194,706	$0	$535,440	10.0%	10.0%	10.0%	10.0%	$9,735	$24,338	$19,471	$0	$53,544
98	66	PAINTING, PROTECTIVE COATINGS	$19,471	$0	$19,471	$0	$38,941	10.0%	10.0%	10.0%	10.0%	$1,947	$0	$1,947	$0	$3,894
98	67	FURNITURE, LAB & SHOP EQUIPMENT	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
		TOTAL DIRECT COSTS	$1,663,092	$2,467,135	$1,322,906	$2,453,469	$7,906,603					$166,309	$246,714	$132,291	$245,347	$790,660
		CONSTRUCTION INDIRECT COSTS														
98	75	CONSTRUCTION SUPPORT LABOR	$255,729	$0	$0	$0	$255,729	10.0%	10.0%	10.0%	10.0%	$25,573	$0	$0	$0	$25,573
98	76	TEMPORARY CONSTRUCTION FACILITIES (IN WAGE RATE	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	78	PREMIUM TIME	$101,463	$0	$0	$0	$101,463	10.0%	10.0%	10.0%	10.0%	$10,146	$0	$0	$0	$10,146
98	79	CRAFT FRINGE BENEFITS (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98		CRAFT PER DIEM ($7 PER HOUR ON 100 % OF THE HOURS	$0	$0	$0	$265,010	$265,010	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$26,501	$26,501
98	80	PAYROLL TAXES & INSURANCE (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	83	SMALL TOOLS (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	84	CONSUMABLE SUPPLIES (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	85	CONSTRUCTION EQUIPMENT (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	87	FIELD STAFF (IN WAGE RATES)	$0	$111,021	$59,531	$55,203	$225,755	10.0%	10.0%	10.0%	10.0%	$0	$11,102	$5,953	$5,520	$22,575
98	81	NON-PAYROLL TAX, INSURANCE & PERMITS	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$0	$0
98	93	CONSTRUCTION HOME OFFICE COST (IN WAGE RATES)	$0	$0	$0	$0	$0	10.0%	10.0%	10.0%	10.0%	$3,150	$0	$0	$0	$3,150
98	71	CRAFT START-UP ASSISTANCE	$31,500	$0	$0	$0	$31,500	10.0%	10.0%	10.0%	10.0%	$20,603	$0	$20,737	$27,737	$68,977
98	99	CONTRACTOR'S CONSTRUCTION FEE	$205,034	$0	$207,386	$277,388	$689,767	10.0%	10.0%	10.0%	10.0%					
		TOTAL CONSTRUCTION INDIRECT COSTS										$59,373	$11,102	$26,690	$59,758	$156,922
		TOTAL CONSTRUCTION COSTS (TCC)	$2,258,817	$2,578,156	$1,589,803	$3,051,051	$9,475,827					$225,682	$257,816	$158,980	$305,105	$947,583
98	88	CONSTRUCTION MANAGEMENT	$0	$0	$0	$661,000	$661,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$66,100	$66,100
98	90	ENGINEERING PROFESSIONAL SERVICES	$0	$0	$0	$1,473,000	$1,473,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$147,300	$147,300
98	90	STUDY COST	$0	$0	$0	$50,000	$50,000	10.0%	10.0%	10.0%	0.0%	$0	$0	$0	$0	$0
98	96	OUTSIDE CONSULTANT SERVICES	$0	$0	$0	$100,000	$100,000	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$10,000	$10,000
98	91	OWNER'S COST	$0	$0	$0	$445,364	$445,364	10.0%	10.0%	10.0%	10.0%	$0	$0	$0	$44,536	$44,536
98	70	SPARE PARTS	$0	$123,357	$0	$0	$123,357	10.0%	10.0%	10.0%	10.0%	$0	$12,336	$0	$0	$12,336
98	71	NON-CRAFT START-UP ASSISTANCE	$49,950	$0	$0	$69,200	$119,150	10.0%	10.0%	10.0%	10.0%	$4,995	$0	$0	$6,920	$11,915
98	95	ALLOWANCE FOR UNFORESEEN	N/A													
98	98	ESCALATION	N/A													
98	99	EPC FEE	N/A													
		CAPITAL INTEREST	N/A													
		ROUND OFF	N/A													
98		**TOTAL PROJECT COSTS**	$2,306,767	$2,701,513	$1,589,803	$5,849,614	$12,447,697					$230,677	$270,151	$158,980	$579,961	$1,239,770

PROJECT INDIRECT COSTS - ESCALATION

ESTIMATE DATE: 06/25/06
REVISION NO.: 1
ESTIMATOR: WSJ
PROJECT MANAGER: LELAND HENSON
EST. FILE #: 07150

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300
CONSTRUCTION DURATION: TBD
ESTIMATE TYPE: CLASS 5 (+/- 30%)

ESCALATION IS BASED ON THE ASSUMPTION THAT ALL WORK WILL BE COMPLETED BY DECEMBER 31, 2007

G:\ESTIMATI\GEORGIA PACIFIC\SAVANNAH\16LD2300 - BOILER BART PROGRAM\16LD2300 - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER\[16LD2300 - TCS - SAVANNAH - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER R1.xls]PRIME CODE TCS

ESC PRIME CODE	PRIME CODE	DESCRIPTION	LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST	PERCENTAGES LABOR	EQUIP.	MATL.	S/C	DOLLARS LABOR	EQUIPMENT	MATERIAL	SUBCONT.	TOTAL COST
		DIRECT COSTS														
98	50	MAJOR EQUIPMENT	$631,327	$2,056,930	$30,854	$1,175,000	$3,894,111	5.0%	10.0%	10.0%	5.0%	$31,566	$205,693	$3,085	$58,750	$299,095
98	51	DEMOLITION	$39,274	$0	$0	$0	$39,274	5.0%	10.0%	10.0%	5.0%	$1,964	$0	$0	$0	$1,964
98	52	SITE EARTHMOVING	$0	$0	$0	$292,058	$292,058	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	53	SITE IMPROVEMENTS	$0	$0	$0	$272,588	$272,588	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$14,603	$14,603
98	54	PILING, CAISSONS	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$13,629	$13,629
98	55	BUILDINGS	$89,073	$0	$82,359	$0	$131,432	5.0%	10.0%	15.0%	5.0%	$0	$0	$0	$0	$0
98	56	CONCRETE	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$9,354	$0	$12,808
98	57	MASONRY, REFRACTORY	$240,252	$0	$365,844	$0	$838,097	5.0%	10.0%	15.0%	5.0%	$3,454	$0	$0	$0	$0
98	58	STRUCTURAL STEEL	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$12,013	$0	$59,377	$0	$71,389
98	59	ROOFING AND SIDING	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	60	FIRE PROOFING	$0	$0	$0	$0	$0	5.0%	10.0%	15.0%	5.0%	$0	$0	$0	$0	$0
98	61	PROCESS DUCTWORK (NON-BUILDING)	$502,849	$0	$502,849	$0	$1,005,698	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	62	PIPING	$0	$166,823	$0	$713,623	$713,623	5.0%	10.0%	10.0%	5.0%	$0	$0	$75,427	$35,691	$100,570
98	63	INSULATION - PIPE, EQUIPMENT & DUCTWORK	$63,492	$243,382	$115,823	$0	$347,139	5.0%	10.0%	15.0%	5.0%	$25,142	$0	$0	$0	$35,691
98	64	INSTRUMENTATION	$97,353	$0	$194,706	$0	$535,440	5.0%	10.0%	10.0%	5.0%	$0	$16,682	$17,524	$0	$37,380
98	65	ELECTRICAL	$19,471	$0	$19,471	$0	$38,941	5.0%	10.0%	10.0%	5.0%	$3,175	$24,338	$29,206	$0	$58,412
98	66	PAINTING, PROTECTIVE COATINGS	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$4,868	$0	$1,947	$0	$2,921
98	67	FURNITURE, LAB & SHOP EQUIPMENT										$974	$0	$0	$0	$0
		TOTAL DIRECT COSTS	$1,683,092	$2,467,135	$1,322,906	$2,453,469	$7,906,603					$83,155	$246,714	$195,920	$122,673	$648,461
		CONSTRUCTION INDIRECT COSTS														
98	75	CONSTRUCTION SUPPORT LABOR	$255,729	$0	$0	$0	$255,729	5.0%	10.0%	10.0%	5.0%	$12,786	$0	$0	$0	$12,786
98	76	TEMPORARY CONSTRUCTION FACILITIES (IN WAGE RATE	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	78	PREMIUM TIME	$101,463	$0	$0	$0	$101,463	5.0%	10.0%	10.0%	5.0%	$5,073	$0	$0	$0	$5,073
98	79	CRAFT FRINGE BENEFITS (IN WAGE RATES)	$0	$0	$0	$265,010	$265,010	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	80	CRAFT PER DIEM ($7 PER HOUR ON 100 % OF THE HOURS	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$13,251	$13,251
98	83	PAYROLL TAXES & INSURANCE (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	84	SMALL TOOLS (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	85	CONSUMABLE SUPPLIES (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	87	CONSTRUCTION EQUIPMENT (IN WAGE RATES)	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	91	FIELD STAFF (IN WAGE RATES)	$0	$111,021	$59,531	$55,203	$225,755	5.0%	10.0%	10.0%	5.0%	$0	$11,102	$5,953	$2,760	$19,815
98	93	NON-PAYROLL TAX, INSURANCE & PERMITS	$0	$0	$0	$0	$0	5.0%	10.0%	10.0%	5.0%	$0	$0	$0	$0	$0
98	71	CONSTRUCTION HOME OFFICE COST (IN WAGE RATES)	$31,500	$0	$0	$0	$31,500	5.0%	10.0%	10.0%	5.0%	$1,575	$0	$0	$0	$1,575
98	99	CRAFT START-UP ASSISTANCE	$205,034	$0	$207,366	$277,366	$689,767	5.0%	10.0%	10.0%	5.0%	$10,252	$0	$20,737	$13,868	$44,857
		CONTRACTOR'S CONSTRUCTION FEE														
		TOTAL CONSTRUCTION INDIRECT COSTS	$2,258,817	$2,578,158	$1,589,803	$3,051,051	$9,475,827					$29,886	$11,102	$26,690	$29,879	$97,357
		TOTAL CONSTRUCTION COSTS (TCC)										$112,841	$257,816	$222,609	$152,553	$745,818
98	88	CONSTRUCTION MANAGEMENT	$0	$0	$0	$661,000	$661,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$33,050	$33,050
98	90	ENGINEERING PROFESSIONAL SERVICES	$0	$0	$0	$1,473,000	$1,473,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$73,650	$73,650
98	90	STUDY COST	$0	$0	$0	$50,000	$50,000	5.0%	0.0%	0.0%	0.0%	$0	$0	$0	$0	$0
98	90	OUTSIDE CONSULTANT SERVICES	$0	$0	$0	$100,000	$100,000	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$5,000	$5,000
98	91	OWNER'S COST	$0	$0	$0	$445,364	$445,364	5.0%	0.0%	0.0%	5.0%	$0	$0	$0	$22,268	$22,268
98	70	SPARE PARTS	$0	$123,357	$0	$0	$123,357	5.0%	10.0%	0.0%	0.0%	$0	$12,336	$0	$0	$12,336
98	71	NON-CRAFT START-UP ASSISTANCE	$49,950	$0	$0	$69,200	$119,150	5.0%	0.0%	0.0%	5.0%	$2,498	$0	$0	$3,460	$5,958
98	98	ALLOWANCE FOR UNFORESEEN	N/A													
98	98	ESCALATION	N/A													
98	99	EPC FEE	N/A													
98		CAPITAL INTEREST	N/A													
		ROUND OFF														
		TOTAL PROJECT COSTS	$2,306,767	$2,701,513	$1,589,803	$5,849,614	$12,447,697					$115,338	$270,151	$222,609	$289,981	$898,080

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CONSTRUCTION "ALL-IN" WAGE RATE

JOB: BART BOILER PROGRAM - SAVANNAH RIVER MILL - BOILER NO. 3 - SO2 REMOVAL - SPRAY TOWER SCRUBBER
CLIENT: GEORGIA PACIFIC
LOCATION: RINCON, GEORGIA
JOB NUMBER: 16LD2300

ITEM	CRAFT CONCRETE / MASONRY			CRAFT STRUCTURAL STEEL			CRAFT PIPING & MECHANICAL			CRAFT INSTRUMENTATION			CRAFT ELECTRICAL			CRAFT SUPPORT (INC. OPERATORS)		
	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST	NOTES	%	COST
BASE JOURNEYMAN			$22.50			$22.50			$22.50			$22.50			$22.50			$21.50
COMPOSITE RATE		87.35%	$19.65		96.41%	$21.69		99.86%	$22.47		98.76%	$22.23		98.76%	$22.23		97.37%	$20.93
PAYROLL TAXES & INSURANCES:	33.60%																	
WORKMEN'S COMPENSATION		14.70%	$2.89		14.70%	$3.19		14.70%	$3.30		14.70%	$3.27		14.70%	$3.27		14.70%	$3.08
GENERAL LIABILITY		3.95%	$0.78		3.95%	$0.86		3.95%	$0.89		3.95%	$0.88		3.95%	$0.88		3.95%	$0.83
EXCESS LIABILITY		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
FICA		7.65%	$1.50		7.65%	$1.66		7.65%	$1.72		7.65%	$1.70		7.65%	$1.70		7.65%	$1.60
FUI		0.80%	$0.16		0.80%	$0.17		0.80%	$0.18		0.80%	$0.18		0.80%	$0.18		0.80%	$0.17
SUI		6.50%	$1.28		6.50%	$1.41		6.50%	$1.46		6.50%	$1.44		6.50%	$1.44		6.50%	$1.36
OTHER		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
FRINGES		12.50%	$2.46		12.50%	$2.71		12.50%	$2.81		12.50%	$2.78		12.50%	$2.78		12.50%	$2.62
PREMIUM TIME		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
CONSTRUCTION SUPPORT LABOR		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
TEMPORARY FACILITIES		7.50%	$1.47		7.50%	$1.63		7.50%	$1.69		7.50%	$1.67		7.50%	$1.67		7.50%	$1.57
SMALL TOOLS		7.50%	$1.47		7.50%	$1.63		7.50%	$1.69		7.50%	$1.67		7.50%	$1.67		7.50%	$1.57
CONSUMABLES		7.50%	$1.47		10.00%	$2.17		10.00%	$2.25		7.50%	$1.67		7.50%	$1.67		7.50%	$1.57
FIELD STAFF		25.00%	$4.91		25.00%	$5.42		35.00%	$7.86		35.00%	$7.78		35.00%	$7.78		25.00%	$5.23
EQUIPMENT RENTAL		40.00%	$7.86		35.00%	$7.59		35.00%	$7.86		25.00%	$5.56		25.00%	$5.56		0.00%	$0.00
CONSTRUCTION HOME OFFICE (ON TCS SHEET)		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
PER DIEM		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
CONTRACTOR FEE (ON TCS SHEET)		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00		0.00%	$0.00
TOTAL WAGE RATE WITH FEE		233.60%	$45.91		231.10%	$50.13		241.10%	$54.17		228.60%	$50.81		228.60%	$50.81		193.60%	$40.53

Savannah River Mill Cost Summary

CFB Scrubber TIC Factoring Form

	Boiler No. 3		Boiler No. 4		Boiler No.5	
	Factor	Dollars	Factor	Dollars	Factor	Dollars
Major Equipment	1.00	$ 9,321,792	1.00	$ 9,321,792	0.98	$ 9,143,292
Demolition	1.00	$ 167,011	1.00	$ 167,011	1.00	$ 167,011
Site Improvements	1.00	$ 350,470	1.05	$ 367,994	3.50	$ 1,226,645
Pilings	1.00	$ 978,788	1.15	$ 1,125,606	0.95	$ 929,849
Concrete	1.00	$ 559,308	1.15	$ 643,204	0.95	$ 531,343
Structural Steel	1.00	$ 1,892,854	1.15	$ 2,176,782	0.95	$ 1,798,211
Piping	1.00	$ 1,032,799	1.00	$ 1,032,799	1.00	$ 1,032,799
Insulation	1.00	$ 2,016,627	1.00	$ 2,016,627	0.95	$ 1,911,627
Instrumentation	1.00	$ 1,145,730	1.00	$ 1,145,730	1.00	$ 1,145,730
Electrical	1.00	$ 1,333,016	1.00	$ 1,333,016	0.95	$ 1,266,365
Painting	1.00	$ 93,218	1.00	$ 93,218	1.00	$ 93,218
TOTAL DIRECT COSTS	$	18,891,613	$	19,423,779	$	19,246,090
TOTAL CONSTRUCTION COSTS	$	22,269,026	$	22,896,332	$	22,686,875
TOTAL PROJECT COSTS	$	34,437,000	$	35,407,071	$	35,083,166

Spray Tower Scrubber TIC Factoring Form

	Boiler No. 3		Boiler No. 4		Boiler No.5	
	Factor	Dollars	Factor	Dollars	Factor	Dollars
Major Equipment	1.00	$ 3,894,111	1.02	$ 3,975,111	0.97	$ 3,760,236
Demolition	1.00	$ 39,274	1.00	$ 39,274	1.00	$ 39,274
Site Improvements	1.00	$ 292,058	1.05	$ 306,661	3.50	$ 1,022,203
Pilings	1.00	$ 272,588	1.05	$ 286,217	0.95	$ 258,959
Concrete	1.00	$ 131,432	1.05	$ 138,004	0.95	$ 124,860
Structural Steel	1.00	$ 636,097	1.05	$ 667,902	0.95	$ 604,292
Piping	1.00	$ 1,005,698	1.00	$ 1,005,698	1.00	$ 1,005,698
Insulation	1.00	$ 713,823	1.00	$ 713,823	0.95	$ 678,132
Instrumentation	1.00	$ 347,139	1.00	$ 347,139	1.00	$ 347,139
Electrical	1.00	$ 535,440	1.00	$ 535,440	0.95	$ 508,668
Painting	1.00	$ 38,941	1.00	$ 38,941	1.00	$ 38,941
TOTAL DIRECT COSTS	$	7,906,601	$	8,054,210	$	8,388,402
TOTAL CONSTRUCTION COSTS	$	9,475,827	$	9,652,732	$	10,053,251
TOTAL PROJECT COSTS	$	14,685,000	$	14,959,155	$	15,579,853

* - Detailed Capital Cost Estimates (+/- 30%) were created for both CFB Scrubber and Spray Tower Scrubber technology on Boiler No. 3. Using this as a base Total Installed Costs were estimated for each of these technologies on both Boiler No. 4 and Boiler No. 5