Spreadsheet Report

Dry Fly Ash

Kingston Fossil Plant
Dry Fly Ash Collection
****Scope Description****

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04095
Requesting Engr	K. A. Buffington
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/8/2003
Funding Type	Capital
Report format	Sorted by 'Location/Activity' 'Detail' summary

EE + Design 25%
Site Meetn/Travl 3%
Field ~~[illegible]~~ Commissoning 5%

Location	Activity	Description	Takeoff Quantity	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF									
	Fly Ash Collection								
		480V indoor switchgear	1.00 ls	73,360	150,000	-	-	-	223,360
		1500 KVA, 4.16kV/480V Transformer	2.00 ls	44,016	100,000	15,000	-	-	159,016
		4.16kV Indoor Switchgear	1.00 ls	73,360	150,000	-	-	-	223,360
		4.16kV Outdoor Switchgear	2.00 ls	69,692	140,000	-	-	-	209,692
		10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	44,016	500,000	75,000	-	-	619,016
		CU 5KV 4/0-3C Shielded EPR/CSPE	2,000.00 lf	9,977	16,740	-	-	-	26,717
		CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	9,904	14,726	-	-	-	24,630
		Mis. Equipment Items	1.00 ls		0	-	5,000	-	5,000
		Fly Ash Collection		**324,325**	**1,071,466**	**90,000**	**5,000**		**1,490,791**
		KIF		**324,325**	**1,071,466**	**90,000**	**5,000**		**1,490,791**

Estimate Totals

Labor	324,325		8,842.000	hrs
Material	1,071,466			
Subcontract	90,000			
Equipment	5,000		0.000	hrs
	1,490,791	1,490,791		
Engineered Materials - Ph 2	1,040,000		100.000 %	
Adjustment - Engr Materials	(1,040,000)		(100.000) %	
		1,490,791		
Small Tools Expense	3,979		0.450 $/hr	
Consumables & Expendables	12,973		4.000 %	
	16,952	1,507,743		
Partner Insurance (FY04)	9,730		3.000 %	
Partner Award Fee (FY04)	16,216		5.000 %	
	25,946	1,533,689		
Rounding	1,311			
	1,311	1,535,000		
	Total	***1,535,000***		

Renfroe, Bret

From: Davis, Victor W.
Sent: Monday, February 07, 2005 12:42 PM
To: Renfroe, Bret
Subject: RE: TVA Kingston Q03381

Looks like the only mechanical BOP would be the water supply to the silo, drains from the existing water exhausters if they move from their present location. Probably one person full time for the duration for Project Engineering/Contract Administration. Based on experience at COF and CUF, need to add an elevator wash down and sump and a scale for the silo

Victor Davis
Manager, Mechanical Engineering
Office: 423-751-6846
Cell: 423-309-0153

-----Original Message-----
From: Renfroe, Bret
Sent: Monday, February 07, 2005 11:38 AM
To: Davis, Victor W.
Subject: FW: TVA Kingston Q03381

Victor,

Attached is the UCC quote.

Bret

-----Original Message-----
From: Kent Shever [mailto:kentshever@charter.net]
Sent: Monday, November 17, 2003 10:49 AM
To: Sutton, Michael E.
Subject: Fwd: TVA Kingston Q03381

>Mike,

Attached is all the info that you should need on the Kingston quote.

Kent

UC Service Corporation

ASH SYSTEM DESCRIPTION

1.0 Information Basis

The following documents were used as the information basis for this proposal:

Email, Missy Hedgeoth ..... 28 March 2003
Photo and sketch ..... 14 April 2003

2.0 System Synopsis

Refer to Proposal Drawing Nos. PC-Q03381-001, PS-Q03381-001 & PM-Q03381-001

UC Service Corporation will use the ash handling system design and equipment of United Conveyor Corporation. United Conveyor Corporation's (UCC) scope includes the design and supply of the equipment and materials required for the following systems:

- (9) 8 - 12 tph dry vacuum systems, conveying the ash from the existing branchlines to vacuum/pressure transfer stations. The systems will re-use the existing water exhausters as the prime movers. Crossovers will permit using the existing wet system as a back-up. The necessary extension piping, valves, and vacuum/pressure transfer station equipment will be supplied. The filter/separator portion of the transfer station will be preassembled, pre-piped and pre-wired.
- (9) 10 - 14 tph positive pressure systems to convey ash to a new silo complex. The systems will include the necessary feeders, piping, valves, and prime movers. The feeders will be preassembled, pre-piped, and pre-wired. Each system will have a dedicated pressure blower as the prime mover.
- Silo complex consisting of a concrete silo with stairs to roof, two sets of dry unloading equipment, bin venting, and other silo accessories.
- (1) Sluice system from the bottom of the silo to the existing ash pond. The system will include a jetpump, ash conveying pipe, water supply pipe and one high pressure pump to supply water to the jetpump.
- Control system for operation of the equipment, with communication to the plant's DCS.

3.0 Conveyor Design Criteria

3.1 Specified Ash Collection Points/Characteristics:

Temp (°F)	Generation Rate (tph)	Specified Conveying Rate (tph)
300°F for fly ash (assumed)	4 - 6	2 x ash generation

3.2 Calculated System Design:

Conveying Rate (tph)	Design Point (Origin)	Disposal Point (Final)	Line Size (Inches)	Max. Distance Incl. Riser (Feet)	90° Elbows	Riser (Feet)	Rated Motor (HP)
8 – 12	Average Location	Filter/separator	7"	See Dwg.	See Dwg.	See Dwg.	N/A
10 – 14	Filter/separator	Silo	7" – 8"	2600	12.5	120	150
100	Silo	Pond	8"	2300	6	5	50

The system capacities and horsepower requirements stated in this proposal are based on the conditions stated above and routing as reflected in our proposal drawing. If these conditions change during the detailed engineering of this contract, there could be a significant impact on capacities, horsepower requirements and prices quoted herein. Erection costs and system performance may also be affected. If this condition occurs during our detailed engineering, we will so advise you so that alternatives may be explored and decisions can be made.

The equipment being sold hereunder, when properly erected, installed, started-up and operated together with all other proper parts and materials to be supplied by others and required for a complete and operable conveyor system, will handle all the dry, free flowing fly ash from moisture free hoppers that is specified in this proposal.

UC Service Corporation

4.0 Ash Handling Scope

We have included the following major equipment in the ash handling scope for all 9 units:

Vacuum System

900' 7" NUVALOY pipe to connect the existing ash conveying and air pipe to the new vacuum/pressure transfer station. Includes DURITE fittings, connection material, and expansion joints.

27 8" UCC 40D Knife gates for wet/dry conveying selection. Air cylinder operated with manual overrides and limit switches.

9 UCC 41-W-96 filter/separators for 99.9% ash separation from the vacuum system into the pressure system. Includes 96 polyester bags covering 479 square feet of cloth area. Coverage designed for 4:1 air to cloth ratio. Filter/separator body will be extended to provide sufficient surge capacity and will terminate in a chisel-shaped bottom with two outlets to the pressure system. This arrangement will allow continuous operation of the vacuum system. Includes differential pressure transmitter.

9 Dust detector for detecting broken bags.

9 Vacuum transmitter for sensing line pressure and controlling full load regulation.

2 Air compressor/dryer for air supply to vacuum/pressure transfer stations

Pressure System

9 Positive pressure blowers, Hibon, Roots, Gardner-Denver or equal. Sized for 1570 ICFM @ 13 PSIG. Accessories include:
- 150 hp motor, 460 V, 3 ph, 60 Hz, 1800 rpm
- V-belt drive with guard
- Fabricated steel baseplate
- Inlet and discharge silencers
- Inlet and outlet expansion joints
- Relief valve
- High temperature switch
- Discharge pressure gauge

90' 7" NUVALOY® pipe

1,800' 8" schedule 40 carbon steel pipe and fittings for airline from pressure blowers to vacuum/pressure transfer stations.

18 NUVA FEEDER® pressure vessels

19,960' 8" schedule 40 carbon steel pipe and DURITE® fittings and 3' wears sections after elbows for conveying ash from filter/separators to silo complex.

9 8" Valves for conveyor line isolation. Air cylinder operated with manual overrides and limit switches.

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Silo Complex

1 50' I.D x 80' high concrete silo to hold 142,444 cubic feet of ash. The unloader level is designed to enclose equipment and includes an access door, maintenance door, 85 KW heater and vent fan and louver.
1 Air compressor/dryer for air supply to silo complex equipment.
1 (2) Fluidizing blowers, Hibon, Roots, Gardner-Denver, or equal. Each sized for 768 SCFM @ 12.6 psig. Accessories on each includes:
- 30 hp motor, 460 V, 3 ph, 60 Hz, 1800 rpm
- V-belt drive with guard
- Fabricated steel baseplate
- Inlet and discharge silencers
- Inlet and outlet expansion joints
- Relief valve
- High temperature switch
- Discharge pressure gauge
- Pressure switch

1 Lot of carbon steel schedule 40 and 80 pipe from the blowers to the fluidizing pads
1 Lot, cloth fluidizing media.
1 85 KW heater, 460 V, 3 phase, 60 Hz
1 Lot miscellaneous check valves, flow limiters
2 4" air cylinder operated butterfly valves for blower selection. Includes limit switches.
1 Bin vent filter, pulse jet cleaned, with 6287 square feet of polyester cloth. Sized at a 3.0:1 air to cloth ratio, to vent displaced air from material entering the silo, fluidizing air and telescopic chute vent fan air. Includes differential pressure transmitter.
1 24" diameter manhole
1 Pressure/vacuum relief valve
1 Ultrasonic level detector
High-high level switch
Stair access from grade to roof.
2 Telescopic chute assemblies for dry unloading the fly ash. Each assembly includes 1.0 HP lifting hoist, 5 HP vent fan, manual silo isolation valve, ash feed valve assembly, 6" vent pipe with 6" air cylinder operated butterfly valve for vent line isolation from the silo

UC Service Corporation

Sluice to Pond

2,300' 8" NUVALOY pipe from the silo to the existing ash pond. Includes DURITE fittings and connection material.

1,000' 8" schedule 40 carbon steel pipe and fittings from Owner's water supply to high pressure pump and from high pressure pump to jetpump inlet.

1 Jetpump.

1 High pressure water pumps to boost pressure from Owner's supply to jetpump.

Controls Description

The proposed control system is based on re-using existing control system hardware and software. Complete documentation of the existing control system, including all operator interface and PLC code, must be made available, in its native format, to UCC. Since UCC was instrumental in reviewing and debugging the original control system which has implemented our control philosophy, this information, as far as UCC having access to the code, is not considered proprietary.

Preliminary information indicates each of existing unit control systems contain an A-B SLC5/04 processor, remote I/O, and a Panelview 1000 Grayscale operator terminal with RIO communications. The nine unit processors are connected together using A-B DH+ communications. These processors are also connected to the soot blower control system and operator interface computer running Intellution Fix32 graphics software on Microsoft Windows NT. A DCS interface is also connected to the data highway. See the attached 'Existing Ash Handling Control System Overview' for a pictorial representation of this arrangement.

The proposed new unit control system will consist of a new wall-mounted control panel containing a new A-B SLC5/05 processor and I/O for each new unit ash system equipment. This panel will be located near the unit ash transfer equipment. Some of the existing controls for the ash vacuum system will be integrated into this new control system. See the attached 'Proposed Ash Handling Control System Key Plan' for a pictorial representation of this arrangement.

The communications between the new PLC processors and the new operator interface station will be Allen-Bradley Ethernet IP. This will allow communications at 10Mbps instead of the 56Kbps speed of the existing data highway.

The new common operator interface computer will have screen graphics developed with Intellution Fix32 graphics software to match the existing software. New screens will depict the ash vacuum/pressure conveying system.

The soot blowing control system details and the extent of the DCS interface are unknown at this time. We do not anticipate changes to these portions. These items will need further scope definition.

UC Service Corporation

5.0 Schedule

Engineering and procurement of material for this project will take 8 – 10 months

The erection portion of this budget is based upon a 12-month erection schedule including mobilization and demobilization. It is estimated that the actual construction will take ten months. One month has been allotted for mobilization and receipt of materials.

6.0 Pricing

Current budget price (± 20%) for equipment and engineering as listed, FOB jobsite $16,000,000.00

Renfroe, Bret

From: Sutton, Michael E.
Sent: Monday, December 15, 2003 3:12 PM
To: Buffington, Ken A
Cc: Murray, David B.; Rice, Charles W.; Purkey, Ronald E.; Renfroe, Bret
Subject: FW: FW: KIF: UCC Estimate for Dry Fly Ash

FYI

Michael E. Sutton
By-Products & Properties Specialist
Coal Acquisition & Supply
Tennessee Valley Authority
Ph: (423)751-3539; FAX: (423)751-6619

-----Original Message-----
From: Kent Shever [mailto:kentshever@charter.net]
Sent: Friday, December 12, 2003 3:57 PM
To: Sutton, Michael E.
Subject: Re: FW: KIF: UCC Estimate for Dry Fly Ash

Mike,

As you are aware, the Kingston dry fly ash estimate was done ± 20% for the budget price. The price addition for 4160v motors vs. the 460v is about $5,000 each motor. There may be plenty of money in the budget price to cover this addition. Worse case, you can add about $50,000 to cover the upgrade to the 4160v motors.

Kent

At 08:55 AM 12/11/2003 -0500, you wrote:

> Kent,
> Can you help me out here?
> Thanks,
> Mike
>
> **Michael E. Sutton**
> **By-Products & Properties Specialist**
> **Coal Acquisition & Supply**
> **Tennessee Valley Authority**
> **Ph: (423)751-3539; FAX: (423)751-6619**
>
> -----Original Message-----
> **From:** Buffington, Ken A
> **Sent:** Tuesday, December 09, 2003 4:19 PM
> **To:** Sutton, Michael E.

Cc: Murray, David B.; Rice, Charles W.; Purkey, Ronald E.; Renfroe, Bret
Subject: RE: KIF: UCC Estimate for Dry Fly Ash

Mike,
It is noted that the vendor spec calls out a 480V, 250hp motor. Per TVA Fossil standards, the maximum acceptable motor size to feed from a 480V bus is 200hp. A 250hp motor is typically fed from a 4,160V bus. Can you comply?

Ron,
I got the Fly Ash system description this morning and there is some control/I&C engineering on this project. No control work is included in my electrical estimate. My estimate is for providing power only.

Ken Buffington

-----Original Message----- **From:** Sutton, Michael E. **Sent:** Tuesday, December 09, 2003 9:28 AM **To:** Renfroe, Bret
Cc: Buffington, Ken A; Purkey, Ronald E. **Subject:** KIF: UCC Estimate for Dry Fly Ash

Bret, I have attached an e-mail from Kent Shever with UCC which contains the estimate for the turn-key dry fly ash collection system. Please let me know if you need more information. Thanks for your patience. Mike << Message: Fwd: TVA Kingston Q03381 >> **Michael E. Sutton By-Products & Properties Specialist Coal Acquisition & Supply Tennessee Valley Authority Ph: (423)751-3539; FAX: (423)751-6619**

E-Mail: tjmyers@tva.gov

-----Original Message-----
From: Purkey, Ronald E.
Sent: Tuesday, February 01, 2005 2:44 PM
To: Haber, Stanley M.; Miller, Evelyn C.; Baugh, James S.; Radford, Larry D.; Latsch, Mitchell D.; Hedgecoth, Melissa A.; Deskins, Earl L; Campbell, Linda F.; Preslar, Jacky D.; Rehberg, Robert L.; Bowers, Larry C; Petty, Harold L.; Nuyt, Gary M.; Myers, Thomas J.; Petty, Harold L.
Cc: Renfroe, Bret
Subject: KIF Dry Fly Ash Estimate

Per my action item in the Meeting last Thursday, I have attached the Dry Ash estimate for Kingston. Bret Renfroe did the estimate and will be glad to discuss any item with you.
Thanks.

Ron Purkey

Renfroe, Bret

From: Purkey, Ronald E.

Sent: Monday, February 07, 2005 10:14 AM

To: Myers, Thomas J.; Kimsey, Barry A.

Cc: Renfroe, Bret; Haber, Stanley M.; Miller, Evelyn C.; Baugh, James S.; Radford, Larry D.; Latsch, Mitchell D.; Hedgecoth, Melissa A.; Deskins, Earl L; Campbell, Linda F.; Preslar, Jacky D.; Rehberg, Robert L.; Bowers, Larry C; Petty, Harold L.; Nuyt, Gary M.; Petty, Harold L.

Subject: RE: KIF Dry Fly Ash Estimate

Tom,
The $2M was the electrical estimate of not having to provide a transformer and associated equipment. The electrical feeds and controls and other electrical work outside the power sources would still be outside the scope of the scrubber and to DFA's account. This has been discussed on other occasions and maybe you were not present.

Barry,
Do you have anything to add to my coment?
Ron

-----Original Message-----
From: Myers, Thomas J.
Sent: Monday, February 07, 2005 10:07 AM
To: Purkey, Ronald E.
Cc: Renfroe, Bret; Haber, Stanley M.; Miller, Evelyn C.; Baugh, James S.; Radford, Larry D.; Latsch, Mitchell D.; Hedgecoth, Melissa A.; Deskins, Earl L; Campbell, Linda F.; Preslar, Jacky D.; Rehberg, Robert L.; Bowers, Larry C; Petty, Harold L.; Nuyt, Gary M.; Petty, Harold L.
Subject: RE: KIF Dry Fly Ash Estimate

Ron,
In looking at the attached, there are two line items that would be picked up by the KIF Scrubber Project **IF** the Scrubber Project was implemented before the Dry Fly Ash Project. Those items are the 161-kV feed (shown in your estimate at $5.6MM) and the 161-kV Transformer (shown in your estimate at $619k). The Scrubber Project would provide space as necessary for items such as additional switchgear in the Scrubber electrical room and provide a feeder off of the 161-kV transformer, but would expect the Dry Fly Ash Project to pick up the cost of all of the remaining additional medium and low voltage switchgear and connections.

That having been said, we are not sure how you arrived at the $2MM credit mentioned for the fly ash project in one of the options discussed at KIF on January 27. It would appear based on these numbers that the credit would be $6.2MM (the estimated value of the two line items mentioned above) which could sway the resulting NPV's in your option cost comparisons.

Please let me know if we have missed something or if you have any questions or comments.

Tom
Thomas J. Myers, PMP
FGD Turnkey Project Manager
TVA Fossil Projects
LP 2T - C
Phone: 423-751-3415
Fax: 423-751-6116

- No double digging

- 2003 UCC estimate
  60% steel prices increase

16M ⟹ #19M new guide

deduct approximately 6.2M

- 3-5M more for dense slurry system
  #3 million

16 + 3 + 3 = 22M

Running free to 5.1 is included.

E-mail Jeff

Short-Code $200

Camerala Laws

add the follow

- Mike Sutton
- UCC
- Vern Schiver
Mech 204
Civil 204

9000
20.0
75.5
36
8.4
274
9
246.6

800
60.0
56.0
50.0
6.8
908
16
333.8

Location	Activity	Description	Takeoff Quantity	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF									
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		KIF		324,325	1,071,466	90,000	5,000		1,490,791

750KV 4.16/480V TX # 1 ~~30,000~~

480V outdoor SWGR 1 75,000

4.16KV SWGR 1 140,000

ADD ~~CU 5KV 4/0 3C Shielded EPR/CSPE 1500 LF~~ more cable

ADD

1 750KV 4.16/480V TX @ 25,000/each

1 480V OUTDOOR MCC 50,000/each

TVA-00028729

Renfroe, Bret

From: Davis, Victor W.
Sent: Monday, February 07, 2005 12:42 PM
To: Renfroe, Bret
Subject: RE: TVA Kingston Q03381

Looks like the only mechanical BOP would be the water supply to the silo, drains from the existing water exhausters if they move from their present location. Probably one person full time for the duration for Project Engineering/Contract Administration. Based on experience at COF and CUF, need to add an elevator wash down and sump and a scale for the silo

Victor Davis
Manager, Mechanical Engineering
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Sent: Monday, November 17, 2003 10:49 AM
To: Sutton, Michael E.
Subject: Fwd: TVA Kingston Q03381

>Mike,

Attached is all the info that you should need on the Kingston quote.

Kent

Renfroe, Bret

Subject:	KIF Dry fly ash
Location:	LP 5N A03 (Mill Creek)
Start:	Mon 02/07/2005 3:00 PM
End:	Mon 02/07/2005 4:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Required Attendees:	Hedgecoth, Melissa A.; Baugh, James S.; Purkey, Ronald E.; Haber, Stanley M.; Renfroe, Bret; Murray, David B.; Myers, Thomas J.
Optional Attendees:	Nuyt, Gary M.

Missy 0426

This meeting is to discuss the current Dry Fly Ash Conversion cost estimate with United Conveyor Corporation.

Tom Myers, could you please see if the person that has been looking at electrical costs for Kingston is available? We would like to get a better idea on the additional costs to meet the electrical needs for the dry fly ash conversion.

Thanks,
Missy

UC Service Corporation
2100 Norman Drive West • Waukegan, Illinois 60085
Phone: (847) 473-5900 • FAX: (847) 473-5959
Email: service@unitedconveyor.com

29 April 2003

Tennessee Valley Authority
1101 Market Street, LP 2L
Chattanooga, TN 37402-2801

Attention: Missy Hedgecoth
Ash Handling Specialist

Subject: TENNESSEE VALLEY AUTHORITY
Kingston Plant Units 1 – 9
Ash Handling System Upgrade
UCSC/UCC Proposal No. Q03381

Dear Missy,

UC Service Corporation (UCSC) is pleased to provide this budget proposal for the supply and erection of a pressure transfer system to the existing vacuum system at the Kingston Power Plant.

Our offering includes a System Description identifying the major equipment, proposal drawings and budget pricing.

Thank you for the opportunity of supporting your efforts. If you have any questions, please contact Kent Shever or me.

Very truly yours,
UNITED CONVEYOR CORPORATION

John S. Tomaszek

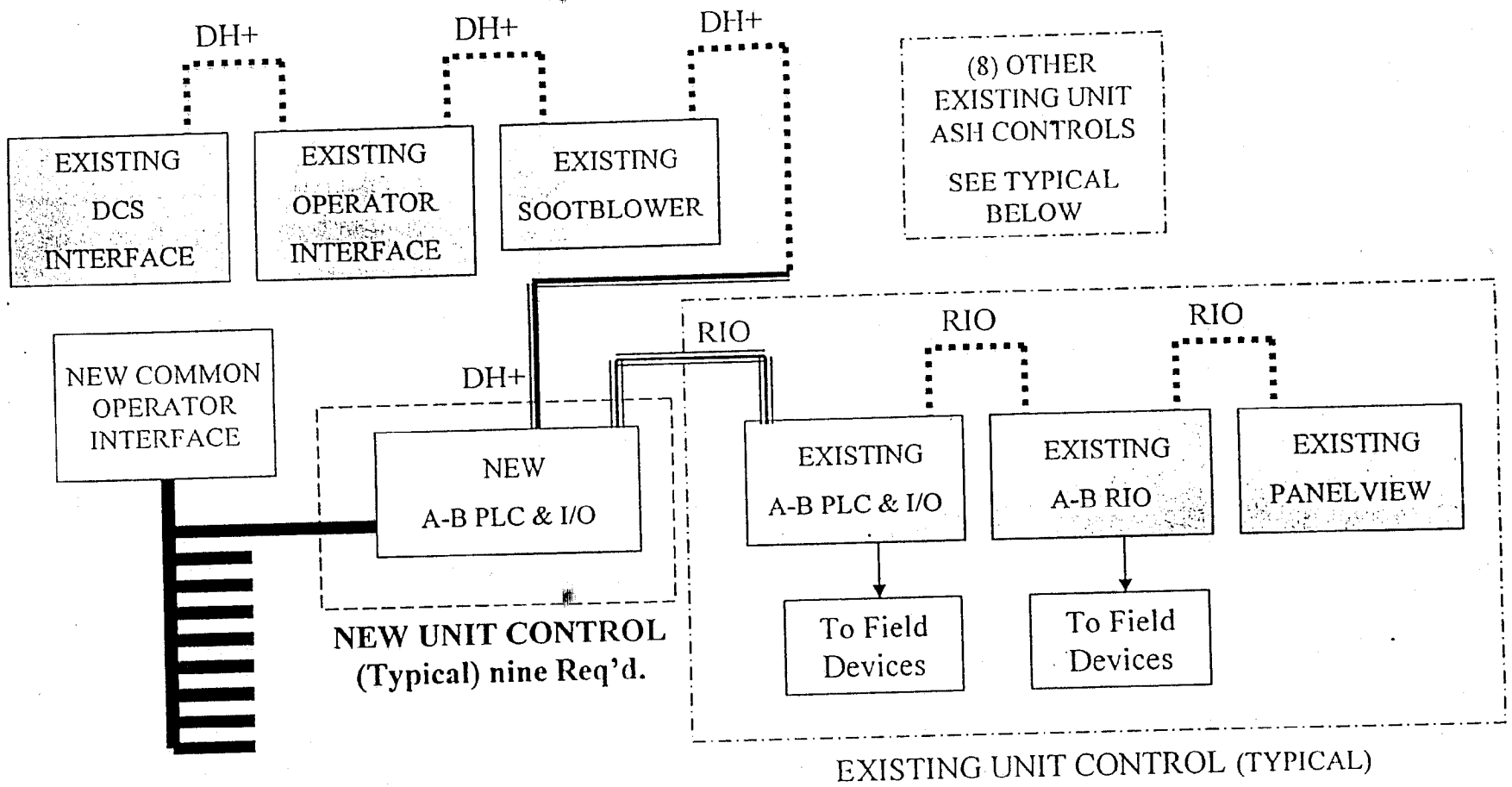
John S. Tomaszek
Senior Systems Engineer
North American Sales

jst

Attachment

Represented by:
UCC Sales – Carolina
Div. of UC Service Corporation
10-21st Avenue NW, Suite 209
Hickory, NC 28601
828-327-2285

PROPOSED ASH HANDLING CONTROL SYSTEM KEY PLAN

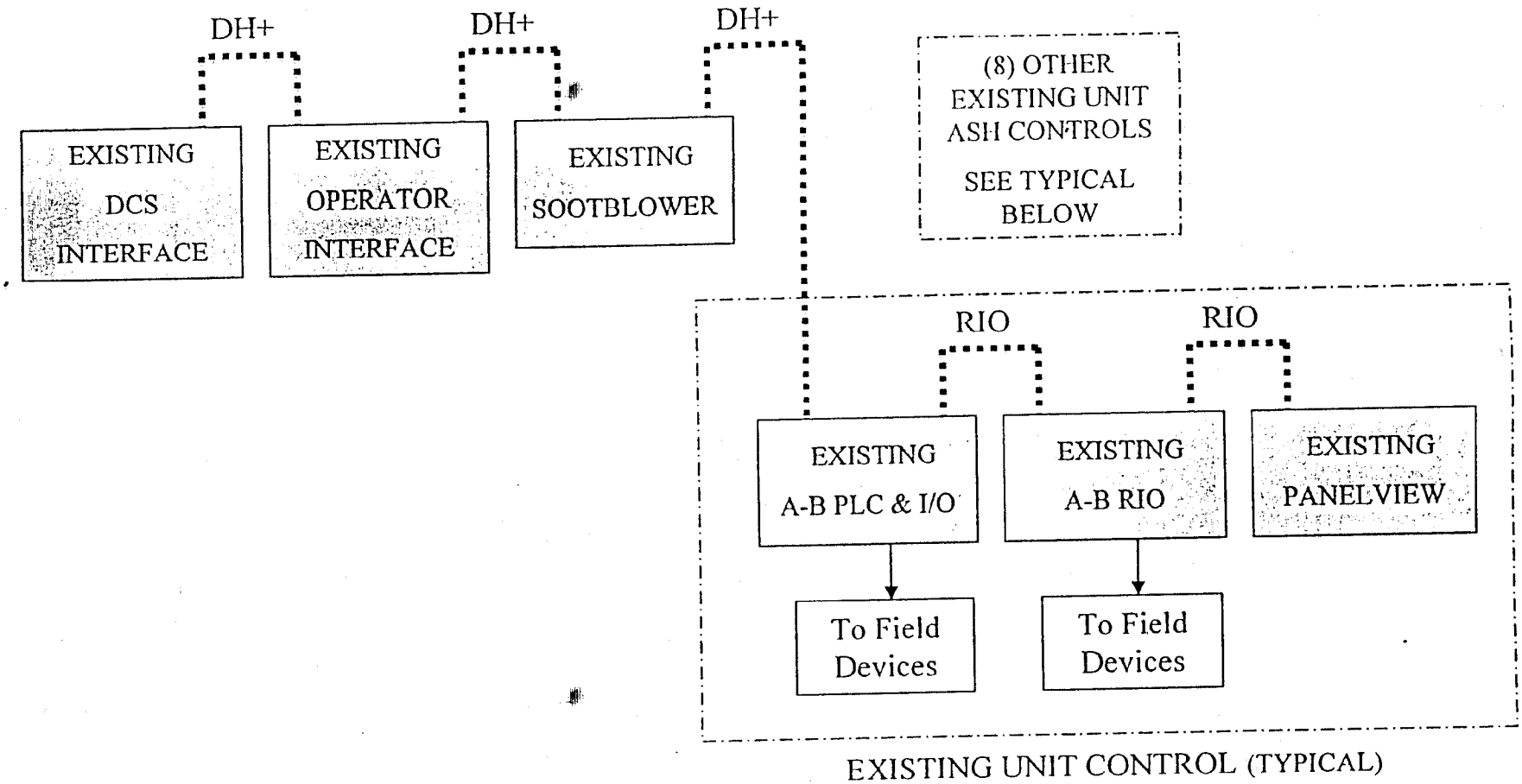


Proposal # Q03381 4-15-03 JCM

TVA - KINGSTON STATION

PRELIMINARY – SUBJECT TO CHANGE

EXISTING ASH HANDLING CONTROL SYSTEM OVERVIEW



EXISTING UNIT CONTROL (TYPICAL)

Proposal # Q03381 4-15-03 JCM

TVA - KINGSTON STATION

PRELIMINARY – SUBJECT TO CHANGE

Probably going to Hardwire pb instead of DCS.

(Festinger) Paul's recommend running to DCS may be included with Scrubber project.

UC Service Corporation

ASH SYSTEM DESCRIPTION

1.0 Information Basis

The following documents were used as the information basis for this proposal:

Email, Missy Hedgeoth..... 28 March 2003
Photo and sketch ..... 14 April 2003

2.0 System Synopsis

Refer to Proposal Drawing Nos. PC-Q03381-001, PS-Q03381-001 & PM-Q03381-001

UC Service Corporation will use the ash handling system design and equipment of United Conveyor Corporation. United Conveyor Corporation's (UCC) scope includes the design and supply of the equipment and materials required for the following systems:

- (9) 8 - 12 tph dry vacuum systems, conveying the ash from the existing branchlines to vacuum/pressure transfer stations. The systems will re-use the existing water exhausters as the prime movers. Crossovers will permit using the existing wet system as a back-up. The necessary extension piping, valves, and vacuum/pressure transfer station equipment will be supplied. The filter/separator portion of the transfer station will be preassembled, pre-piped and pre-wired.
- (9) 10 - 14 tph positive pressure systems to convey ash to a new silo complex. The systems will include the necessary feeders, piping, valves, and prime movers. The feeders will be preassembled, pre-piped, and pre-wired. Each system will have a dedicated pressure blower as the prime mover.
- Silo complex consisting of a concrete silo with stairs to roof, two sets of dry unloading equipment, bin venting, and other silo accessories.
- (1) Sluice system from the bottom of the silo to the existing ash pond. The system will include a jetpump, ash conveying pipe, water supply pipe and one high pressure pump to supply water to the jetpump.
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UC Service Corporation

3.2 Calculated System Design:

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10 – 14	Filter/separator	Silo	7" – 8"	2600	12.5	120	150
100	Silo	Pond	8"	2300	6	5	50

The system capacities and horsepower requirements stated in this proposal are based on the conditions stated above and routing as reflected in our proposal drawing. If these conditions change during the detailed engineering of this contract, there could be a significant impact on capacities, horsepower requirements and prices quoted herein. Erection costs and system performance may also be affected. If this condition occurs during our detailed engineering, we will so advise you so that alternatives may be explored and decisions can be made.

The equipment being sold hereunder, when properly erected, installed, started-up and operated together with all other proper parts and materials to be supplied by others and required for a complete and operable conveyor system, will handle all the dry, free flowing fly ash from moisture free hoppers that is specified in this proposal.

UC Service Corporation

4.0 Ash Handling Scope

We have included the following major equipment in the ash handling scope for all 9 units:

Vacuum System

900' 7" NUVALOY pipe to connect the existing ash conveying and air pipe to the new vacuum/pressure transfer station. Includes DURITE fittings, connection material, and expansion joints.

27 8" UCC 40D Knife gates for wet/dry conveying selection. Air cylinder operated with manual overrides and limit switches.

9 UCC 41-W-96 filter/separators for 99.9% ash separation from the vacuum system into the pressure system. Includes 96 polyester bags covering 479 square feet of cloth area. Coverage designed for 4:1 air to cloth ratio. Filter/separator body will be extended to provide sufficient surge capacity and will terminate in a chisel-shaped bottom with two outlets to the pressure system. This arrangement will allow continuous operation of the vacuum system. Includes differential pressure transmitter.

9 Dust detector for detecting broken bags.

9 Vacuum transmitter for sensing line pressure and controlling full load regulation.

2 Air compressor/dryer for air supply to vacuum/pressure transfer stations

Pressure System

9 Positive pressure blowers, Hibon, Roots, Gardner-Denver or equal. Sized for 1570 ICFM @ 13 PSIG. Accessories include:
- 150 hp motor, 460 V, 3 ph, 60 Hz, 1800 rpm
- V-belt drive with guard
- Fabricated steel baseplate
- Inlet and discharge silencers
- Inlet and outlet expansion joints
- Relief valve
- High temperature switch
- Discharge pressure gauge

90' 7" NUVALOY® pipe

1,800' 8" schedule 40 carbon steel pipe and fittings for airline from pressure blowers to vacuum/pressure transfer stations.

18 NUVA FEEDER® pressure vessels

19,960' 8" schedule 40 carbon steel pipe and DURITE® fittings and 3' wears sections after elbows for conveying ash from filter/separators to silo complex.

9 8" Valves for conveyor line isolation. Air cylinder operated with manual overrides and limit switches.

UC Service Corporation

Silo Complex

1 50' I.D x 80' high concrete silo to hold 142,444 cubic feet of ash. The unloader level is designed to enclose equipment and includes an access door, maintenance door, 85 KW heater and vent fan and louver.

1 Air compressor/dryer for air supply to silo complex equipment.

1 (2) Fluidizing blowers, Hibon, Roots, Gardner-Denver, or equal. Each sized for 768 SCFM @ 12.6 psig. Accessories on each includes:
- 30 hp motor, 460 V, 3 ph, 60 Hz, 1800 rpm
- V-belt drive with guard
- Fabricated steel baseplate
- Inlet and discharge silencers
- Inlet and outlet expansion joints
- Relief valve
- High temperature switch
- Discharge pressure gauge
- Pressure switch

1 Lot of carbon steel schedule 40 and 80 pipe from the blowers to the fluidizing pads

1 Lot, cloth fluidizing media.

1 85 KW heater, 460 V, 3 phase, 60 Hz

1 Lot miscellaneous check valves, flow limiters

2 4" air cylinder operated butterfly valves for blower selection. Includes limit switches.

1 Bin vent filter, pulse jet cleaned, with 6287 square feet of polyester cloth. Sized at a 3.0:1 air to cloth ratio, to vent displaced air from material entering the silo, fluidizing air and telescopic chute vent fan air. Includes differential pressure transmitter.

1 24" diameter manhole

1 Pressure/vacuum relief valve

1 Ultrasonic level detector
High-high level switch
Stair access from grade to roof.

2 Telescopic chute assemblies for dry unloading the fly ash. Each assembly includes 1.0 HP lifting hoist, 5 HP vent fan, manual silo isolation valve, ash feed valve assembly, 6" vent pipe with 6" air cylinder operated butterfly valve for vent line isolation from the silo

Sluice to Pond

2,300' 8" NUVALOY pipe from the silo to the existing ash pond. Includes DURITE fittings and connection material.

1,000' 8" schedule 40 carbon steel pipe and fittings from Owner's water supply to high pressure pump and from high pressure pump to jetpump inlet.

1 Jetpump.

1 High pressure water pumps to boost pressure from Owner's supply to jetpump.

Controls Description

The proposed control system is based on re-using existing control system hardware and software. Complete documentation of the existing control system, including all operator interface and PLC code, must be made available, in its native format, to UCC. Since UCC was instrumental in reviewing and debugging the original control system which has implemented our control philosophy, this information, as far as UCC having access to the code, is not considered proprietary.

Preliminary information indicates each of existing unit control systems contain an A-B SLC5/04 processor, remote I/O, and a Panelview 1000 Grayscale operator terminal with RIO communications. The nine unit processors are connected together using A-B DH+ communications. These processors are also connected to the soot blower control system and operator interface computer running Intellution Fix32 graphics software on Microsoft Windows NT. A DCS interface is also connected to the data highway. See the attached 'Existing Ash Handling Control System Overview' for a pictorial representation of this arrangement.

The proposed new unit control system will consist of a new wall-mounted control panel containing a new A-B SLC5/05 processor and I/O for each new unit ash system equipment. This panel will be located near the unit ash transfer equipment. Some of the existing controls for the ash vacuum system will be integrated into this new control system. See the attached 'Proposed Ash Handling Control System Key Plan' for a pictorial representation of this arrangement.

The communications between the new PLC processors and the new operator interface station will be Allen-Bradley Ethernet IP. This will allow communications at 10Mbps instead of the 56Kbps speed of the existing data highway.

The new common operator interface computer will have screen graphics developed with Intellution Fix32 graphics software to match the existing software. New screens will depict the ash vacuum/pressure conveying system.

The soot blowing control system details and the extent of the DCS interface are unknown at this time. We do not anticipate changes to these portions. These items will need further scope definition.

UC Service Corporation

5.0 Schedule

Engineering and procurement of material for this project will take 8 – 10 months

The erection portion of this budget is based upon a 12-month erection schedule including mobilization and demobilization. It is estimated that the actual construction will take ten months. One month has been allotted for mobilization and receipt of materials.

6.0 Pricing

Current budget price (± 20%) for equipment and engineering as listed, FOB jobsite $16,000,000.00

- CHD856, #2/0 AWG, 4W/GRND
  XLPE/EPR, 600 #5.77

- #2/0, 3C, 250'
  #4/0, 3C, 500' 751 2064

- Mike Sutton 751-3539 12/8/03
  We had a conference call Ron Pusley, Ken Buffington, Brad Redline.
  He has a quote from UCC

- Call Mike Sutton about quote tomorrow
  Are motors included in quote
  9 * 150 HP motors
  1 * 250 HP motor per Ken Buffington

- Mech Engin. #20k
  Civil Eng. #20k

Renfroe, Bret

From: Kent Shever [kentshever@charter.net]
Sent: Monday, November 17, 2003 10:49 AM
To: Sutton, Michael E.
Subject: Fwd: TVA Kingston Q03381


System
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posal Letter1.pdf


PC-0011.pdf (42
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PM-0013.pdf (97
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PS-0018.pdf
(110 KB)


Q03381KP11.pdf
(69 KB)


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posal Letter.doc (


ATT401585.txt
(78 B)

>Mike,

Attached is all the info that you should need on the Kingston quote.

Kent

- Earl Deskins, TVA, KIF, Plant Manager
- Missy Hedgecoth, TVA, Chat, System Eng Yard
- James S. Baugh, TVA, Chat, Mgr. Coal Combined by Product
- Robert Rehberg, TVA, KIF, Mgr. Plant Engr.
- Linda Campbell, TVA, KIF, Program Administrator
- Dwayne Rushing, TVA, KIF, Coal Handling Foreman
- Charles Vance, TVA, KIF, Coord Fuel Handling
- Michael Tames, TVA, ??, Supervisor Fuel Handling
- Theresa Long, TVA, KIF, Asst Mgmt (Secretary)

1/16/04

- Coal handling yard Transformer possibility ?? as far as a power feed.
- possible internal power feed. Brenda Boyer electrical KIF
- SCR project who has the KIF scrubber ??
- location of the power feed
- Turnkey @ Duke Crowder Construction is doing construction
- Cubicle in 4kV bus
- SCR has used the last of the cubicles
- TOMS already has looked Running this line
- Motor placed out in front of the precipitators within 20'-30'
- All 9 motors running 24 hrs a day
- 250 hp will not run all the time. 1/2 the time.
- Question to add slurry pump ??

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Flly Ash Handling design & equipment, which is coming from United Conveyor Corporation. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	223,360
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	159,016
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	223,360
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	314,538
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	619,016
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	39,754
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	72,925
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	46,755
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	16,000,000
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	24,630
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	19,836

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	16,093,750			
Equipment	5,000			
	17,743,189	17,743,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		17,743,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	17,764,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	563,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	609,601	18,374,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	18,406,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	18,958,745		
Rounding	41,255			
	41,255	19,000,000		
	Total	***19,000,000***		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Flly Ash Handling design & equipment, which is coming from United Conveyor Corporation. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										223,360
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	159,016
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	223,360
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	314,538
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	619,016
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	39,754
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	72,925
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	16,093,750			
Equipment	5,000			
	17,743,189	17,743,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		17,743,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	17,764,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	563,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	609,601	18,374,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	18,406,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	18,958,745		
Rounding	41,255			
	41,255	19,000,000		
	Total	***19,000,000***		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Fly Ash Handling design & equipment, which is coming from United Conveyor Corporation. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										223,360
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	159,016
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	223,360
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	314,538
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	619,016
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	39,754
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	72,925
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	16,093,750			
Equipment	5,000			
	17,743,189	17,743,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		17,743,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	17,764,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	563,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	609,601	18,374,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	18,406,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	18,958,745		
Rounding	41,255			
	41,255	19,000,000		
	Total	***19,000,000***		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Flly Ash Handling design & equipment, which is coming from United Conveyor Corporation. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection						150,000	-	-	-	223,360
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	100,000	15,000	-	-	159,016
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	150,000	-	-	-	223,360
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	210,000	-	-	-	314,538
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	500,000	75,000	-	-	619,016
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		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	50,000	-	-	-	72,925
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	29,295	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	0	16,000,000	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	14,726	-	-	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	7,500	-	5,000	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336					

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	16,093,750			
Equipment	5,000			
	17,743,189	17,743,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		17,743,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	17,764,510		
Escalation - Craft Labor	20,396		5.000 %	
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Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	609,601	18,374,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	18,406,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	18,958,745		
Rounding	41,255			
	41,255	19,000,000		
	Total	*19,000,000*		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Fly Ash Handling design & equipment, which is coming from United Conveyor Corporation. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										
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		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	159,016
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	223,350
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	314,538
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	619,016
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	39,754
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	72,925
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	46,755
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	16,000,000
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	24,630
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	19,836

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	16,093,750			
Equipment	5,000			
	17,743,189	17,743,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		17,743,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	17,764,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	563,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	609,601	18,374,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	18,406,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	18,958,745		
Rounding	41,255			
	41,255	19,000,000		
	Total	*19,000,000*		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Flly Ash Handling design & equipment, which is coming from United Conveyor Corporation. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										223,360
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	159,016
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	223,360
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	314,538
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	619,016
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	39,754
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	72,925
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	16,093,750			
Equipment	5,000			
	17,743,189	17,743,189		
Engineered Materials - Ph 2	1,185,000		100.000	%
Adjustment - Engr Materials	(1,185,000)		(100.000)	%
		17,743,189		
Small Tools Expense	5,004		0.450	$/hr
Consumables & Expendables	16,317		4.000	%
	21,321	17,764,510		
Escalation - Craft Labor	20,396		5.000	%
Escalation - Subcontract	563,281		3.500	%
Escalation - Perm Materials	24,730		2.000	%
Escalation - Small Tools	378		0.034	$/hr
Escalation - Consumables	816		0.200	%
	609,601	18,374,111		
Partner Insurance (FY 04)	12,238		3.000	%
Partner Award Fee (FY04)	20,396		5.000	%
	32,634	18,406,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526	%
	552,000	18,958,745		
Rounding	41,255			
	41,255	19,000,000		
	Total	***19,000,000***		

Renfroe, Bret

From: Buffington, Ken A
Sent: Wednesday, December 10, 2003 10:08 AM
To: Murray, David B.; Rice, Charles W.
Cc: Renfroe, Bret
Subject: FW: KIF Fly Ash Estimate
Importance: High

FINAL ELECTRICAL ESTIMATE

Here is the latest and final electrical estimate for the Fly Ash. Grand total electrical, without 161kv transmission lines, is about $2.2M. Bret is using a previous estimate to account for the 161kv lines and it is about $5.0M. If there needs to be any changes, Bret needs to know by this afternoon.

Ken Buffington

-----Original Message-----
From: Renfroe, Bret
Sent: Wednesday, December 10, 2003 9:06 AM
To: Buffington, Ken A
Subject: KIF Fly Ash Estimate

Ken,

Attached is the latest revision to the electrical portion of this project. Let me know if you want to add or make any changes.

Bret L. Renfroe
Cost Estimator
Phone: 423-751-7684
Fax: 423-751-4295

Renfroe, Bret

From: Davis, Victor W.
Sent: Monday, February 07, 2005 12:42 PM
To: Renfroe, Bret
Subject: RE: TVA Kingston Q03381

Looks like the only mechanical BOP would be the water supply to the silo, drains from the existing water exhausters if they move from their present location. Probably one person full time for the duration for Project Engineering/Contract Administration. Based on experience at COF and CUF, need to add an elevator wash down and sump and a scale for the silo

Victor Davis
Manager, Mechanical Engineering
Office: 423-751-6846
Cell: 423-309-0153

-----Original Message-----
From: Renfroe, Bret
Sent: Monday, February 07, 2005 11:38 AM
To: Davis, Victor W.
Subject: FW: TVA Kingston Q03381

Victor,

Attached is the UCC quote.

Bret

-----Original Message-----
From: Kent Shever [mailto:kentshever@charter.net]
Sent: Monday, November 17, 2003 10:49 AM
To: Sutton, Michael E.
Subject: Fwd: TVA Kingston Q03381

>Mike,

Attached is all the info that you should need on the Kingston quote.

Kent

Work Order #: | Revision: 0 | Addition | Type: TVA

Estimate Id: W0138S2

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

PR Loc: XXXXX | Estimate:

Site: Unspecified-missing reference

N/A | Project ID: W0138

In Service: 11/01/2001

Completion: 09/01/2002

Give a Complete Description Of The Proposed Work And A Statement Of Purpose And Benefits
List General Drawing References And Numbers Of Related Contracts, Agreements And Suborders.

This work order provides funds for the engineering, materials, and construction necessary to construct a new Kingston SCR 161-kv Substation on the existing TVA property.

TVA to construct a 161-6.9-kV stepdown substation including three 37.5/50/62.5 MVA 3-phase transformers, three 2000 ampere 40kA 161-kV circuit breakers, and associated isolation switches and buswork. Transformer protection & controls to be provided by TVA. Control building to be provided by others (Fossil Power contractor).

Any detail estimate line item descriptions in italics denotes work estimated on a contract basis

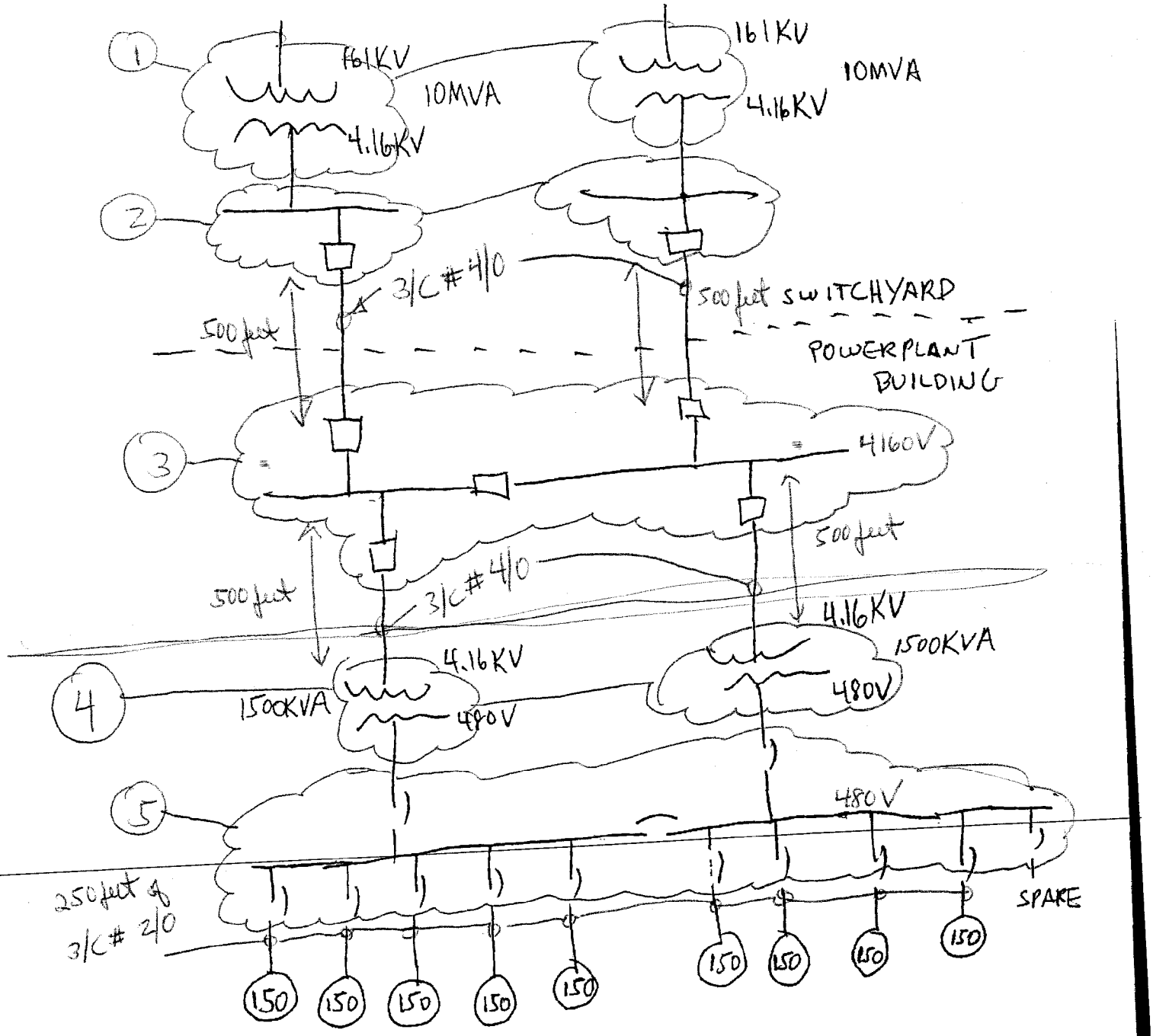
Upon completion of work authorized by this work order, initiate Completion Notice (FORM TVA 4013) for signature of the Project Manager

Estimate Cost Of Additions	Amount (Omit Cents)		Amount (Omit Cents)
Materials & Equipment Purchased	See Attached Estimate For Details	Salvaged Credit:	
Materials & Equipment Obtained From Stock		Matl & Equip Reused	
Materials & Equipment Salvaged & Reused		Matl & Equip Returned To Stock	
Total Materials		Proceeds From Sales	
Construction Labor		Total Salvage Credit	
Construction Equipment		Deduct:	
Other Field Expense {Temp Construction Facilities} {Transportation Of Tools & Equip} {Field Office Expense, ETC.}		Cost of Removal DR CR	
Tools And Prorations		Net Retirement	
Engineering Direct		Original Installed	
Final Test And Inspection		Cost of Plant Retired	
Land Acquisition Expense		**Project Cost**	
Total Cost Exclude Overhead And Purchase Price Of Land And Rights		Estimate Cost	$5,130,894
Estimate Total Additions		Net Cost of Project	$5,130,894

Originated	Date	Approval	Date	Fixed Asset Accounting	Date
Prepared L. KESTERSON		Planning			
Project Manager		Business Resources			
Submitted A. S. HAYES		Authorization			

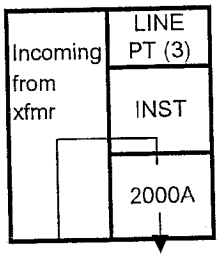
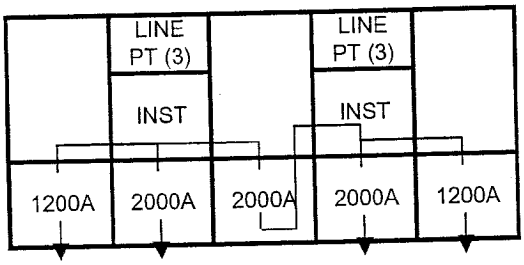
TVA 4005B-1 [7/95]

ATTACHMENT 1



KEN BUFFINGTON, ELECT,
x2566
cell: 706-340-1302

KINGSTON ELECTRICAL COST ESTIMATE

ITEM	DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
1.	10MVA, 161KV/4.16KV LIQUID FILLED TRANSFORMERS	2	$ 250,000	$ 500,000
2.	4.16KV SWITCHGEAR, OUTDOOR NON-WALKIN 	2	$ 70,000	$ 140,000
3.	4.16KV SWITCHGEAR, INDOOR 	1	$ 150,000	$ 150,000
4.	1500KVA, 4.16KV/480V CAST COIL TRANSFORMERS	2	$ 50,000	$ 100,000
5.	480V SWITCHGEAR, INDOOR	1	$ 150,000	$ 150,000
			TOTAL	$ 1,040,000

1500KVA XFMR	INST	INST	INST	INST	INST	INST	INST	1500KVA XFMR
		800	800		800	800		
	2000	800	800	2000	800	800	2000	
	HRG	800	Blank	Blank	Blank	800	HRG	

Buffington, Ken A

From: Purkey, Ronald E.
Sent: Monday, December 01, 2003 11:35 AM
To: Buffington, Ken A
Subject: RE: KIF Dry Fly Ash Collection

Mike Sutton in Fuels knows details.

-----Original Message-----
From: Buffington, Ken A
Sent: Monday, December 01, 2003 9:15 AM
To: Purkey, Ronald E.
Subject: FW: KIF Dry Fly Ash Collection

Ron,
Who should I talk to in Mechanical for info concerning this KIF Fly Ash project estimate? I may need info on motors, location, etc.
Thanks!
Ken Buffington

-----Original Message-----
From: Kimsey, Barry A.
Sent: Tuesday, November 18, 2003 4:48 AM
To: Buffington, Ken A
Cc: Murray, David B.; Rice, Charles W.
Subject: FW: KIF Dry Fly Ash Collection

Ken can you help support doing this estimate. I would get some input from David Murray or Charles Rice.
Thanks.

Barry A. Kimsey

Tennessee Valley Authority
Fossil Power Group
Manager, Electrical and Controls Engineering
1101 Market Street, Mail Stop LP 2G-C
Chattanooga, TN 37402-2801

email bakimsey@tva.gov

Phone 423 751 4629
Cell 423 838 2749
Fax 423 751 7094

-----Original Message-----
From: Purkey, Ronald E.
Sent: Monday, November 17, 2003 2:07 PM

To: Kimsey, Barry A.
Cc: Smith, Mark A.
Subject: FW: KIF Dry Fly Ash Collection

Barry,
Please provide a cost of the electrical BOP for the attached DFA system. We need by 12/5/03. Thanks.

Ron
-----Original Message-----
From: Sutton, Michael E.
Sent: Monday, November 17, 2003 12:53 PM
To: Purkey, Ronald E.
Cc: Baugh, James S.; Hedgecoth, Melissa A.; Huber II, James M.
Subject: FW: KIF Dry Fly Ash Collection

Ron,
I spoke with Kent Shever from UCC regarding the power requirements for dry fly ash collection at Kingston.

Silo location will be between ammonia tanks and the present ash pond.

New pressure blower to new ash silo
9 x 150 hp @ 460V, 3 phase, 1800 rpm

Silo fluidizing blowers (only one blower runs at a time)
2 x 30 hp @ 460 V
1 x 85 kW heater

Kent also sent me some information on water requirements for hydroveyor and some drawings supporting the quote.
Let me know if you need more information.
Mike

Michael E. Sutton
By-Products & Properties Specialist
Coal Acquisition & Supply
Tennessee Valley Authority
Ph: (423)751-3539; FAX: (423)751-6619

Spreadsheet Report

Dry Fly Ash

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 50 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Fily Ash Handling design & equipment, which is coming from United Conveyor Corporation. 161kV Power Feed is based off of an FY01 TPS estimate that has been escalated. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	223,360
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	159,016
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		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	314,538
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	619,016
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	39,754
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	72,925
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	46,755
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	16,000,000
		16407.200	161kV Power Feed	1.00 ls				5,600,000	0	-	5,600,000
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	24,630
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	19,836

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	21,693,750			
Equipment	5,000			
	23,343,189	23,343,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		23,343,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	23,364,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	759,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	805,601	24,170,111		
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Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	24,202,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	24,754,745		
Rounding	245,255			
	245,255	25,000,000		
	Total	***25,000,000***		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
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		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	5,600,000
		16407.200	161kV Power Feed	1.00 ls				5,600,000	0	-	24,630
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Project Controls & Estimating	12,000		2.526	%
	552,000	24,754,745		
Rounding	245,255			
	245,255	25,000,000		
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Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

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Revision	0
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Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
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		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	223,360
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	314,538
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	619,016
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	39,754
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	72,925
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	5,600,000
		16407.200	161kV Power Feed	1.00 ls				5,600,000	0	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	21,693,750			
Equipment	5,000			
	23,343,189	23,343,189		
Engineered Materials - Ph 2	1,185,000		100.000	%
Adjustment - Engr Materials	(1,185,000)		(100.000)	%
		23,343,189		
Small Tools Expense	5,004		0.450	$/hr
Consumables & Expendables	16,317		4.000	%
	21,321	23,364,510		
Escalation - Craft Labor	20,396		5.000	%
Escalation - Subcontract	759,281		3.500	%
Escalation - Perm Materials	24,730		2.000	%
Escalation - Small Tools	378		0.034	$/hr
Escalation - Consumables	816		0.200	%
	805,601	24,170,111		
Partner Insurance (FY 04)	12,238		3.000	%
Partner Award Fee (FY04)	20,396		5.000	%
	32,634	24,202,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526	%
	552,000	24,754,745		
Rounding	245,255			
	245,255	25,000,000		
	Total	*25,000,000*		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Fly Ash Handling design & equipment, which is coming from United Conveyor Corporation. 161kV Power Feed is based off of an FY01 TPS estimate that has been escalated. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										223,360
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	159,016
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	223,360
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	314,538
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	619,016
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	39,754
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	72,925
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	5,600,000
		16407.200	161kV Power Feed	1.00 ls				5,600,000	0	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	21,693,750			
Equipment	5,000			
	23,343,189	23,343,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		23,343,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	23,364,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	759,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	805,601	24,170,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	24,202,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	24,754,745		
Rounding	245,255			
	245,255	25,000,000		
	Total	***25,000,000***		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Fily Ash Handling design & equipment, which is coming from United Conveyor Corporation. 161kV Power Feed is based off of an FY01 TPS estimate that has been escalated. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	223,360
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	159,016
		16021.100	4.16kV Indoor Switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	223,360
		16021.100	4.16kV Outdoor Switchgear	3.00 ls	34,846.00 /ls	104,538	210,000	-	-	-	314,538
		16021.100	10MVA, 161kv/4.16kv liq filled Transformer	2.00 ls	22,008.00 /ls	44,016	500,000	75,000	-	-	619,016
		16021.100	750 KVA, 4.16kV/480V Transformer	1.00 ls	11,004.00 /ls	11,004	25,000	3,750	-	-	39,754
		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	72,925
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	46,755
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	16,000,000
		16407.200	161kV Power Feed	1.00 ls				5,600,000	0	-	5,600,000
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	24,630
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	19,836

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	21,693,750			
Equipment	5,000			
	23,343,189	23,343,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		23,343,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	23,364,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	759,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	805,601	24,170,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	24,202,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	24,754,745		
Rounding	245,255			
	245,255	25,000,000		
	Total	***25,000,000***		

Kingston Fossil Plant
Dry Fly Ash Collection
Design & Install New Fly Ash Handling System

Project name	Dry Fly Ash
Estimator	B. L. Renfroe
Labor rate table	KIF 60 2003
Plant	KIF
Estimate #	04096
Requesting Engr	R. E. Purkey
Option	0
Revision	0
Phase	1
Estimate Type	Conceptual
Estimate Accuracy	+/- 30%
Est. Issue Date	12/10/2003
Funding Type	Capital
Notes	Electrical Engineered Material Costs based on ABB quote. (1043-03-1633) UC Service Corporation proposal (Q03381) included Flly Ash Handling design & equipment, which is coming from United Conveyor Corporation. 161kV Power Feed is based off of an FY01 TPS estimate that has been escalated. Estimate is in FY04 Dollars.
Report format	Sorted by 'Location/Activity' 'Detail' summary

Location	Activity	Phase	Description	Takeoff Quantity	Labor Cost/Unit	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
KIF											
	Fly Ash Collection										223,360
		16021.100	480V indoor switchgear	1.00 ls	73,360.00 /ls	73,360	150,000	-	-	-	159,016
		16021.100	1500 KVA, 4.16kV/480V Transformer	2.00 ls	22,008.00 /ls	44,016	100,000	15,000	-	-	223,360
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		16021.100	480V Outdoor MCC	1.00 ls	22,925.00 /ls	22,925	50,000	-	-	-	46,755
		16406.100	CU 5KV 4/0-3C Shielded EPR/CSPE	3,500.00 lf	4.99 /lf	17,460	29,295	-	-	-	16,000,000
		16407.200	UC Service Corporation	1.00 ls	0.00 /ls	0	0	16,000,000	-	-	5,600,000
		16407.200	161kV Power Feed	1.00 ls				5,600,000	0	-	24,630
		16407.200	CU 600V 2/0-3C XLPE/CSPE	2,250.00 lf	4.40 /lf	9,903	14,726	-	-	-	19,836
		16407.200	Mis. Equipment & Unforeseen Items	1.00 ls	7,336.00 /ls	7,336	7,500	-	5,000	-	

Estimate Totals

Labor	407,918		11,121.000	hrs
Material	1,236,521			
Subcontract	21,693,750			
Equipment	5,000			
	23,343,189	23,343,189		
Engineered Materials - Ph 2	1,185,000		100.000 %	
Adjustment - Engr Materials	(1,185,000)		(100.000) %	
		23,343,189		
Small Tools Expense	5,004		0.450 $/hr	
Consumables & Expendables	16,317		4.000 %	
	21,321	23,364,510		
Escalation - Craft Labor	20,396		5.000 %	
Escalation - Subcontract	759,281		3.500 %	
Escalation - Perm Materials	24,730		2.000 %	
Escalation - Small Tools	378		0.034 $/hr	
Escalation - Consumables	816		0.200 %	
	805,601	24,170,111		
Partner Insurance (FY 04)	12,238		3.000 %	
Partner Award Fee (FY04)	20,396		5.000 %	
	32,634	24,202,745		
Elect. Engineering Design	380,000			
Elect. Site Meeting / Travel	45,000			
Mech Engineering - Phase 2	20,000			
Civil Engineering - Phase 2	20,000			
Elect. Field Commissioning	75,000			
Project Controls & Estimating	12,000		2.526 %	
	552,000	24,754,745		
Rounding	245,255			
	245,255	25,000,000		
	Total	***25,000,000***		

W0138S2 Full Description

This work order provides funds for the engineering, materials, and construction necessary to construct a new Kingston SCR 161-kv Substation on the existing TVA property.

TVA to construct a 161-6.9-kV stepdown substation including three 37.5/50/62.5 MVA 3-phase transformers, three 2000 ampere 40kA 161-kV circuit breakers, and associated isolation switches and buswork. Transformer protection & controls to be provided by TVA. Control building to be provided by others (Fossil Power contractor).

		Dollars	Hours
630	CONT PROJ SUPPORT	$3,917	100
690	CONTRACT CONST	$125,926	3,572
640	CONTRACT ENGG	$300,931	21
700	LAND	$103,020	0
710	MATERIALS	$3,774,288	1,200
790	RES GROUP/FCLTS	$21,864	600
620	SUB & COMM CONT PROJ	$17,811	450
650	SUBSTATION CONST	$478,891	14,111
670	TELECOM CONST	$11,065	329
580	TELECOM CONTROLS	$3,627	108
600	TELECOM PLNG & SUPPORT	$1,172	32
760	TRANS O&M OTHER	$44,894	1,232
880	VEHICLE & HEAVY EQPT USE	$243,487	0
		$5,130,894	21,755

Work Order Estimate

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order:
Prepared By: L. KESTERSON
Estimate No: W0138S2

WBS - Description	Material Dollars	Work Hours	Labor Dollars	Other/Equip Dollars	Total Dollars
53 - LAND ACQUISITION	$0	600	$21,864	$0	$21,864
54 - TOM TEST & SUPPORT	$0	1,232	$44,894	$11,224	$56,118
57 - LAND COST	$103,020	0	$0	$0	$103,020
	$3,836,666	21,755	$1,050,740	$243,487	$5,130,894

Work Order Estimate Detail

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order: W0138S2
Prepared By: L. KESTERSON

WBS - Description	TIIC	Qty U/M	Material Dollars	Work Hours	Labor Dollars	Equip Usage	Total Dollars
1 - SUBSTATION WORK							
11 - SUBSTATION ENGINEERING							
114 - CONTRACT SUBSTATION ENG. & DESIGN							
*** ENGINEERING & DESIGN - PHYSICAL / P&C - CONTRACT*		1 WH	$0	1	$300,000	$0	$300,000
			$0	1	$300,000	$0	$300,000
115 - TVA ENGINEERING - CONTRACT PROJECTS							
115a - TVA ENGR - SUBSTATION CONTRACTS							
** PREP & ISSUE ENG. & DESIGN - PHYSICAL - CONTRACT		300 WH	$0	300	$11,874	$0	$11,874
** PREP & ISSUE ENG./ DESIGN P & C CONTRACT		150 WH	$0	150	$5,937	$0	$5,937
			$0	450	$17,811	$0	$17,811
115b - TVA ENGR-SUBSTATION CONTR PROJ SUPPORT							
** ENG. FIELD SUPPORT & FOR CONTRACT ENG.		100 WH	$0	100	$3,917	$0	$3,917
			$0	100	$3,917	$0	$3,917
12 - SUBSTATION CONSTRUCTION							
121 - ENVIRONMENTAL INITIATIVES							
121a - OIL CONTAINMENT							
0 OIL CONTAINMENT CONSTRUCTION		1 WH	$50,000	1,000	$36,929	$14,772	$101,700
			$50,000	1,000	$36,929	$14,772	$101,700
122 - SITE IMPROVEMENTS							
CLEARING, GRADING, DRAINAGE SUBST. SITE		1 LS	$88,500	400	$12,313	$8,619	$109,432
LIGHTING SUBSTATION LIGHTING U;NIT SYMMETRIC, W/INTEF	CEC275Q	3 EA	$1,854	24	$738	$517	$3,110
LIGHTING SUBSTATION LIGHTING U;NIT, WITH INTERNAL	CEC276N	3 EA	$1,854	24	$738	$517	$3,110
LIGHTING,SUBSTATION,CONTROL ASSY,C/W 30 AMP,115/ ;23	CBT032L	1 EA	$554	8	$246	$172	$973
			$92,763	456	$14,036	$9,825	$116,624
123 - STRUCTURES							
123a - CONCRETE FOUNDATIONS							
# 3X21'-4" E BEND,X=23", Y=103"		32 LB	$12	0	$18	$7	$37
# 3X3'-4" H BEND,9" SQUARE HOOP		10 LB	$3	0	$5	$2	$9
# 3X5'-2" H BEND,ID ROUND HOOP		233 LB	$67	3	$108	$43	$218
# 3X6'-10" E BEND,X=19", Y=19"		288 LB	$83	4	$133	$53	$269
# 3X7'-3" E BEND,X=23", Y=19"		24 LB	$9	0	$13	$5	$27
# 3X8'-7" E BEND,X=15", Y=23"		174 LB	$162	3	$80	$32	$275
# 4X5'-4" D BEND,u=29"		28 LB	$8	0	$13	$5	$27
# 5X13'-8", STRAIGHT		448 LB	$129	7	$248	$99	$477
# 5X4'-2", STRAIGHT		52 LB	$15	1	$24	$10	$49
# 5X4'-3" C BEND,u=11"		319 LB	$408	5	$147	$59	$614
# 5X5'-3", STRAIGHT		591 LB	$934	9	$273	$109	$1,316
# 5X5'-4", STRAIGHT		56 LB	$16	1	$26	$10	$52
# 5X6'-8", STRAIGHT		448 LB	$129	7	$248	$99	$477
# 6X5'-1", STRAIGHT		1,374 LB	$396	21	$635	$254	$1,285

italic=contract

Work Order Estimate Detail

Title: KINGSTON STEAM PLANT -PROVIDE 161 KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order: W0138S2
Prepared By: L. KESTERSON

WBS - Description	TIIC	Qty U/M	Material Dollars	Work Hours	Labor Dollars	Equip Usage	Total Dollars
123a - CONCRETE FOUNDATIONS							
# 6X6'-1", STRAIGHT		804 LB	$179	12	$371	$149	$699
# 7X7'-1", STRAIGHT		1,853 LB	$535	28	$856	$342	$1,733
# 9X6'-8" C BEND,u=18"		368 LB	$112	6	$204	$82	$397
# 9X7'-8" C BEND,u=18"		1,248 LB	$379	19	$691	$277	$1,347
#10X5'-10" E BEND,X=16",Y=16"		145 LB	$42	2	$67	$27	$135
A CONCRETE FOUNDATIONS / MATERIAL & LABOR		85 CY	$6,290	254	$8,174	$3,270	$17,734
ANCHOR BOLTS 1" DIA X3'-6" LONG (LABOR ONLY)		4 EA	$0	4	$123	$49	$172
ANCHOR BOLTS 1-1/2" DIA X 5'-2" LONG (LABOR ONLY)		16 EA	$0	32	$1,182	$473	$1,654
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR ONLY)		228 EA	$0	336	$10,343	$4,137	$14,480
BACKFILL OR SPOIL WASTE MATERIAL		208 CY	$0	104	$3,662	$1,465	$5,127
BACKFILL (6" LAYERS, HAND TAMP)		4 CY	$0	4	$108	$43	$151
BOLT,FOUNDATION,GALVANIZED STEEL, 0.750 IN (;3/4),		8 EA	$64	4	$123	$49	$236
EXCAVATION (AUGERED FDNS) EARTH		56 CY	$0	67	$2,054	$822	$2,875
EXCAVATION EARTH (SPREAD FDN.)		156 CY	$0	234	$8,604	$3,441	$12,045
FORMWORK (WOOD)		735 SF	$1,135	221	$7,179	$2,872	$11,185
FOUNDATIONS (10 - 25 CY)		16 CY	$1,187	224	$6,895	$2,758	$10,840
PLATES 3/4" X 9" X 9" WEIGHT=18#		4 EA	$74	2	$62	$25	$160
			$12,367	1,613	$52,668	$21,067	$86,102
123c - YARD SUPERSTRUCTURE - BAYS							
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.250 IN (1/4)	BEK258V	20 EA	$3	0	$0	$0	$3
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.375 IN (3/8)	CDF524L	50 EA	$12	0	$0	$0	$12
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.500 IN (1/2)	CDE058K	9 EA	$7	0	$0	$0	$7
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.750 IN (3/4)	CDE767Y	12 EA	$14	0	$0	$0	$14
BOLT MACHINE HEXAGON, STAINL E;SS STEEL, 0.5 00 IN ('	BYT902L	240 EA	$89	0	$0	$0	$89
SCREW CAP HEXAGON, CARBON STEE;L, 0.625 IN (5/8),	BGK874Q	400 EA	$367	20	$672	$336	$1,374
STRUCTURE, SUBSTATION; STRUCTURE,SUBSTATION,INSU	CEL920P	1 EA	$25,034	310	$10,413	$5,206	$40,653
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL STEEL,,,,	CBW466H	9 EA	$6,425	54	$1,814	$907	$9,146
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL STEEL,,,,	CBW467F	4 EA	$3,363	21	$699	$349	$4,411
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL STEEL,,,,	CBW464M	1 EA	$506	8	$269	$134	$909
STRUCTURE,SUBSTATION,161KV BUS SUPPORT, TYPE "T",	CBW443X	11 EA	$3,519	31	$1,035	$517	$5,071
STRUCTURE,SUBSTATION,161KV BUS SUPT, TYPE "T", ;CO	CBW450C	16 EA	$15,577	96	$3,225	$1,612	$20,414
WASHER SPRING TENSION STAINLES;S STEEL , 0.500 IN (1	BYT957N	240 EA	$270	0	$0	$0	$270
			$55,184	540	$18,125	$9,063	$82,372
123d - BUILDINGS							
BRACKET LIGHTING CAST ALUMINUM;,W/ADAPTER	ANT862X	3 EA	$392	6	$202	$60	$654
BUILDING SERVICES (CONTROL BUILDING)		1 LS	$159,681	300	$10,077	$3,023	$172,781
CABLE,INSULATED,POWER/CONTROL,;#10 AWG,COPPER,1	BJD031M	3,000 FT	$4,976	0	$0	$0	$4,976
CABLE,INSULATED,POWER/CONTROL,;#10 AWG,COPPER,4	AXK223R	3,000 FT	$1,113	0	$0	$0	$1,113
CONNECTOR,RECEPTACLE ELECT,2 WIRE,3 POLE,20 AMPS	BDE230X	3 EA	$138	0	$0	$0	$138
LAMP SODIUM 150.000, A-15, M;EDIUM, HIGH P RESSURE	CBT917L	6 EA	$107	0	$0	$0	$107
			$166,407	306	$10,279	$3,084	$179,769
123e - CABLE TRENCHES							
0 CABLE TRENCH LOW VOLTAGE AREA CONSTRUCT		120 LF	$6,181	180	$6,647	$2,659	$15,487
COVER TRENCH,POWER CABLE 30" W;IDE X 24" LONG,	CBQ749R	10 PC	$258	160	$5,374	$1,075	$6,707
COVER TRENCH,POWER CABLE STAND;ARD CHANNEL	CBQ712H						
PLATE,END,TRENCH,PWR CABLE,END PLATE FOR 30" WID	CBQ715B						
			$6,439	340	$12,022	$3,734	$22,194
124 - EQUIPMENT							

italic=contract

Work Order Estimate Detail

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order: W0138S2
Prepared By: L. KESTERSON

WBS - Description	TIIC	Qty U/M	Material Dollars	Work Hours	Labor Dollars	Equip Usage	Total Dollars
124a - TRANSFORMERS							
TRANSFORMER POWER; 3PH, 161/6.9, 37.5/50/62.5MVA	BDQ214W	3 EA	$3,090,600	3,000	$100,770	$28,216	$3,219,586
			$3,090,600	3,000	$100,770	$28,216	$3,219,586
124b - CIRCUIT BREAKER BAYS							
ARRESTER SURGE STATION CLASS,4;8-KV MCOV, 69-KV	CBR919M	9 EA	$4,228	108	$3,628	$1,016	$8,871
CIRCUIT BREAKER, GAS, 72-KV, 2000-A, 40-KA, SF-6, DEAD		3 EA	$111,262	360	$12,092	$3,386	$126,740
			$115,490	468	$15,720	$4,402	$135,611
124d - SWITCHBOARD PANELS & EQUIPMENT							
BATTERY CHARGER ELEC CONSTANT ;VOLTAGE DEVICE,A	CBT559L						
BATTERY STORAGE BATTERY, STORAGE, 60 CELL, 125VDC	CBT579E						
CABINET, ELECTRICAL EQUIPMENT,; SHEET STEEL	BHR552A	3 EA	$2,751	48	$1,612	$226	$4,589
CABLE, POWER/CONTROL, COPPER, ;10 AWG, PXMJ, 2, 60	ARW513T	1,000 FT	$855	0	$0	$0	$855
RACK,STORAGE,EA-5,,,,,, ;	CDM612Q	1 EA	$3,606	100	$3,359	$470	$7,435
RELAY AUXILIARY 125VDC ;	APP475E	2 EA	$1,056	8	$269	$38	$1,363
RELAY SOLID STATE TRANFORMER D;IFFERENTIAL RELAY,	CBR613E	2 EA	$2,060	32	$1,075	$150	$3,286
RELAY, OVERLOAD; VOLTS:125/250, MICROPROCESSOR, D	CED085F	3 EA	$9,191	120	$4,031	$564	$13,787
SWITCH ROTARY TRANSFER SWS. 4P;OS. 4 CONTACTSRO	CED949P	3 EA	$413	12	$403	$56	$872
SWITCH TEST FT 19R SWITCH ;	CDX828P	7 EA	$4,211	21	$705	$99	$5,016
SWITCH,TEST,PERMISSIVE OVERREACH CARRIER T;EST S	CBH937W	2 EA	$261	8	$269	$38	$568
TEST BLOCK ELECTRICAL 6 POLE, ;TYPE PK-2	ABV909X	8 EA	$623	16	$537	$75	$1,236
WIRE ELECTRICAL COPPER-TINNED,; 14 AWG, STRAND EL	ACT065D	1,500 LF	$124	450	$16,461	$768	$17,353
			$25,152	815	$28,721	$2,485	$56,358
124f - DISCONNECT SWITCHES							
SWITCH GROUNDING (SAFETY) 161-;KV, for transformer	BDF787T	3 EA	$16,303	300	$10,974	$1,536	$28,813
SWITCH,DISCONNECT,7.5 KV,1200 A,SPDT,HOOKSTICK ;OF	CBV025C	9 EA	$9,272	270	$9,877	$1,383	$20,531
SWITCH,DISCONNECT,VERTICAL BRE;AK,161 KV,2000,3,,,H	CDK528P	3 EA	$11,543	420	$15,364	$2,151	$29,058
SWITCH,DISCONNECT,VERTICAL BREAK,23 KV/150 KV BIL,;	CFD461G	3 EA	$13,979	72	$2,634	$369	$16,981
			$51,097	1,062	$38,848	$5,439	$95,383
125 - CABLE, CONDUIT & CONDUCTORS							
125a - INSTALL CONDUIT							
CONDUIT METAL,RIGID 01.250000 ;(1 1/4), STEEL,	AHR156R	200 LF	$258	150	$5,039	$336	$5,632
CONDUIT METAL,RIGID 02.000000 ;(2), STEEL, THICKWALL,	AHR356H	200 LF	$416	150	$5,039	$336	$5,791
CONDUIT,NONMETALLIC,RIGID; 01.250000 (1 1/4), PVC, 120.	CDY137E	300 LF	$618	216	$7,255	$484	$8,357
CONDUIT,RIGID,THICKWALL,2 IN,1;0 FT,PVC,BELL ONE END	CDG229H						
JUNCTION BOX,ELECTRICAL,RECTANGULAR, CAST ALUMIN	CBP929W	3 EA	$523	0	$0	$0	$523
			$1,815	516	$17,332	$1,155	$20,303
125b - OHGW PROTECTIVE SYSTEM & BUS							
BELL,CORONA,DRIVE TYPE,4 IN,AL;UMINUM SCHEDULE 40	CDE840T	18 EA	$396	72	$2,416	$484	$3,298
BUS CONDUCTOR 04.000 IN (4),; SCHEDULE 40, ALUMINUM	AMT160G	1,000 LF	$6,871	1,500	$50,385	$10,077	$67,333
CABLE,BARE,,750 KCMIL,,COPPER,;STRANDED,,,,,61,HARD	ANT657Y	600 LF	$2,262	108	$3,628	$726	$6,616
CABLE,BARE,ELECTRICAL,500 KCMI;L,,COPPER,STRANDEL	ANT157K	100 FT	$253	0	$0	$0	$253
CLAMP,GROUND/TD,SADDLE,3/8 IN,;,BRONZE,#4 TO 2/0 AW	ALN886G	24 EA	$46	0	$0	$0	$46
CONNECTOR GROUND FOR CONNECTIN;G TWO 5/8 INCH	ACR049G	25 EA	$45	0	$0	$0	$45
CONNECTOR GROUND GROUND SERVIC;E CONN. FOR COI	CDE804L	30 EA	$1,505	0	$0	$0	$1,505
CONNECTOR TERMINAL FOR CONNECT;ING A 4" SPS ALUM	CDG812A	36 EA	$2,452	144	$4,837	$967	$8,257
CONNECTOR, SP;LICE COMPONENT, ALUM-WELD	CBQ145T	24 EA	$1,871	96	$3,225	$645	$5,741
CONNECTOR, SP;LICE, TWO 4" SPS ALUM	CBQ139M	12 EA	$686	48	$1,612	$322	$2,620
CONNECTOR,CABLE,GROUND,,500 KC;MIL,,,BOLTED,W/ NU	CDE803N	15 EA	$719	0	$0	$0	$719
CONNECTOR,CABLE,SPLIT BOLT,,#8;-#6 AWG,,,BOLTED,CO	APN594B	175 EA	$377	0	$0	$0	$377
CONNECTOR,TEE,COMPRESSION,500 ;KCMIL,COPPER,,,CC	ADP203F	40 EA	$743	0	$0	$0	$743
CONNECTOR,TERMINAL,STR,COMPRESS TYPE,500 KCMIL;-	AGP100J	12 EA	$64	0	$0	$0	$64

italic=contract

Work Order Estimate Detail

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Date: 12/09/2003

Site: Unspecified-missing reference
N/A

Work Order: W0138S2

Prepared By: L. KESTERSON

WBS - Description	TIIC	Qty U/M	Material Dollars	Work Hours	Labor Dollars	Equip Usage	Total Dollars
125b - OHGW PROTECTIVE SYSTEM & BUS							
INSULATOR STATION POST 69-KV,3;0"HIGH,3" BC BASE ANI	CBR453A	12 EA	$1,898	0	$0	$0	$1,898
INSULATOR,STATION POST/TD,,62 ;IN,PORCELAIN,,5 IN,161	BKV646A	45 EA	$11,402	95	$3,174	$635	$15,211
LUG,COMPRESSION,STRAIGHT,500 K;CMIL,5/8 IN,COPPER,I	AGP000D	8 EA	$38	0	$0	$0	$38
LUG,MECHANICAL,STRAIGHT,2/0-80;0 KCMIL,1/2 IN,COPPEF	CBP201H	14 EA	$511	0	$0	$0	$511
LUG,MECHANICAL,STRAIGHT,4/0-10;00 KCMIL,1/2 IN,TINNEI	CBF935B	24 EA	$1,592	0	$0	$0	$1,592
SPACER,CONDUCTOR,2-BUNDLE,750-;1000 KCMIL,,2-1/2 IN,	CDM944Y	12 EA	$499	6	$202	$40	$741
			$34,231	2,069	$69,481	$13,896	$117,608
125c - GROUNDING MAT							
BOLT MACHINE HEXAGON, SILICO N; BRONZE, 0.37 5 IN (3/	CDE759X	50 EA	$22	0	$0	$0	$22
BOLT MACHINE HEXAGON, SILICO N; BRONZE, 0.50 0 IN (1/	CDE760Q	50 EA	$71	0	$0	$0	$71
CONNECTOR,CROSS,COMPRESSION TYPE, 500-500 KCM;II	ANN686C	70 EA	$826	53	$1,763	$118	$2,707
CONNECTOR,TEE; COMPRESSION TYPE, TIN PLATED C;OPI	CBY382D	6 EA	$54	18	$605	$40	$699
LUG, COMPRESSION; CABLE SIZE:#2/0 AWG, BOLT SIZE:3/E	AFP604G	40 EA	$59	30	$1,008	$67	$1,134
LUG,COMPRESSION,STRAIGHT,#2/0 ;AWG,1/2 IN,COPPER,,,	CBX185L	2 EA	$6	3	$101	$7	$114
PLATE ELECTRICAL GROUNDING STE;EL, 48.00000 0 (48), 3	AER448Y	8 EA	$1,465	336	$11,286	$752	$13,504
ROD GROUND COPPER-CLAD STE EL,; 0.625 IN (5 /8), 8 FT,	AGR347Q	20 EA	$123	480	$16,123	$1,075	$17,321
ROD,GROUND,COPPER-CLAD STEEL, 0.625 IN (5;/8), 8 FT, T	AGR746A	25 EA	$238	600	$20,154	$1,344	$21,736
WIRE ELECTRICAL BARECU 2/0 AW;G, STRAN DED, HARD	ANT155P	1,000 FT	$598	300	$10,077	$672	$11,346
WIRE,ELECTRICAL BARECU,500 KCMIL, STRANDED, SOFT I	CBV817K	3,000 FT	$6,676	1,350	$45,347	$3,023	$55,045
			$10,137	3,170	$106,464	$7,098	$123,698
126 - CONSTRUCTION INDIRECTS							
126a - CONSTRUCTION SUPV., SUPPT., & TRAVEL							
CONSTRUCTION REVIEW TIME/WALKDOWN	367 WH		$0	366	$12,385	$14,707	$27,092
CONSTRUCTION REVIEW TIME/WALKDOWN	72 WH		$0	71	$3,257	$3,867	$7,124
CONSTRUCTION SUPV/ ENGR AND SUPPORT	1,220 WH		$0	1,219	$41,284	$49,024	$90,308
CONSTRUCTION SUPV/ ENGR AND SUPPORT	238 WH		$0	237	$10,856	$12,891	$23,747
			$0	1,892	$67,781	$80,490	$148,272
126b - MATERIAL MANAGEMENT & RECEIVING							
MATERIAL MANAGEMENT & RECEIVING	367 WH		$0	366	$12,385	$14,707	$27,092
MATERIAL MANAGEMENT & RECEIVING	72 WH		$0	71	$3,257	$3,867	$7,124
			$0	437	$15,642	$18,575	$34,217
126d - CONSUMABLE AND SMALL TOOLS							
AREA ENGINEER SUPPORT	1,200 WH		$0	1,200	$40,642	$6,096	$46,739
			$0	1,200	$40,642	$6,096	$46,739
3 - TELECOMMUNICATION WORK							
31 - TELECOMMUNICATION ENGINEERING							
312 - TELECOM CONTROLS ENGINEERING							
312a - TELECOM CONTROLS ENGINEERING							
0 TELECOM CONTROLS ENGINEERING	40 WH		$0	40	$1,343	$0	$1,343
			$0	40	$1,343	$0	$1,343
312b - TELECOM CONTROLS DESIGN							
0 PREP & ISSUE TELECOM CONTROLS DESIGN	60 WH		$0	60	$2,015	$0	$2,015
			$0	60	$2,015	$0	$2,015

italic=contract

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order: W0138S2
Prepared By: L. KESTERSON

WBS - Description	TIIC	Qty U/M	Material Dollars	Work Hours	Labor Dollars	Equip Usage	Total Dollars
312c - TELECOM CONTROLS PROJECT SUPPORT							
0 TELECOM SUPPORT ENGINEERING- CONTROLS		8 WH	$0	8	$269	$0	$269
			$0	8	$269	$0	$269
313 - TELECOMMUNICATIONS PLANNING & SUPPORT							
313a - MATERIALS PROCUREMENT							
0 PURCHASE/DELIVER TELECOM EQUIPMENT		16 WH	$0	16	$595	$0	$595
			$0	16	$595	$0	$595
313b - WO/PROJECT SUPPORT/MANAGEMENT							
0 TELECOM PROJECT SUPPORT		8 WH	$0	8	$281	$0	$281
			$0	8	$281	$0	$281
313c - PLANNING/ESTIMATING							
0 TELECOM PLANNING & ESTIMATING		8 WH	$0	8	$297	$0	$297
			$0	8	$297	$0	$297
313d - ENGINEERING SUPPORT							
PREPARE AS-BUILT DRAWINGS		20 WH	$0	20	$931	$0	$931
			$0	20	$931	$0	$931
32 - TELECOMMUNICATION CONSTRUCTION							
324 - TELECOMMUNICATION EQUIPMENT							
CONVERTER, VOLTAGE; TYPE:DC TO DC, INPUT:130 DC, OUT	CBY354J	1 EA	$824	8	$269	$94	$1,187
FIBER OPTIC DIELECTRIC CABLE		200 LF	$330	8	$269	$94	$692
FO TRANSCEIVER		2 EA	$824	0	$0	$0	$824
MISC CABLE AND WIRE		1 LT	$206	40	$1,344	$470	$2,020
MISC HARDWARE		1 LT	$206	8	$269	$94	$569
MODEM,TELEPHONE,SELF CONTAINED,W/115 V POWER ;M(	BLG497K	2 EA	$791	8	$269	$94	$1,154
PROCESSOR PROGRAMMABLE COMMUNI;CATIONS PROCES	CDW621K	1 EA	$3,297	24	$806	$282	$4,385
PROTECTOR, HIGH VOLTAGE, TELEPHONE, 1-LINE		1 EA	$824	32	$1,075	$376	$2,275
SCADA RTU, DIALUP		1 EA	$13,393	100	$3,359	$1,176	$17,927
SWITCH,TELEPHONE,8 PORT LINE S;HARING, SLSS,48 DC/12	BXA156M	1 EA	$1,242	16	$537	$188	$1,968
TELEPHONE DESK SET, BEIGE, TOU;CH TONE	AKL108K	1 EA	$29	0	$0	$0	$29
			$21,965	244	$8,196	$2,869	$33,030
325 - CONSTRUCTION INDIRECTS							
325a - CONSTRUCTION SUPV., SUPPT., & TRAVEL							
0 TELECOM CONSTRUCTION SUPER/ ENGR & SUPPORT		61 WH	$0	60	$2,049	$0	$2,049
O TELECOM CONSTRUCTION REVIEW TIME/WALKDOWN		6 WH	$0	5	$164	$0	$164
			$0	65	$2,213	$0	$2,213
325b - MATERIAL MANAGEMENT & RECEIVING							
O TELECOM MATERIAL MGT AND RECEIVING		20 WH	$0	19	$656	$0	$656
			$0	19	$656	$0	$656
5 - SUPPORT FUNCTIONS							
53 - LAND ACQUISITION							
LAND ACQUISITION EXPENSE		601 LS	$0	600	$21,864	$0	$21,864
			$0	600	$21,864	$0	$21,864
54 - TOM TEST & SUPPORT							
A TOM ENG. & CONSTRUCTION SUPPORT		300 WH	$0	300	$10,932	$2,733	$13,665

italic=contract

Work Order Estimate Detail

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order: W0138S2
Prepared By: L. KESTERSON

WBS - Description	TIIC	Qty U/M	Material Dollars	Work Hours	Labor Dollars	Equip Usage	Total Dollars
54 - TOM TEST & SUPPORT							
TOM FUNCTIONAL TESTING & FINAL INSPECTION		820 WH	$0	820	$29,881	$7,470	$37,351
TRANSCOMM AS-BUILT DRAWINGS MARK-UPS		16 WH	$0	16	$583	$146	$729
TRANSCOMM FINAL INSPECTION & TEST		96 WH	$0	96	$3,498	$875	$4,373
			$0	1,232	$44,894	$11,224	$56,118
57 - LAND COST							
** LAND COSTS $ ONLY		1 $$	$103,020	0	$0	$0	$103,020
			$103,020	0	$0	$0	$103,020
	Work Order Total		$3,836,666	21,755	$1,050,740	$243,487	$5,130,894
TVA/Contract Summary							
	TVA		$3,679,618	18,162	$623,883	$175,745	$4,479,246
	Contract		$157,048	3,593	$426,857	$67,743	$651,648

italic=contract

Work Order Estimate

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Site: Unspecified-missing reference
N/A

Date: 12/09/2003
Work Order:
Prepared By: L. KESTERSON
Estimate No: W0138S2

WBS - Description	Material Dollars	Work Hours	Labor Dollars	Other/Equip Dollars	Total Dollars
1 - SUBSTATION WORK					
11 - SUBSTATION ENGINEERING					
114 - CONTRACT SUBSTATION ENG. & DESIGN	$0	1	$300,000	$0	$300,000
115 - TVA ENGINEERING - CONTRACT PROJECTS					
115a - TVA ENGR - SUBSTATION CONTRACTS	$0	450	$17,811	$0	$17,811
115b - TVA ENGR-SUBSTATION CONTR PROJ SUPPORT	$0	100	$3,917	$0	$3,917
12 - SUBSTATION CONSTRUCTION					
121 - ENVIRONMENTAL INITIATIVES					
121a - OIL CONTAINMENT	$50,000	1,000	$36,929	$14,772	$101,700
122 - SITE IMPROVEMENTS	$92,763	456	$14,036	$9,825	$116,624
123 - STRUCTURES					
123a - CONCRETE FOUNDATIONS	$12,367	1,613	$52,668	$21,067	$86,102
123c - YARD SUPERSTRUCTURE - BAYS	$55,184	540	$18,125	$9,063	$82,372
123d - BUILDINGS	$166,407	306	$10,279	$3,084	$179,769
123e - CABLE TRENCHES	$6,439	340	$12,022	$3,734	$22,194
124 - EQUIPMENT					
124a - TRANSFORMERS	$3,090,600	3,000	$100,770	$28,216	$3,219,586
124b - CIRCUIT BREAKER BAYS	$115,490	468	$15,720	$4,402	$135,611
124d - SWITCHBOARD PANELS & EQUIPMENT	$25,152	815	$28,721	$2,485	$56,358
124f - DISCONNECT SWITCHES	$51,097	1,062	$38,848	$5,439	$95,383
125 - CABLE, CONDUIT & CONDUCTORS					
125a - INSTALL CONDUIT	$1,815	516	$17,332	$1,155	$20,303
125b - OHGW PROTECTIVE SYSTEM & BUS	$34,231	2,069	$69,481	$13,896	$117,608
125c - GROUNDING MAT	$10,137	3,170	$106,464	$7,098	$123,698
126 - CONSTRUCTION INDIRECTS					
126a - CONSTRUCTION SUPV., SUPPT., & TRAVEL	$0	1,892	$67,781	$80,490	$148,272
126b - MATERIAL MANAGEMENT & RECEIVING	$0	437	$15,642	$18,575	$34,217
126d - CONSUMABLE AND SMALL TOOLS	$0	1,200	$40,642	$6,096	$46,739
3 - TELECOMMUNICATION WORK					
31 - TELECOMMUNICATION ENGINEERING					
312 - TELECOM CONTROLS ENGINEERING					
312a - TELECOM CONTROLS ENGINEERING	$0	40	$1,343	$0	$1,343
312b - TELECOM CONTROLS DESIGN	$0	60	$2,015	$0	$2,015
312c - TELECOM CONTROLS PROJECT SUPPORT	$0	8	$269	$0	$269
313 - TELECOMMUNICATIONS PLANNING & SUPPORT					
313a - MATERIALS PROCUREMENT	$0	16	$595	$0	$595
313b - WO/PROJECT SUPPORT/MANAGEMENT	$0	8	$281	$0	$281
313c - PLANNING/ESTIMATING	$0	8	$297	$0	$297
313d - ENGINEERING SUPPORT	$0	20	$931	$0	$931
32 - TELECOMMUNICATION CONSTRUCTION					
324 - TELECOMMUNICATION EQUIPMENT	$21,965	244	$8,196	$2,869	$33,030
325 - CONSTRUCTION INDIRECTS					
325a - CONSTRUCTION SUPV., SUPPT., & TRAVEL	$0	65	$2,213	$0	$2,213
325b - MATERIAL MANAGEMENT & RECEIVING	$0	19	$656	$0	$656
5 - SUPPORT FUNCTIONS					

Estimate Assembly Count

Printed: 12/09/2003

Work Order No: W0138S2

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Assembly #	Assembly Description / Subassembly Information	Drawing	KV	Class	Height	Quantity
83L	161-KV BUS SUPPORT "TC2 & TB1" (2 EA.)	HC-68589	161	I		11
84L	161-KV BUS SUPPORT"2TC4 & TB3" (8 EA)	HC-68589	161	I		16
8ZL	161-KV POWER CIRCUIT BREAKER - FDN 'A' (1 EA.)	HC-65710	161	I		1
8KQ	161-KV PULL-OFF STRUCTURE TYPE "E" (2 EA.)	HC-53397	161	I		2
83J	161-KV SWITCH SUPPORT STR. TYPE T FTG "A"	HC-68398	161	I		30
83S	SWITCH HOUSE BLD CONC FDN TYPE "A"	LC-69844		I		1

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Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
Miscellaneous								
** ENG. FIELD SUPPORT & FOR CONTRACT ENG.		100	WH	$0	100	$3,917	$0	$3,917
** *ENGINEERING & DESIGN - PHYSICAL / P&C - CO*		1	WH	$0	1	$300,000	$0	$300,000
** LAND COSTS $ ONLY		1	$$	$103,020	0	$0	$0	$103,020
** PREP & ISSUE ENG. & DESIGN - PHYSICAL - COI		300	WH	$0	300	$11,874	$0	$11,874
** PREP & ISSUE ENG./ DESIGN P & C CONTRACT		150	WH	$0	150	$5,937	$0	$5,937
0 CABLE TRENCH LOW VOLTAGE AREA CONSTR		120	LF	$6,181	180	$6,647	$2,659	$15,487
0 OIL CONTAINMENT CONSTRUCTION		1	WH	$50,000	1,000	$36,929	$14,772	$101,700
0 PREP & ISSUE TELECOM CONTROLS DESIGN		60	WH	$0	60	$2,015	$0	$2,015
0 PURCHASE/DELIVER TELECOM EQUIPMENT		16	WH	$0	16	$595	$0	$595
0 TELECOM CONSTRUCTION SUPER/ ENGR & SU		61	WH	$0	60	$2,049	$0	$2,049
0 TELECOM CONTROLS ENGINEERING		40	WH	$0	40	$1,343	$0	$1,343
0 TELECOM PLANNING & ESTIMATING		8	WH	$0	8	$297	$0	$297
0 TELECOM PROJECT SUPPORT		8	WH	$0	8	$281	$0	$281
0 TELECOM SUPPORT ENGINEERING- CONTROL		8	WH	$0	8	$269	$0	$269
A TOM ENG. & CONSTRUCTION SUPPORT		300	WH	$0	300	$10,932	$2,733	$13,665
AREA ENGINEER SUPPORT		1,200	WH	$0	1,200	$40,642	$6,096	$46,739
ARRESTER SURGE STATION CLASS,4;8-KV MCOV	CBR919M	9	EA	$4,228	108	$3,628	$1,016	$8,871
BATTERY CHARGER ELEC CONSTANT ;VOLTAGE	CBT559L	1		$0	0	$0	$0	$0
BATTERY STORAGE BATTERY, STORAGE, 60 CEL	CBT579E	1		$0	0	$0	$0	$0
BELL,CORONA,DRIVE TYPE,4 IN,AL;UMINUM SCHE	CDE840T	18	EA	$396	72	$2,418	$484	$3,298
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.25	BEK258V	20	EA	$3	0	$0	$0	$3
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.37	CDF524L	50	EA	$12	0	$0	$0	$12
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.50	CDE058K	9	EA	$7	0	$0	$0	$7
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.75	CDE767Y	12	EA	$14	0	$0	$0	$14
BOLT MACHINE HEXAGON, SILICO N; BRONZE, 0.3	CDE759X	50	EA	$22	0	$0	$0	$22
BOLT MACHINE HEXAGON, SILICO N; BRONZE, 0.5	CDE760Q	50	EA	$71	0	$0	$0	$71
BOLT MACHINE HEXAGON, STAINL E;SS STEEL, 0.	BYT902L	240	EA	$89	0	$0	$0	$89
BRACKET LIGHTING CAST ALUMINUM;,W/ADAPTE	ANT862X	3	EA	$392	6	$202	$60	$654
BUILDING SERVICES (CONTROL BUILDING)		1	LS	$159,681	300	$10,077	$3,023	$172,781
BUS CONDUCTOR 04.000 IN (4),; SCHEDULE 40, A	AMT160G	1,000	LF	$6,871	1,500	$50,385	$10,077	$67,333
CABINET, ELECTRICAL EQUIPMENT,; SHEET STEE	BHR552A	3	EA	$2,751	48	$1,612	$226	$4,589
CABLE, POWER/CONTROL, COPPER, ;10 AWG, PX	ARW513T	1,000	FT	$855	0	$0	$0	$855
CABLE,BARE,,750 KCMIL,,COPPER,;STRANDED,,,,,	ANT657Y	600	LF	$2,262	108	$3,628	$726	$6,616
CABLE,BARE,ELECTRICAL,500 KCMI;L,,COPPER,S	ANT157K	100	FT	$253	0	$0	$0	$253
CABLE,INSULATED,POWER/CONTROL,;#10 AWG,(	BJD031M	3,000	FT	$4,976	0	$0	$0	$4,976
CABLE,INSULATED,POWER/CONTROL,;#10 AWG,(	AXK223R	3,000	FT	$1,113	0	$0	$0	$1,113
CIRCUIT BREAKER, GAS, 72-KV, 2000-A, 40-KA, SF-		3	EA	$111,262	360	$12,092	$3,386	$126,740

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Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
Miscellaneous								
CLAMP,GROUND/TD,SADDLE,3/8 IN,;,BRONZE,#4 T	ALN886G	24	EA	$46	0	$0	$0	$46
CLEARING, GRADING, DRAINAGE SUBST. SITE		1	LS	$88,500	400	$12,313	$8,619	$109,432
CONDUIT METAL,RIGID 01.250000 ;(1 1/4), STEEL,	AHR156R	200	LF	$258	150	$5,039	$336	$5,632
CONDUIT METAL,RIGID 02.000000 ;(2), STEEL, THI	AHR356H	200	LF	$416	150	$5,039	$336	$5,791
CONDUIT,NONMETALLIC,RIGID; 01.250000 (1 1/4),	CDY137E	300	LF	$618	216	$7,255	$484	$8,357
CONDUIT,RIGID,THICKWALL,2 IN,1;0 FT,PVC,BELL	CDG229H	300		$0	0	$0	$0	$0
CONNECTOR GROUND FOR CONNECTIN;G TWO !	ACR049G	25	EA	$45	0	$0	$0	$45
CONNECTOR GROUND GROUND SERVIC;E CONN	CDE804L	30	EA	$1,505	0	$0	$0	$1,505
CONNECTOR TERMINAL FOR CONNECT;ING A 4" !	CDG812A	36	EA	$2,452	144	$4,837	$967	$8,257
CONNECTOR, SP;LICE COMPONENT, ALUM-WELD	CBQ145T	24	EA	$1,871	96	$3,225	$645	$5,741
CONNECTOR, SP;LICE, TWO 4" SPS ALUM	CBQ139M	12	EA	$686	48	$1,612	$322	$2,620
CONNECTOR,CABLE,GROUND,,500 KC;MIL,,,BOLTI	CDE803N	15	EA	$719	0	$0	$0	$719
CONNECTOR,CABLE,SPLIT BOLT,,#8;-#6 AWG,,,BC	APN594B	175	EA	$377	0	$0	$0	$377
CONNECTOR,CROSS,COMPRESSION TYPE, 500-5(	ANN686C	70	EA	$826	53	$1,763	$118	$2,707
CONNECTOR,RECEPTACLE ELECT,2 WIRE,3 POLE	BDE230X	3	EA	$138	0	$0	$0	$138
CONNECTOR,TEE,COMPRESSION,500 ;KCMIL,COF	ADP203F	40	EA	$743	0	$0	$0	$743
CONNECTOR,TEE; COMPRESSION TYPE, TIN PLA	CBY382D	6	EA	$54	18	$605	$40	$699
CONNECTOR,TERMINAL,STR,COMPRESS TYPE,5(	AGP100J	12	EA	$64	0	$0	$0	$64
CONSTRUCTION REVIEW TIME/WALKDOWN		367	WH	$0	366	$12,385	$14,707	$27,092
CONSTRUCTION REVIEW TIME/WALKDOWN		72	WH	$0	71	$3,257	$3,867	$7,124
CONSTRUCTION SUPV/ ENGR AND SUPPORT		1,220	WH	$0	1,219	$41,284	$49,024	$90,308
CONSTRUCTION SUPV/ ENGR AND SUPPORT		238	WH	$0	237	$10,856	$12,891	$23,747
CONVERTER, VOLTAGE; TYPE:DC TO DC, INPUT:1	CBY354J	1	EA	$824	8	$269	$94	$1,187
COVER TRENCH,POWER CABLE 30" W;IDE X 24" L	CBQ749R	10	PC	$258	160	$5,374	$1,075	$6,707
COVER TRENCH,POWER CABLE STAND;ARD CHA	CBQ712H	30		$0	0	$0	$0	$0
FIBER OPTIC DIELECTRIC CABLE		200	LF	$330	8	$269	$94	$692
FO TRANSCEIVER		2	EA	$824	0	$0	$0	$824
INSULATOR STATION POST 69-KV,3;0"HIGH,3" BC	CBR453A	12	EA	$1,898	0	$0	$0	$1,898
INSULATOR,STATION POST/TD,,62 ;IN,PORCELAIN	BKV646A	45	EA	$11,402	95	$3,174	$635	$15,211
JUNCTION BOX,ELECTRICAL,RECTANGULAR, CAS	CBP929W	3	EA	$523	0	$0	$0	$523
LAMP SODIUM 150.000, A-15, M;EDIUM, HIGH P RE	CBT917L	6	EA	$107	0	$0	$0	$107
LAND ACQUISITION EXPENSE		601	LS	$0	600	$21,864	$0	$21,864
LIGHTING SUBSTATION LIGHTING U;NIT SYMMETI	CEC275Q	3	EA	$1,854	24	$738	$517	$3,110
LIGHTING SUBSTATION LIGHTING U;NIT, WITH IN	CEC276N	3	EA	$1,854	24	$738	$517	$3,110
LIGHTING,SUBSTATION,CONTROL ASSY,C/W 30 A	CBT032L	1	EA	$554	8	$246	$172	$973
LUG, COMPRESSION; CABLE SIZE:#2/0 AWG, BOL	AFP604G	40	EA	$59	30	$1,008	$67	$1,134
LUG,COMPRESSION,STRAIGHT,#2/0 ;AWG,1/2 IN,C	CBX185L	2	EA	$6	3	$101	$7	$114

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Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
Miscellaneous								
LUG,COMPRESSION,STRAIGHT,500 K;CMIL,5/8 IN,(	AGP000D	8	EA	$38	0	$0	$0	$38
LUG,MECHANICAL,STRAIGHT,2/0-80;0 KCMIL,1/2 IN	CBP201H	14	EA	$511	0	$0	$0	$511
LUG,MECHANICAL,STRAIGHT,4/0-10;00 KCMIL,1/2 I	CBF935B	24	EA	$1,592	0	$0	$0	$1,592
MATERIAL MANAGEMENT & RECEIVING		367	WH	$0	366	$12,385	$14,707	$27,092
MATERIAL MANAGEMENT & RECEIVING		72	WH	$0	71	$3,257	$3,867	$7,124
MISC CABLE AND WIRE		1	LT	$206	40	$1,344	$470	$2,020
MISC HARDWARE		1	LT	$206	8	$269	$94	$569
MODEM,TELEPHONE,SELF CONTAINED,W/115 V P	BLG497K	2	EA	$791	8	$269	$94	$1,154
O TELECOM CONSTRUCTION REVIEW TIME/WALI		6	WH	$0	5	$164	$0	$164
O TELECOM MATERIAL MGT AND RECEIVING		20	WH	$0	19	$656	$0	$656
PLATE ELECTRICAL GROUNDING STE;EL, 48.0000(	AER448Y	8	EA	$1,465	336	$11,286	$752	$13,504
PLATE,END,TRENCH,PWR CABLE,END PLATE FOI	CBQ715B	3		$0	0	$0	$0	$0
PREPARE AS-BUILT DRAWINGS		20	WH	$0	20	$931	$0	$931
PROCESSOR PROGRAMMABLE COMMUNI;CATION	CDW621K	1	EA	$3,297	24	$806	$282	$4,385
PROTECTOR, HIGH VOLTAGE, TELEPHONE, 1-LIN		1	EA	$824	32	$1,075	$376	$2,275
RACK,STORAGE,EA-5,,,,,, ;	CDM612Q	1	EA	$3,606	100	$3,359	$470	$7,435
RELAY AUXILIARY 125VDC ;	APP475E	2	EA	$1,056	8	$269	$38	$1,363
RELAY SOLID STATE TRANFORMER D;IFFERENTI/	CBR613E	2	EA	$2,060	32	$1,075	$150	$3,286
RELAY, OVERLOAD; VOLTS:125/250, MICROPROCE	CED085F	3	EA	$9,191	120	$4,031	$564	$13,787
ROD GROUND COPPER-CLAD STE EL,; 0.625 IN (5	AGR347Q	20	EA	$123	480	$16,123	$1,075	$17,321
ROD,GROUND,COPPER-CLAD STEEL, 0.625 IN (5;/(	AGR746A	25	EA	$238	600	$20,154	$1,344	$21,736
SCADA RTU, DIALUP		1	EA	$13,393	100	$3,359	$1,176	$17,927
SCREW CAP HEXAGON, CARBON STEE;L, 0.625 IN	BGK874Q	400	EA	$367	20	$672	$336	$1,374
SPACER,CONDUCTOR,2-BUNDLE,750-;1000 KCMIL	CDM944Y	12	EA	$499	6	$202	$40	$741
STRUCTURE, SUBSTATION; STRUCTURE,SUBSTA	CEL920P	1	EA	$25,034	310	$10,413	$5,206	$40,653
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL	CBW466H	9	EA	$6,425	54	$1,814	$907	$9,146
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL	CBW467F	4	EA	$3,363	21	$699	$349	$4,411
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL	CBW464M	1	EA	$506	8	$269	$134	$909
STRUCTURE,SUBSTATION,161KV BUS SUPPORT,	CBW443X	11	EA	$3,519	31	$1,035	$517	$5,071
STRUCTURE,SUBSTATION,161KV BUS SUPT, TYPI	CBW450C	16	EA	$15,577	96	$3,225	$1,612	$20,414
SWITCH GROUNDING (SAFETY) 161-;KV, for transfo	BDF787T	3	EA	$16,303	300	$10,974	$1,536	$28,813
SWITCH ROTARY TRANSFER SWS. 4P;OS. 4 CON	CED949P	3	EA	$413	12	$403	$56	$872
SWITCH TEST FT 19R SWITCH ;	CDX828P	7	EA	$4,211	21	$705	$99	$5,016
SWITCH,DISCONNECT,7.5 KV,1200 A,SPDT,HOOK	CBV025C	9	EA	$9,272	270	$9,877	$1,383	$20,531
SWITCH,DISCONNECT,VERTICAL BRE;AK,161 KV,2	CDK528P	3	EA	$11,543	420	$15,364	$2,151	$29,058
SWITCH,DISCONNECT,VERTICAL BREAK,23 KV/15	CFD461G	3	EA	$13,979	72	$2,634	$369	$16,981
SWITCH,TELEPHONE,8 PORT LINE S;HARING, SLS	BXA156M	1	EA	$1,242	16	$537	$188	$1,968

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Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
Miscellaneous								
SWITCH,TEST,PERMISSIVE OVERREACH CARRIEI	CBH937W	2	EA	$261	8	$269	$38	$568
TELEPHONE DESK SET, BEIGE, TOU;CH TONE	AKL108K	1	EA	$29	0	$0	$0	$29
TEST BLOCK ELECTRICAL 6 POLE, ;TYPE PK-2	ABV909X	8	EA	$623	16	$537	$75	$1,236
TOM FUNCTIONAL TESTING & FINAL INSPECTION		820	WH	$0	820	$29,881	$7,470	$37,351
TRANSCOMM AS-BUILT DRAWINGS MARK-UPS		16	WH	$0	16	$583	$146	$729
TRANSCOMM FINAL INSPECTION & TEST		96	WH	$0	96	$3,498	$875	$4,373
TRANSFORMER POWER; 3PH, 161/6.9, 37.5/50/62.5	BDQ214W	3	EA	$3,090,600	3,000	$100,770	$28,216	$3,219,586
WASHER SPRING TENSION STAINLES;S STEEL , 0	BYT967N	240	EA	$270	0	$0	$0	$270
WIRE ELECTRICAL BARECU 2/0 AW;G, STRAN DE	ANT155P	1,000	FT	$598	300	$10,077	$672	$11,346
WIRE ELECTRICAL COPPER-TINNED,; 14 AWG, S	ACT065D	1,500	LF	$124	450	$16,461	$768	$17,353
WIRE,ELECTRICAL BARECU,500 KCMIL, STRANDE	CBV817K	3,000	FT	$6,676	1,350	$45,347	$3,023	$55,045
				$3,824,299	20,141	$998,072	$222,420	$5,044,791
				$3,824,299	20,141	$998,072	$222,420	$5,044,791
83J-161-KV SWITCH SUPPORT STR. TYPE T FTG "A" (30 EA)								
A CONCRETE FOUNDATIONS / MATERIAL & LABC		20	CY	$1,446	59	$1,801	$720	$3,967
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR O.		120	EA	$0	120	$3,694	$1,478	$5,171
BACKFILL OR SPOIL WASTE MATERIAL		17	CY	$0	9	$268	$107	$375
EXCAVATION (AUGERED FDNS) EARTH		17	CY	$0	21	$643	$257	$900
				$1,446	208	$6,405	$2,562	$10,414
83J050100-# 6 X 5'-1" STRAIGHT (6 EA)								
# 6X5'-1" ,STRAIGHT		1,374	LB	$396	21	$635	$254	$1,285
				$396	21	$635	$254	$1,285
83J050218-# 3 X 5'-2" 18" ID ROUND HOOP (4 EA)								
# 3X5'-2" H BEND,ID ROUND HOOP		233	LB	$67	3	$108	$43	$218
				$67	3	$108	$43	$218
				$1,910	232	$7,147	$2,859	$11,916
83L-161-KV BUS SUPPORT "TC2 & TB1" (2 EA.) (11 EA)								
A CONCRETE FOUNDATIONS / MATERIAL & LABC		13	CY	$979	40	$1,219	$488	$2,686
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR O.		44	EA	$0	88	$2,709	$1,084	$3,792
BACKFILL OR SPOIL WASTE MATERIAL		11	CY	$0	6	$169	$68	$237
EXCAVATION (AUGERED FDNS) EARTH		11	CY	$0	13	$406	$163	$569
FORMWORK (WOOD)		193	SF	$297	62	$1,896	$758	$2,952
				$1,277	208	$6,400	$2,560	$10,236

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Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
83L-161-KV BUS SUPPORT "TC2 & TB1" (2 EA.) (11 EA)								
83L051016-# 3X 5'-10" 16" SQUARE HOOP (6 EA)								
#10X5'-10" E BEND,X=16",Y=16"		145	LB	$42	2	$67	$27	$135
				$42	2	$67	$27	$135
83L060100-# 6X 6'-1" STRAIGHT (8 EA)								
# 6X6'-1",STRAIGHT		804	LB	$179	12	$371	$149	$699
				$179	12	$371	$149	$699
				$1,497	222	$6,838	$2,735	$11,070
83S-SWITCH HOUSE BLD CONC FDN TYPE "A" (1 EA)								
FOUNDATIONS (10 - 25 CY)		16	CY	$1,187	224	$6,895	$2,758	$10,840
				$1,187	224	$6,895	$2,758	$10,840
83S040311-# 5X 4'- 3" C BEND,U=11" (72 EA)								
# 5X4'-3" C BEND,u=11"		319	LB	$408	5	$147	$59	$614
				$408	5	$147	$59	$614
83S050300-# 5X 5'- 3" STRAIGHT (108 EA)								
# 5X5'-3",STRAIGHT		591	LB	$934	9	$273	$109	$1,316
				$934	9	$273	$109	$1,316
83S080715-# 3X 6'- 7" E BEND,X=15",Y= 23" (54 EA)								
# 3X8'-7" E BEND,X=15",Y=23"		174	LB	$162	3	$80	$32	$275
				$162	3	$80	$32	$275
				$2,690	240	$7,396	$2,958	$13,045
84L-161-KV BUS SUPPORT"2TC4 & TB3" (8 EA) (16 EA)								
A CONCRETE FOUNDATIONS / MATERIAL & LABC		32	CY	$2,374	96	$2,955	$1,182	$6,511
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR O.		64	EA	$0	128	$3,940	$1,576	$5,516
BACKFILL OR SPOIL WASTE MATERIAL		27	CY	$0	14	$419	$167	$586
EXCAVATION (AUGERED FDNS) EARTH		27	CY	$0	33	$1,005	$402	$1,407
FORMWORK (WOOD)		256	SF	$396	82	$2,522	$1,009	$3,926
				$2,769	352	$10,840	$4,336	$17,946
84L061019-# 3X 6'-10" 19" SQUARE HOOP (7 EA)								
# 3X6'-10" E BEND,X=19",Y=19"		288	LB	$83	4	$133	$53	$269
				$83	4	$133	$53	$269
84L070100-# 7X 7'-01" STRAIGHT (8 EA)								
# 7X7'-1",STRAIGHT		1,853	LB	$535	28	$856	$342	$1,733
				$535	28	$856	$342	$1,733
				$3,387	384	$11,829	$4,732	$19,947
8KQ-161-KV PULL-OFF STRUCTURE TYPE "E" (2 EA.) (2 EA)								
A CONCRETE FOUNDATIONS / MATERIAL & LABC		19	CY	$1,380	56	$2,061	$824	$4,265

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Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
8KQ-161-KV PULL-OFF STRUCTURE TYPE "E" (2 EA.) (2 EA)								
ANCHOR BOLTS 1-1/2" DIA X 5'-2" LONG (LABOR O.		16	EA	$0	32	$1,182	$473	$1,654
BACKFILL OR SPOIL WASTE MATERIAL		152	CY	$0	76	$2,807	$1,123	$3,929
EXCAVATION EARTH (SPREAD FDN.)		152	CY	$0	229	$8,442	$3,377	$11,819
FORMWORK (WOOD)		226	SF	$349	59	$2,170	$868	$3,387
				$1,729	451	$16,661	$6,664	$25,054
8KQ060800-# 5X 6'- 8" STRAIGHT (32 EA)								
# 5X6'-8" ,STRAIGHT		448	LB	$129	7	$248	$99	$477
				$129	7	$248	$99	$477
8KQ060818-# 9X 6'- 8" C BEND,U=18" (8 EA)								
# 9X6'-8" C BEND,u=18"		368	LB	$112	6	$204	$82	$397
				$112	6	$204	$82	$397
8KQ070323-# 3X 7'- 3" E BEND,X=23",Y= 19" (4 EA)								
# 3X7'-3" E BEND,X=23",Y=19"		24	LB	$9	0	$13	$5	$27
				$9	0	$13	$5	$27
8KQ070818-# 9X 7'- 8" C BEND,U=18" (24 EA)								
# 9X7'-8" C BEND,u=18"		1,248	LB	$379	19	$691	$277	$1,347
				$379	19	$691	$277	$1,347
8KQ130800-# 5X13'- 8" STRAIGHT (16 EA)								
# 5X13'-8" ,STRAIGHT		448	LB	$129	7	$248	$99	$477
				$129	7	$248	$99	$477
8KQ210423-# 3X21'- 4" E BEND,X=23",Y=103" (2 EA)								
# 3X21'-4" E BEND,X=23",Y=103"		32	LB	$12	0	$18	$7	$37
				$12	0	$18	$7	$37
				$2,499	490	$18,083	$7,233	$27,816
8ZL-161-KV POWER CIRCUIT BREAKER - FDN 'A' (1 EA.) (1 EA)								
A CONCRETE FOUNDATIONS / MATERIAL & LABC		2	CY	$111	5	$139	$55	$305
ANCHOR BOLTS 1" DIA X3'-6" LONG (LABOR ONLY,		4	EA	$0	4	$123	$49	$172
BACKFILL (6" LAYERS, HAND TAMP)		4	CY	$0	4	$108	$43	$151
BOLT,FOUNDATION,GALVANIZED STEEL, 0.750 IN		8	EA	$64	4	$123	$49	$236
EXCAVATION EARTH (SPREAD FDN.)		4	CY	$0	5	$162	$65	$226
FORMWORK (WOOD)		60	SF	$93	19	$591	$236	$920
PLATES 3/4" X 9" X 9" WEIGHT=18#		4	EA	$74	2	$62	$25	$160
				$342	42	$1,307	$523	$2,171
8ZL030409-# 3 X 3'-4" 9" SQUARE HOOP (8 EA)								
# 3X3'-4" H BEND,9" SQUARE HOOP		10	LB	$3	0	$5	$2	$9
				$3	0	$5	$2	$9

italic=contract

Estimate Assembly Detail

Date: 12/09/2003

Work Order: W0138S2

Title: KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

Assembly - Description	TIIC	Qty	U/M	Material Dollars	Work Hours	Labor Dollars	Other/Equip Usage	Total Dollars
8ZL-161-KV POWER CIRCUIT BREAKER - FDN 'A' (1 EA.) (1 EA)								
8ZL040200-# 5 X 4'-2" STRAIGHT (12 EA)								
# 5X4'-2" ,STRAIGHT		52	LB	$15	1	$24	$10	$49
				$15	1	$24	$10	$49
8ZL050400-# 5 X 5'-4" STRAIGHT (10 EA)								
# 5X5'-4" ,STRAIGHT		56	LB	$16	1	$26	$10	$52
				$16	1	$26	$10	$52
8ZL050429-# 4 X 5'-4" D BEND, U=29", D=8" (8 EA)								
# 4X5'-4" D BEND,u=29"		28	LB	$8	0	$13	$5	$27
				$8	0	$13	$5	$27
				$384	45	$1,374	$550	$2,308
	Work Order Total			$3,836,666	21,755	$1,050,740	$243,487	$5,130,894

italic=contract

Preliminary Bill of Material
For

In-Service Date: 11/1/2001

Begin Construction: **Work Order:** W0138S2 KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

THIS LIST PROVIDES FOR THE FOLLOWING BILLS OF MATERIAL

Date: 12/9/2003

Description	TIIC	U/M	Sch. Date Required	Total Required	Net Provided	Theo Surplus	Source/ Quantity	Source Document	Vendor	Part No.
Miscellaneous (1 EA)										
122 SITE IMPROVEMENTS										
0 CLEARING, GRADING, DRAINAGE SUBST. SITE		LS		1		-1				
LIGHTING,SUBSTATION,CONTROL ASSY,C/W 30 AMP,115/ ;230 V LIG	CBT032L	EA		1		-1			ELECTRIC SYSTEMS INC	6CJ047R1
LIGHTING SUBSTATION LIGHTING U;NIT SYMMETRIC, W/INTERNAL	CEC275Q	EA		3		-3			HOLOPHANE CORPORATION	SU1X15DHPMT-TL-PS-0876
LIGHTING SUBSTATION LIGHTING U;NIT, WITH INTERNAL	CEC276N	EA		3		-3			HOLOPHANE CORPORATION	SU1X15DHPMTTLPSBA15DH
123c YARD SUPERSTRUCTURE - BAYS										
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.250 IN (1/4), 1	BEK258V	EA		20		-20				
SCREW CAP HEXAGON, CARBON STEE;L, 0.625 IN (5/8),	BGK874Q	EA		400		-400				
BOLT MACHINE HEXAGON, STAINL E;SS STEEL, 0.5 00 IN (1/2	BYT902L	EA		240		-240				
WASHER SPRING TENSION STAINLES;S STEEL , 0.500 IN (1 /2	BYT967N	EA		240		-240			SOLON MANUFACTURING CO	8-EH-112-177
STRUCTURE,SUBSTATION,161KV BUS SUPPORT, TYPE "T", ;COLUMN	CBW443X	EA		11		-11			TENN VALLEY AUTHORITY	LC-68590
STRUCTURE,SUBSTATION,161KV BUS SUPT, TYPE "T", ;COLUMN TC4	CBW450C	EA		16		-16			TENN VALLEY AUTHORITY	LC-68590
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL STEEL,,,,	CBW464M	EA		1		-1			TENN VALLEY AUTHORITY	LC-68590
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL STEEL,,,,	CBW466H	EA		9		-9			TENN VALLEY AUTHORITY	LC-68590
STRUCTURE,SUBSTATION,,,,,GALV ;STRUCTURAL STEEL,,,,	CBW467F	EA		4		-4			TENN VALLEY AUTHORITY	LC-68590
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.500 IN (1/2), 4	CDE058K	EA		9		-9				
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.750 IN (3/4), 2	CDE767Y	EA		12		-12				
BOLT MACHINE HEXAGON, CARBON ;STEEL, 0.375 IN (3/8), 1	CDF524L	EA		50		-50				
STRUCTURE, SUBSTATION; STRUCTURE,SUBSTATION,INSULATOR; SL	CEL920P	EA		1		-1			TENN VALLEY AUTHORITY	LC-63671
123d BUILDINGS										
BUILDING SERVICES (CONTROL BUILDING)		LS		1		-1				
BRACKET LIGHTING CAST ALUMINUM;,W/ADAPTER	ANT862X	EA		3		-3			HOLOPHANE CORPORATION	0876
CABLE,INSULATED,POWER/CONTROL,;#10 AWG,COPPER,4,STRANDE	AXK223R	FT		3,000		-3000			TENN VALLEY AUTHORITY	10/4CONDPJJ
CONNECTOR,RECEPTACLE ELECT,2 WIRE,3 POLE,20 AMPS,125 V, ;C	BDE230X	EA		3		-3			CROUSE-HINDS COMPANY	DS-222/FD2
CABLE,INSULATED,POWER/CONTROL,;#10 AWG,COPPER,19,STRAND	BJD031M	FT		3,000		-3000			ANIXTER INC	2MR-1019
LAMP SODIUM 150.000, A-15, M;EDIUM, HIGH P RESSURE SOD	CBT917L	EA		6		-6			PHILIPS LIGHTING	C150S55/M
123e CABLE TRENCHES										
0 CABLE TRENCH LOW VOLTAGE AREA CONSTRUCT		LF		120		-120				
COVER TRENCH,POWER CABLE STAND;ARD CHANNEL	CBQ712H	PC		30		-30			CONCAST, INC.	8031
PLATE,END,TRENCH,PWR CABLE,END PLATE FOR 30" WIDE OPEN;BC	CBQ715B	PC		3		-3			CONCAST, INC.	8033
COVER TRENCH,POWER CABLE 30" W;IDE X 24" LONG,	CBQ749R	PC		10		-10			CONCAST, INC.	8031R
124a TRANSFORMERS										
TRANSFORMER POWER TRANSFORMER,; 3PH, 60 HZ,TWO	BDQ214W	EA		3		-3			ABB POWER T & D CO INC	TVA SPEC TEC-10

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Description	TIIC	U/M	Sch. Date Required	Total Required	Net Provided	Theo Surplus	Source/ Quantity	Source Document	Vendor	Part No.
Miscellaneous (1 EA)										
124b CIRCUIT BREAKER BAYS										
CIRCUIT BREAKER, GAS, 72-KV, 2000-A, 40-KA, SF-6, DEAD TANK		EA		3		-3				
ARRESTER SURGE STATION CLASS,4;8-KV MCOV, 69-KV	CBR919M	EA		9		-9			ABB POWER T & D COMPANY	Q060SA047ATVA
124d SWITCHBOARD PANELS & EQUIPMENT										
TEST BLOCK ELECTRICAL 6 POLE, ;TYPE PK-2	ABV909X	EA		8		-8			GENERAL ELECTRIC COMPANY	6422120G4
WIRE ELECTRICAL COPPER-TINNED,; 14 AWG, STRAND ED, SIS,	ACT065D	LF		1,500		-1500			TENN VALLEY AUTHORITY	14 SIS
RELAY AUXILIARY 125VDC ;	APP475E	EA		2		-2			GENERAL ELECTRIC COMPANY	12HEA99AB223-X2
CABLE, POWER/CONTROL, COPPER, ;10 AWG, PXMJ, 2, 600	ARW513T	FT		1,000		-1000			ESSEX INTERNATIONAL IWI	
CABINET, ELECTRICAL EQUIPMENT,; SHEET STEEL	BHR552A	EA		3		-3			TENN VALLEY AUTHORITY	WL-9179
SWITCH,TEST,PERMISSIVE OVERREACH CARRIER T;EST SWITCH, 16	CBH937W	EA		2		-2			GENERAL ELECTRIC SUPPLY	16SB1DB4G49SSA2V
RELAY SOLID STATE TRANFORMER D;IFFERENTIAL RELAY,BASLER	CBR613E	EA		2		-2			BASLER	BEI-87T
BATTERY CHARGER ELEC CONSTANT ;VOLTAGE DEVICE,AUTO, 240	CBT559L	EA		1		-1			LAMARCHE MANUFACTURING CO	A12B-60-130V-B1-17989
BATTERY STORAGE BATTERY, STORAGE, 60 CELL, 125VDC, 50	CBT579E	EA		1		-1			SWIFT INDUSTRIAL POWER	EA-15
RACK,STORAGE,EA-5,,,,,, ;	CDM612Q	EA		1		-1			SWIFT INDUSTRIAL POWER	81735
SWITCH TEST FT 19R SWITCH ;	CDX828P	EA		7		-7			ABB POWER T & D CO INC	FA3B073291001
RELAY, OVERLOAD; VOLTS:125/250, MICROPROCESSOR, DIRECTIONA	CED085F	EA		3		-3			SCHWEITZER ENGINEERING LA	035161H45542X1
SWITCH ROTARY TRANSFER SWS. 4P;OS. 4 CONTACTSROUND	CED949P	EA		3		-3			GENERAL ELECTRIC COMPANY	16SB1BB4F40SSM2K
124f DISCONNECT SWITCHES										
SWITCH GROUNDING (SAFETY) 500 ;KV,70000 AMP MOMENTARY,	BDF787T	EA		3		-3			PASCOR ATLANTIC CORP	AG8FREE-500-WG-TR391
SWITCH,DISCONNECT,7.5 KV,1200 A,SPDT,HOOKSTICK ;OPER,OUTDC	CBV025C	EA		9		-9			MEMCO MANUFACTURING INC	18075-DTP
SWITCH,DISCONNECT,VERTICAL BRE;AK,161 KV,2000,3,,,HORIZONTAL	CDK528P	EA		3		-3			ABB POWER T & D CO INC	TTR8
SWITCH,DISCONNECT,VERTICAL BREAK,23 KV/150 KV BIL,2000,100	CFD461G	EA		3		-3			SOUTHERN STATES INC	EV-2-232000
125a INSTALL CONDUIT										
CONDUIT METAL,RIGID 01.250000 ;(1 1/4), STEEL,	AHR156R	LF		200		-200			WHEATLAND TUBE COMPANY	GRC114
CONDUIT METAL,RIGID 02.000000 ;(2), STEEL, THICKWALL,	AHR356H	LF		200		-200			WHEATLAND TUBE COMPANY	GRC2
JUNCTION BOX,ELECTRICAL,RECTANGULAR, CAST ALUMINUM, 08;.00	CBP929W	EA		3		-3			JOHNSON MANUFACTURING CO	AB886
CONDUIT,RIGID,THICKWALL,2 IN,1;0 FT,PVC,BELL ONE END,,SCH 40	CDG229H	LF		300		-300			WHEATLAND TUBE COMPANY	PVC2
CONDUIT,NONMETALLIC,RIGID; 01.250000 (1 1/4), PVC, 120.0;00	CDY137E	LF		300		-300			CARLON INDIAN HEAD CO	49009
125b OHGW PROTECTIVE SYSTEM & BUS										
CONNECTOR GROUND FOR CONNECTIN;G TWO 5/8 INCH	ACR049G	EA		25		-25			ERITECH	CR58C
CONNECTOR,TEE,COMPRESSION,500 ;KCMIL,COPPER,,,COPPER,2/0 /	ADP203F	EA		40		-40			DOSSERT CORPORATION	CST50-13
LUG,COMPRESSION,STRAIGHT,500 K;CMIL,5/8 IN,COPPER,BARE,,1,,,	AGP000D	EA		8		-8			DOSSERT CORPORATION	DPL50-1
CONNECTOR,TERMINAL,STR,COMPRESS TYPE,500 KCMIL;TO FLAT SL	AGP100J	EA		12		-12			DOSSERT CORPORATION	DPL50-2N

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Miscellaneous (1 EA)										
125b OHGW PROTECTIVE SYSTEM & BUS										
CLAMP,GROUND/TD,SADDLE,3/8 IN.;,BRONZE,#4 TO 2/0 AWG,,,,BOLT	ALN886G	EA		24		-24			DOSSERT CORPORATION	GFM13
BUS CONDUCTOR 04.000 IN (4),; SCHEDULE 40, ALUMINUM,	AMT160G	LF		1,000		-1000			COMMON ITEM-SEVERAL MFRS	
CABLE,BARE,ELECTRICAL,500 KCMI;L,,COPPER,STRANDED,,,ASTM B8	ANT157K	FT		100		-100			ANIXTER INC	1B-50037H
CABLE,BARE,,750 KCMIL,,COPPER,,STRANDED,,,,,61,HARD DRAWN	ANT657Y	LF		600		-600			HOUSTON WIRE & CABLE CO	BARE 750-61STRHD
CONNECTOR,CABLE,SPLIT BOLT,,#8;-#6 AWG,,,BOLTED,COPPER,STR/	APN594B	EA		175		-175			BURNDY CORPORATION	KS-17
INSULATOR,STATION POST/TD,,62 ;IN,PORCELAIN,,5 IN,161 KV,750	BKV646A	EA		45		-45			NGK-LOCKE INC	PS07510-LG
LUG,MECHANICAL,STRAIGHT,4/0-10;00 KCMIL,1/2 IN,TINNED COPPER	CBF935B	EA		24		-24			DOSSERT CORPORATION	T2CVH100-4N4-SN
LUG,MECHANICAL,STRAIGHT,2/0-80;0 KCMIL,1/2 IN,COPPER,4,,,TIN	CBP201H	EA		14		-14			DOSSERT CORPORATION	TCVH80-4N4-SN
CONNECTOR, SP;LICE, TWO 4" SPS ALUM	CBQ139M	EA		12		-12			DEUTSCH METAL COMPONENTS	PLK1000D64
CONNECTOR, SP;LICE COMPONENT, ALUM-WELD	CBQ145T	EA		24		-24			DEUTSCH METAL COMPONENTS	PLK1100D64E1
INSULATOR STATION POST 69-KV,3;0"HIGH,3" BC BASE AND	CBR453A	EA		12		-12			NEWELL PORCELAIN COMPANY	2310067001
CONNECTOR,CABLE,GROUND,,500 KC;MIL,,,BOLTED,W/ NUTS/WASHE	CDE803N	EA		15		-15			DOSSERT CORPORATION	DGN50-62-LW
CONNECTOR GROUND GROUND SERVIC;E CONN. FOR CONNECTING	CDE804L	EA		30		-30			DOSSERT CORPORATION	DGN50-62-H2-1/4-NL
BELL,CORONA,DRIVE TYPE,4 IN,AL;UMINUM SCHEDULE 40	CDE840T	EA		18		-18			DOSSERT CORP	CI400-AA
CONNECTOR TERMINAL FOR CONNECT;ING A 4" SPS ALUM. PIPE,	CDG812A	EA		36		-36			DEUTSCH METAL COMPONENTS	PLK1850D64B
SPACER,CONDUCTOR,2-BUNDLE,750-;1000 KCMIL,,2-1/2 IN,COPPER	CDM944Y	EA		12		-12			DOSSERT CORPORATION	CASV100-2-1/2
125c GROUNDING MAT										
PLATE ELECTRICAL GROUNDING STE;EL, 48.00000 0 (48), 30.	AER448Y	EA		8		-8			TENN VALLEY AUTHORITY	SC-65089
LUG, COMPRESSION; CABLE SIZE:#2/0 AWG, BOLT SIZE:3/8 IN, CAB	AFP604G	EA		40		-40			DOSSERT CORP	DPL13-1
ROD GROUND COPPER-CLAD STE EL,; 0.625 IN (5 /8), 8 FT, S	AGR347Q	EA		20		-20			JOSLYN MFG & SUPPLY CO	J-9158
ROD,GROUND,COPPER-CLAD STEEL, 0.625 IN (5;/8), 8 FT, THREAD	AGR746A	EA		25		-25			JOSLYN MFG & SUPPLY CO	J-8338
CONNECTOR,CROSS,COMPRESSION TYPE, 500-500 KCM;IL	ANN686C	EA		70		-70			DOSSERT CORPORATION	CSX50-50
WIRE ELECTRICAL BARECU 2/0 AW;G, STRAN DED, HARD DRAWN	ANT155P	FT		1,000		-1000			TENN VALLEY AUTHORITY	2/0 7 STR HARDDRAWN BARE
WIRE,ELECTRICAL BARECU,500 KCMIL, STRANDED, SOFT DRA;WN, 3	CBV817K	FT		3,000		-3000			INDUSTRY STANDARD	BARECU-500 KCMIL
LUG,COMPRESSION,STRAIGHT,#2/0 ;AWG,1/2 IN,COPPER,,,2,,,	CBX185L	EA		2		-2			DOSSERT CORPORATION	DPL13-2N
CONNECTOR,TEE; COMPRESSION TYPE, TIN PLATED C;OPPER, 2/0-2/	CBY382D	EA		6		-6			DOSSERT CORPORATION	CRT13-13
BOLT MACHINE HEXAGON, SILICO N; BRONZE, 0.37 5 IN (3/8)	CDE759X	EA		50		-50				
BOLT MACHINE HEXAGON, SILICO N; BRONZE, 0.50 0 IN (1/2)	CDE760Q	EA		50		-50				
324 TELECOMMUNICATION EQUIPMENT										
PROTECTOR, HIGH VOLTAGE, TELEPHONE, 1-LINE		EA		1		-1				
MISC HARDWARE		LT		1		-1				
FIBER OPTIC DIELECTRIC CABLE		LF		200		-200			ALCOA FUJIKURA	

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Miscellaneous (1 EA)										
324 TELECOMMUNICATION EQUIPMENT										
MISC CABLE AND WIRE		LT		1		-1				
MISC HARDWARE		EA		2		-2				
SCADA RTU, DIALUP		EA		1		-1				
TELEPHONE DESK SET, BEIGE, TOU;CH TONE	AKL108K	EA		1		-1			ANIXTER INC	215613
MODEM,TELEPHONE,SELF CONTAINED,W/115 V POWER ;MOTOROLA	BLG497K	EA		2		-2			MOTOROLA INCORPORATED	UDS-202T
SWITCH,TELEPHONE,8 PORT LINE S;HARING, SLSS,48 DC/125 DC,19	BXA156M	EA		1		-1			TELTONE CORP	M-396-B-01
CONVERTER, VOLTAGE; TYPE:DC TO DC, INPUT:130 DC, OUTPUT:130	CBY354J	EA		1		-1			WILMORE ELECTRONICS CO	1502-130-130-3-M3
PROCESSOR PROGRAMMABLE COMMUNI;CATIONS PROCESSOR,	CDW621K	EA		1		-1			SCHWEITZER ENGINEERING LAB	SEL2030
53 LAND ACQUISITION										
LAND ACQUISITION EXPENSE		LS		1		-1				
57 LAND COST										
** LAND COSTS $ ONLY		$$		1		-1				
83J-161-KV SWITCH SUPPORT STR. TYPE T FTG "A" (30 EA)										
123a CONCRETE FOUNDATIONS										
EXCAVATION (AUGERED FDNS) EARTH		CY		17		-17.4				
BACKFILL OR SPOIL WASTE MATERIAL		CY		17		-17.4				
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR ONLY)		EA		120		-120				
A CONCRETE FOUNDATIONS / MATERIAL & LABOR		CY		20		-19.5				
83J050100-# 6 X 5'-1" STRAIGHT (6 EA)										
123a CONCRETE FOUNDATIONS										
# 6X5'-1" ,STRAIGHT		LB		1,374		-1374.3				
83J050218-# 3 X 5'-2" 18" ID ROUND HOOP (4 EA)										
123a CONCRETE FOUNDATIONS										
# 3X5'-2" H BEND,ID ROUND HOOP		LB		233		-233.04				
83L-161-KV BUS SUPPORT "TC2 & TB1" (2 EA.) (11 EA)										
123a CONCRETE FOUNDATIONS										
EXCAVATION (AUGERED FDNS) EARTH		CY		11		-11				
BACKFILL OR SPOIL WASTE MATERIAL		CY		11		-11				
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR ONLY)		EA		44		-44				
FORMWORK (WOOD)		SF		193		-192.5				
A CONCRETE FOUNDATIONS / MATERIAL & LABOR		CY		13		-13.2				

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83L-161-KV BUS SUPPORT "TC2 & TB1" (2 EA.) (11 EA)										
83L051016-# 3X 5'-10" 16" SQUARE HOOP (6 EA)										
123a CONCRETE FOUNDATIONS										
#10X5'-10" E BEND,X=16",Y=16"		LB		145		-144.54				
83L060100-# 6X 6'-1" STRAIGHT (8 EA)										
123a CONCRETE FOUNDATIONS										
# 6X6'-1" ,STRAIGHT		LB		804		-804.32				
83S-SWITCH HOUSE BLD CONC FDN TYPE "A" (1 EA)										
123a CONCRETE FOUNDATIONS										
FOUNDATIONS (10 - 25 CY)		CY		16		-16				
83S040311-# 5X 4'- 3" C BEND,U=11" (72 EA)										
123a CONCRETE FOUNDATIONS										
# 5X4'-3" C BEND,u=11"		LB		319		-319.104				
83S050300-# 5X 5'- 3" STRAIGHT (108 EA)										
123a CONCRETE FOUNDATIONS										
# 5X5'-3" ,STRAIGHT		LB		591		-591.3				
83S080715-# 3X 6'- 7" E BEND,X=15",Y= 23" (54 EA)										
123a CONCRETE FOUNDATIONS										
# 3X8'-7" E BEND,X=15",Y=23"		LB		174		-174.258				
84L-161-KV BUS SUPPORT"2TC4 & TB3" (8 EA) (16 EA)										
123a CONCRETE FOUNDATIONS										
BACKFILL OR SPOIL WASTE MATERIAL		CY		27		-27.2				
ANCHOR BOLTS 1-1/4" DIA X 4'-4" LONG (LABOR ONLY)		EA		64		-64				
A CONCRETE FOUNDATIONS / MATERIAL & LABOR		CY		32		-32				
FORMWORK (WOOD)		SF		256		-256				
EXCAVATION (AUGERED FDNS) EARTH		CY		27		-27.2				
84L061019-# 3X 6'-10" 19" SQUARE HOOP (7 EA)										
123a CONCRETE FOUNDATIONS										
# 3X6'-10" E BEND,X=19",Y=19"		LB		288		-287.84				
84L070100-# 7X 7'-01" STRAIGHT (8 EA)										
123a CONCRETE FOUNDATIONS										
# 7X7'-1" ,STRAIGHT		LB		1,853		-1853.184				
8KQ-161-KV PULL-OFF STRUCTURE TYPE "E" (2 EA.) (2 EA)										
123a CONCRETE FOUNDATIONS										
EXCAVATION EARTH (SPREAD FDN.)		CY		152		-152.4				

Preliminary Bill of Material
For

In-Service Date: 11/1/2001

Begin Construction: **Work Order:** W0138S2 KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

THIS LIST PROVIDES FOR THE FOLLOWING BILLS OF MATERIAL

Date: 12/9/2003

Description	TIIC	U/M	Sch. Date Required	Total Required	Net Provided	Theo Surplus	Source/ Quantity	Source Document	Vendor	Part No.
8KQ-161-KV PULL-OFF STRUCTURE TYPE "E" (2 EA.) (2 EA)										
123a CONCRETE FOUNDATIONS										
A CONCRETE FOUNDATIONS / MATERIAL & LABOR		CY		19		-18.6				
BACKFILL OR SPOIL WASTE MATERIAL		CY		152		-152				
FORMWORK (WOOD)		SF		226		-226				
ANCHOR BOLTS 1-1/2" DIA X 5'-2" LONG (LABOR ONLY)		EA		16		-16				
8KQ060800-# 5X 6'- 8" STRAIGHT (32 EA)										
123a CONCRETE FOUNDATIONS										
# 5X6'-8" ,STRAIGHT		LB		448		-448				
8KQ060818-# 9X 6'- 8" C BEND,U=18" (8 EA)										
123a CONCRETE FOUNDATIONS										
# 9X6'-8" C BEND,u=18"		LB		368		-368				
8KQ070323-# 3X 7'- 3" E BEND,X=23",Y= 19" (4 EA)										
123a CONCRETE FOUNDATIONS										
# 3X7'-3" E BEND,X=23",Y=19"		LB		24		-24				
8KQ070818-# 9X 7'- 8" C BEND,U=18" (24 EA)										
123a CONCRETE FOUNDATIONS										
# 9X7'-8" C BEND,u=18"		LB		1,248		-1248				
8KQ130800-# 5X13'- 8" STRAIGHT (16 EA)										
123a CONCRETE FOUNDATIONS										
# 5X13'-8" ,STRAIGHT		LB		448		-448				
8KQ210423-# 3X21'- 4" E BEND,X=23",Y=103" (2 EA)										
123a CONCRETE FOUNDATIONS										
# 3X21'-4" E BEND,X=23",Y=103"		LB		32		-32				
8ZL-161-KV POWER CIRCUIT BREAKER - FDN 'A' (1 EA.) (1 EA)										
123a CONCRETE FOUNDATIONS										
BOLT,FOUNDATION,GALVANIZED STEEL, 0.750 IN (;3/4), 12.000		EA		8		-8				
BACKFILL (6" LAYERS, HAND TAMP)		CY		4		-3.5				
ANCHOR BOLTS 1" DIA X3'-6" LONG (LABOR ONLY)		EA		4		-4				
A CONCRETE FOUNDATIONS / MATERIAL & LABOR		CY		2		-1.5				
PLATES 3/4" X 9" X 9" WEIGHT=18#		EA		4		-4				
FORMWORK (WOOD)		SF		60		-60				
EXCAVATION EARTH (SPREAD FDN.)		CY		4		-3.5				
8ZL030409-# 3 X 3'-4" 9" SQUARE HOOP (8 EA)										
123a CONCRETE FOUNDATIONS										
# 3X3'-4" H BEND,9" SQUARE HOOP		LB		10		-10.024				

Preliminary Bill of Material
For

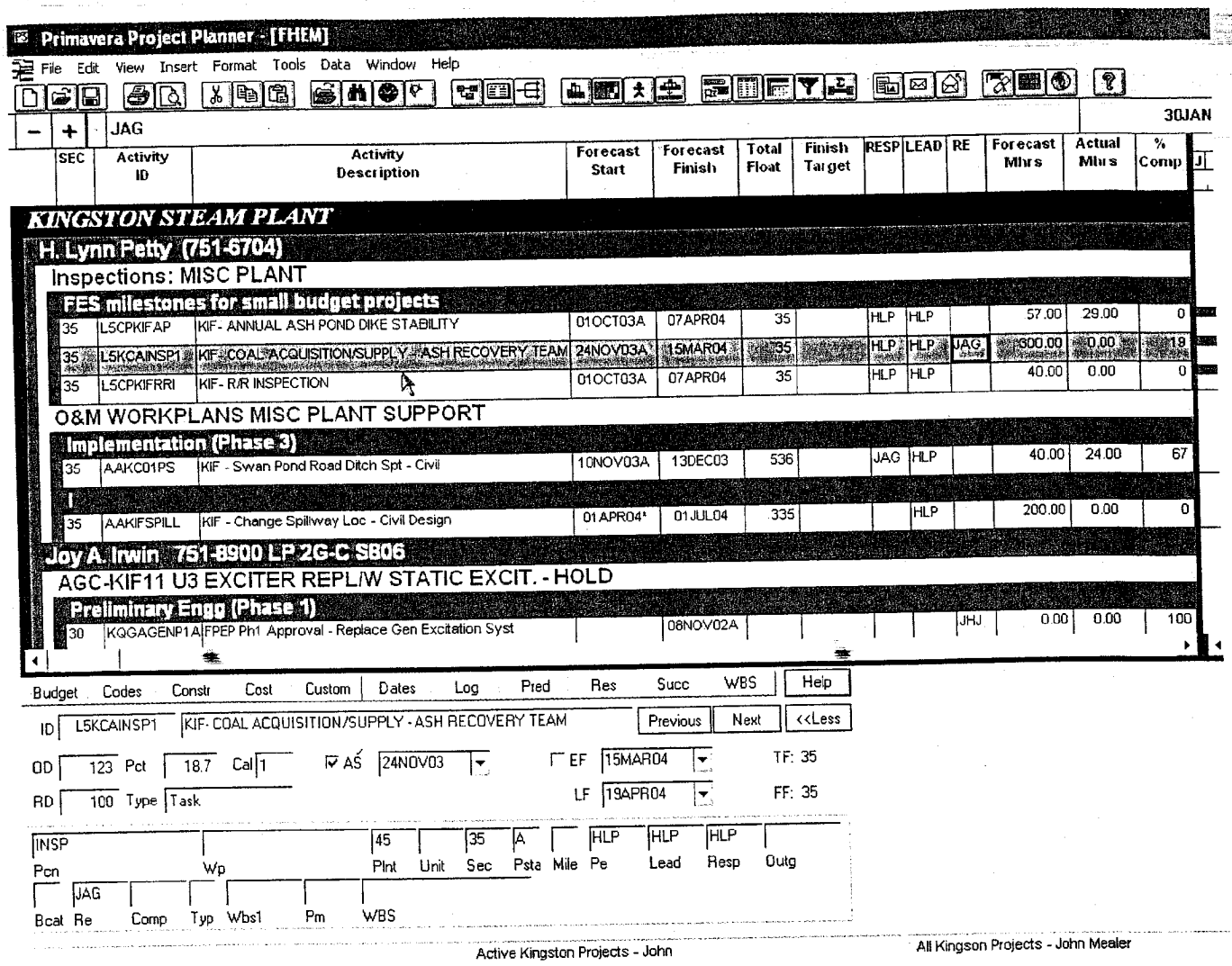
In-Service Date: 11/1/2001

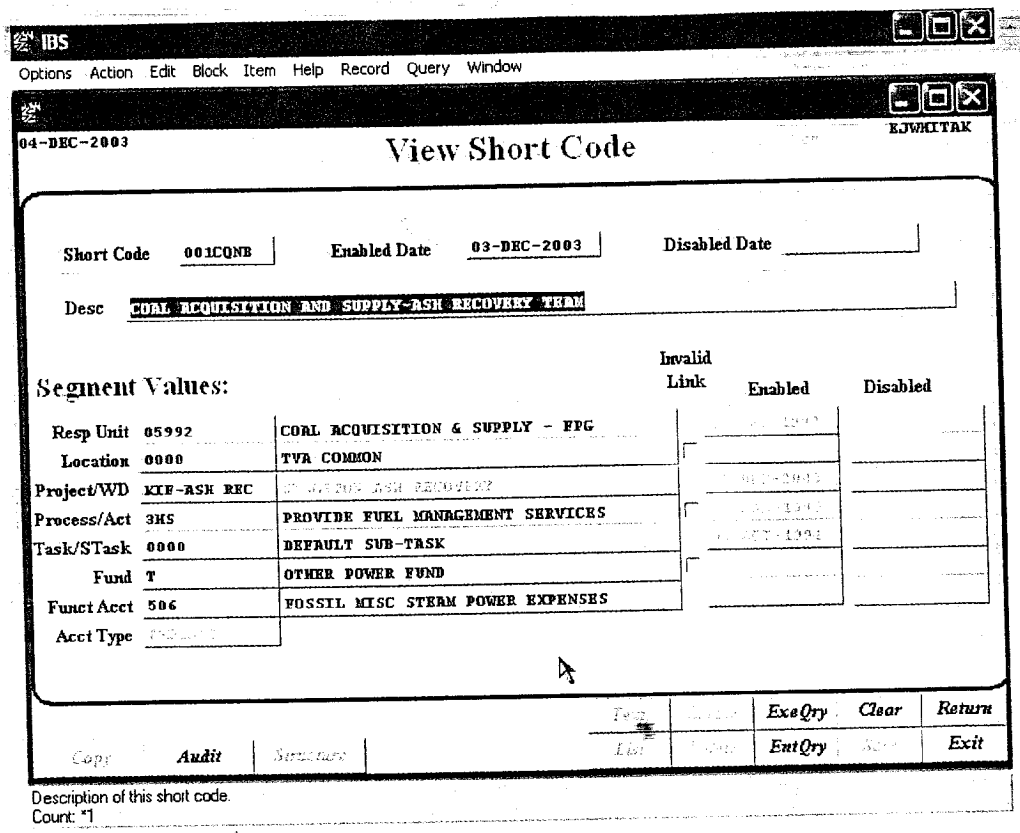
Begin Construction: **Work Order:** W0138S2 KINGSTON STEAM PLANT -PROVIDE 161-KV SUPPLY TO SCR - CONSTRUCT 161-KV SUBSTATION

THIS LIST PROVIDES FOR THE FOLLOWING BILLS OF MATERIAL

Date: 12/9/2003

Description	TIIC	U/M	Sch. Date Required	Total Required	Net Provided	Theo Surplus	Source/ Quantity	Source Document	Vendor	Part No.
8ZL-161-KV POWER CIRCUIT BREAKER - FDN 'A' (1 EA.) (1 EA)										
8ZL040200-# 5 X 4'-2" STRAIGHT (12 EA)										
123a CONCRETE FOUNDATIONS										
# 5X4'-2" ,STRAIGHT		LB		52		-52.14				
8ZL050400-# 5 X 5'-4" STRAIGHT (10 EA)										
123a CONCRETE FOUNDATIONS										
# 5X5'-4" ,STRAIGHT		LB		56		-55.62				
8ZL050429-# 4 X 5'-4" D BEND, U=29", D=8" (8 EA)										
123a CONCRETE FOUNDATIONS										
# 4X5'-4" D BEND,u=29"		LB		28		-28.496				


Primavera Project Planner - [FHEM]
File Edit View Insert Format Tools Data Window Help
JAG
30JAN
SEC | Activity ID | Activity Description | Forecast Start | Forecast Finish | Total Float | Finish Target | RESP | LEAD | RE | Forecast Mhrs | Actual Mhrs | % Comp
KINGSTON STEAM PLANT
H. Lynn Petty (751-6704)
Inspections: MISC PLANT
FES milestones for small budget projects
35 L5CPKIFAP KIF- ANNUAL ASH POND DIKE STABILITY 01OCT03A 07APR04 35 HLP HLP 57.00 29.00 0
35 L5KCAINSP1 KIF- COAL ACQUISITION/SUPPLY - ASH RECOVERY TEAM 24NOV03A 15MAR04 335 HLP HLP JAG 600.00 0.00 19
35 L5CPKIFRRI KIF- R/R INSPECTION 01OCT03A 07APR04 35 HLP HLP 40.00 0.00 0
O&M WORKPLANS MISC PLANT SUPPORT
Implementation (Phase 3)
35 AAKC01PS KIF - Swan Pond Road Ditch Spt - Civil 10NOV03A 13DEC03 536 JAG HLP 40.00 24.00 67
35 AAKIFSPILL KIF - Change Spillway Loc - Civil Design 01APR04* 01JUL04 335 HLP 200.00 0.00 0
Joy A. Irwin 751-8900 LP 2G-C SB06
AGC-KIF11 U3 EXCITER REPL/W STATIC EXCIT. - HOLD
Preliminary Engg (Phase 1)
30 KQGAGENP1A FPEP Ph1 Approval - Replace Gen Excitation Syst 08NOV02A JHJ 0.00 0.00 100
Budget Codes Constr Cost Custom Dates Log Pred Res Succ WBS Help
ID L5KCAINSP1 KIF- COAL ACQUISITION/SUPPLY - ASH RECOVERY TEAM Previous Next <<Less
OD 123 Pct 18.7 Cal 1 AS 24NOV03 EF 15MAR04 TF: 35
RD 100 Type Task LF 19APR04 FF: 35
INSP Pcn Wp 45 Plnt Unit 35 Sec A Psta Mile HLP Pe HLP Lead HLP Resp Outg
Bcat JAG Re Comp Typ Wbs1 Pm WBS
Active Kingston Projects - John
All Kingson Projects - John Mealer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View Short Code
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Enabled Date 03-DEC-2003
Disabled Date
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Segment Values:
Invalid Link
Enabled
Disabled
Resp Unit 05992 COAL ACQUISITION & SUPPLY - FPG
Location 0000 TVA COMMON
Project/WD KIF-ASH REC
Process/Act 3MS PROVIDE FUEL MANAGEMENT SERVICES
Task/STask 0000 DEFAULT SUB-TASK
Fund T OTHER POWER FUND
Funct Acct 506 FOSSIL MISC STEAM POWER EXPENSES
Acct Type
ExeQry
Clear
Return
Copy
Audit
Structure
EntQry
Exit
Description of this short code.
Count: *1

Mealer, John A.

From: Tiller, Ralph H.
Sent: Thursday, December 04, 2003 10:05 AM
To: Mealer, John A.
Subject: FW: KIF-Ash Recovery

John,

Please set up Ron an activity for this work. Its a plant short code.

Ralph

-----Original Message-----
From: Purkey, Ronald E.
Sent: Thursday, December 04, 2003 7:52 AM
To: Petty, Harold L.; Powell, Ronald D.; Albright, John G.; Hranek, Mike G.; Tiller, Ralph H.
Subject: FW: KIF-Ash Recovery

All

Short code attached

Ralph,
Please set up activity today if possible. Thanks.

Ron

Start 24Nov Finish 15Mar 300mh RE JAG Principal HLP

Thanks.

Ron Purkey
-----Original Message-----
From: Muirhead, Edith G.
Sent: Wednesday, December 03, 2003 2:39 PM
To: Baugh, James S.
Cc: Purkey, Ronald E.
Subject: KIF-Ash Recovery

Please use short code 001CQNB for the work at Kingston.

Fly Ash

- UCC Quote United Conveyor Corporation's

(9) 8-12 tph dry vacuum systems
(9) 10-14 tph positive pressure systems
(1) Sluice System
(1) Control System for operation

± 20% for equip & engineering $16,000,000