ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Review of Tampa Electric Company's Waterborne Transportation Contract with TECO Transport and Associated Benchmark	)	DOCKET NO. 031033-EI FILED: MARCH 30, 2004

REDACTED

DIRECT TESTIMONY AND EXHIBITS

OF

JOHN B. STAMBERG, P.E.

ON BEHALF OF

CSX TRANSPORTATION

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY OF
JOHN B. STAMBERG, P.E.

Q. Please state your name, address, occupation and employer.

A. My name is John B. Stamberg. I am employed as Vice President of Energy Ventures Analysis, Inc. ("EVA"), 1901 North Moore Street, Suite 1200, Arlington, Virginia 22209.

BACKGROUND AND QUALIFICATIONS

Q. Please provide a brief outline of your educational background and work experience.

A. I received a Bachelor of Science Degree in Civil Engineering from the University of Maryland in 1966 and a Master of Science Degree in Sanitary Civil Engineering from Stanford University in 1967. I worked at the United States Environmental Protection Agency, primarily in the areas of water pollution control and solid waste management and handling, from 1967 to 1974. From 1974 to 1981, I worked as a Director for Energy and Environmental Analysis, Inc., in water pollution, boiler conversions, and coal unloading, storage, handling, and reclaiming. Since 1981, I have been with EVA, where I have had primary responsibility for directing EVA's engineering studies and where I have worked with electrical power plants, industrial boilers, mining engineering, and materials handling. I hold patents pending in wastewater treatment system and mineral processing applications. A copy of my resumé is attached as Exhibit ____(JBS-1).

Q. Are you a registered professional engineer?

A. Yes. I am a registered professional engineer in the State of Louisiana.

Q. Are you a member of any professional organizations?

A. Yes. I am a member of the Water Pollution Control Federation and the Federal Water Quality Association.

PURPOSE OF TESTIMONY

Q. Please state the purpose of your testimony.

A. I am testifying on behalf of CSX Transportation ("CSXT"), an intervenor party in this proceeding before the Florida Public Service Commission ("PSC" or "Commission"). The purpose of my testimony is to present my independent evaluation, analyses, and opinions regarding the following:

a. CSXT's conceptual design and capital cost estimates for the construction of rail infrastructure that would be needed to accommodate rail deliveries of coal to Tampa Electric Company's ("TECO") Big Bend Generating Station and Polk Power Station;

b. the estimates of the capital costs for rail infrastructure prepared by Sargent & Lundy ("S&L") at the request of TECO;

c. the estimates, prepared by Sargent & Lundy at TECO's request, of the operating and maintenance ("O&M") costs associated with the rail delivery system proposed by CSXT; and

d. the capability of the proposed coal handling facilities at Big Bend Station to provide blending for solid fuels (different types of coals and petroleum coke) used by TECO at its Big Bend and Polk Stations.

Q. What is the scope of your analysis and testimony?

A. The scope of my analysis is essentially coextensive with the purposes above. I have reviewed and analyzed, independently and using independent sources for input data and factors, the cost estimates prepared by CSXT for the rail delivery infrastructure needed to accommodate rail delivery of coal at TECO's Big Bend and Polk Generating Stations.

I have also analyzed S&L's September 18, 2003 report entitled <u>CSX Transportation – Alternative Method of Coal Delivery</u>, Report No. SL-008160. The purpose of the S&L report was allegedly to validate the capital cost for each option proposed and to provide assessments of assumptions that qualify the bid. S&L also provided operating cost estimates. This work was done on behalf of TECO and with TECO's inputs. I obtained access to this S&L report upon signing an "Endorsement to Non-Disclosure Agreement" signed and dated February 25, 2004. TECO has classified this document as confidential.

Finally, as a result of gathering certain information and having approximately 4 hours to visit the Big Bend site, I feel that there is another engineering design solution for rail delivery of coal to Big Bend that enjoys lower capital costs, lower operating costs, quicker construction time, and less implementation difficulties than either the initial CSXT design concept or S&L's concept. Accordingly, I believe that this solution is worth evaluating. This solution would have likely been envisioned if TECO had cooperated with CSXT in attempting to identify and design a workable coal-by-rail delivery system for the Big Bend site; therefore, I refer to this new alternative as a "cooperative" design concept.

Q. Are you sponsoring any exhibits to your testimony?

A. Yes. I am sponsoring the following exhibits:

Exhibit ____(JBS-1):	Resumé of John B. Stamberg, P.E.;
Exhibit ____(JBS-2):	Excerpts from RS Means Heavy Construction Cost Data, 13th Edition, 1999, RS Means Square Foot Costs, 24th Annual Edition, and Dodge Unit Cost Book, 1999;
Exhibit ____(JBS-3):	Conveyor Estimate Based on Cubic Storage Systems Budget Quote;
Exhibit ____(JBS-4):	Conveyor Estimate Based on FMC Budget Quote;
Exhibit ____(JBS-5):	Conveyor Estimate Based on Continental Conveyors Budget Quote;
Exhibit ____(JBS-6):	Rapid Discharge Pit and Conveyor – EVA Estimate;
Exhibit ____(JBS-7):	Conceptual Diagram – Cooperative Rail Delivery System;
Exhibit ____(JBS-8):	Overview of Rail Delivery Options to Big Bend;
Exhibit ____(JBS-9):	Sargent & Lundy LLC, Tampa Electric Company Big Bend and Polk Generating Stations, CSX Transportation Alternate Method of Coal Delivery, SL-008160, September 18, 2003; and
Exhibit ____(JBS-10):	Sargent & Lundy LLC, Tampa Electric Company Big Bend and Polk Generating Stations, CSX Transportation Alternate Method of Coal Delivery, SL-008160, **DRAFT** September 4, 2003.

SUMMARY OF TESTIMONY

Q. Please summarize your testimony.

A. CSXT prepared capital cost estimates for two rail delivery infrastructure systems at TECO's Big Bend Station and two systems at Polk Station. CSXT proposed to pay for what CSXT estimated, based on preliminary engineering analyses, to be the reasonable costs of all necessary infrastructure improvements to accommodate rail deliveries of coal to both Big Bend and Polk. Despite significant constraints, imposed by TECO, on CSXT's ability to adequately view the Big Bend site and existing facilities, CSXT's estimates were entirely reasonable. My estimates, presented in this testimony, indicate that the actual costs will probably be somewhat higher than estimated by CSXT but still below the total amount that CSXT offered to pay for the needed facilities.

TECO hired S&L on August 27, 2003 to prepare a study of the capital and operating and maintenance costs associated with a rail delivery system for coal at Big Bend and Polk. S&L's study is not based on standard engineering estimating techniques or information sources, is not based on normal data inputs, and produced severely overstated cost estimates for the capital costs associated with CSXT's proposed rail delivery facilities at Big Bend (and Polk). The total overstatement is approximately $20 million to $40 million, depending on which S&L value one takes as the reference point.

Not surprisingly, S&L's estimates of O&M costs are also severely overstated. My estimates, presented in this testimony, indicate that S&L's O&M estimates are overstated by a factor of about four times the correct cost.

In addition, the coal handling facilities at Big Bend Station will continue to have excellent blending capabilities following the installation of the proposed CSXT rail delivery systems.

EVALUATION OF CSXT'S CONCEPTUAL DESIGN AND COST ESTIMATES FOR RAIL DELIVERY INFRASTRUCTURE TO SUPPLY COAL TO BIG BEND AND POLK

Q. Have you reviewed CSXT's July 2003 bid?

A. Yes.

Q. Do you understand how the cost estimates were made by CSXT?

A. Yes.

Q. How did you come to understand CSXT's cost estimating procedure?

A. I met with Bob White and Mike Bullock of CSXT, and Richard Schumann of RAS Engineering Plus, Inc., on February 20, 2004 at CSXT's headquarters in Jacksonville, Florida for the purpose of learning how Mr. Schumann, Mr. White, and the other CSXT engineering personnel prepared their design and their cost estimates.

Q. Who developed CSXT's cost estimates?

A. Bob White of CSXT, with assistance from CSXT's internal engineering sections, and Richard (Dick) Schumann of RAS Engineering Plus, Inc. prepared CSXT's design concept and cost estimates for the rail delivery systems identified in CSXT's proposals (bids) presented to TECO in 2002 and 2003.

Q. What information did Mr. White and Mr. Schumann use to develop the cost estimates?

A. In August 2002, TECO provided CSXT an out-of-date macro-scale plot plan. In addition, TECO allowed Mr. White and Mr. Schumann to have a 30-minute "drive through" visit to the Big Bend Station, escorted by Mr. Martin Duff of TECO, in which Mr. White and Mr. Schumann were not allowed to get out of their car, not allowed to take pictures, and not allowed to ask technical questions of Mr. Duff.

Q. **Why was the out-of-date macro-scale plot plan a problem?**

A. There were four major misleading problems with the out-of-date plot plan that made determining a possible rail delivery system difficult: (1) The Polk truck loading system was not shown on this plot plan. The current load out for Polk is in the northern most blend silo. It was not shown. Mr. Duff identified a unit that was about 1,000 feet south of the current Polk truck load out. (2) The area on the out of date plot plan had a single area marked G4, which is and was then divided into a slag pond and a dead coal storage area. (3) The two main radial stackers were not shown on the out-of-date macro-scale plot plan. (4) The out-of-date plot plan showed two parallel tracks on the south side of the station, one of which was in the process of being dug up to accommodate piping that was being installed in association with a new water desalinization plant being installed adjacent to the Big Bend plant site. Mr. Duff orally stated that this second track would be restored, when in fact it was not.

Q. **How did the out-of-date plot plan handicap CSXT's efforts to propose and cost out rail delivery systems and Polk shuttle reloading systems?**

A. First, the misinformation increased the length of the Polk reloading conveyor. Second, the incorrect area-G4 information did not allow Mr. White and Mr. Schumann to select the best location for the new proposed radial stacker to be placed such that the Big Bend's radial stacker could reach more of the rail delivered coal in the 1.0 to 2.0

MMTPY system. Finally, the fact that CSXT was told that certain missing or removed tracks would be restored, but which were not restored, directly impacted the needed trackage for rail coal unloading and reloading systems.

Q. Would a 30-minute, "no pictures," "stay in your car," drive through visit or "tour" of Big Bend Station, or any other power plant, be sufficient to select an optimum rail delivery system?

A. No.

Q. Why not?

A. The Big Bend coal yard has 69 transfer points identified in its air permit and is a large flexible blending facility with numerous pieces of equipment. Many items cannot be seen from the car. Any new conveyor, the most widely used piece of equipment in a coal yard, must be in a straight line. Checking lines of sight cannot be done from a car nor is 30 minutes a sufficient time to identify or examine various alternatives.

Q. Did Mr. White and Mr. Schumann talk to anyone from Big Bend that could describe how the equipment was used?

A. No. TECO did not give Mr. White and Mr. Schumann access to any Big Bend engineering or operating personnel.

Q. What type of information would be readily available to engineers or railroad personnel if they wanted to propose a possible coal-by-rail delivery system?

A. Under normal circumstances, there are several easily available sources of information: accurate, detailed site plans with all significant equipment and facilities identified; access to coal yard operators, plant engineers, or supervisors who know how the coal yard is operated; utility drawings for electric power, water, drainage, and other systems; air permits; and reasonable time to walk, view, and understand the coal yard.

Q. Given the handicaps that you just identified, how were Mr. White and Mr. Schumann able to propose and estimate the cost of a rail unloading system?

A. They have sufficient experience that they could -- and did -- propose a reasonable solution, which may not be the lowest cost or the only viable solution. With their knowledge and experience, a reasonable solution could be proposed and costs estimated for purposes of evaluating the viability of potential business opportunities. If more site information or access were provided or obtained, a lower cost solution would only make CSXT's bid more attractive.

Q. Can you describe the reasonable solution proposed by CSXT?

A. Yes. The design concept proposed by CSXT had the following key features.

1. The coal would be brought into the plant in 90-car unit trains via new trackage on and within the west side fence in 45 car-segments.
2. The coal would be dumped into a pit either newly built or using the existing rail unloading pit for limestone.
3. Then the coal would be transported by conveyor to the coal barge system transfer house either (a) via two straight line conveyors or (b) via a long west-moving conveyor connecting to a northwest-moving conveyor to the coal barge transfer

house. (The alternative for lower volumes of coal deliveries would only move westward then directly north).

4. The Polk shuttle coal would be picked up at the truck loading source and conveyed to a 250-ton silo which would load the coal into the Polk shuttle cars.

Q. **Is this a workable concept?**

A. Yes.

Q. **Have you visited the Big Bend site?**

A. Yes. I drove around the site and surrounding area during March 8-11, 2004. I obtained information from the Hillsborough County Property Appraiser. I also visited the Environmental Protection Commission of Hillsborough County to review air permit files and wetland locations. At this time, it was uncertain whether TECO would allow me to visit the site. On March 18, 2004, I was able to visit Big Bend. I was able to get out of the car and view equipment. I was there for about four hours and there was no time limit on my visit, and TECO personnel were generally able to answer my questions. I was allowed to make linear measurements, but TECO did not allow me to take pictures or measure noise levels.

Q. **Were the options proposed by CSXT viable and adequate engineering concepts?**

A. Yes.

Q. **What, if any, adjustments in CSXT's concept do you feel are needed or appropriate?**

A. Four specific adjustments are needed, as follows.

1. Because the right-of-way for the second track was not restored, and because desalinization pump motors on-site are vertical and a pump control house (about 16 feet high) is now in this right-of-way, the long conveyor proposed by CSXT has to be elevated to about 18 feet to clear the existing equipment.

2. The limestone conveyor goes slightly north by about 12 feet. The proposed elevated conveyor needed a 12-foot southern orientation. This means that if the limestone conveyor is used, a 24-foot conveyor and another transfer house is needed.

3. The limestone rail pit and conveyor do not have a magnetic separator.

4. The existing limestone pit has a baghouse to control dust. A surfactant dust suppression system might be a better approach. This type of dust suppression is used at the dock unloading system.

Q. Would those adjustments result in added costs, above those initially estimated by Mr. White and Mr. Schumann?

A. Yes.

Q. Can you estimate the resulting increase in cost of making these adjustments?

A. Yes.

1. The elevation of the long conveyor would add about $50,000 in foundation cost, $25,000 for ladders, $265,000 for step supports, and $330,000 for walkways for a total increase of <u>$670,000</u>.

2. The dust suppression equipment cost would be $85,000 to $95,000 delivered and about $10,000 to install, for a mid-range total of $100,000. This is identical equipment (Dust Buster) from the same supplier (Midwest Supply) as the dust suppression equipment used for the Big Bend barge unloading system.

3. A stationary electromagnetic metal separator would cost $18,600 for the magnet and 10 KW rectifier to convert AC current to DC current, plus an estimated cost of $7,400 to install. This totals to $26,000.

4. An additional 24-foot conveyor and transfer house would cost about $350,000. This 24-foot conveyor would only be needed in the [redacted] system.

Q. **What is the total cost that would be needed to add to CSXT's bids in your opinion?**

A. For the large system [redacted] it would be $796,000 ($670,000 + $100,000 + $26,000). For the small system it would be about $896,000 ($420,000 pro rated elevated conveyor length + $100,000 + $26,000 + $350,000).

Q. **Do you know how Mr. White and Mr. Schumann prepared their estimates?**

A. Yes. The coal handling system cost estimates were provided by Mr. Schumann; CSXT personnel provided the cost estimates for rail and heavy equipment. No formal report was made by Mr. Schumann. Vendor information was obtained orally by Mr. Schumann, and Mr. Schumann's estimated costs for Big Bend were then verbally transferred to Bob White of CSXT. The systems at Polk to unload coal had some written estimates for the Polk scenarios.

Mr. Schumann used a variety of approaches to prepare his cost estimates, including specifically: obtaining verbal up-to-date costs from various vendors (particularly for the conveyor systems) and estimating the pit costs based on similar equipment (adjusted to 2003 dollars). In some cases, Mr. Schumann proposed a surrogate design and used various factors to estimate the costs. The estimates were determined to be appropriate by Mr. Schumann when comparing the estimates to his previous work. The specifics were as follows.

A. [redacted] Bid at ± 1,500 tons per hour ("TPH").

1. **Modified Limestone Pit --[redacted] by Schumann.** The existing limestone pit or under-car loading system was designed for rail car bottom loading. It is covered with a bag house to control dust. Only truck-delivered limestone is being delivered or predicted to be delivered per TECO. Thus, the pit is ideal for conventional coal rail car unloading at a rate of about 1,500 TPH. The details of the belt (size and rate) that were provided may need to be upgraded to meet the 1,500 TPH rate capability. The cost to upgrade the belt rates and use the limestone rail unloading pit for coal was estimated to be [redacted] based on Mr. Schumann's experience with similar projects. The coal would then be put on the long conveyor. Mr. Schumann felt that a new limestone truck unloading system was needed to prevent coal and limestone from being contaminated. (See No. 5 below.)

2. **Long Conveyor --[redacted] by Schumann.** The conveyor taking the coal from the limestone pit conveyor would be a 54" wide conveyor running 2,100 feet west to a short conveyor running north. Mr. Schumann provided a cost estimate of a complete system, i.e., a system that was covered, fire protected, and provided with access walks, lights, and other

necessary appurtenances, complete with engineering and installation. He contacted several conveyor vendors to verify his cost estimate using the most current cost for idlers, frames, and other components. The 54" wide conveyor could handle 2,500 TPH. The estimated cost conformed to the range of cost experienced on other projects.

3. **Short Conveyor --[redacted] by Schumann.** The same approach as used for the long conveyor was used to estimate the cost of the short conveyor.

4. **200 Foot Radial Stacker --[redacted] by Schumann.** The radial stacker cost was based on previous cost experience and escalated to 2003 dollars.

5. **New Track Dump and Conveyor --[redacted] by Schumann.** If the rail coal delivery system is to use the limestone pit system located under the railroad track, another limestone pit and conveyor would be desirable for the truck delivery of limestone. The new limestone pit was estimated by using approximate cost estimates and factors for materials, installation and overhead and profit, as well as engineering for a surrogate design of a pit and conveyor system. The new limestone pit and pit conveyor would feed the existing limestone transfer house. The costs were in the expected range of similar equipment installations.

B. [redacted] MMTPY Bid @ ± 2,500 TPH.

1. **Rapid Discharge System --[redacted] by Schumann.** The rapid discharge system cost estimate was made in the same manner as the new limestone truck dump and conveyor system, i.e., a surrogate design and updated conveyor cost were used.

2. **Long Conveyor at 3,300 ft. --[redacted] by Schumann.** The long conveyor system was estimated in the same manner as the previous conveyors using updated conveyor component costs backed-up by Mr. Schumann's experience.

3. **Short Conveyor at 500 ft. --[redacted]** Same method as above.

4. **Transfer Station --[redacted] by Schumann.** The transfer station cost estimate was based on previous cost experience for equipment similar to that at Big Bend and roughly escalated to 2003 dollars.

5. **Three 45-Car Tracks --[redacted] by CSXT.** The costs of upgrading and installing new trackage were identified by Mr. Schumann and Mr. White of CSXT and the cost estimated by CSXT engineers. The cost included restoring the track disturbed by the desalinization piping.

6. **Truck Dump and Conveyors --[redacted] by Schumann.** Same as 1.0 to 2.0 MM Ton Bid.

C. Polk Shuttle Train Loading at Big Bend -[redacted]

1. **Conveyor and Transfer Station --[redacted] by Schumann.** This estimate was based on updated conveyor cost and surrogate design. The transfer station was similarly estimated.

2. **250 to Batch Silo --[redacted] by Schumann.** The batch silo was considered to be useful and was estimated by escalating similar systems to 2003 dollars.

3. **New Trackage --[redacted] by CSXT.** The needed trackage was determined by Schumann and White of CSXT and the cost was estimated by CSXT transportation engineers.

Q. If Mr. Schumann based his estimate on a national average cost, should his estimates be adjusted for Big Bend?

A. Since Mr. Schumann based his estimates on national average costs for this mechanical work, it may be necessary to adjust his estimates to reflect local differences between Tampa-area costs and national average costs. Currently the "RS Means" (RS Means Heavy Construction Cost Data 13th Edition, 1999, and RS Means Square Foot Costs, 24th Annual Edition) indexes show the cost of construction in Tampa to be 80% of the national average for overall work (1.039 index for Tampa divided by 1.302 for the national average). See Exhibit ____(JBS-2).

Q. Since this work is heavily mechanical, is there a way to take into account that this proposed system is mechanical?

A. Yes. The Dodge Unit Cost Book subdivides its index by type of work. In 1999, mechanical/electrical work was 0.89 versus 0.86 for overall work. Thus, mechanical/ electrical work in Tampa is 3.5% more costly than overall work in Tampa.

Q. From the above sources, can you determine whether and how to adjust Mr. Schumann's estimates to Big Bend?

A. Yes. The correct adjustment is made by multiplying the RS Means index value of 0.80 (80%) by the Dodge indicator of increased cost for mechanical/electrical work of 1.035. This indicates that mechanical/electrical work at Big Bend should be approximately 83% of the national average.

Q. Using this information, was there a cost overstatement or implied contingency built into Mr. Schumann's estimates?

A. Yes. Mr. Schumann added 5% contingency to his estimates based on national averages. This coupled with the above lower cost in Tampa of 17% results in 21% contingency in Mr. Schumann's estimates.

Q. Did CSXT include in its proposals (bids) an offer to pay up to [redacted] of Mr. Schumann's estimated costs for the rail delivery infrastructure?

A. Yes.

Q. Did CSXT have a contingency built into its estimate for rail trackage?

A. No.

Q. Can you estimate the contingency in the CSXT bid?

A. Yes. CSXT's estimated cost of [redacted] for track has no internal contingency, and the remaining [redacted] in rail infrastructure costs has a 21% estimated internal contingency for a total of [redacted] implied contingency. With a [redacted] estimate, the implied internal contingency is thus approximately 17.5%.

Q. Since CSXT was willing to pay [redacted] above their estimate, what is the approximate total contingency inherent in CSXT's proposal?

A. Since CSXT was willing to pay up to [redacted] percent of [redacted] for the rail delivery improvements at Big Bend, the total "built in" contingency in CSXT's bid was, or is, approximately 45 percent. This is calculated by dividing the difference between (a) what

CSXT was willing to pay [redacted] and (b) what the project cost was excluding any contingency [redacted] implied contingency = [redacted], this calculation indicates that CSXT was willing to pay 45.4 percent more than the no-contingency cost estimate for the rail delivery facilities at Big Bend.

Q. **Have you made an independent estimate of the cost in CSXT's bids?**

A. Yes.

Q. **What was your estimated rail track cost?**

A. I used 1999 RS Means factors for rail, grading to level with purchased fill material, spreading and compaction of the fill material. I also estimated the cost of bumpers, switches, switch timber, road crossings, signage and one signal. I then escalated the cost to 2003 by the RS Means escalation factor and adjusted this to reflect engineering and indirect cost. My estimate is $1,231,284 versus CSXT's [redacted] estimate.

Q. **What is your estimate for conveyors?**

A. I obtained a budget quote for a covered 2,500 ton per hour ("TPH") @ 750 FPM 54" conveyor from Cubic Storage Systems, Inc., a local (Tampa area) conveyor supplier. Beginning with Cubic Storage Systems, Inc.'s budget quote, I added in my cost estimates for foundations, walkways, lights and fire protection to estimate the installed cost based on Cubic Storage Systems, Inc.'s quote. This yielded about $3,873,467 for 3,800 feet. This is about $1,020/LF, which equates to $3,366,000 for the long conveyor as compared to the [redacted] estimate by CSXT. This also equates to $550,150 for the short conveyor as compared to [redacted] estimated by CSXT. <u>See</u> Exhibit ____(JBS-3).

Q. Is there another independent basis for estimating the costs of the needed conveyors?

A. Yes. It is based on FMC, another well-known conveyor supplier, supplying a covered or hooded conveyor with cover lights and walkway. With 30 feet on center supports, FMC estimates the cost will be $1,083/LF. The long conveyor would thus cost about $3,573,900. CSXT estimated the cost at [redacted] Using this approach, I estimated the short conveyor to cost $541,500. CSXT estimated the short conveyor cost to be [redacted] See Exhibit ____(JBS-4).

Q. Did you estimate the cost using the same manufacturer of conveyors as used at Big Bend?

A. Yes. Big Bend coal yard uses Continental Conveyors, and Continental Conveyors quoted $2,733,060 for the long conveyor as compared to CSXT's [redacted] estimate and $414,100 for the short conveyor as compared to CSXT's [redacted] See Exhibit ____(JBS-5).

Q. Do you have an independent calculation of the cost of the transfer house?

A. I made some rough calculations and concluded that the [redacted] is within the reasonable range of costs for such a structure with hoppers.

Q. Do you have an independent calculation of a new truck limestone pit and conveyor?

A. Yes. My estimate indicates that this may be about $400,000. CSXT estimated this new limestone pit and conveyor to cost [redacted]

Q. Do you have an independent estimate of the rapid discharge system?

A. Yes, using a surrogate design and RS Means factors, I estimated the cost including the pit conveyor at $1,590,391. See Exhibit ____(JBS-6).

Q. Do you have an independent summary of the CSXT system cost estimates?

A. Yes. The estimates using the three different methodologies (CSXT, Cubic Storage/EVA, Continental Conveyor, and FMC/EVA) are shown below based on three vendor quotes and EVA calculations. My estimates are between 3.3% and 5.9% higher than the CSXT estimate. However, after having access to the site that Mr. Schumann and Mr. White did not have, my best estimate after including adjustments for an elevated conveyor adjustment, dust suppression, and an electromagnetic separator, is 15.5% to 17.1% higher than CSXT's estimate. My estimates are still below CSXT's willingness to pay amount of [redacted] Thus, I conclude that CSXT's estimates are basically correct and accurate. The problem is that CSXT was denied the necessary access and information to include all the necessary items.

	CSXT's Estimate	EVA'S Estimate Cubic Storage	EVA's Estimate FMC
I. Original Conceptual Design			
Rapid Dump System	[redacted]	$ 1,590,391	$ 1,590,391
Long Conveyor	[redacted]	3,366,000	3,527,700
Short Conveyor	[redacted]	550,150	574,560
Transfer Station	[redacted]	230,000	230,000
Rail	[redacted]	1,231,284	1,231,284
Limestone Truck Dump	[redacted]	400,000	400,000
Subtotal	[redacted]	$ 7,367,825	$ 7,553.935
Percentage Difference		[redacted]	[redacted]
II. Post Site Visit			
Elevated Long Conveyor		$ 670,000	$ 670,000
Dust Suppression		100,000	100,000
Electromagnetic		26,000	26,000
Subtotal		$ 796,000	$ 796,000
Total		**$ 8,163,825**	**$ 8,349,935**
Percentage		[redacted]	[redacted]

Q. At this stage of development, what is the accuracy of the engineering estimates?

A. The cost estimates are ± 20% at this point. A project that has had the design completed and well-written specifications will be bid within 3-5% of competitive bidders.

EVA Alternate "Cooperative" Rail Delivery Concept

Q. From your observations and information gathered during your site visits and with the information you now have, are there any other potential conceptual approaches for delivering coal to Big Bend with lower cost?

A. Yes. Because this concept should have been readily identified by a cooperative effort between TECO and CSXT, rather than by TECO's limiting CSXT's information regarding and access to the Big Bend site, I call this a "cooperative" approach.

Q. Can you describe the system?

A. Yes. The east side of the Big Bend site is congested with limestone and gypsum system equipment as well as other maintenance and warehouse facilities. The south side where the current limestone pit is located and where a new rapid rail discharge system would be located is congested with FGD piping north of the remaining rail line. The corridor to the south where the second track was envisioned and was to be restored is now congested with the desalinization piping and pumps. This would require raising the proposed CSXT conveyor up 20 feet or so. An alternative concept is to put the new rapid discharge system, pit and conveyor, near the tracks and near the east end of the slag pond. This would allow the coal unloading equipment to be located on the western part of the Big Bend plant site, thus avoiding further congestion at the east end of the plant. It would, however, require the 90-car unit trains to be split into three 30-car segments rather than two 45-car segments. <u>See</u> Exhibit ____(JBS-7).

Q. Would this "cooperative" approach result in any capital cost savings?

A. Yes. Even if all-new equipment were used to implement and install this design concept, I estimate that the total cost would be slightly less than $5 million, as opposed to the [redacted] million estimated by CSXT. If salvageable coal-handling equipment from TECO's Gannon Station were used, the total capital costs would be on the order of $3.6 million.

Q. Please provide the estimated capital costs for this system, both with and without the use of Gannon equipment.

A. See the table below.

	EVA Estimate Cooperative Concept New Equipment	EVA Estimate Cooperative Concept Used Gannon Equipment	Remarks
Rapid Discharge System	$ 1,590,391	$ 1,379,391	The new unit would be unchanged. Two Gannon rail car hoppers are usable ($115,000). A Gannon transfer station saves $96,000.
Long Conveyor	1,346,400	1,346,400	The long conveyor would only be 1,300 ft long and cost was proportional to the long conveyor
Short Conveyor	550,150	275,075	Use of two Gannon 1,600 tph conveyors would save new conveyor purchase (50% or $275,075).
Transfer Station	230,000	115,000	Use Gannon unit with stacker reclaimers would work out fine (50% or $115,000 savings)
Rail	1,231,284	1,231,284	Unchanged.
Limestone Truck Dump	400,000	400,000	
Elevation of Conveyor	N/A	N/A	
Dust Suppression	100,000	100,000	
Electromagnetic	26,000	26,000	
Total	**$ 4,979,225**	**$ 3,641,866**	$1,337,359 savings using abandoned Gannon Equipment

Q. Can you summarize the capital cost, operating capacities, train unloading time and construction time for the various alternatives to unload coal at Big Bend such as CSXT's original bid, your adjustments of CSXT's original bid and the above system with three 30-car segments?

A. Yes. This information is presented in Exhibit ____(JBS-8).

Q. Have you also prepared an estimate of the O&M costs for your "cooperative" 3-30 car unit train segment approach?

A. The table below summarizes my O&M estimates for the cooperative system.

EVA Estimate of O&M Cost for a 3-30 Car Train Segment Approach

	Minimum Estimate	Maximum Estimate
Variable		
Power	($17,000)	($32,000)
Surfactant	0	0
Labor	0	157,440
Fixed		
Labor (less belt length)	$150,654	$150,654
Maintenance	149,100	149,100
Taxes	2,169	2,169
Insurance	2,237	2,237
Total	**$287,160**	**$429,600**

EVALUATION OF SARGENT & LUNDY'S CAPITAL COST ESTIMATES

Q. Did you review the estimated capital costs in the S&L report, and if so, what were your conclusions regarding S&L's capital cost estimates?

A. Yes, I reviewed the S&L study. A copy of this study is included as Exhibit ____(JBS-9) to my testimony. My major conclusions are as follows:

1. The S&L report was hastily put together between August 27, 2003 until the draft was presented September 4, 2003. (A copy of this draft report is included as Exhibit ____(JBS-10) to my testimony.) Labor Day weekend was in the middle of this period (August 30 to September 1). There is no reference to any S&L site visit or vendor quotes made or used in the S&L report. The final S&L report was

submitted on September 18, 2003 with no evidence of site visits or vendor information.

2. The two most expensive items in the CSXT proposed [redacted] ton project, the conveyor systems and the construction of the rapid discharge system, are overpriced in the September 4, 2003 draft report based on my contact with three conveyor vendors (one being Continental Conveyor that is the dominate supplier of Big Bend's conveyors) and based on using nationally recognized standard unit price factors for the construction for a pit similar but longer than the existing limestone pit. Other components were also overpriced.

3. Between the September 4, 2003 draft and the September 18, 2003 final report, the conveyor cost were unexplainably doubled, and the cost for the coffer dam and dewatering associated with the rapid discharge pit also doubled for a [redacted] increase in construction cost, which with engineering and indirect cost factors resulted in a total [redacted] increase. Also, S&L included a category "Other Cost and Adjustments" at [redacted] without explanation. Thus, these unexplained increases or "other cost and adjustments" alone are [redacted] and total more than CSXT's estimate of [redacted] for the entire project for the [redacted] ton bid.

4. There are numerous redundant items that are subcomponents of other equipment such as conveyor fireproofing or lighting, or unnecessary items such as HVAC (air conditioning at [redacted] for the track hopper and the transfer house. With an open structured transfer house with conveyors feeding hoppers, I do not know why air conditioning is needed. Also, I cannot figure out why a [redacted] temporary coffer dam is needed.

5. In S&L's Exhibit 2A-2, there is [redacted] that compose the equipment to unload trains at 2500 TPH and to load shuttle trains. Fully [redacted] of the [redacted] items are exact multiples of the magic [redacted] in S&L's proprietary model and [redacted] of the [redacted] items have construction and erection cost at [redacted] of total equipment or material cost. This is a strong indication that little detailed engineering effort was put into the numbers that were plugged into the proprietary model.

6. If a proprietary model was used by S&L it is likely that model was used as a mere calculation tool for plug in numbers and not for making engineering equipment selections or calculating estimated costs.

7. There was no effort to make cost savings or cost-effective choices. S&L failed to consider the use of coal handling equipment at Gannon or to explore ways to minimize construction of trackage; these are the most obvious cost saving opportunities. The coal fired Gannon plant, which is about a dozen miles away, was being phased out in the same time frame as the CSXT bid was being developed. Also TECO owns land on both sides of Pembroke Road, north and east of the Big Bend plant, with three tracks long enough to hold at least 45 rail cars. Two of the tracks are used by IMC that cross TECO's land. IMC has a locomotive and handles 90 car trains that cross TECO land. Also, National Gypsum has track on this same TECO parcel. No effort was made to coordinate rail movements on TECO's own land or share the locomotive.

Q. What was the schedule for the S&L report development?

A. The work was initiated on Wednesday August 27, 2003 with scope of work and schedule in "Revision O" (p. 435-436 of docket).

Q. What was the proposed schedule?

A. Per "Revision O" the S&L and TE Schedule was:

- 8/27/03 Kickoff (Wednesday)
- 8/29/03 Conference Call (Friday)
- 8/30/03-9/01/03 Labor Day Weekend
- 9/02/03 Conference Call (Tuesday)
- 9/03/03 Conference Call (Wednesday)
- 9/04/03 Conference Call and Preliminary Report (Thursday)
- 9/05/03 Conference Call and Final Report (Friday)

Q. Did S&L meet this schedule?

A. S&L met the schedule to provide a preliminary draft dated September 4, 2003. However a final report was late and it was completed and submitted on September 18, 2003, as S&L Report Number SL-008160.

Q. Was the schedule adequate to evaluate CSXT's proposal?

A. No.

Q. Why do you believe the schedule was not adequate?

A. The proposed schedule did not permit time for S&L engineers to visit the Big Bend and Polk sites or obtain vendor quotes on key equipment, especially with the Labor Day weekend in the middle of the schedule.

Q. Why is a site visit necessary?

A. One of the key steps in initially evaluating the CSXT proposal was to visit the site in order to understand the location of the proposed equipment, access to electricity, access to fire protection water, horizontal or vertical interferences, the type of foundations used as a basis to estimate future foundation designs, the type and style of equipment actually used; to determine if any potential wetlands or other site or permit conditions that might impact the proposed CSXT proposed design.

Q. Is there any evidence that any of the S&L engineers visited the site during the scheduled work period?

A. No.

Q. How did S&L get information to do its study?

A. TECO provided some site information, operating cost estimates, and wetland quantities (but not location).

Q. What site information was provided to S&L by TECO?

A. TECO's Dennis Barrette, Senior Engineer-Civil Structure/Generation Engineering provided a series of drawings to S&L's Paula Guletsky on August 29, 2003.

Q. Were the Big Bend site drawings sufficient to evaluate the proposed rail locations for the CSXT proposals for Big Bend?

A. No. The site plans were of poor quality and were not clear as to the existence of the second southern track that is now blocked by the desalinization plant piping. This lack of detail made it difficult for S&L to locate the new rail that would be needed. Also, vertical interfaces or the lack of vertical interfaces could not be determined.

Q. Was there adequate information to estimate foundation needs?

A. Some information was useful. The drawing entitled "Foundation-Plans and Sections-Limestone Unloading Facilities" was sufficient to use as a basis for a surrogate design for estimating the cost of a new rapid unloading pit using the current rail limestone pit, as an example. Also, the drawings on the limestone pit conveyors (Conveyor-LB, pages 254 and 255) and the new truck loadout facility (p. 251) show that "hooded" or "covered" conveyors were used and newly used at Big Bend. S&L added excessive cost for foundations and much more expensive conveyors than those used or required at Big Bend.

Q. Was there adequate information on the type and style of conveyors to be used as part of the CSXT proposed system?

A. The drawings supplied by Dennis Barrette showed hooded or covered conveyors in the limestone unloading system (Conveyor LB, docket page 25) and hooded or covered conveyors in the new truck load out conveyor (docket pages 254 and 255). However, TECO's Jimmy Konstas had told TECO's Ralph Painter (docket page 923) that more costly fully enclosed conveyors were necessary. The September 18, 2003 S&L states that the hooded conveyors were assumed and using enclosed conveyors would be [redacted] more. Thus, the conveyor should have been correctly estimated. The excess cost for conveyors is not explained.

Q. Were vendor budget quotes obtained or used by S&L to develop their cost estimate?

A. The record shows no evidence of vendor contacts.

Q. How did S&L get its key cost information?

A. The assumptions or basis used to develop the cost in S&L cost items has been requested. It has not been provided.

Q. What are the approximate costs for the long and short conveyors in the S&L study?

A. The conveyor costs by category from the S&L study are shown in the following table.

1

TABLE
REDACTED

2

Q. What did your vendor budget quotes show?

A. The vendor budget quotes show the following:

1. Continental Conveyor estimate was for $2,733,000 / 3,300 LF or $828/LF and would compare with S&L cost of [redacted]F for equipment, construction and direct add ons. S&L estimate is [redacted] of Continental Conveyor's estimated cost.

2. FMC bid was presented incorrectly with two belts tied together. FMC's bid did not include foundations, and electrical lines. S&L also added a transfer house. The quote was for [redacted] (± 15% to ±20%). Adjusting this by subtracting S&L estimate for a transfer house at [redacted], the quote would be $5,571,000 for 5,400 LF or about $1,032/LF (±15% to ±20%) plus the cost of foundation and electrical lines and engineering. Subtracting S&L foundation cost ([redacted]), electric line cost ([redacted]) and EPC cost ([redacted]) would indicate that a comparable cost would be about [redacted]. S&L's estimate is [redacted] of FMC's estimate

3. Cubic Storage's estimate after adjustment by EVA was about $1,020/LF for an engineered system less foundation and electrical lines. Even after removing S&L's estimates for foundations [redacted]) and electric lines [redacted], S&L's cost for conveyors would still be [redacted] or [redacted] of the estimate based on Cubic Storage System's budget quote.

Q. What was the rapid discharge cost by category from the S&L study?

A. The rapid discharge system costs by category from the S&L study are:

TABLE REDACTED

Q. What is your estimate for the rapid discharge system?

A. I estimate the cost would be $1,590,391 including engineering. S&L's estimate is [redacted] of my estimate, including the coffer dam and dewatering costs. If the coffer dam and dewatering are unrelated to rapid discharge system, S&L's estimate would be [redacted] or [redacted] of my estimate.

Q. Do you have any idea why S&L's costs are substantially higher than your estimates or CSXT's estimate?

A. It is my opinion that S&L included unnecessary items such as the coffer dam and dewatering, and redundant items such as lighting, fire protection, foundations, belt feeders, hoists, and trolleys that were possibly included in the already overpriced conveyor estimate. S&L may have estimated the cost for the wrong type of conveyors.

Q. What are the types of conveyors that might have been incorrectly estimated by S&L?

A. The types of conveyors incorrectly estimated by S&L are:

1. **Open Conveyors**. Open to the atmosphere, with no cover or enclosure. These are the lowest cost conveyors.
2. **Covered Conveyors**. Also known as hooded conveyors or enclosed conveyors, these conveyors are covered on the top but not on the bottom and are slightly more expensive than open conveyors.
3. **Enclosed Conveyors** to prevent spillage into traffic, people, passing underneath. Enclosed conveyors are more expensive than covered conveyors.

Q. What are the types of conveyors required?

A. The original and new conveyors are covered or hooded. TECO's old and current air permit calls the existing conveyor "enclosed."

Q. Could S&L have been confused?

A. It is unlikely because in the final report, S&L stated that they assumed the conveyors were hooded and that if enclosed the cost estimate would be increased another [redacted] page 4 of S&L's report).

Q. Would increasing the belt from 54 inches that was proposed by CSXT to the 60-inch wide conveyor that S&L used for estimating purpose account for the increased cost?

A. No. This would increase cost 8% over a 54" belt not [redacted]r more. Also, all three vendors selected a 54-inch belt for the 2,500 TPH systems. Further, Big Bend has a 54-inch belt in its coal yard rated at 4000 TPH (belt No. 1-Conveyor per Table C-4A WL50 Conveyor Physical Data in their coal yard manual). S&L's 60-inch belt size is unusual.

Q. Are you familiar with any proprietary model that S&L may have used?

A. Yes. S&L developed software (SOAPP)™ standing for State of the Art Power Plant under sponsorship of EPRI (Electric Power Research Institute). This model is described in a paper entitled "Using the SOAPP Workstation™ for Planning and Conceptual Design" presented at the International Symposium on Improved Technology for Fossil Power Plants (March 1-3, 1993).

Q. Was this model used?

A. I do not know. The categories are similar to the above paper but no evidence that any improved efficiency, enhanced availability, or cost-effectiveness efforts were made. S&L may have plugged in numbers and used their model format to print out the assumptions that were externally made. The fact that so many of the results were exact multipliers of [redacted] and used [redacted]stallation factors is an unlikely result of the above model and more likely resulted from external inputs bypassing the modeling capability of the software.

Q. Did the above model round off cost?

A. No. The sample calculation presented in the EPRI paper carried calculations to 3 to 6 significant digits.

Q. Would you rely on the S&L cost estimates?

A. No, the S&L cost estimates are too high relative to vendor supplied and recognized cost estimating guidelines. The S&L estimates appear not to have been based on site visits or vendor quotes. The bases for the cost estimates are unexplained.

Q. Should TECO have questioned this document?

A. Yes. A major utility with over 2 miles of conveyors at Big Bend (some recently built) for coal, limestone and gypsum should have sufficient expertise to evaluate and question the S&L cost estimates. TECO's engineering department should have been able to do the estimate of CSXT's proposal and evaluate S&L's cost estimates.

Q. Did TECO review the S&L study?

A. It appears that Ralph Painter was the individual to oversee the report. There is no record that he critiqued the report.

EVALUATION OF SARGENT & LUNDY'S O&M COST ESTIMATES

Q. Did CSX Transportation prepare an estimate of operation and maintenance ("O&M") cost, property tax increases and insurance increases associated with its proposed rail unloading systems at Big Bend?

A. No.

Q. Did S&L prepare an estimate of O&M costs, property taxes, and insurance cost increases in its September 18, 2003 report number SL-008160 for Big Bend?

A. Yes.

Q. Have you reviewed S&L's O&M, tax, and insurance cost estimates for the rail delivery system at Big Bend?

A. Yes.

Q. Do you agree with S&L's findings in Exhibit 2A-3 titled "Operating Cost Estimate [redacted] Ton Rail Delivery of Coal Big Bend"?

A. No. For the reasons set forth below, I believe that S&L overstated O&M costs.

Q. Do you disagree with S&L's variable cost for power in Exhibit 2A-3?

A. Yes, I disagree.

Q. Why do you disagree?

A. The stated additional power cost estimated by S&L is between [redacted] and [redacted] The details of how this was calculated were not provided. However, S&L failed to deduct the power savings resulting from not using the coal dock unloading system.

Q. Is the savings more or less than the power used by the proposed CSXT rail system?

A. The savings resulting from using the proposed CSXT rail system would be more than the power used to unload coal from barges. The CSXT system would reduce power usage for coal handling, not increase it.

Q. Explain why the CSXT rail coal delivery would save power during unloading.

A. There are two main reasons. First, the current dock unloading system is designed for 4,000 TPH to accommodate the barge bucket elevator. The clamshell normally operates at an average of between 2,000 TPH and 2,500 TPH, and electricity is less efficiently used when oversized equipment is used. Second, the power to lift coal on conveyors is more than level conveyor transport. The dock lifts the coal up about 40 feet above the dock with the clamshell and 60 feet with the bucket elevator. Added to this lift is the initial lift from the barge to the dock level, which is about another 15 feet. Thus, the lift for the dock equipment is 55 to 75 feet. The coal is then dropped down to the dock level and conveyed horizontally. Then the coal is lifted again about 35 feet to the coal yard transfer house. Therefore coal is lifted 90 to 110 feet in the dock operation. The CSXT system would drop coal from the rail car about 20 feet to a below ground hopper. Then the coal would be conveyed to the surface to the same coal yard transfer house up another 35 to 40 feet to the coal yard transfer house. Thus the rail systems would lift the coal 55 to 60 feet. Consequently, rail-delivered coal needs to be lifted to heights about 55 to 60% of the total lifting height required by the current barge-dock system.

Q. How much power would be saved by the rail system?

A. Around 25% less power would be required. At the same cost values used by S&L, there would be a net savings of about $17,000 to $32,000, instead of an increased cost of [redacted]. This would reduce S&L's estimated O&M cost by [redacted] [redacted] per year.

Q. Do you agree with S&L's variable cost increase for surfactant in Exhibit 2A-3?

A. No.

Q. Why do you disagree?

A. The use of surfactant is a function of the volume of coal delivery. The total amount of coal used at Big Bend would be the same whether or not the coal is delivered by barge or rail. Thus, the amount of surfactant used and the cost of surfactant would not increase. There would be no variable cost increase for surfactant at Big Bend for a rail system. There is, however, a need to invest in another dust suppression system, which uses the surfactant; this cost is recognized in my capital cost estimates above.

Q. Do you agree with S&L's variable labor cost for CSXT's proposed system at Big Bend in S&L's Exhibit 2A-3?

A. No. First, the labor costs were not derived by S&L's analysis. The costs were given to S&L by TECO in Ralph Painter's [redacted] Painter's estimate is [redacted] additional people, [redacted] process specialists and [redacted] laborers. This is excessive.

Q. What do you think the variable labor cost should be?

A. Since both a barge and train cannot be unloaded simultaneously and since the current unloading staff must be available around the clock, it is possible that no additional staff will be needed. However, an individual manning the security gates for the train and process specialist manning the equipment could be needed.

Q. What do you believe the variable operating labor cost should be?

A. It should be between no increase and $157,440; that being based on TECO's cost for a process specialist and a laborer.

Q. Do you agree with the fixed labor cost estimate in S&L Exhibit 2A-3?

A. Yes. There is now about 11,000 to 12,000 feet of conveyor at Big Bend in the coal yard, limestone systems, and gypsum systems. If CSXT's proposal adds 3,800 feet of conveyor, this represents around a 33% increase and up to five people may be needed as proposed by TECO and S&L.

Q. Do you agree with S&L's fixed maintenance cost of [redacted] of installed cost?

A. No. The [redacted] factor is in the correct range; however, the installed cost of the rail delivery system is more properly estimated at [redacted] for the Big Bend system to unload coal. Thus, the fixed maintenance cost should be about $213,000 per year, not [redacted]

Q. How is the [redacted] in the S&L Exhibit 2A-3 split between taxes and insurance?

A. Based on TECO's Ralph Painter's September 3, 2003 memo to S&L, [redacted] is projected insurance cost and [redacted] is for taxes.

Q. Are the projected taxes on property correct?

A. No.

Q. **Why?**

A. The property upon which Big Bend was built is Folio Number 051461-000, PIN Number PU-09-31-19-ZZZ-000001-73650.0 per Hillsborough County records. It has an appraised "building value" of $31,328,418 and a "land value" of $16,433,413 with an "extra feature value" of $2,822,877. Thus total "taxable value" is $50,584,708. Subtracting the "land value", the "taxable value" is $34,151,295. Last year TECO paid $1,330,888.27 or 2.63% of appraised value. A rough estimate of actual value of the capital cost for Big Bend is ± $1,000/kw of capacity multiplied by 2,080,000 kW (2,080 MW) of capacity. Thus the capital cost of Big Bend is about $2,080,000,000 ($2.08 billion). The tax appraisal, less the land, is $34,151,295 or 1.64% of the above rough capital cost. Treated the same way by the tax assessor the taxable value of [redacted] is [redacted] The estimated tax increase would be 2.63% of [redacted] or [redacted]

Q. **Have you spoken to a Hillsborough County Appraiser?**

A. Yes.

Q. **What was his response?**

A. Jim Gibson, of the South County office of the Hillsborough County Property Appraiser's Office, felt that a [redacted] conveyor system was a tangible asset and would not materially increase the property value and the tax impact would be negligible. He referred me to TECO's David Keene. Mr. Keene did not comment and referred me back to Mr. Gibson.

Q. Do you agree with TECO's insurance rate of 0.04500% of capital cost?

A. The rate seems reasonable. However, since CSXT's proposed rail unloading system is expected to cost [redacted] the actual cost is likely to be about [redacted] er year, not [redacted] s stated in the S&L Exhibit 2A-3.

Q. Based on the above answer, what would your estimate be of the operating cost of CSXT's rail coal delivery system as compared to the estimate made by S&L?

A. See my table below.

	EVA Estimate		**S&L Estimate per Exhibit 2A-3**	
Variable				
Power	($17,000)	($32,000)	[redacted]	[redacted]
Surfactant	0	0	[redacted]	[redacted]
Labor	0	157,440	[redacted]	[redacted]
Fixed				
Labor	$301,308	$301,308	[redacted]	[redacted]
Maintenance	213,000	213,000	[redacted]	[redacted]
Taxes	3,066	3,066	[redacted]	[redacted]
Insurance	3,195	3,195	[redacted]	[redacted]
Total	**$503,569**	**$646,009**	[redacted]	[redacted]

Q. Have you reviewed similar operating costs for the [redacted] ton per year CSXT case, the Polk shuttle train option, and the Polk unloading system?

A. Yes. They are similarly overstated, except for the power cost.

Q. Why are there no power cost savings at Polk?

A. The Polk shuttle loading at Big Bend and Polk unloading systems will have an increase in electrical use at each location, as these are new systems.

EVALUATION OF SOLID FUEL BLENDING CAPABILITY AT BIG BEND STATION

Q. Can different coals or pet coke be blended at Big Bend?

A. Yes. The Big Bend coal handling system was designed for blending and has a versatile system for blending coal.

Q. Can you briefly describe the coal handling system at Big Bend?

A. Yes. Currently the coal is unloaded by barge then lifted by a bucket elevator or a clamshell, or less frequently by barge self-unloaders. It then is lowered or discharged to a south moving dock conveyor and is lifted to a dock transfer house and lowered a second time. The coal is lifted and conveyed eastward, at right angles to the dock, to a second transfer house. At this second transfer house, the coal can be directed to one of two main conveyors. This second transfer house is where three CSXT, S&L and three-30-car train segment systems all would deliver coal. From this point, the coal pathway through the yard would be the same for barge source or rail source coal. From this second transfer house the southern main east-moving conveyor is fed. A shorter north-moving conveyor feeds the northern main east-moving belt.

Both main east-moving belts feed one of two stacker-reclaimers serving each main belt. Both of these stacker-reclaimers can move east or west along the two respective main belts, both can place the coal on either the northern coal storage area or the southern coal storage area, and both can out-stack coal into the center coal area. Additionally there is a dead storage yard south of the south storage area. These coal storage yards can hold about 1,078,000 tons (at 45° stacking, 54#/ft^3, 40 feet high). There is an overflow storage capacity in the south and west area of the coal yard. It requires a bulldozer, loader, or scraper (pan) to move the coal to this area and a bulldozer, loader, or scraper (pan) to move the coal back into the area reachable by the south stacker-reclaimer.

Retrieving or reclaiming the coal is equally flexible as out-stacking. Both stacker-reclaimers can be positioned on these two main belts and reclaim coal by placing it back on either of the main belts. Both stacker reclaimers can simultaneously retrieve coal. Big Bend also has two mobile conveyors that can be placed anywhere in the yard and fed with a loader. Thus up to four coal or pet coke types can be blended at any one time. The selected coals are fed by both main conveyors to two shorter conveyors to a blending tower.

The blending tower feeds two belts to six 2,000-ton silos for a total of 12,000 tons of capacity and six possible different blends of coal. Under the six silos are two bottom hoppers each that can feed the two belts. Thus two different coal blends can be again blended or re-blended and sent to the crusher house. The coals leave the crusher house northward via two belts that feed northward to another transfer house that feeds the boiler day bins with two belts.

In summary, many types of coal can be placed in the coal yard and up to 4 coals can be blended at any one time and sent to 6 different blend silos. The 6 different blending silos can be re-blended because they have double bottom hoppers to feed two independent belts. The coal storage yard and blend silos have a total capacity of about 1,090,000 tons.

Q. Does TECO agree with this description?

A. Yes. TECO's document "Tampa Electric: Big Bend Station: Coalyard Operator Training Manual" which is 245 pages long goes into every detail of the above summary.

Q. Do any documents indicate how many types of coals are available for blending?

A. Yes, the diagram labeled "Coal Field General Arrangement 2004 – Current Yard" shows eight different fuel types, seven different coals and a pet coke area.

Q. You estimated that the coal yard could hold 1,028,000 tons. Has Big Bend ever had anywhere near that capacity?

A. Yes, TECO's document "Tampa Electric Company, Big Bend Station, Fuel Inventory, April 1999" shows that 1,041,730 tons with 10 different coals or pet coke fuels.

Q. Will the [redacted] CSXT system impact Big Bend's blending capabilities?

A. No, the CSXT [redacted] er year system will feed the second transfer house that is presently fed by the dock area. From there, coal can be blended just as it is at present.

Q. Will the [redacted] CSXT system impact Big Bend's blending capabilities?

A. Yes. The CSXT [redacted] system would put the coal in reach of the southern main belt reclaimer and in the dead storage area in the south and west area of the coal yard. The result would be that the coal yard would then have less flexibility than at present. Even so, the coal handling facilities at Big Bend Station will continue to have excellent blending capabilities following the installation of either of the proposed CSXT rail delivery systems.

Q. Does this conclude your direct testimony?

A. Yes.

RESUME OF

JOHN B. STAMBERG, P.E.

EDUCATIONAL BACKGROUND

1967	M.S. (Sanitary Civil Engineering), Stanford University
1966	B.S. (Civil Engineering), University of Maryland

PROFESSIONAL EXPERIENCE

1981-Present **Energy Ventures Analysis, Inc.**
Vice President

Mr. Stamberg is responsible for directing Energy Ventures Analysis, Inc. (EVA) engineering studies. His areas of expertise include utility and industrial boilers; combustion turbine and combined cycle powerplants; electric, combustion turbine and reciprocating powered natural gas pipeline compressors, mining engineering, and pollution control systems for air and water.

Mr. Stamberg has developed capital and O&M cost for a variety of natural gas compression options for LDC's, utilities and EPRI, including fixed speed and variable speed electrical compression, combustion turbine compression, and reciprocating compression, as well as conversion of existing reciprocating units to electric drive. He has performed numerous studies on the pipeline delivery capacity and cost of looping or adding compression to existing interstate and intrastate pipelines. He has prepared feasibility studies of routes, compression needs, and cost of supplying electric utilities and industry switching to natural gas. He has performed on-site evaluations of booster compression needed to supply new combustion turbines with the higher pressure demands of these units. He has engineered energy recovery systems for greenhouse heating using natural gas compressor drive exhaust, and evaluated compressed air energy storage and recovery to generate electricity.

Mr. Stamberg has also conducted a variety of studies of utility and industrial boiler and combustor facilities for fuel choice, efficiency, and environmental control. He has assessed a broad range of combustion, cogeneration, and environmental control systems. He recently completed work for EPRI on utility derating caused by switching pulverized coal boilers from Illinois Basin coal to various types of low-sulfur coals. He has prepared the industrial coal demand analysis for COALCAST reporting service using his knowledge of boiler engineering, boiler capital cost, and boiler operating cost.

Mr. Stamberg has prepared feasibility studies, design cost evaluations, labor productivity studies and equipment inspection for the coal mining industry. His experience with underground mining covers conventional sections, continuous miners, mixed sections, and longwall having a variety of seam and roof conditions. His surface mining experience covers contour, open pit and mountaintop surface mining with large capacity draglines, shovels, or conventional truck/loader equipment. He has prepared feasibility studies, designed and inspected coal preparation facilities from those with simple coarse circuit technology to those with complex multi-circuited systems. He has conducted a variety of site investigations and sampling programs and prepared a variety of environmental assessments, reclamation studies and permit applications for the mining industry. He has used his knowledge to provide capital and operating costs for use in EVA's economic and financial analysis of mining and reclamation plans, coal price analyses, coal competition evaluation studies, and coal company acquisition studies.

1974-81 **Energy and Environmental Analysis, Inc.**
Director

In addition to his responsibilities for water pollution control, Mr. Stamberg managed both the reactivation and the conversion from natural gas or coal of industrial boilers. This work included design specifications and purchase of coal unloading, storage, ash handling, and reclaiming equipment. He was responsible for structural inspections and analysis of the boiler buildings, coal silos, and duct and stack supports. He has evaluated a second generation fluidized bed combustor (FBC) using petroleum coke as a fuel to support process steam and electricity to a petrochemical process.

Mr. Stamberg has designed a mineral processing system for Virginia Vermiculite, Ltd. which utilizes an integrated series of hydraulic sizers, classifiers, screenings, cyclones, rock floatation, vermiculite floatation, tables, vacuum filtration, and drying. He has also performed engineering and economic feasibility studies on five locations for a centralized coal cleaning and unit-train tipple in West Virginia. He has performed various coal cleaning studies for DOE, and reviewed technological developments at various DOE labs/facilities involving conventional cleaning to solvent refined coal (SRC).

Mr. Stamberg has directed and participated in a variety of environmental and permit studies for coal and mineral mining activities. He has conducted numerous site visits, prepared permit applications and prepared environmental impact statements or assessments on a variety of coal mines in most major coal producing states of Northern, Central and Southern Appalachia as well as in the western states of Colorado and Wyoming. He has done similar studies for phosphate rock, sand and gravel, limestone, and vermiculite mining industries.

1972-74 **U.S. Environmental Protection Agency**
Office of Air and Water Programs
Chief, Municipal Technology Branch

Formulated policies and regulations required to implement PL92-500. Responsible for area-wide planning, facilities planning, effluent guidelines for municipal pollution control, operation and maintenance of advanced waste treatment facilities, combined sewer control, urban run-off, and cost-effectiveness analysis.

1967-71 **U.S. Environmental Protection Agency**
Office of Research and Development
National Environmental Research Center
Chief, Biological Treatment

Developed research objectives; designed and operated pilot- to full-scale plants to achieve various effluent objectives using a variety of biological or biological/chemical treatment techniques. Did engineering development work which was the basis for design for the District of Columbia's 309 MGD advanced waste treatment at Blue Plains and numerous other advanced waste treatment plants.

HONORS

Chi Epsilon National Civil Engineering Honor Fraternity
Pi Mu Epsilon Honorary Mathematical Fraternity
Phi Kappa Phi Honor Society
Phi Theta Kappa National Honorary Scholastic Society
U.S. EPA Bronze Medal for Commendable Service

PROFESSIONAL REGISTRATION AND MEMBERSHIPS

Registered Professional Engineer, Delaware, Louisiana
Water Pollution Control Federation
Federal Water Quality Association

PATENTS AND PUBLICATIONS

Holder of Wastewater Treatment Systems and Mineral Processing Patents Pending and has 17 technical publications.

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2003 RS MEANS SQUARE FOOT COSTS

Historical Cost Indexes

Year	National 30 City Average	Connecticut Norwalk	Connecticut Stamford	Connecticut Waterbury	Delaware Wilmington	D.C. Washington	Florida Fort Lauderdale	Florida Jacksonville	Florida Miami	Florida Orlando	Florida Tallahassee	Florida Tampa	Georgia Albany	Georgia Atlanta	Georgia Columbus	Georgia Macon
Jan 2003	130.2E	137.8E	140.5E	137.1E	132.1E	123.9E	109.1E	105.7E	109.5E	108.0E	98.4E	103.9E	101.0E	116.0E	99.5E	103.0E
2002	126.7	133.5	136.2	133.9	129.4	120.3	107.1	104.6	107.4	106.7	97.3	102.8	99.7	113.0	98.3	101.9
2001	122.2	128.2	131.5	128.8	124.8	115.9	104.3	100.8	104.6	103.8	94.8	100.3	96.4	109.1	95.5	99.0
2000	118.9	121.5	126.4	123.2	117.4	113.8	102.4	99.0	101.8	101.2	93.6	98.9	94.9	106.1	94.1	97.0
1999	116.6	120.0	122.0	121.2	116.6	111.5	101.4	98.0	100.8	100.1	92.5	97.9	93.5	102.9	92.8	95.8
1998	113.6	118.8	120.8	120.1	112.3	109.6	99.4	96.2	99.0	98.4	90.9	96.3	91.4	100.8	90.4	93.3
1997	111.5	118.9	120.9	120.2	110.7	106.4	98.6	95.4	98.2	97.2	89.9	95.5	89.9	98.5	88.7	91.6
1996	108.9	117.0	119.0	118.4	108.6	105.4	95.9	92.6	95.9	95.1	88.0	93.6	86.6	94.3	83.9	88.3
1995	105.6	115.5	117.9	117.3	106.1	102.3	94.0	90.9	93.7	93.5	86.5	92.2	85.0	92.0	82.6	86.8
1994	103.0	113.9	116.4	115.8	105.0	99.6	92.2	88.9	91.8	91.5	84.5	90.2	82.3	89.6	80.6	83.7
1993	100.0	108.8	110.6	104.8	101.5	96.3	87.4	86.1	87.1	88.5	82.1	87.7	79.5	85.7	77.8	80.9
1992	97.9	107.2	109.0	103.1	100.3	94.7	85.7	84.0	85.3	87.1	80.8	86.2	78.2	84.3	76.5	79.6
1991	95.7	100.6	103.2	96.5	94.5	92.9	85.1	82.8	85.2	85.5	79.7	86.3	76.3	82.6	75.4	78.4
1990	93.2	96.3	98.9	95.1	92.5	90.4	83.9	81.1	84.0	82.9	78.4	85.0	75.0	80.4	74.0	76.9
1989	91.0	94.4	97.0	93.4	89.5	87.5	82.4	79.7	82.5	81.6	76.9	83.5	73.4	78.6	72.4	75.3
1988	88.5	92.3	94.9	91.8	87.7	85.0	80.9	78.0	81.0	80.1	75.4	81.9	71.8	76.9	70.8	73.6
1987	85.7	92.0	92.7	92.5	85.1	82.1	78.8	76.0	77.9	76.6	74.4	79.4	72.2	73.6	70.3	72.3
1986	83.7	88.2	80.7	87.8	83.8	80.8	78.9	75.0	79.9	76.2	72.3	79.1	68.5	72.0	67.5	69.8
1985	81.8	85.3	86.8	85.6	81.1	78.8	76.7	73.4	78.3	73.9	70.6	77.3	66.9	70.3	66.1	68.1
1984	80.6	82.6	83.7	82.5	79.7	79.1	73.8	72.6	75.6	73.0	69.6	76.5	65.9	68.6	65.2	67.5
1983	78.2	78.5	79.8	78.7	76.3	76.0	71.5	70.4	72.9	71.1	67.6	73.6	65.6	68.6	64.7	65.3
1982	72.1	71.7	72.0	71.8	69.1	69.4	65.4	65.2	65.7	66.0	62.8	67.7	60.1	61.9	59.3	60.0
1981	66.1	66.2	66.2	67.3	63.4	64.9	60.3	61.0	60.7	62.0	58.6	62.1	56.2	58.3	55.7	56.1
1980	60.7	60.7	60.9	62.3	58.5	59.6	55.3	55.8	56.5	56.7	53.5	57.2	51.7	54.0	51.1	51.3
1975	43.7	44.7	45.0	46.3	42.9	43.7	42.1	40.3	43.2	41.5	38.1	41.3	37.5	38.4	36.2	36.5
1970	27.8	28.1	28.2	28.9	27.0	26.3	25.7	22.8	27.0	26.2	24.5	24.2	23.8	25.2	22.8	23.4
1965	21.5	21.6	21.7	22.2	20.9	21.8	19.8	17.4	19.3	20.2	18.9	18.6	18.3	19.8	17.6	18.0
1960	19.5	19.7	19.7	20.2	18.9	19.4	18.0	15.8	17.6	18.3	17.2	16.9	16.7	17.1	16.0	16.4
1955	16.3	16.5	16.5	17.0	15.9	16.3	15.1	13.2	14.7	15.4	14.4	14.1	14.0	14.4	13.4	13.7
1950	13.5	13.6	13.7	14.0	13.1	13.4	12.5	11.0	12.2	12.7	11.9	11.7	11.5	11.9	11.0	11.3
1945	8.6	8.7	8.7	8.9	8.4	8.6	7.9	7.0	7.8	8.1	7.6	7.5	7.4	7.6	7.0	7.2
1940	6.6	6.7	6.7	6.9	6.4	6.6	6.1	5.4	6.0	6.2	5.8	5.7	5.7	5.8	5.5	5.6

Year	National 30 City Average	Georgia Savannah	Hawaii Honolulu	Idaho Boise	Idaho Pocatello	Illinois Chicago	Illinois Decatur	Illinois Joliet	Illinois Peoria	Illinois Rockford	Illinois Springfield	Indiana Anderson	Indiana Evansville	Indiana Fort Wayne	Indiana Gary	Indiana Indianapolis
2003	130.2E	103.4E	159.9E	120.4E	119.1E	147.0E	127.1E	141.9E	132.8E	135.7E	128.8E	119.6E	121.0E	118.8E	131.7E	127.6E
2002	126.7	102.0	157.2	118.3	117.1	141.2	123.8	138.5	129.6	132.9	125.3	117.5	119.0	116.4	129.1	120.5
2001	122.2	99.0	150.0	114.3	113.4	135.8	120.1	133.7	124.3	127.8	119.8	113.4	115.6	112.1	123.4	116.4
2000	118.9	97.5	144.8	112.9	112.1	131.2	115.1	124.6	119.0	122.2	116.2	109.8	111.5	108.4	117.8	113.2
1999	116.6	96.0	143.0	110.2	109.6	129.6	113.0	122.6	116.4	120.7	113.8	107.1	109.3	106.8	112.8	110.6
1998	113.6	93.7	140.4	107.4	107.0	125.2	110.1	119.8	113.8	115.5	111.1	105.0	107.2	104.5	111.1	108.0
1997	111.5	92.0	139.8	104.6	104.7	121.3	107.8	117.5	111.5	113.1	108.9	101.9	104.4	101.8	110.3	105.2
1996	108.9	88.6	134.5	102.2	102.1	118.8	106.6	116.2	109.3	111.5	106.5	100.0	102.1	99.9	107.5	102.7
1995	105.6	87.4	130.3	99.5	98.2	114.2	98.5	110.5	102.3	103.6	98.1	96.4	97.2	95.0	100.7	100.1
1994	103.0	85.3	124.0	94.8	95.0	111.3	97.3	108.9	100.9	102.2	97.0	93.6	95.8	93.6	99.1	97.1
1993	100.0	82.0	122.0	92.2	92.1	107.6	95.6	106.8	98.9	99.6	95.2	91.2	94.3	91.5	96.7	93.9
1992	97.9	80.8	120.0	91.0	91.0	104.3	94.4	104.2	97.3	98.2	94.0	89.5	92.9	89.9	95.0	91.5
1991	95.7	79.5	106.1	89.5	89.4	100.9	92.3	100.0	95.9	95.8	91.5	87.8	91.4	88.3	93.3	89.1
1990	93.2	77.9	104.7	88.2	88.1	98.4	90.9	98.4	93.7	94.0	90.1	84.6	89.3	83.4	88.4	87.1
1989	91.0	76.0	102.8	86.6	86.5	93.7	89.4	92.8	91.6	92.1	88.6	82.3	87.8	81.7	86.5	85.1
1988	88.5	74.5	101.1	83.9	83.7	90.6	87.5	89.8	88.5	87.9	86.8	80.8	85.5	80.0	84.6	83.1
1987	85.7	72.0	99.1	81.4	81.5	86.6	84.4	86.7	86.3	85.2	85.0	78.8	82.4	78.1	81.7	80.4
1986	83.7	70.8	97.5	80.6	80.3	84.4	83.5	85.3	85.1	84.5	83.4	77.0	80.9	76.5	79.6	78.6
1985	81.8	68.9	94.7	78.0	78.0	82.4	81.9	83.4	83.7	83.0	81.5	75.2	79.8	75.0	77.8	77.1
1984	80.6	67.9	90.7	76.6	76.8	80.2	80.4	82.2	83.6	80.6	80.1	73.5	77.4	73.5	77.3	75.9
1983	78.2	66.3	87.2	76.0	75.8	79.0	78.8	80.6	81.5	78.9	78.8	70.9	75.0	71.2	75.2	74.0
1982	72.1	61.1	79.3	71.0	70.1	75.0	72.7	74.4	75.3	72.6	72.7	66.4	69.8	67.1	70.5	68.2
1981	66.1	57.1	73.4	65.4	64.8	68.6	67.2	68.8	70.3	67.3	67.0	61.5	64.3	61.5	65.3	62.4
1980	60.7	52.2	68.9	60.3	59.5	62.8	62.3	63.4	64.5	61.6	61.1	56.5	59.0	56.7	59.8	57.9
1975	43.7	36.9	44.6	40.8	40.5	45.7	43.1	44.5	44.7	42.7	42.4	39.5	41.7	39.9	41.9	40.6
1970	27.8	21.0	30.4	26.7	26.6	29.1	28.0	28.6	29.0	27.5	27.6	25.4	26.4	25.5	27.1	26.2
1965	21.5	16.4	21.8	20.6	20.5	22.7	21.5	22.1	22.4	21.2	21.3	19.5	20.4	19.7	20.8	20.7
1960	19.5	14.9	19.8	18.7	18.6	20.2	19.6	20.0	20.3	19.2	19.3	17.7	18.7	17.9	18.9	18.4
1955	16.3	12.5	16.6	15.7	15.6	16.9	16.4	16.8	17.0	16.1	16.2	14.9	15.7	15.0	15.9	15.5
1950	13.5	10.3	13.7	13.0	12.9	14.0	13.6	13.9	14.0	13.3	13.4	12.3	12.9	12.4	13.1	12.8
1945	8.6	6.6	8.8	8.3	8.2	8.9	8.6	8.9	9.0	8.5	8.6	7.8	8.3	7.9	8.4	8.1
1940	6.6	5.1	6.8	6.4	6.3	6.9	6.7	6.8	6.9	6.5	6.6	6.0	6.4	6.1	6.5	6.3

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THE BUILDING COST PEOPLE

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Florida	01 - General Requirements	02 - Sitework	2a.) Demolition	03 - Concrete	3a.) Formwork	3b.) Reinforcement	3c.) Concrete only	04 - Masonry	05 - Metals	06 - Wood and Plastics	07 - Therm. And Moist. Prot.	7a.) Insulation	7b.) Roofing	08 - Doors and Windows	09 - Finishes	9a.) Lath and Plaster	9b.) Drywall	9c.) Flooring	9d.) Painting	Divisions 10 through 14	15 - Mechanical	16 - Electrical	Overall
324	0.71	0.87	0.69	0.83	0.79	0.80	0.87	0.78	0.71	0.92	0.85	0.90	0.80	0.84	0.77	0.75	0.88	0.79	0.70	0.86	0.91	0.90	0.84
325	0.72	0.91	0.69	0.84	0.81	0.78	0.90	0.82	0.71	0.94	0.87	0.90	0.83	0.85	0.85	0.86	0.91	0.83	0.82	0.87	0.93	0.90	0.87
326	0.78	0.90	0.78	0.85	0.85	0.78	0.91	0.75	0.86	0.92	0.89	0.92	0.86	0.87	0.82	0.82	0.94	0.82	0.83	0.89	0.90	0.89	0.86
327	0.71	0.85	0.69	0.88	0.79	0.83	0.97	0.80	0.84	0.90	0.87	0.86	0.86	0.88	0.86	0.89	0.87	0.83	0.81	0.86	0.86	0.90	0.84
328	0.71	0.85	0.69	0.88	0.79	0.83	0.97	0.80	0.84	0.90	0.87	0.86	0.86	0.88	0.86	0.89	0.87	0.83	0.81	0.86	0.86	0.90	0.84
329	0.80	0.80	0.81	0.83	0.79	0.81	0.87	0.79	0.84	0.83	0.85	0.85	0.85	0.87	0.82	0.84	0.89	0.79	0.84	0.91	0.87	0.90	0.83
330	0.72	0.83	0.67	0.80	0.77	0.88	0.73	0.83	0.95	0.86	0.91	0.92	0.89	0.91	0.88	0.81	0.84	0.87	0.79	0.89	0.90	0.93	0.83
331	0.72	0.83	0.67	0.80	0.77	0.88	0.73	0.83	0.95	0.86	0.91	0.92	0.89	0.91	0.88	0.81	0.84	0.87	0.79	0.89	0.90	0.93	0.83
332	0.72	0.83	0.67	0.80	0.77	0.88	0.73	0.83	0.95	0.86	0.91	0.92	0.89	0.91	0.88	0.81	0.84	0.87	0.79	0.89	0.90	0.93	0.83
333	0.73	0.86	0.69	0.80	0.77	0.85	0.75	0.84	0.95	0.86	0.91	0.91	0.89	0.90	0.89	0.83	0.85	0.87	0.79	0.92	0.92	0.95	0.84
334	0.71	0.87	0.64	0.79	0.75	0.86	0.72	0.80	0.95	0.86	0.91	0.90	0.88	0.90	0.85	0.80	0.84	0.85	0.78	0.92	0.93	0.95	0.84
335	0.73	0.88	0.67	0.93	0.83	0.90	1.01	0.83	0.87	0.93	0.87	0.86	0.84	0.91	0.87	0.84	0.91	0.85	0.81	0.89	0.88	0.92	0.86
336	0.75	0.90	0.69	0.95	0.85	0.90	1.03	0.83	0.91	0.93	0.87	0.87	0.84	0.91	0.88	0.86	0.93	0.84	0.84	0.90	0.88	0.90	0.87
337	0.74	0.88	0.69	0.94	0.83	0.90	1.01	0.84	0.87	0.93	0.87	0.86	0.84	0.91	0.87	0.84	0.91	0.85	0.87	0.89	0.88	0.92	0.86
338	0.74	0.88	0.69	0.93	0.82	0.90	1.01	0.84	0.87	0.92	0.87	0.87	0.84	0.91	0.87	0.84	0.91	0.85	0.82	0.89	0.88	0.92	0.86
339	0.70	0.87	0.65	0.88	0.75	0.87	0.97	0.79	0.87	0.88	0.86	0.83	0.85	0.88	0.83	0.84	0.84	0.82	0.75	0.86	0.87	0.91	0.83
340	0.72	0.83	0.67	0.80	0.77	0.88	0.73	0.83	0.95	0.86	0.91	0.92	0.89	0.91	0.88	0.81	0.84	0.87	0.79	0.89	0.90	0.93	0.83
341	0.70	0.87	0.65	0.88	0.75	0.87	0.97	0.79	0.87	0.88	0.86	0.83	0.85	0.88	0.83	0.84	0.84	0.82	0.75	0.86	0.87	0.91	0.83
342	0.73	0.88	0.67	0.93	0.83	0.90	1.01	0.83	0.87	0.93	0.87	0.86	0.84	0.91	0.87	0.84	0.91	0.85	0.81	0.89	0.88	0.92	0.86
344	0.73	0.88	0.67	0.93	0.83	0.90	1.01	0.83	0.87	0.93	0.87	0.86	0.84	0.91	0.87	0.84	0.91	0.85	0.81	0.89	0.88	0.92	0.86
346	0.73	0.88	0.67	0.93	0.83	0.90	1.01	0.83	0.87	0.93	0.87	0.86	0.84	0.91	0.87	0.84	0.91	0.85	0.81	0.89	0.88	0.92	0.86
347	0.71	0.85	0.69	0.88	0.79	0.83	0.97	0.80	0.84	0.90	0.87	0.86	0.86	0.88	0.86	0.89	0.87	0.83	0.81	0.86	0.86	0.90	0.84
349	0.71	0.87	0.64	0.79	0.75	0.86	0.72	0.80	0.95	0.86	0.91	0.90	0.88	0.90	0.85	0.80	0.84	0.85	0.78	0.92	0.93	0.95	0.84
Georgia																							
300	0.75	0.89	0.73	0.89	0.80	0.90	0.93	0.83	0.86	0.90	0.90	0.91	0.88	0.89	0.87	0.92	0.87	0.85	0.87	0.89	0.94	0.98	0.87
301	0.75	0.89	0.73	0.89	0.80	0.90	0.93	0.83	0.86	0.90	0.90	0.91	0.88	0.89	0.87	0.92	0.87	0.85	0.87	0.89	0.94	0.98	0.87
302	0.78	0.94	0.73	0.91	0.82	0.95	0.94	0.85	0.92	0.92	0.91	0.91	0.88	0.91	0.89	0.92	0.89	0.87	0.86	0.92	0.97	1.00	0.90
303	0.78	0.94	0.73	0.91	0.82	0.95	0.94	0.85	0.92	0.92	0.91	0.91	0.88	0.91	0.89	0.92	0.89	0.87	0.86	0.92	0.97	1.00	0.90
304	0.71	0.88	0.66	0.82	0.84	0.82	0.80	0.74	0.85	0.93	0.88	0.90	0.85	0.87	0.81	0.78	0.94	0.80	0.69	0.87	0.93	0.94	0.85
305	0.72	0.87	0.70	0.87	0.79	0.83	0.93	0.84	0.82	0.89	0.89	0.89	0.88	0.87	0.86	0.88	0.86	0.84	0.85	0.87	0.92	0.96	0.86
306	0.73	0.87	0.70	0.88	0.79	0.85	0.93	0.84	0.82	0.89	0.89	0.89	0.88	0.88	0.86	0.88	0.86	0.85	0.85	0.88	0.92	0.96	0.86
307	0.75	0.89	0.73	0.89	0.80	0.90	0.93	0.83	0.86	0.90	0.90	0.91	0.88	0.89	0.87	0.92	0.87	0.85	0.87	0.89	0.94	0.98	0.87
308	0.71	0.88	0.66	0.82	0.84	0.82	0.80	0.74	0.85	0.93	0.88	0.90	0.85	0.87	0.81	0.78	0.94	0.80	0.69	0.87	0.93	0.94	0.85
309	0.71	0.88	0.66	0.82	0.84	0.82	0.80	0.74	0.85	0.93	0.88	0.90	0.85	0.87	0.81	0.78	0.94	0.80	0.69	0.87	0.93	0.94	0.85
310	0.70	0.88	0.65	0.87	0.81	0.91	0.88	0.75	0.87	0.92	0.91	0.93	0.86	0.88	0.81	0.80	0.89	0.82	0.80	0.87	0.93	0.94	0.85
311	0.78	0.94	0.73	0.91	0.82	0.95	0.94	0.85	0.92	0.92	0.91	0.91	0.88	0.91	0.89	0.92	0.89	0.87	0.86	0.92	0.97	1.00	0.90
312	0.71	0.89	0.68	0.89	0.79	0.95	0.93	0.78	0.86	0.92	0.89	0.89	0.87	0.87	0.80	0.83	0.86	0.82	0.82	0.87	0.93	0.94	0.85
313	0.72	0.88	0.68	0.84	0.82	0.88	0.85	0.77	0.89	0.93	0.93	0.99	0.85	0.84	0.82	0.78	0.92	0.84	0.83	0.87	0.91	0.91	0.86
314	0.72	0.88	0.68	0.84	0.82	0.88	0.85	0.77	0.89	0.93	0.93	0.99	0.85	0.84	0.82	0.78	0.92	0.84	0.83	0.87	0.91	0.91	0.86
315	0.67	0.85	0.61	0.84	0.77	0.81	0.90	0.75	0.82	0.90	0.85	0.90	0.79	0.82	0.79	0.83	0.87	0.81	0.73	0.80	0.89	0.88	0.82
316	0.60	0.85	0.65	0.84	0.78	0.82	0.90	0.72	0.82	0.89	0.84	0.87	0.80	0.84	0.74	0.77	0.88	0.78	0.71	0.86	0.87	0.86	0.81

EXHIBIT NO. ____ (JBS-2)
JOHN B. STAMBERG - CSXT
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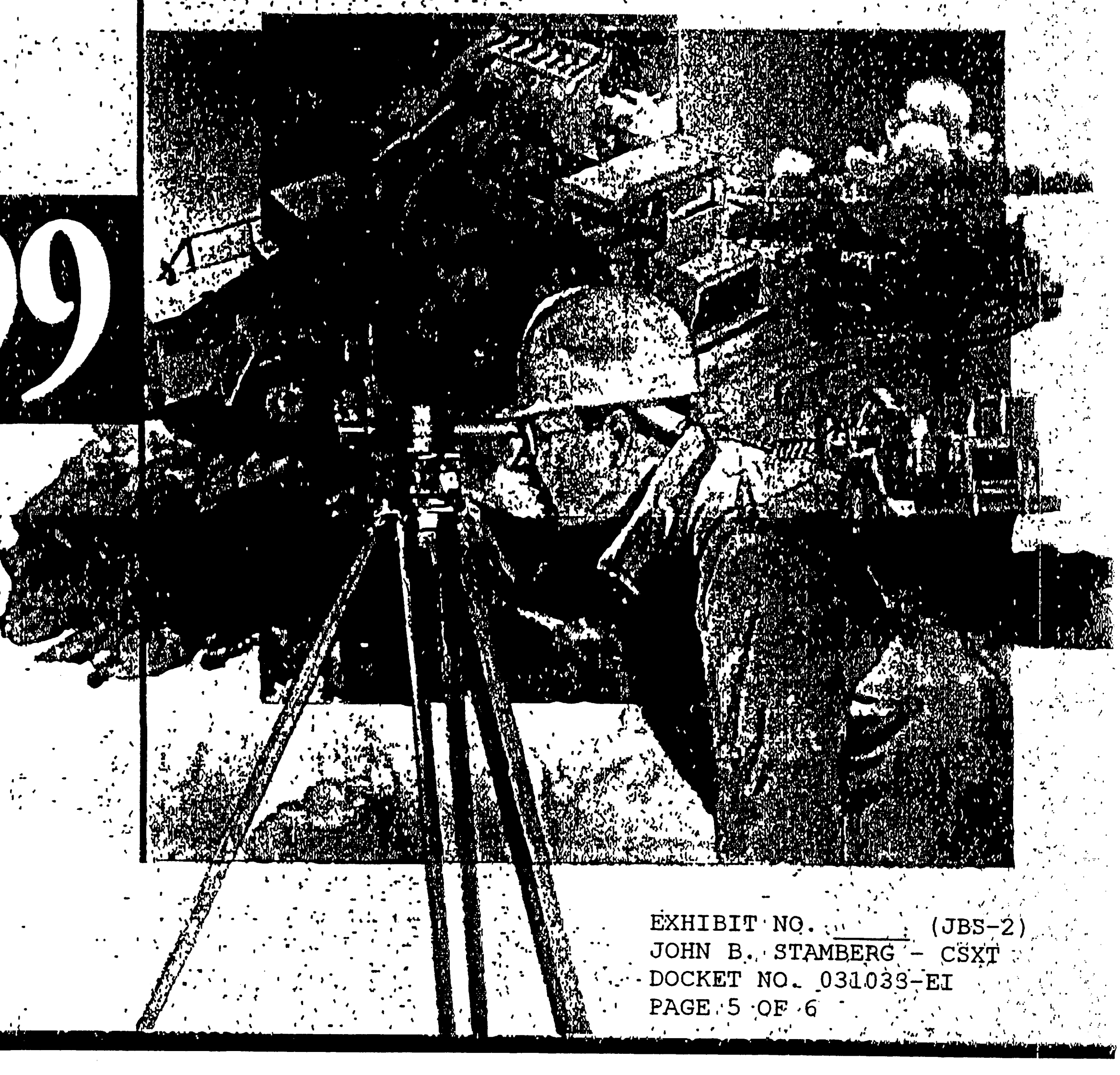
RSMeans®

Heavy Construction Cost Data

13th Annual Edition

Now Available on CD-ROM! (See Inside for details)

1999



aace International

R.S. Means 1990 Industrial Appreciation Award Recipient

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Location Factors

Costs shown in *Means cost data publications* are based on National Averages for materials and installation. To adjust these costs to a specific location, simply multiply the base cost by the factor and divide by 100 for that city. The data is arranged alphabetically by state and postal zip code numbers. For a city not listed, use the factor for a nearby city with similar economic characteristics.

STATE/ZIP	CITY	MAT.	INST.	TOTAL
ALABAMA				
350-352	Birmingham	96.5	77.0	87.1
354	Tuscaloosa	96.2	62.2	79.8
355	Jasper	97.5	53.3	76.2
356	Decatur	96.3	68.4	82.8
357-358	Huntsville	96.1	68.4	82.7
359	Gadsden	97.0	66.2	82.2
360-361	Montgomery	97.1	60.8	79.6
362	Anniston	95.1	53.1	74.8
363	Dothan	96.6	59.5	78.7
364	Evergreen	95.9	61.3	79.2
365-366	Mobile	97.0	68.9	83.4
367	Selma	96.2	59.5	78.5
368	Phenix City	96.9	60.1	79.2
369	Butler	96.3	59.5	78.6
ALASKA				
995-996	Anchorage	133.1	117.7	125.7
997	Fairbanks	129.3	120.7	125.1
998	Juneau	131.2	118.0	124.8
999	Ketchikan	140.6	118.0	129.7
ARIZONA				
850,853	Phoenix	100.6	79.0	90.2
852	Mesa/Tempe	100.6	69.5	85.6
855	Globe	101.4	73.9	88.1
856-857	Tucson	99.4	77.6	88.9
859	Show Low	101.5	74.0	88.2
860	Flagstaff	102.8	78.2	91.0
863	Prescott	100.3	73.6	87.4
864	Kingman	99.1	74.4	87.2
865	Chambers	99.1	74.2	87.1
ARKANSAS				
716	Pine Bluff	95.4	62.0	79.3
717	Camden	93.8	47.5	71.5
718	Texarkana	94.7	53.4	74.8
719	Hot Springs	93.0	46.9	70.7
720-722	Little Rock	95.9	62.3	79.7
723	West Memphis	95.2	64.8	80.5
724	Jonesboro	95.2	64.8	80.5
725	Batesville	93.9	59.1	77.1
726	Harrison	95.3	59.1	77.8
727	Fayetteville	92.4	40.8	67.5
728	Russellville	94.1	56.9	76.1
729	Fort Smith	96.1	60.7	79.0
CALIFORNIA				
900-902	Los Angeles	105.0	116.5	110.6
903-905	Inglewood	101.2	114.3	107.5
906-908	Long Beach	103.0	114.3	108.5
910-912	Pasadena	100.6	114.4	107.2
913-916	Van Nuys	104.5	114.1	109.2
917-918	Alhambra	103.2	114.4	108.6
919-921	San Diego	104.9	109.5	107.1
922	Palm Springs	102.5	112.0	107.1
923-924	San Bernardino	100.1	111.8	105.7
925	Riverside	104.6	112.8	108.6
926-927	Santa Ana	102.3	112.3	107.2
928	Anaheim	104.9	115.1	109.8
930	Oxnard	105.4	113.8	109.4
931	Santa Barbara	104.6	112.9	108.6
932-933	Bakersfield	104.3	107.0	105.6
934	San Luis Obispo	106.2	111.5	108.8
935	Mojave	102.8	108.9	105.8
936-938	Fresno	105.3	112.3	108.7
939	Salinas	107.3	116.7	111.8
940-941	San Francisco	111.0	138.2	124.2
942,956-958	Sacramento	106.9	114.5	110.5
943	Palo Alto	105.0	127.8	116.0
944	San Mateo	108.0	127.1	117.2
945	Vallejo	105.5	127.0	115.9
946	Oakland	109.9	126.5	117.9
947	Berkeley	109.5	127.9	118.4
948	Richmond	109.3	125.3	117.0
949	San Rafael	111.2	125.7	118.2
950	Santa Cruz	110.8	118.4	114.5

STATE/ZIP	CITY	MAT.	INST.	TOTAL
CALIFORNIA (CONT'D)				
951	San Jose	110.1	129.7	119.6
952	Stockton	105.9	113.2	109.4
953	Modesto	106.0	113.3	109.5
954	Santa Rosa	107.2	129.0	117.7
955	Eureka	108.6	112.1	110.3
959	Marysville	107.3	113.7	110.4
960	Redding	108.4	108.9	108.6
961	Susanville	108.6	108.3	108.5
COLORADO				
800-802	Denver	101.9	84.8	93.6
803	Boulder	100.0	69.5	85.3
804	Golden	102.4	76.9	90.1
805	Fort Collins	103.2	77.9	91.0
806	Greeley	100.2	69.1	85.2
807	Fort Morgan	100.7	77.7	89.6
808-809	Colorado Springs	100.7	80.3	90.8
810	Pueblo	102.6	79.2	91.3
811	Alamosa	104.9	70.3	88.2
812	Salida	104.8	70.4	88.2
813	Durango	105.6	66.0	86.5
814	Montrose	103.9	63.3	84.3
815	Grand Junction	106.9	63.7	86.0
816	Glenwood Springs	105.0	75.6	90.8
CONNECTICUT				
060	New Britain	103.0	105.0	104.0
061	Hartford	103.3	105.3	104.3
062	Willimantic	103.8	104.0	103.9
063	New London	100.2	105.8	102.9
064	Meriden	102.9	104.5	103.7
065	New Haven	103.2	105.3	104.2
066	Bridgeport	104.4	102.5	103.5
067	Waterbury	103.7	105.0	104.4
068	Norwalk	103.7	102.7	103.2
069	Stamford	103.9	106.1	105.0
D.C.				
200-205	Washington	99.6	92.0	96.0
DELAWARE				
197	Newark	99.5	97.2	98.4
198	Wilmington	98.8	97.2	98.0
199	Dover	99.5	97.2	98.4
FLORIDA				
320,322	Jacksonville	98.6	68.6	84.1
321	Daytona Beach	98.7	75.9	87.7
323	Tallahassee	99.1	58.6	79.6
324	Panama City	99.6	45.6	73.5
325	Pensacola	99.2	68.5	84.4
326	Gainesville	100.0	64.6	82.9
327-328,347	Orlando	100.4	70.6	86.1
329	Melbourne	100.6	75.1	88.3
330-332,340	Miami	98.0	74.3	86.6
333	Fort Lauderdale	97.9	75.1	86.9
334,349	West Palm Beach	96.8	69.2	83.5
335-336,346	Tampa	99.8	67.6	84.2
337	St. Petersburg	101.5	67.5	85.1
338	Lakeland	98.5	67.3	83.5
339	Fort Myers	98.2	64.2	81.8
342	Sarasota	100.0	64.6	82.9
GEORGIA				
300-303,399	Atlanta	96.9	79.3	88.4
304	Statesboro	96.8	36.9	67.9
305	Gainesville	96.0	52.2	74.9
306	Athens	95.1	64.5	80.3
307	Dalton	96.8	34.8	66.9
308-309	Augusta	95.7	62.7	79.8
310-312	Macon	95.7	67.6	82.2
313-314	Savannah	97.8	65.6	82.3
315	Waycross	97.7	52.0	75.6
316	Valdosta	97.3	55.6	77.1
317	Albany	97.4	61.6	80.1
318-319	Columbus	97.5	59.7	79.2

LOCATION FACTORS

EXHIBIT NO. _____ (JBS-2)
JOHN B. STAMBERG - CSXT
DOCKET NO. 031033-EI
PAGE 6 OF 6

FAX

To: John Stamberg

Voice Phone Number:

From: Richard Samit

Company: Cubic Storage Systems, INC.

Fax Number: 813 287 2807

Voice Number:

MESSAGE

John,

Here is the budget based on the information you provided.
I am trying to anticipate steel prices for the short term.
Lets keep in touch as the project parameters unfold.
We cannot figure any footings for the stands until location
and soil testing is completed.

Thank You,

Richard Samit

Date: 3/24/04

Pages: 1 of 2

Cubic Storage & Office Systems, Inc.

March 22, 2004

Energy Ventures

Project: Tampa – CSX coal distribution conveyor.

Attention: Mr. John Stamberg

We would like to submit BUDGET system pricing for the Coal transport conveyor as discussed for your Project.

P-1- P-4 – 525' long Truss frame, trough belt conveyor.
2100 feet total length x 54" wide belt with Supports on 30' centers.
Throughput of 2500 tons @ 740 FPM
Horizontal design to be placed on concrete footings
Each section is powered by a 75HP- 3 phase motor.
Galvanized sheet metal covers over the belt open bottom
Other specifications and design criteria will follow once the full specification is provided.

Budget price delivered and installed less sales tax.... $ 1,300,000.00

Terms: To be specified
Warranty: On mechanical components is 1 year. The warranty does not include labor costs.
Delivery: 8-12 weeks A.R.O.
F.O.B: Delivered
Installation: Included
Sales tax: Not included

All materials, labor and delivery charges are subject sales tax, not included in the above price. This is a budget proposal is not valid as an order. Due to the volatility in the steel market prices are subject to change daily.

Thank You,

Richard Samit

4917 W. Nassau St. Tampa, FL. 33607 - PH: (813) 289-7795 FAX: (813) 287-2807

Approach #1 @ 3800 LF

Adjust B

Cubic Storage and Office Supply, Inc

$$\frac{\$1{,}300{,}000 \text{ modules}}{2100 \text{ LF}} \times 3800 = \$2{,}352{,}380$$

Hoolen 30' on Cubics

10 foot deep /

$\frac{3800}{30' \text{ span}} \times 2 \quad \cong 130$ caissons

24" dia @ $29/VLF

@ 3.14 ft^2 caisson

130 caissons × 10 ft × $29/VLF 37,700

~~2500~~ Pick up Truck

$\frac{4500\#}{4 \times 0.5}$ = Soil is about 2250 #/ft^2

if OK with pick ups

6" @ 2.4575 R 16

12"

3.14 × 2250+ = Over 7000#

~~Caisson~~

Steel (Rebar)

$\frac{130 \times 200\#/\text{caisson}}{2000} \times \underbrace{530 + 51.50}$

$7560

Say $50,000

EXHIBIT NO. _____ (JBS-3)
JOHN B. STAMBERG - CSXT
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PAGE 3 OF 10

Walkways 380,000 100/LF

Lights

$780 130 low pressure sodium @ 135 watts 101,400

30' on supports

Pipe for Fire Protection

Sprinkler

59.50 x 3800 226,100

Check Valve 4 x 880 3520

Valves Gate 20 x 1150 23,000

or Heads

Sub Total $784,020

Conveyor - $2,352,380

$3,136,400

x Escalation 1.061

Engr / Indirects 1.164

$3,873,467 / 3800 = $1020

EXHIBIT NO. ______ (JBS-3)
JOHN B. STAMBERG - CSXT
DOCKET NO. 031033-EI
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Steel Supports for
Short Conveyor

$$\frac{\$265{,}000}{3300} \text{ for Elevated Convey} = \$80.30/LF$$

10
Short Conveyor $(\$1020 + 80.30) \times 500 = 550150$
$1100.30

151 | Pipe & Fittings

151 550 | Plastic Pipe

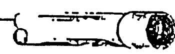
			CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1999 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL O&P	
558	7390	2"	Q-1	26	.615	Ea.	4.34	18.05		22.39	32.50	558
	7400	2-1/2"		24	.667		6.70	19.55		26.25	37	
	7410	3"		18	.889		7.40	26		33.40	47.50	
	7420	4"		15	1.067		9.35	31.50		40.85	58	
	7430	6"		10	1.600		14.70	47		61.70	87	
	7440	8"	Q-2	11	2.182		24	66.50		90.50	128	
	7550	Union, schedule 40, socket joints, 1/2"	1 Plum	19	.421		1.71	13.75		15.46	23	
	7560	3/4"		18	.444		2.24	14.50		16.74	24.50	
	7570	1"		15	.533		2.56	17.40		19.96	29.50	
	7580	1-1/4"		14	.571		5.10	18.65		23.75	33.50	
	7590	1-1/2"		13	.615		5.75	20		25.75	37	
	7600	2"	Q-1	20	.800		7.80	23.50		31.30	44	
		151 700 | Steel Pipe										
701	0010	PIPE, STEEL										701
	0020	All pipe sizes are to Spec. A-53 unless noted otherwise R151-050										
	0050	Schedule 40, threaded, with couplings, and clevis type										
	0060	hangers sized for covering, 10' O.C.										
	0540	Black, 1/4" diameter	1 Plum	66	.121	L.F.	1.20	3.95		5.15	7.30	
	0550	3/8" diameter		65	.123		1.35	4.01		5.36	7.60	
	0560	1/2" diameter		63	.127		1.15	4.14		5.29	7.50	
	0570	3/4" diameter		61	.131		1.29	4.28		5.57	7.90	
	0580	1" diameter		53	.151		1.64	4.92		6.56	9.25	
	0590	1-1/4" diameter	Q-1	89	.180		1.98	5.30		7.28	10.20	
	0600	1-1/2" diameter 		80	.200		2.26	5.85		8.11	11.40	
	0610	2" diameter		64	.250		3.06	7.35		10.41	14.45	
	0620	2-1/2" diameter		50	.320		4.81	9.40		14.21	19.55	
	0630	3" diameter		43	.372		6.05	10.90		16.95	23	
	0640	3-1/2" diameter		40	.400		7.90	11.75		19.65	26.50	
	0650	4" diameter		36	.444		8.75	13.05		21.80	29.50	
	0660	5" diameter		26	.615		19.50	18.05		37.55	49	
	0670	6" diameter	Q-2	31	.774		22	23.50		45.50	59.50	
	0680	8" diameter		27	.889		31	27		58	75	
	0690	10" diameter		23	1.043		45	32		77	97.50	
	0700	12" diameter		18	1.333		62	40.50		102.50	130	
	0809	A-106, gr. A/B, seamless w/cplgs. & hangers										
	0811	1/4" diameter	1 Plum	66	.121	L.F.	2.51	3.95		6.46	8.75	
	0812	3/8" diameter		65	.123		2.37	4.01		6.38	8.70	
	0813	1/2" diameter		63	.127		2.40	4.14		6.54	8.90	
	0814	3/4" diameter		61	.131		2.56	4.28		6.84	9.30	
	0815	1" diameter		53	.151		3.05	4.92		7.97	10.80	
	0816	1-1/4" diameter	Q-1	89	.180		3.35	5.30		8.65	11.70	
	0817	1-1/2" diameter		80	.200		3.52	5.85		9.37	12.80	
	0819	A-53, 2" diameter		64	.250		3.79	7.35		11.14	15.25	
	0821	2-1/2" diameter		50	.320		6.50	9.40		15.90	21.50	
	0822	3" diameter		43	.372		8.20	10.90		19.10	25.50	
	0823	4" diameter		36	.444		12.70	13.05		25.75	34	
	1220	To delete coupling & hanger, subtract										
	1230	1/4" diam. to 3/4" diam.					31%	56%				
	1240	1" diam. to 1-1/2" diam.					23%	51%				
	1250	2" diam. to 4" diam.					23%	41%				
	1260	5" diam. to 12" diam.					21%	45%				
	1280	All pipe sizes are to Spec. A-53 unless noted otherwise										
	1281	Schedule 40, threaded, with couplings and clevis type										
	1282	hangers sized for covering, 10' O. C.										
	1290	Galvanized, 1/4" diameter	1 Plum	66	.121	L.F.	1.46	3.95		5.41	7.60	

EXHIBIT NO. _____ (JBS-3)
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023 | Tunneling, Piles & Caissons

		Line Item	Crew	Daily Output	Labor-Hours	Unit	1999 Bare Costs Mat.	Labor	Equip.	Total	Total Incl O&P	
		023 600 | Driven Piles										
612	2800	25,000 L.F. pile job, add (R023 -620)	B-19	8,500	.008	V.L.F.		.21	.17	.38	.53	612
	2900	Mobilization by water for barge driving rig, add								100%		
		023 700 | Bored/Augered Piles										
704	0010	PRESSURE INJECTED FOOTINGS or Displacement Caissons (R023 -710)										704
	0100	incl. mobilization and demobilization, up to 50 miles										
	0200	Uncased shafts, 30 to 80 tons cap., 17" diam., 10' depth	B-44	88	.727	V.L.F.	12.20	19.85	8.90	40.95	56	
	0300	25' depth		165	.388		8.70	10.60	4.75	24.05	32.50	
	0400	80-150 ton capacity, 22" diameter, 10' depth		80	.800		15.25	22	9.80	47.05	63.50	
	0500	20' depth		130	.492		12.20	13.45	6.05	31.70	42.50	
	0700	Cased shafts, 10 to 30 ton capacity, 10-5/8" diam., 20' depth		175	.366		8.70	9.95	4.48	23.13	31	
	0800	30' depth		240	.267		8.15	7.25	3.26	18.66	24.50	
	0850	30 to 60 ton capacity, 12" diameter, 20' depth		160	.400		12.20	10.90	4.90	28	37	
	0900	40' depth		230	.278		9.40	7.60	3.41	20.41	26.50	
	1000	80 to 100 ton capacity, 16" diameter, 20' depth		160	.400		17.45	10.90	4.90	33.25	42.50	
	1100	40' depth		230	.278		16.25	7.60	3.41	27.26	34	
	1200	110 to 140 ton capacity, 17-5/8" diameter, 20' depth		160	.400		18.75	10.90	4.90	34.55	44	
	1300	40' depth		230	.278		17.45	7.60	3.41	28.46	35.50	
	1400	140 to 175 ton capacity, 19" diameter, 20' depth		130	.492		20.50	13.45	6.05	40	51.50	
	1500	40' depth		210	.305		18.75	8.30	3.73	30.78	38.50	
	1700	Over 30' long, L.F. cost tends to be lower										
	1900	Maximum depth is about 90'										
		023 800 | Caissons										
804	0010	CAISSONS incl. excav., concrete, 50 lbs. reinf. per C.Y., not (R023 -820)										804
	0020	incl. mobilization, boulder removal, disposal										
	0100	Open style, machine drilled, to 50' deep, in stable ground, no										
	0110	casings or ground water, 18" diam., 0.065 C.Y./L.F.	B-43	200	.240	V.L.F.	4.82	5.65	8.90	19.37	24	
	0200	24" diameter, 0.116 C.Y./L.F.		190	.253		8.65	5.95	9.35	23.95	29	
	0300	30" diameter, 0.182 C.Y./L.F.		150	.320		13.50	7.55	11.85	32.90	39.50	
	0400	36" diameter, 0.262 C.Y./L.F.		125	.384		19.45	9.05	14.20	42.70	51	
	0500	48" diameter, 0.465 C.Y./L.F.		100	.480		34.50	11.30	17.75	63.55	75	
	0600	60" diameter, 0.727 C.Y./L.F.		90	.533		54	12.55	19.75	86.30	101	
	0700	72" diameter, 1.05 C.Y./L.F.		80	.600		78	14.10	22	114.10	133	
	0800	84" diameter, 1.43 C.Y./L.F.		75	.640		106	15.05	23.50	144.55	167	
	1000	For bell excavation and concrete, add										
	1020	4' bell diameter, 24" shaft, 0.444 C.Y.	B-43	20	2.400	Ea.	27	56.50	89	172.50	216	
	1040	6' bell diameter, 30" shaft, 1.57 C.Y.		5.70	8.421		96	198	310	604	760	
	1060	8' bell diameter, 36" shaft, 3.72 C.Y.		2.40	20		227	470	740	1,437	1,800	
	1080	9' bell diameter, 48" shaft, 4.48 C.Y.		2	24		273	565	890	1,728	2,150	
	1100	10' bell diameter, 60" shaft, 5.24 C.Y.		1.70	28.235		320	665	1,050	2,035	2,525	
	1120	12' bell diameter, 72" shaft, 8.74 C.Y.		1	48		535	1,125	1,775	3,435	4,275	
	1140	14' bell diameter, 84" shaft, 13.6 C.Y.		.70	68.571		830	1,625	2,525	4,980	6,225	
	1200	Open style, machine drilled, to 50' deep, in wet ground, pulled										
	1300	casing and pumping, 18" diameter, 0.065 C.Y./L.F.	B-48	160	.350	V.L.F.	4.82	8.40	12.35	25.57	32	
	1400	24" diameter, 0.116 C.Y./L.F.		125	.448		8.65	10.80	15.80	35.25	43.50	
	1500	30" diameter, 0.182 C.Y./L.F.		85	.659		13.50	15.85	23.50	52.85	65	
	1600	36" diameter, 0.262 C.Y./L.F.		60	.933		19.45	22.50	33	74.95	92.50	
	1700	48" diameter, 0.465 C.Y./L.F.	B-49	55	1.600		34.50	40	46	120.50	152	
	1800	60" diameter, 0.727 C.Y./L.F.		35	2.514		54	63	72	189	239	
	1900	72" diameter, 1.05 C.Y./L.F.		30	2.933		78	73.50	84	235.50	295	
	2000	84" diameter, 1.43 C.Y./L.F.		25	3.520		106	88.50	101	295.50	370	
	2100	For bell excavation and concrete, add										
	2120	4' bell diameter, 24" shaft, 0.444 C.Y.	B-48	19.80	2.828	Ea.	27	68	100	195	245	
	2140	6' bell diameter, 30" shaft, 1.57 C.Y.		5.70	9.825		96	236	345	677	850	
	2160	8' bell diameter, 36" shaft, 3.72 C.Y.		2.40	23.333		227	560	825	1,612	2,025	

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032 | Concrete Reinforcement

	032 100 Reinforcing Steel		Crew	Daily Output	Labor-Hours	Unit	1999 Bare Costs Mat.	Labor	Equip.	Total	Total Incl O&P	
102	2420	12" long R032-080				C	230			230	253	102
	2500	3/4" diameter, for 1-1/2" I.D. pipe, 6" long					250			250	275	
	2520	12" long					410			410	455	
	2700	Screw anchor for bolts, plain, 1/2" diameter					90			90	99	
	2720	1" diameter					271			271	298	
	2740	1-1/2" diameter					450			450	495	
	2800	Screw eye bolts, 1/2" x 5" long					1,100			1,100	1,200	
	2820	1" x 9" long					4,000			4,000	4,425	
	2840	1-1/2" x 14" long					10,200			10,200	11,200	
	2900	Screw anchor bolts, 1/2" x up to 7" long					420			420	460	
	2920	1" x up to 12" long					1,375			1,375	1,500	
	3000	Slab lifting inserts, single, 3/4" dia., galv., 4" high					280			280	310	
	3010	6" high					340			340	375	
	3030	7" high					390			390	430	
	3100	1" diameter, 5" high					440			440	485	
	3120	7" high					465			465	510	
	3200	Double lifting inserts, 1" diameter, 5" high					875			875	965	
	3220	7" high					925			925	1,025	
	3330	1-1/4" diameter, 5" high					950			950	1,050	
	3500	Sleeper clips for wood sleepers, 20 ga., galv., 2" wide				M	330			330	365	
	3520	4" wide					410			410	450	
	3600	Spacers, plastic for 1" bar clearance, average					48			48	53	
	3620	For 2" bar clearance, average					58			58	64	
	3800	Subgrade chairs, 1/2" diameter, 3-1/2" high				C	270			270	297	
	3850	12" high					770			770	845	
	3900	3/4" diameter, 3-1/2" high					350			350	385	
	3950	12" high					840			840	925	
	4200	Subgrade stakes, 3/4" diameter, 12" long					277			277	305	
	4250	24" long					375			375	415	
	4300	1" diameter, 12" long					420			420	465	
	4350	24" long					630			630	690	
	4500	Tie wire, 16 ga. annealed steel, under 500 lbs.				Cwt.	80			80	88	
	4520	2,000 to 4,000 lbs.					75			75	62.50	
	4550	Tie wire holder, plastic case				Ea.	31			31	34	
	4600	Aluminum case					36			36	39.50	
104	0010	COATED REINFORCING Add to material										104
	0100	Epoxy coated, A775				Cwt.	23.50			23.50	26	
	0150	Galvanized, #3					31.50			31.50	34.50	
	0200	#4					31.50			31.50	34.50	
	0250	#5					31			31	34	
	0300	#6 or over					31			31	34	
	1000	For over 20 tons, #6 or larger, minimum					28.50			28.50	31.50	
	1500	Maximum					34.50			34.50	38	
105	0010	REINFORCING A615 Grade 40, incl. freight from mill R032-060										105
	0200	Average price, cut, bent, and delivered				Ton	480			480	530	
	0500	Grade 60, incl. freight from mill										
	0700	Average price, cut, bent, and delivered				Ton	460			460	505	
	1000	Reinforcing extras, add to base										
	1020	Shop bending, light				Ton	82			82	90	
	1050	Heavy					36.50			36.50	40	
	1200	Detailing under 50 tons					46.50			46.50	51.50	
	1250	50 to 150 tons					36.50			36.50	40	
	1300	150 to 500 tons					31.50			31.50	34.50	
	1350	Over 500 tons					22.50			22.50	24.50	
	1700	Listing					4.15			4.15	4.57	

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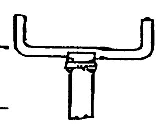
166 100 | Lighting

		CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1999 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL O&P
115 2250	Low pressure sodium, 55 watt	1 Elec	2.70	2.963	Ea.	485	94.50		579.50	675 115
2270	90 watt		2	4		535	128		663	780
2290	180 watt		2	4		680	128		808	940
2340	High pressure sodium, 70 watt		2.70	2.963		190	94.50		284.50	350
2360	100 watt		2.70	2.963		215	94.50		309.50	380
2380	150 watt		2.70	2.963		220	94.50		314.50	385
2400	400 watt	2 Elec	4.40	3.636		335	116		451	545
2600	1000 watt	"	4	4		500	128		628	740
2610	Incandescent, 300 watt	1 Elec	4	2		85	64		149	189
2620	500 watt	"	4	2		128	64		192	237
2630	1000 watt	2 Elec	6	2.667		138	85		223	279
2640	1500 watt	"	6	2.667		151	85		236	293
2650	Roadway area luminaire, low pressure sodium, 135 watt	1 Elec	2	4		535	128		663	780
2700	180 watt	"	2	4		565	128		693	810
2720	Mercury vapor, 400 watt	2 Elec	4.40	3.636		340	116		456	550
2730	1000 watt		4	4		425	128		553	660
2750	Metal halide, 400 watt		4.40	3.636		410	116		526	625
2760	1000 watt		4	4		490	128		618	730
2780	High pressure sodium, 400 watt		4.40	3.636		465	116		581	685
2790	1000 watt		4	4		515	128		643	755
2800	Light poles, anchor base									
2820	not including concrete bases									
2840	Aluminum pole, 8' high	1 Elec	4	2	Ea.	435	64		499	575
2850	10' high		4	2		455	64		519	595
2860	12' high		3.80	2.105		475	67		542	625
2870	14' high		3.40	2.353		495	75		570	655
2880	16' high		3	2.667		545	85		630	725
3000	20' high	R-3	2.90	6.897		595	218	47	860	1,025
3200	30' high		2.60	7.692		1,100	243	52	1,395	1,650
3400	35' high		2.30	8.696		1,200	275	59	1,534	1,800
3600	40' high		2	10		1,375	315	68	1,758	2,050
3800	Bracket arms, 1 arm	1 Elec	8	1		75	32		107	130
4000	2 arms		8	1		150	32		182	213
4200	3 arms		5.30	1.509		225	48		273	320
4400	4 arms		5.30	1.509		300	48		348	400
4500	Steel pole, galvanized, 8' high		3.80	2.105		410	67		477	550
4510	10' high		3.70	2.162		430	69		499	580
4520	12' high		3.40	2.353		465	75		540	620
4530	14' high		3.10	2.581		495	82.50		577.50	670
4540	16' high		2.90	2.759		525	88		613	710
4550	18' high		2.70	2.963		555	94.50		649.50	750
4600	20' high	R-3	2.60	7.692		730	243	52	1,025	1,225
4800	30' high		2.30	8.696		860	275	59	1,194	1,425
5000	35' high		2.20	9.091		940	287	61.50	1,288.50	1,525
5200	40' high		1.70	11.765		1,150	370	80	1,600	1,925
5400	Bracket arms, 1 arm	1 Elec	8	1		120	32		152	180
5600	2 arms		8	1		185	32		217	252
5800	3 arms		5.30	1.509		200	48		248	292
6000	4 arms		5.30	1.509		280	48		328	380
6100	Fiberglass pole, 1 or 2 fixtures, 20' high	R-3	4	5		345	158	34	537	655
6200	30' high		3.60	5.556		540	176	37.50	753.50	900
6300	35' high		3.20	6.250		675	197	42.50	914.50	1,100
6400	40' high		2.80	7.143		825	226	48.50	1,099.50	1,300
6420	Wood pole, 4-1/2" x 5-1/8", 8' high	1 Elec	6	1.333		220	42.50		262.50	305
6430	10' high		6	1.333		250	42.50		292.50	340
6440	12' high		5.70	1.404		300	45		345	395



16 ELECTRICAL

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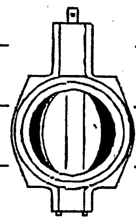
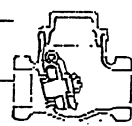
151 | Pipe & Fittings

	151 950 | Valves		CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1999 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL O&P
955	8760	1-1/4" size R151 -050	1 Plum	15	.533	Ea.	310	17.40		327.40	365
	8770	1-1/2" size		13	.615		335	20		355	400
	8780	2" size		11	.727		505	23.50		528.50	590
960	0010	VALVES, IRON BODY R151 -050									
	1020	Butterfly, wafer type, gear actuator, 200 lb.									
	1030	2" size	1 Plum	14	.571	Ea.	109	18.65		127.65	147
	1040	2-1/2" size	Q-1	9	1.778		112	52		164	202
	1050	3" size		8	2		116	58.50		174.50	217
	1060	4" size		5	3.200		145	94		239	300
	1070	5" size	Q-2	5	4.800		175	146		321	415
	1080	6" size	"	5	4.800		198	146		344	440
	1650	Gate, 125 lb., N.R.S.									
	2150	Flanged									
	2200	2" size	1 Plum	5	1.600	Ea.	250	52		302	355
	2240	2-1/2" size	Q-1	5	3.200		256	94		350	425
	2260	3" size		4.50	3.556		287	104		391	475
	2280	4" size		3	5.333		410	157		567	690
	2300	6" size	Q-2	3	8		700	243		943	1,150
	3550	OS&Y, 125 lb., flanged									
	3600	2" size	1 Plum	5	1.600	Ea.	179	52		231	275
	3660	3" size	Q-1	4.50	3.556		209	104		313	390
	3680	4" size	"	3	5.333		222	157		379	480
	3700	6" size	Q-2	3	8		490	243		733	910
	3900	For 250 lb, flanged, add					200%	10%			
	4350	Globe, OS&Y									
	5450	Swing check, 125 lb., threaded									
	5500	2" size	1 Plum	11	.727	Ea.	270	23.50		293.50	335
	5540	2-1/2" size	Q-1	15	1.067		350	31.50		381.50	435
	5550	3" size		13	1.231		375	36		411	470
	5560	4" size		10	1.600		600	47		647	730
	5950	Flanged									
	6000	2" size	1 Plum	5	1.600	Ea.	126	52		178	218
	6040	2-1/2" size	Q-1	5	3.200		160	94		254	320
	6050	3" size		4.50	3.556		239	104		343	420
	6060	4" size		3	5.333		271	157		428	535
	6070	6" size	Q-2	3	8		460	243		703	880
975	0010	VALVES, PLASTIC									
	1150	Ball, PVC, socket or threaded, single union									
	1230	1/2" size	1 Plum	26	.308	Ea.	19.75	10.05		29.80	36.50
	1240	3/4" size		25	.320		23.50	10.45		33.95	42
	1250	1" size		23	.348		28.50	11.35		39.85	48
	1260	1-1/4" size		21	.381		37.50	12.40		49.90	60.50
	1270	1-1/2" size		20	.400		47	13.05		60.05	72
	1280	2" size		17	.471		67.50	15.35		82.85	98
	1290	2-1/2" size	Q-1	26	.615		183	18.05		201.05	230
	1300	3" size		24	.667		168	19.55		187.55	215
	1310	4" size		20	.800		320	23.50		343.50	385
	1360	For PVC, flanged, add					100%	15%			
	3150	Ball check, PVC, socket or threaded									
	3200	1/4" size	1 Plum	26	.308	Ea.	25	10.05		35.05	42.50
	3220	3/8" size		26	.308		25	10.05		35.05	42.50
	3240	1/2" size		26	.308		25	10.05		35.05	42.50
	3250	3/4" size		25	.320		28	10.45		38.45	46.50
	3260	1" size		23	.348		35	11.35		46.35	55.50





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FMC Technologies

Material Handling Solutions
FMC Technologies Inc
Homer City PA 15748 1306
724 479 4500

Fax No. (724) 479-4681

Telecopy Message
Fax No: (703) 276-9591
Date: 3/26/04
Page 1 of Many

To: ENERGY VENTURES ANALYSIS
Attn: JOHN STAMBERG

From: RANDY BAIRD

DEAR MR. STAMBERG:

Please find attached as per our discussion. Thanks for the opportunity & I look forward to further discussions on this project.

Questions please call: (724) 479-4657

Sincerely.

RANDY BAIRD
MHS SYSTEMS MANAGER.

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75162A-06/2001

FMC EnergySystems
FMC Material Handling Systems

FMC Technologies, Inc.
Material Handling Solutions Division

Budget Conveyor Proposal

March 2004

[illegible]
Attention: Energy Ventures Analysis
Mr. John Stamberg
Phone: (703) 276-8900
Fax: (703) 276-9541
Email: stamberg@evainc.com

EXHIBIT NO. ______ (JBS-4)
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FMC EnergySystems

FMC Material Handling Systems

BUDGETARY Quotation

Energy Ventures Analysis

March 16, 2004

Executive Summary

Special Conditions and Notes

- Customer responsible for all appropriate permitting and licensing as required
- System designed for maximum 2500TPH (Main) & 1500TPH (Secondary) handling Clean Coal consisting of 50 # per cu. Ft. density.
- Customer to provide all electrical unless noted otherwise in following bid
- Customer responsible for all taxes
- Customer to provide 460/60 line voltage to System.
- Modifications to the original quotation by Customer, including scope of supply, component brand decisions, etc may impact quotation price shown
- No allowance has been made for environmental mitigation, abatement, permitting, licensing or any associated cost required for the successful execution of this project.
- FMC Technologies, Inc reserves the right to suspend the project or supply based upon untimely customer payments, customer and or weather delays or other force majeure events.

General Scope of Work

Design, engineer, supply, deliver, install Clean Coal Handling conveyor system consisting of two (2) Conveyors: Main & Secondary. This includes: Conveyor Truss frames, Head frames, tail frames, gravity Take-up unit. A small Transfer Tower structure for product transfer from C1 to C2 has been included. All items as listed below with furnished documentation for same, including relevant Data Sheets, maintenance documents and applicable drawings.

FMC EnergySystems

FMC Material Handling Systems

This budgetary quote is based solely on the limited information provided by Energy Venture Analysis, which is limited to:

- Clean Coal – 50#/cuft
- Horizontal Conveyor, 18' height through-out entire length
- Walkway one side
- Covers full length
- Bent Spans 30'
- Lighting full length
- (2) drive-ways
- Gravity Take-ups

Additions to specifications or beyond scope of supply may impact budgetary pricing.

Supply Included:

ITEM #1 MAIN 2500TPH One (1) 3300' 54"W 18' high Truss Conveyor equipped with:

- Tail section to include a small skirt-board hopper loading section.
- Horizontal Truss with 18' Bents spaced per design requirements (30' maximum span).
- Dual 200HP drives (Dodge), FTI LinkBelt Pulleys & bearings, Dodge reducers.
- FTI DirtWhacker belt scrappers (primary & secondary)
- Non-contact surfaces painted FP3 Industrial single-coat enamel (Color TBD)
- Full 180 degree covers throughout entire length. Exception is one(1) 30' section of tubular to span road.
- 32" Walkway single side, entire length.
- Lighting posts full length per design/code requirements.
- Goodyear belting. 600 PIW 3 ply to perform task.
- Manual Belt take-up adjustment (Gravity Side Tower).
- FTI C-series Idlers. Rolls 5' on 10' flat return.
- ABB Drive Starter Package.
- Hardware package.

EXCLUSIONS: Foundation design & supply. OPTIONED BELOW
Any Head discharge boxes, etc.

ITEM #2 SECONDARY 1500TPH One(1) 2100' 42"W 18' high Truss Conveyor equipped with:

- Tail section to include a small skirt-board hopper loading section.

EXHIBIT NO. ______ (JBS-4)
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FMC EnergySystems

FMC Material Handling Systems

- Horizontal Truss with 18' Bents spaced per design requirements (30' maximum span).
- Dual 125HP drives (Dodge), FTI LinkBelt Pulleys & bearings, Dodge reducers.
- FTI DirtWhacker belt scrappers (primary & secondary)
- Non-contact surfaces painted FP3 Industrial single-coat enamel (Color TBD)
- Full 180 degree covers throughout entire length. Exception is one(1) 30' section of tubular to span road.
- 32" Walkway single side, entire length.
- Lighting posts full length per design/code requirements.
- Goodyear belting. 375 PIW 3 ply to perform task.
- Manual Belt take-up adjustment (Gravity Side Tower).
- FTI C-series Idlers. Rolls 5' on 10' flat return.
- ABB Drive Starter Package
- Hardware package.

EXCLUSIONS: Foundation design & supply. OPTIONED BELOW
Any Head discharge boxes, etc.

ITEM #3 One (1) Lot of Engineering

- General Assembly design and Bill of Materials sufficient for Conveyor fabrication & installation.
- Includes Electrical design

Design Specifications and Criteria

Design & Material Data

Material	Clean Coal
Size of Material	Assume: 0-3"
Bulk density	50 lbs /cu. ft.

Operating Conditions

Continuous; 24/7; outside, typically dry environment, extreme service; Power supply by customer to be 460V/3 phase.

Supplier drawings

FMC Technologies, Inc. shall submit to Energy Venture Analysis AutoCAD drawings and other relevant design/specification information for approval within an acceptable timeframe from order entry date. Requested changes made prior to final approval will be

Phone. 662-869-7520

Fax. 888-580-8597

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discussed and if necessary the original quotation will be modified to reflect the change adders and/or deducts.

BUDGETARY Pricing Summary

__NOTE: Pricing provided as Budgetary only. Exact pricing will require further scope development, specification review, and site analysis. Final pricing to occur prior to order acceptance.__

__Supply of Items # 1-3 (as defined in Scope of Supply)__ $ 5,851,000.00

BUDGETARY RANGE : +15% to -20% Customer to confirm supply.
($4,680,800 - $6,728,650)

Payment Terms:

Amt	Milestone	Timing
15%	Order Entry	(Immediate)
20%	General Arrangement drawings for approval	(Immediate)
25%	Major Component Procurement (Invoiced/ Itemized Monthly with Receipt documentation)	Net 30
30%	At Equipment Shipment (or ready for shipment, if Customer unable to receive) (Invoiced / Itemized Monthly)	Net 30
10%	At substantial completion (ready for production; (clean-up/punch-list items may still need to be addressed)	Net 30

FOB: Tupelo.MS
Delivery: Based upon Project Schedule developed at Order Receipt.

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TERMS AND CONDITIONS

1. Prices And Payment

1.1. Payments are to be made in U.S funds. Unless otherwise specified all invoices are due net 30 days from date of Shipment. PRICES INVOICED WILL BE THOSE IN EFFECT AT TIME OF SHIPMENT. All prices are f.o.b. point of manufacture. Seller reserves the right to place a service charge on past due accounts at the highest rate permitted by law.

2. Warranty

Seller warrants that the goods delivered under this contract will be free from defect in material and workmanship for a period of 18 months from shipment or 12 months from installation, whichever is earlier. The sole remedy for breach of this warranty is the repair or replacement (at the option of Technologies) of the defective good, and Technologies will not be liable under this warranty for labor to remove or reinstall the good, for transportation or freight on the good or any replacement good, for heavy lift operations, for down time or for any other costs. Goods which Technologies determines to have been subjected to abuse or other improper use will not be entitled to the benefits of any warranty by Technologies. THERE ARE NO OTHER WARRANTIES, STATUTORY, AT LAW, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THE FACE OF THIS AGREEMENT.

2.1. Seller does not in any manner whatsoever warrant seals or packing materials in equipment handling special or corrosive fluids operating at unusual temperatures or pressures, improper lubrication, misapplication, lighting, improper voltage supply, deterioration by chemical action, detrimental well conditions, and wear caused by the presence of abrasive materials, which do not constitute defects.

2.2. This warranty shall not apply to any equipment which has been subjected to misuse, neglect or accident, or has been altered or tampered with, or on which corrective work has been done without Seller's specific written, consent. Seller does not recommend and will not assume any responsibility for rebuilding, repairing, special plating, coating, welding, or heat treating done outside Seller's plant by or at the request of Buyer. Products not of Seller's manufacture, and included in Seller's proposal, and special plating, coatings or heat treatment applied to Seller's products are not warranted in any way by Seller but carry only the manufacturer's warranty, if any.

3. Limitation Of Remedy And Liability

3.1. Seller's liability, including that for breach of contract, negligence, strict liability in tort, or otherwise, for its products and Buyer's exclusive remedy is limited to (a) the repair or replacement (but not installation) of parts found defective by Seller, f.o.b. Seller's factory if returned to the factory for inspection, transportation charges paid, or (b) if in Seller's opinion repair or replacement will not remedy a claimed product deficiency, or if a product of Seller's manufacture does not comply with the description or specification set forth on Seller's Order Acknowledgement to repayment of any amounts paid on the purchase price, cancellation of the order and acceptance of the product f.o.b. point of manufacture. However, if the product has been in use for a period in excess of 30 days, Seller reserves the right to make a reasonable depreciation charge for such use.

4. CONSEQUENTIAL DAMAGES DISCLAIMER
Neither party shall be liable to the other in contract or in tort, directly or under any indemnity, for loss profits or

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for any indirect, special, or consequential damages, arising out of or related to this contract, including but not limited to loss or delay of production, reservoir loss/damage, environmental pollution damage, however same may be caused.

4.1. FURTHERMORE, SELLER EXPRESSLY DISCLAIMS ANY OBLIGATION OR LIABILITY FOR LABOR PERFORMED IN CONNECTION WITH INSTALLATION OF REPAIRED OR REPLACED PARTS OR FOR ANY OTHER EXPENSE, INJURY, LOSS OR DAMAGE TO PERSONS (INCLUDING DEATH) OR TO PROPERTY OR THINGS OF WHATSOEVER KIND OR NATURE..

5. DELAYS, FORCE MAJEURE, DEFAULTS & REMEDIES

Seller has the right to suspend its performance or terminate the contract for non-payment of invoices. Seller shall have a reasonable time period in which to cure or otherwise remedy problems or defects prior to the Buyers right to either take-over performance of the work or to terminate the contract.

5.1. Seller shall not be liable to Buyer for any loss or damage suffered by Buyer directly or indirectly, as a result of Seller's failure to deliver or delay in delivering the equipment or failure to perform, or delay in performing, any other term or condition hereof, where such failure or delay is caused by fire, flood, natural disaster, labor trouble (including without limitation strike, slowdown and lockout), war, riot, civil disorder, embargo, government regulations or restrictions of any and all kinds, expropriation of plant by federal or state authority, interruption of or delay in transportation, power failure, inability to obtain materials and supplies, accident, explosion, act of God or other causes of like or different character beyond Seller's control and the time for delivery specified herein shall be extended during the continuance of such conditions and for a reasonable time thereafter.

6. Risk Of Loss

6.1. The risk of loss or destruction of, or damages to, the product shall be on Buyer after delivery of the product to Buyer or carrier, whichever first occurs.

7. Taxes

7.1. Buyer shall pay the amount of any federal, state, county or municipalities, sales, use compensating, intangibles, gross income or like tax applicable to this transaction which is now in effect or may hereafter become effective, but not including taxes payable upon Seller's net income

8. Returns

8.1. No material will be accepted for credit when returned without written permission from Seller's home office. All material accepted for credit is subject to Seller's normal restocking charge. No material will be accepted for credit after one year from date of shipment.

9. Special Products

9.1. Products incorporating variations from catalog items are considered special and are not subject to return or cancellation without charge.

10. Patented Process

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Fax. 888-580-8597

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10.1. The purchase of the product does not entitle Buyer to employ the same with any patented process owned by Sellers or others except where Buyer is expressly authorized to use such process.

11. Patent Infringement

11.1. Except in the case of articles, materials and designs furnished or sponsored by Buyer, Seller at its own expense, shall defend any suit brought against Buyer on the ground that use of the product for the intended purpose or purposes, as furnished by Seller infringes any United States patent in effect on the purchase date and shall pay the amount of any judgment that may be awarded against Buyer in any such suit provided and upon condition that Buyer shall have made all payments due under this Agreement and shall (a) promptly deliver to Seller all infringement notices and other papers received by or served upon Buyer, (b) permit Seller to take complete charge of the defense of such suit and compromise the same, if deemed advisable by Seller, and (c) assist in every reasonable way in the conduct of such defense. In the event that Buyer shall be enjoined by a court of competent jurisdiction from which no appeal can be taken, from selling or using the product for the intended purpose or purposes on the ground that such sale or use of the product infringes any such United States patent, or it is established to Seller's satisfaction, upon due investigation, that sale or use of the product infringes any such United States patent, Seller at its option may either (a) procure for Buyer a license to sell and/or use the product, (b) modify the product so as to make it non-infringing without seriously impairing its performance, (c) replace the product with a product that is substantially equal but non-infringing, or (d) accept the return of the product from Buyer, in which event Seller shall refund to Buyer the purchase price less depreciation at the rate of 15 percent per year (measured from the date Seller shipped the product). The foregoing sets forth Seller's entire liability to Buyer for patent infringement based on the possession, use or sale of the product by Buyer, it being understood and agreed that the aforesaid obligations of Seller do not extend to, and are not applicable in the case of any patent infringement claims directed to a method or a process. Buyer agrees to defend and indemnify Seller against any claims or liabilities for, or by reason of, any alleged patent infringement arising from the manufacture or sale of all or any part of the product which is manufactured in accordance with the specifications furnished by Buyer.

12. Transfer of Title

12.1. Title to the products supplied hereunder, to any and all accessories hereto and substitutions therefor, shall remain in Seller as a purchase money security interest (including the right of repossession) until Buyer has completed payment of the purchase price, plus accrued interest, if any, and fully performed all of the terms and conditions hereof.

13. Indemnification

13.1. It is understood that Seller has relied upon data furnished by and on behalf of Buyer with respect to the safety aspects of the products supplied hereunder and/or representations by or on behalf of Buyer that such products will not be applied or used by Buyer or its customers in such a way as to detract materially from their safety in use, including, without limitation, in the manufacture of a product of which Seller's products will be a component and that it is Buyer's responsibility to assure that such products, when installed and put in use, will be in compliance with safety requirements fixed by applicable law and will be otherwise legally adequate to safeguard against injuries to persons or property. BUYER HEREBY AGREES TO INDEMNIFY, HOLD HARMLESS AND DEFEND SELLER, AND ITS DIRECTORS, OFFICERS, EMPLOYEES AND AGENTS AGAINST ANY AND ALL LOSSES, COST, DAMAGES, CLAIMS, LIABILITIES OR EXPENSES, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES, ARISING OUT OF OR RESULTING FROM ANY INJURY TO ANY PERSON OR DAMAGE TO ANY PROPERTY CAUSED BY THE INADEQUACY FOR THE BUYER'S INTENDED USE OF THE SAFETY FEATURES, DEVICES OR CHARACTERISTICS OF THE PRODUCTS SPECIFIED HEREIN, OR IN THE INSTALLATION, USE OR OPERATION OF SUCH PRODUCTS, EXCEPT CLAIMS

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SOLELY FOR REPAIR OR REPLACEMENT OF DEFECTIVE PARTS COVERED BY THE WARRANTY SET FORTH IN PARAGRAPH 2 HEREOF.

13.2. Customer shall release, defend, hold harmless and indemnify Technologies and its subcontractors against personal injury suits by employees of customer, its affiliates and its other contractors arising out of the Work. Likewise, Technologies shall release, defend, hold harmless and indemnify customer, its affiliates and its other contractors against personal injury suits by employees of Technologies and its subcontractors arising out of the Work.

13.3. "The parties hereby agree that the indemnities each party provides under this contract shall be supported by equal amounts of liability insurance."

14. Written Acceptance

14.1. Any purchase order received by Seller shall be construed to be a written acceptance of this quotation and offer to sell. Buyer may purchase equipment offered in this quotation only on the Seller's terms and conditions included in this quotation. Buyer may choose to issue a purchase order to identify equipment for purchase and for its own internal purposes. However, unless accepted in writing by an authorized employee of FMC, any terms and conditions contained in any purchase order, acceptance, acknowledgment, or other document Buyer submits to FMC which are inconsistent with, different from, or additional to the terms and conditions of this quotation will be null and void, and in lieu thereof the terms and conditions of this quotation shall control.

15. Additional Charges

15.1. If substitute or additional equipment, or repair parts, are purchased by Buyer from Seller, the terms and conditions of the contract created upon acceptance of this offer to sell shall be applicable thereto, the same as if such substitute or additional equipment or repair parts had been originally purchased hereunder.

16. Termination By Seller

16.1. Seller reserves the right to terminate the contract created upon acceptance of this offer if governmental controls do not permit the Seller to perform this Agreement.

17. Repudiation By Buyer

17.1. Buyer may not terminate the contract created upon acceptance of this offer to sell without Seller's prior written consent. If Buyer shall attempt to terminate without Seller's consent or shall otherwise repudiate this contract, Buyer shall be liable to Seller for all of Seller's costs and other commitments incurred to date of repudiation, plus Seller's incidental damages, and the profit Seller would have made from full performance of this contract.

18. General

18.1.1. No modification hereof shall be binding upon Seller unless such modification is in writing signed by a duly authorized representative of Seller.

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18.1.2. If any part hereof is contrary to, prohibited by, or deemed invalid under applicable laws or regulations, such provision shall be deemed inapplicable and omitted to the extent contrary, prohibited or invalid, but the remainder shall not be less invalid and shall be given full force and effect., and

18.1.3. The entire understanding between the parties hereto is set forth herein and any promises, representations, warranties or guarantees not herein contained shall have no force and effect unless in writing signed by Seller and Buyer.

19. POLLUTION

Selller shall release, defend, indemnify and hold harmless Buyer, its affiliates and its other contractors for pollution or contamination arising above the surface of the land or water and which escapes or emanates directly from Technologies' equipment which equipment is wholly within Technologies' control. And Buyer shall release, defend, indemnify and hold harmless Seller for all other pollution not specifically assumed by Seller.

20. LIMITATION OF LIABILITY

The total aggregate liability under any contract for all Seller exposures (e.g., pollution, warranty, indemnification, or liquidating damages) may not exceed the total contract value or $25,000,000 dollars whichever is less.

21. DISPUTE RESOLUTION

In the event of any dispute, or difference arising out of, or relating to this contract, or the breach thereof, the parties shall use their best endeavors to settle such dispute, or difference by consulting and negotiating with each other, in good faith, and understanding of their mutual interests, to reach a just and equitable resolution which is satisfactory to the parties. In the event the parties cannot resolve such dispute up to the level of each party's Division Manager or President within ninety (90) days after a party's initial notice of the dispute, the parties shall be free to litigate their differences in accordance with Mississippi law and shall submit to this forum.

22. CHOICE OF LAW & FORUM

In the event of a contract dispute, Buyer and Seller agree to apply the Mississippi laws without regard to conflicts of laws rules, and litigate in the state or federal courts of the Seller.

23. SUCCESSORS AND ASSIGNS

This contract shall inure to the benefit of and bind any successor in interest to a party to this contract. This contract may not be assigned by either party without the prior written consent of the other party. Notwithstanding the foregoing, Seller may assign this contract to any successor in interest to that portion of FTI Technologies' business involved in the subject matter of this contract.

24. RAW MATERIAL SURCHARGE

The Seller may pass on a price increase due to an industry wide raw material surcharge. This increase will be limited to cover the actual cost increase, which is beyond the control of the Seller. Raw materials surcharges will be invoiced to the customer separately with adequate documentation to support the surcharge.

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Fax. 888-580-8597

Reply-To: <rbeach@continentalconveyor.com>
From: "Russell Beach",<rbeach@continentalconveyor.com>
To: <stamberg@evainc.com>
Cc: <jsmothers@continentalconveyor.com>,
<rstough@continentalconveyor.com>,
<mroberts@continentalconveyor.com>,
<runred@hotmail.com>,
<bill@tiscotampa.com>,
<njmadison@continentalconveyor.com>
Subject: Budgets for Big Bend
Date: Fri, 26 Mar 2004 14:48:21 -0600
Organization: Continental Conveyor
X-Mailer: Microsoft Outlook, Build 10.0.2627
Importance: Normal
X-pstn-levels: (S:99.90000/99.90000 R:95.9108 P:95.9108 M:99.4056 C:79.6348)
X-pstn-settings: 5 (2.0000:8.0000) r p m C
X-pstn-addresses: from <rbeach@continentalconveyor.com> [3624/154]

John,

Attached for your use is budget pricing for the two conveyors we discussed at the Big Ben Power Plant.

Please call if you need more information .

Best Regards,

Russell Beach, CET
Estimator/Engineered Systems

Big Ben Budget Conv Options 0326.doc

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CONTINENTAL CONVEYOR
& EQUIPMENT COMPANY
The World leader in Conveyors and Conveyor Technology

433 Industrial Drive
Post Office Box 400
Winfield, Alabama 35594-0400
Telephone: 205/487-6492
Fax: 205/487-4233
E-mail: info@continentalconveyor.com

SALES OFFICES: JASPER, AL – BOSTON, MA – CORBIN, KY – DELTA, BRITISH COLUMBIA – OASSAWAY, WV – MADISONVILLE, KY – HOUSTON, TX – LAKEWOOD, CO – LOS ANGELES, CA – NEW YORK, NY – OAK HILL, WV – OMAHA, NE – PHILADELPHIA, PA – PITTSBURGH, PA – PORTLAND, OR – PUEBLA, MEXICO – SALT LAKE CITY, UT – SALYERSVILLE, KY – TAMPA, FL – WINFIELD, AL

March 26, 2004

Energy Ventures Analysis, Inc.
1901 N Moore St, Suite 1200
Arlington VA 22209-1706

Attention: Mr. John Stamberg

Subject: Budget Pricing for the Big Ben Plant

Dear John:

Continental Conveyor is pleased to provide the following budget pricing per your request for the Big Ben Plant.

1. 1 One (1) 54" B.W. Conveyor with 3,300 foot horizontal pulley centers and with a lift of 15 ft. to handle 2500 STPH of 50 PCF coal (3" X 0 lump) operating at a speed of approximately 725 FPM.

Terminals include one (1) 450 HP head end drive, motor, belt scrapers, discharge hood, tail loading hopper, impact idlers, pulley outfits, bearings and gravity take-up.

Intermediate structure (3,290 LF) includes truss with belt covers, pull cord and switches, walkway one side, idlers, belt, average span length of 80 feet and 42 bents at 18'-0 height.

Your budget price, F.O.B. Factory, Winfield, Alabama, is: **$1,953,000.00.**
Estimated erection cost is ....: **$ 780,000.00.**

$2,733,000
3300 LF

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2. One (1) 42" B.W. Conveyor with 2,100 foot horizontal pulley centers and with a lift of 15 ft. to handle 2500 STPH of 50 PCF coal (3" X 0 lump) operating at a speed of approximately 725 FPM.

Terminals include one (1) 200 HP head end drive, motor, belt scrapers, discharge hood, tail loading hopper, impact idlers, pulley outfits, bearings and gravity take-up.

Intermediate structure (2,090 LF) includes truss with belt covers, pull cord and switches, walkway one side, idlers, belt, average span length of 80 feet and 26 bents at 18'-0 height.

Your budget price, F.O.B. Factory, Winfield, Alabama, is:	**$1,150,000.00.**
Estimated erection cost is ....:	**$ 460,000.00.**

The above prices do not include MCC's and controls, etc.

Please call with any questions or if you need more information.

Best regards,

CONTINENTAL CONVEYOR & EQUIPMENT COMPANY

Russell Beach, CET
Estimator/Engineered Systems

cc: Jim Smothers
Ron Stough
Mike Roberts
Bill Taylor

THIS QUOTATION IS SUBJECT TO CONTINENTAL CONVEYOR'S EXCLUSIVE TERMS AND CONDITIONS OF SALE, F71-109, REV. 00-8-1-95.

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Exhibit ____(JBS-6)

Rapid Discharge Pit and Conveyor – EVA Estimates

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Rapid Unloading Pit & Conveyor

Non Concrete	Conveyors	190,052	
	Hoppers	96,000	4 each
	Gates	96,000	4 each
	Transfer House	230,000	
		802,104	
Dewatering		107,264	
Sheet Piling		187,264	
Excavation		2000	
Concrete		187,130	
		1,287,762	
		x 1.061	
		x 1.164	
		$1,590,391	

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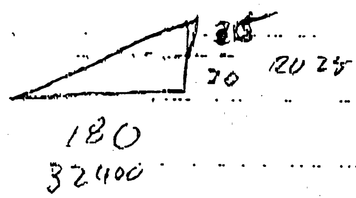
Rapid Discharge System

Rapid Discharge Conveyor



Conveyor @ 190'

Shared Convey $\frac{550,150}{550} \times 190$ = 190,052 [illegible]

190,052 [illegible]

Hoppers 96,000

2 @ 48000

Stackers 96,000

2 @ 48000

572,104

Transfer House 230,000

Non Concrete 802,104

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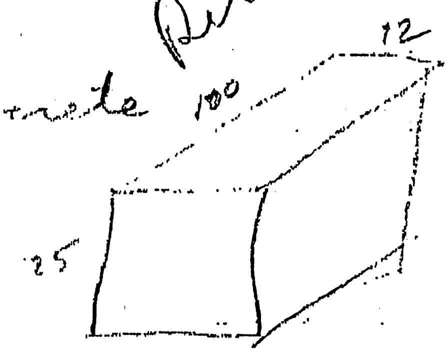
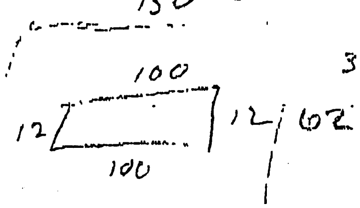
Concrete Pit



Dewaterings
by Well Points

3



6

150
150
62
62
424

844

163 / LF /Wk × 424 ×

$70,000

33.50 × 30 ft deep × 18 weeks =

$18,090

$720/day Pump × 30 day

21,600

109,690

Sheet Piling Left
in Place
40' @ 38#/ft²

100 + 100 + 12 + 12 = 224 × 40
= 8960 ft²

38#/ft² × 8960 = 340,480 # =

170.24 tons × 1,100 187,264

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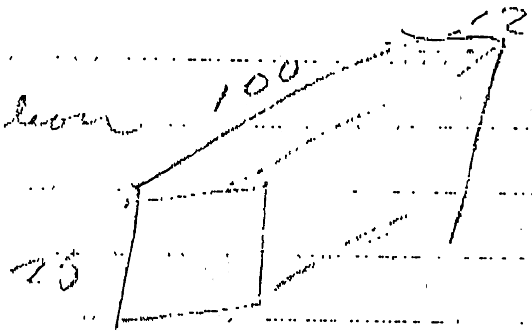
Ex...

Excavation



$\frac{12 \times 100 \times 25}{27} = 1111\ yd^3 \times 1.79 \approx \$2000$

2 yd Bucket
Backhoe

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Concrete

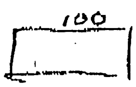
25 × 12 × 2 600 ft²
100 × 25 × 2 5000
5600

Form Wall

10.55 × 5600 $59,080
ft² contact [illegible]

Concrete

$197 /yd³



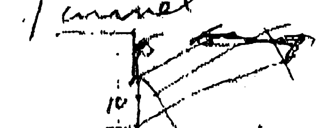
25 × 2 ~~100~~
length 2000 × 2 = 5000 ft²
~~Rotate~~ steel sides 12 × 25 × 2 = 600
bottom 2500

$$\frac{8100\ ft^2 \times 1\tfrac{1}{2}\ ft\ [illegible]}{27} = \frac{12,150\ ft^3}{27}$$

450
$88650

~~147,730~~

Tunnel



100

10 - 25' × 4 =

$$100\ ft \times 9' \times 4 = 3600 \times 1.5 = \frac{5400\ ft^3}{27}$$

200
× 197
39,400

187,130

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033 | Cast-In-Place Concrete

033 100 | Structural Concrete

		CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1999 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL O&P	
3800	Footings, spread under 1 C.Y.	C-14C	38.07	2.942	C.Y.	89.50	77	.97	167.47	223	130
3850	Over 5 C.Y.		81.04	1.382		82.50	36	.46	118.96	149	
3900	Footings, strip, 18" x 9", plain		41.04	2.729		80.50	71.50	.90	152.90	204	
3950	36" x 12", reinforced		61.55	1.820		83	47.50	.60	131.10	168	
4000	Foundation mat, under 10 C.Y.		38.67	2.896		113	75.50	.96	189.46	247	
4050	Over 20 C.Y.		56.40	1.986		101	52	.66	153.66	194	
4200	Grade walls, 8" thick, 8' high	C-14D	45.83	4.364		97.50	119	14.90	231.40	310	
4250	14' high		27.26	7.337		124	199	25	348	480	
4260	12" thick, 8' high		64.32	3.109		89.50	84.50	10.65	184.65	244	
4270	14' high		40.01	4.999		99.50	136	17.10	252.60	345	
4300	15" thick, 8' high		80.02	2.499		85.50	68	8.55	162.05	210	
4350	12' high		51.26	3.902		89	106	13.35	208.35	281	
4500	18' high		48.85	4.094		99	111	14	224	300	
4520	Handicap access ramp, railing both sides, 3' wide	C-14H	14.58	3.292	L.F.	94.50	89	2.57	186.07	248	
4525	5' wide		12.22	3.928		108	106	3.06	217.06	290	
4530	With cheek walls and rails both sides, 3' wide		8.55	5.614		96.50	151	4.38	251.88	350	
4535	5' wide		7.31	6.566		97	177	5.10	279.10	395	
4650	Slab on grade, not including finish, 4" thick	C-14E	60.75	1.449	C.Y.	73.50	39	.62	113.12	145	
4700	6" thick	"	92	.957	"	70.50	25.50	.41	96.41	120	
4751	Slab on grade, incl. troweled finish, not incl. forms										
4760	or reinforcing, over 10,000 S.F., 4" thick slab	C-14F	3,425	.021	S.F.	.79	.52	.01	1.32	1.67	
4820	6" thick slab		3,350	.021		1.16	.53	.01	1.70	2.09	
4840	8" thick slab		3,184	.023		1.59	.56	.01	2.16	2.60	
4900	12" thick slab		2,734	.026		2.38	.65	.01	3.04	3.63	
4950	15" thick slab		2,505	.029		2.99	.71	.01	3.71	4.39	
5000	Slab on grade, incl. textured finish, not incl. forms										
5001	or reinforcing, 4" thick slab	C-14G	2,873	.019	S.F.	.79	.48	.01	1.28	1.61	
5010	6" thick		2,590	.022		1.24	.53	.01	1.78	2.18	
5020	8" thick		2,320	.024		1.62	.59	.02	2.23	2.70	
5200	Lift slab in place above the foundation, incl. forms,										
5210	reinforcing, concrete and columns, minimum	C-14B	2,113	.098	S.F.	4.74	2.69	.32	7.75	9.85	
5250	Average		1,650	.126		5.20	3.45	.41	9.06	11.70	
5300	Maximum		1,500	.139		5.80	3.79	.45	10.04	12.90	
5500	Lightweight, ready mix, including screed finish only,										
5510	not including forms or reinforcing										
5550	1:4 for structural roof decks	C-14B	260	.800	C.Y.	91.50	22	2.62	116.12	139	
5600	1:6 for ground slab with radiant heat	C-14F	92	.783		86.50	19.40	.41	106.31	125	
5650	1:3:2 with sand aggregate, roof deck	C-14B	260	.800		91.50	22	2.62	116.12	139	
5700	Ground slab	C-14F	107	.673		91.50	16.70	.35	108.55	127	
5900	Pile caps, incl. forms and reinf., sq. or rect., under 5 C.Y.	C-14C	54.14	2.069		86	54	.68	140.68	182	
5950	Over 10 C.Y.		75	1.493		83.50	39	.49	122.99	155	
6000	Triangular or hexagonal, under 5 C.Y.		53	2.113		79	55	.70	134.70	176	
6050	Over 10 C.Y.		85	1.318		83.50	34.50	.43	118.43	147	
6200	Retaining walls, gravity, 4' high see division 022-708	C-14D	66.20	3.021		81	82	10.35	173.35	230	
6250	10' high		125	1.600		72	43.50	5.45	120.95	154	
6300	Cantilever, level backfill loading, 8' high		70	2.857		88	77.50	9.75	175.25	211	
6350	16' high		91	2.198		85.50	59.50	7.50	152.50	197	
6800	Stairs, not including safety treads, free standing, 3'-6" wide	C-14H	83	.578	LF Nose	5.75	15.60	.45	21.80	32	
6850	Cast on ground		125	.384	"	4.05	10.35	.30	14.70	21	
7000	Stair landings, free standing		200	.240	S.F.	2.25	6.50	.19	8.94	13	
7050	Cast on ground		475	.101	"	1.30	2.73	.08	4.11	5.85	
0010	CURING Burlap, 4 uses assumed, 7.5 oz.	2 Clab	55	.291	C.S.F.	2.55	6.25		8.80	12.00	134
0100	12 oz.		55	.291		3.74	6.25		9.99	13.90	
0200	Waterproof curing paper, 2 ply, reinforced		70	.229		4.71	4.90		9.61	12.90	
0300	Sprayed membrane curing compound		95	.168		2.42	3.61		6.03	8.35	

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031 | Concrete Formwork

031 100 | Struct C.I.P. Formwork		CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1999 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL O&P
182 2150	4 use, below grade	C-2	435	.110	SFCA	.62	2.94		3.56	5.30 182
2400	Over 8' to 16' high, 1 use		280	.171		3.60	4.57		8.17	11.15
2450	2 use		345	.139		1.16	3.71		4.87	7.15
2500	3 use		375	.128		.83	3.41		4.24	6.25
2550	4 use		395	.122		.68	3.24		3.92	5.85
2700	Over 16' high, 1 use		235	.204		2.34	5.45		7.79	11.10
2750	2 use		290	.166		1.29	4.41		5.70	8.35
2800	3 use		315	.152		.93	4.06		4.99	7.45
2850	4 use		330	.145		.76	3.88		4.64	6.95
3000	For architectural finish, add		1,820	.026		.58	.70		1.28	1.75
4000	Radial wall forms, smooth curved, 1 use		245	.196		2.30	5.20		7.50	10.75
4050	2 use		300	.160		1.26	4.27		5.53	8.10
4100	3 use		325	.148		.92	3.94		4.86	7.20
4150	4 use		335	.143		.75	3.82		4.57	6.80
4200	Wall forms, smooth curved, below grade, job built plyform, 1 use		225	.213		2.78	5.70		8.48	12
4210	2 use		225	.213		1.54	5.70		7.24	10.65
4220	3 use		225	.213		1.25	5.70		6.95	10.30
4230	4 use		225	.213		.90	5.70		6.60	9.95
4300	Curved, with 2" chords, 1 use		290	.166		1.89	4.41		6.30	9
4350	2 use		355	.135		1.04	3.60		4.64	6.80
4400	3 use		385	.125		.75	3.32		4.07	6.10
4450	4 use		400	.120		.61	3.20		3.81	5.70
4500	Over 8' high, 1 use		290	.166		.86	4.41		5.27	7.90
4525	2 use		355	.135		.48	3.60		4.08	6.15
4550	3 use		385	.125		.35	3.32		3.67	5.65
4575	4 use		400	.120		.29	3.20		3.49	5.35
4600	Retaining wall forms, battered, to 8' high, 1 use		300	.160		1.78	4.27		6.05	8.65
4650	2 use		355	.135		.98	3.60		4.58	6.75
4700	3 use		375	.128		.71	3.41		4.12	6.15
4750	4 use		390	.123		.54	3.28		3.82	5.75
4900	Over 8' to 16' high, 1 use		240	.200		1.94	5.35		7.29	10.55
4950	2 use		295	.163		1.07	4.34		5.41	7.95
5000	3 use		305	.157		.78	4.20		4.98	7.45
5050	4 use		320	.150		.63	4		4.63	7
5100	Retaining wall form, smooth curve, 1 use		200	.240		2.89	6.40		9.29	13.25
5120	2 use		235	.204		1.59	5.45		7.04	10.30
5130	3 use		250	.192		1.16	5.10		6.26	9.30
5140	4 use		260	.185		.95	4.92		5.87	8.80
5500	For gang wall forming, 192 S.F. sections, deduct					10%	10%			
5550	384 S.F. sections, deduct					20%	20%			
5750	Liners for forms (add to wall forms), A.B.S. plastic									
5800	Aged wood, 4" wide, 1 use	1 Carp	250	.032	SFCA	4.75	.87		5.62	6.55
5820	2 use		400	.020		2.63	.55		3.18	3.75
5840	4 use		750	.011		1.60	.29		1.89	2.22
5900	Fractured rope rib, 1 use		250	.032		7.40	.87		8.27	9.50
6000	4 use		750	.011		2.45	.29		2.74	3.16
6100	Ribbed look, 1/2" & 3/4" deep, 1 use		300	.027		5.15	.73		5.88	6.80
6200	4 use		800	.010		1.65	.27		1.92	2.25
6300	Rustic brick pattern, 1 use		250	.032		4.80	.87		5.67	6.65
6400	4 use		750	.011		1.60	.29		1.89	2.22
6500	Striated, random, 3/8" x 3/8" deep, 1 use		300	.027		5.10	.73		5.83	6.75
6600	4 use		800	.010		1.65	.27		1.92	2.25
6800	Rustication strips, A.B.S. plastic, 2 piece snap-on									
6850	1" deep x 1-3/8" wide, 1 use	C-2	400	.120	L.F.	3.75	3.20		6.95	9.20
6900	2 use		600	.080		2.10	2.13		4.23	5.65
6950	4 use		800	.060		1.25	1.60		2.85	3.90

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022 | Earthwork

022 200 | Excav./Backfill/Compact.

022 200 Excav./Backfill/Compact.	Crew	Daily Output	Labor-Hours	Unit	1990 Bare Costs Mat.	Labor	Equip.	Total	Total Incl O&P
Boulders under 1/2 C.Y., loaded on truck, no hauling	B-100	80	.150	C.Y.		3.91	6.40	10.31	13
Boulders, drilled, blasted	B47	100	.240		1.60	5.75	6.20	13.55	17.50
Jackhammer operators with foreman compressor, air tools	B9	1	40	Day		875	180	1,055	1,575
Track drill, compressor, operator and foreman	B47	1	24	"		575	620	1,195	1,575
Blasting caps				Ea.	3			3	3.30
Blasting mats, rent, for first day					90			90	99
Per added day					30			30	33
Preblast survey for 6 room house, individual lot, minimum	A-6	2.40	6.667			171		171	260
Maximum	"	1.35	11.852			305		305	460
City block within zone of influence, minimum	A8	25,200	.001	S.F.		.03		.03	.05
Maximum	"	15,100	.002	"		.05		.05	.08
Excavate and load boulders, less than 0.5 C.Y.	B-10T	80	.150	C.Y.		3.91	5.65	9.56	12.20
0.5 C.Y. to 1 C.Y.	B-10U	100	.120			3.13	9.25	12.38	15
Excavate and load blasted rock, 3 C.Y. power shovel	B-12T	1,530	.010			.28	.80	1.08	1.30
Haul boulders, 25 Ton off highway dump, 1 mile round trip	B-34E	330	.024			.54	2.12	2.66	3.15
2 mile round trip		275	.029			.64	2.54	3.18	3.78
3 mile round trip		225	.036			.79	3.11	3.90	4.62
4 mile round trip		200	.040			.88	3.50	4.38	5.20
Bury boulders on site, less than 0.5 C.Y., 300 H.P. dozer									
150' haul	B10M	310	.039	C.Y.		1.01	3.65	4.66	5.55
300' haul		210	.057			1.49	5.40	6.89	8.20
0.5 to 1 C.Y., 300 H.P. dozer, 150' haul		300	.040			1.04	3.77	4.81	5.75
300' haul		200	.060			1.56	5.65	7.21	8.60
EXCAVATING, BULK BANK MEASURE Common earth piled									
For loading onto trucks, add (R022-240)								15%	15%
For mobilization and demobilization, see division 022-274									
For hauling, see division 022-266 (R022-250)									
Backhoe, hydraulic, crawler mtd., 1 C.Y. cap. = 75 C.Y./hr.	B12A	600	.027	C.Y.		.71	.91	1.62	2.08
1-1/2 C.Y. cap. = 100 C.Y./hr.	B12B	800	.020			53	.89	1.42	1.79
2 C.Y. cap. = 130 C.Y./hr.	B12C	1,040	.015			.41	.98	1.39	1.71
3 C.Y. cap. = 160 C.Y./hr.	B-12D	1,280	.013			.33	1.68	2.01	2.36
Wheel mounted, 1/2 C.Y. cap. = 30 C.Y./hr.	B-12E	240	.067			1.78	1.40	3.18	4.25
3/4 C.Y. cap. = 45 C.Y./hr.	B-12F	360	.044			1.19	1.25	2.44	3.18
Clamshell, 1/2 C.Y. cap. = 20 C.Y./hr.	B-12G	160	.100			2.67	3.26	5.93	7.65
1 C.Y. cap. = 35 C.Y./hr.	B12H	280	.057			1.53	2.05	3.58	4.57
Dragline, 1/2 C.Y. cap. = 30 C.Y./hr.	B-12I	240	.067			1.78	2.19	3.97	5.10
3/4 C.Y. cap. = 35 C.Y./hr.	"	280	.057			1.53	1.88	3.41	4.38
1 1/2 C.Y. cap. = 65 C.Y./hr.	B-12P	520	.031			.82	1.45	2.27	2.84
3 C.Y. cap. = 112 C.Y./hr.	B-12V	900	.018			.47	1.12	1.59	1.95
Front end loader, track mtd., 1 1/2 C.Y. cap. = 70 C.Y./hr.	B-10N	560	.021			.56	.63	1.19	1.55
2-1/2 C.Y. cap. = 95 C.Y./hr.	B-100	760	.016			.41	.67	1.08	1.37
3 C.Y. cap. = 130 C.Y./hr.	B10P	1,040	.012			.30	.83	1.13	1.38
5 C.Y. cap. = 160 C.Y./hr.	B10Q	1,280	.009			24	.89	1.13	1.36
Wheel mounted, 3/4 C.Y. cap. = 45 C.Y./hr.	B10R	360	.033			.87	.68	1.55	2.09
1-1/2 C.Y. cap. = 80 C.Y./hr.	B-10S	640	.019			.49	.50	.99	1.30
2-1/4 C.Y. cap. = 100 C.Y./hr.	B10T	800	.015			.39	.56	.95	1.22
3 C.Y. cap. = 140 C.Y./hr.	"	1,120	.011			.28	.40	.68	.87
5 C.Y. cap. = 185 C.Y./hr.	B-10U	1,480	.008			.21	.63	.84	1.01
Hydraulic excavator, buck mtd. 1/2 C.Y. = 30 C.Y./hr.	B-12J	240	.067			1.78	2.65	4.43	5.65
48 inch bucket, 1 C.Y. = 45 C.Y./hr.	B12K	360	.044			1.19	2.24	3.43	4.27
Shovel, 1/2 C.Y. capacity = 55 C.Y./hr.	B-12L	440	.036			.97	1.20	2.17	2.80
3/4 C.Y. capacity = 65 C.Y./hr.	B-12M	680	.024			63	.87	1.50	1.92
1 C.Y. capacity = 120 C.Y./hr.	B-12N	960	.017			.45	.66	1.11	1.41
1-1/2 C.Y. capacity = 160 C.Y./hr.	B12O	1,280	.013			.33	.68	1.01	1.25
3 C.Y. cap. = 250 C.Y./hr.	B12T	2,000	.008			.21	.61	.82	1.01

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021 | Site Preparation & Excavation Support

021 610 | Sheet Piling

		Crew	Daily Output	Labor-Hours	Unit	1999 Bare Costs Mat.	Labor	Equip.	Total	Total Incl. O&P
614 0010	SHEET PILING Steel, not incl. wales, 22 psf, 15' excav., left in place	B-40	10.81	5.920	Ton	795	163	178	1,136	1,350 614
0100	Drive, extract & salvage		6	10.667		211	294	320	825	1,075
0300	20' deep excavation, 27 psf, left in place R021-610		12.95	4.942		795	136	149	1,080	1,275
0400	Drive, extract & salvage		6.55	9.771		211	270	294	775	1,000
0600	25' deep excavation, 38 psf, left in place R021-620		19	3.368		795	93	101	989	1,150
0700	Drive, extract & salvage		10.50	6.095		211	168	183	562	710
0900	40' deep excavation, 38 psf, left in place		21.20	3.019		795	83.50	90.50	969	1,100
1000	Drive, extract & salvage		12.25	5.224		211	144	157	512	645
1200	15' deep excavation, 22 psf, left in place		983	.065	S.F.	9.25	1.80	1.96	13.01	15.30
1300	Drive, extract & salvage		656	.098		2.37	2.69	2.93	7.99	10.30
1500	20' deep excavation, 27 psf, left in place		960	.067		11.60	1.84	2	15.44	18.05
1600	Drive, extract & salvage		640	.100		3.08	2.76	3.01	8.85	11.25
1800	25' deep excavation, 38 psf, left in place		1,000	.064		17.10	1.77	1.92	20.79	24
1900	Drive, extract & salvage		670	.096		4.22	2.64	2.87	9.73	12.15
2100	Rent steel sheet piling and wales, first month				Ton	230			230	253
2200	Per added month					23			23	25.50
2300	Rental piling left in place, add to rental					450			450	495
2500	Wales, connections & struts, 2/3 salvage					173			173	190
2700	High strength piling, 50,000 psi, add					60			60	66
2800	55,000 psi, add					65			65	71.50
3000	Tie rod, not upset, 1-1/2" to 4" diameter with turnbuckle					1,200			1,200	1,325
3100	No turnbuckle					1,000			1,000	1,100
3300	Upset, 1 3/4" to 4" diameter with turnbuckle					1,500			1,500	1,650
3400	No turnbuckle					1,300			1,300	1,475
3600	Lightweight, 18" to 28" wide, 7 ga., 9.22 psf, and									
3610	9 ga., 8.6 psf, minimum				Lb.	.50			.50	.55
3700	Average					.55			.55	.61
3750	Maximum					.62			.62	.68
3900	Wood, solid sheeting, incl. wales, braces and spacers,									
3910	drive, extract & salvage, 8' deep excavation	B-31	330	.121	S.F.	1.52	2.79	.46	4.77	6.55
4000	10' deep, 50 S.F./hr. in & 150 S.F./hr. out		300	.133		1.56	3.07	.51	5.14	7.10
4100	12' deep, 45 S.F./hr. in & 135 S.F./hr. out		270	.148		1.61	3.41	.56	5.58	7.75
4200	14' deep, 42 S.F./hr. in & 126 S.F./hr. out		250	.160		1.66	3.68	.61	5.95	8.30
4300	16' deep, 40 S.F./hr. in & 120 S.F./hr. out		240	.167		1.71	3.84	.64	6.19	8.65
4400	18' deep, 38 S.F./hr. in & 114 S.F./hr. out		230	.174		1.76	4	.66	6.42	8.95
4500	20' deep, 35 S.F./hr. in & 105 S.F./hr. out		210	.190		1.82	4.38	.73	6.93	9.70
4520	Left in place, 8' deep, 55 S.F./hr		440	.091		2.73	2.09	.35	5.17	6.70
4540	10' deep, 50 S.F./hr		400	.100		2.88	2.30	.38	5.56	7.20
4560	12' deep, 45 S.F./hr.		360	.111		3.04	2.56	.42	6.02	7.85
4565	14' deep, 42 S.F./hr.		335	.119		3.22	2.75	.45	6.42	8.35
4570	16' deep, 40 S.F./hr.		320	.125		3.42	2.88	.48	6.78	8.80
4580	18' deep, 38 S.F./hr.		305	.131		3.65	3.02	.50	7.17	9.30
4590	20' deep, 35 S.F./hr.		280	.143		3.91	3.29	.54	7.74	10.05
4700	Alternate pricing, left in place, 8' deep		1.76	22.727	M.B.F.	615	525	86.50	1,226.50	1,600
4800	Drive, extract and salvage, 8' deep		1.32	30.303		545	700	115	1,360	1,875
5000	For treated lumber add cost of treatment to lumber									
5010	See division 063-102									

021 620 | Cribbing & Walers

		Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl. O&P
624 0010	SOLDIER BEAMS & LAGGING H piles with 3" wood sheeting									624
0020	horizontal between piles, including removal of wales & braces									
0100	No hydrostatic head, 15' deep, 1 line of braces, minimum	B-50	545	.206	S.F.	6.45	5.40	2.74	14.59	19.05
0200	Maximum		495	.226		7.15	5.95	3.01	16.11	21
0400	15' to 22' deep with 2 lines of braces, 10" H, minimum		360	.311		7.60	8.20	4.14	19.94	26.50
0500	Maximum		330	.339		8.60	8.95	4.52	22.07	29

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021 | Site Preparation & Excavation Support

021 400 | Dewatering

			Crew	Daily Output	Labor-Hours	Unit	1999 Bare Costs Mat.	Labor	Equip.	Total	Total Incl. O&P	
404	2000	24" pipe, corrugated, 14 ga.	B-6	40	.600	L.F.	21.50	14	5.45	40.95	52	404
	2200	Wood lining, up to 4' x 4', add (R021-440)		300	.080	SFCA	3	1.87	.73	5.60	7	
	9950	See div. 021-444 for wellpoints										
	9960	See div. 021-484 for deep well systems										
	9970	See div. 152 400 for pumps										

021 440 | Wellpoints

			Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl. O&P	
444	0010	WELLPOINTS For wellpoint equipment rental, see div. 016-490										
	0100	Installation and removal of single stage system (R021-440)										444
	0110	Labor only, .75 labor hours per L.F., minimum	1 Clab	10.70	.748	L.F. Hdr		16.05		16.05	25	
	0200	2.0 labor-hours per L.F., maximum	"	4	2	"		43		43	67.50	
	0400	Pump operation, 4 @ 6 hr. shifts										
	0410	Per 24 hour day	4 Eqlt	1.27	25.197	Day		685		685	1,050	
	0500	Per 168 hour week, 160 hr. straight, 8 hr. double time		.18	177	Week		4,825		4,825	7,350	
	0550	Per 4.3 week month		.04	800	Month		21,800		21,800	33,100	
	0600	Complete installation, operation, equipment rental, fuel &										
	0610	removal of system with 2" wellpoints 5' O.C.										
	0700	100' long header, 6" diameter, first month	4 Eqlt	3.23	9.907	L.F. Hdr	100	269		369	520	
	0800	Thereafter, per month		4.13	7.748		80	211		291	410	
	1000	200' long header, 8" diameter, first month		6	5.333		100	145		245	330	
	1100	Thereafter, per month		8.39	3.814		45	104		149	208	
	1300	500' long header, 8" diameter, first month		10.63	3.010		35	82		117	163	
	1400	Thereafter, per month		20.91	1.530		25	41.50		66.50	91	
	1600	1,000' long header, 10" diameter, first month		11.62	2.754		30	75		105	147	
	1700	Thereafter, per month		41.81	.765		15	21		36	48	
	1900	Note: above figures include pumping 168 hrs. per week										
	1910	and include the pump operator and one stand-by pump.										

021 480 | Relief Wells

			Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl. O&P	
484	0010	WELLS For dewatering 10' to 20' deep, 2' diameter										
	0020	with steel casing, minimum	B-6	165	.145	V.L.F.	2	3.40	1.33	6.73	8.95	484
	0050	Average		98	.245		4	5.70	2.23	11.93	15.75	
	0100	Maximum		49	.490		10	11.45	4.47	25.92	33.50	
	0300	For pumps for dewatering, see division 016-420-4100 to 4400										
	0500	For domestic water wells, see division 026-704										

021 520 | Shores

			Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl. O&P	
524	0010	SHORING Existing building, with timber, no salvage allowance	B-51	2.20	21.818	M.B.F.	645	475	78	1,198	1,550	524
	1000	With 35 ton screw jacks, per box and jack	"	3.60	13.333	Jack	40	291	47.50	378.50	550	
	1100	Masonry openings in walls, see div. 020-704										

021 560 | Underpinning

			Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl. O&P	
564	0010	UNDERPINNING FOUNDATIONS Including excavation,										
	0020	forming, reinforcing, concrete and equipment										564
	0100	5' to 16' below grade, 100 to 500 C.Y.	B-52	2.30	24.348	C.Y.	168	615	188	971	1,350	
	0200	Over 500 C.Y.		2.50	22.400		152	565	173	890	1,250	
	0400	16' to 25' below grade, 100 to 500 C.Y.		2	28		185	705	216	1,106	1,550	
	0500	Over 500 C.Y.		2.10	26.667		175	670	206	1,051	1,475	
	0700	26' to 40' below grade, 100 to 500 C.Y.		1.60	35		202	880	270	1,352	1,900	
	0800	Over 500 C.Y.		1.80	31.111		185	785	240	1,210	1,700	
	0900	For under 50 C.Y., add					10%	40%				
	1000	For 50 C.Y. to 100 C.Y., add					5%	20%				

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021 | Site Preparation & Excavation Support

			CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1999 BARE COSTS MAT.	LABOR	EQUIP.	TOTAL	TOTAL INCL. O&P
		021 140 | Stripping									
144	0010	**STRIPPING** Topsoil, and stockpiling, sandy loam									
	0020	200 H.P. dozer, ideal conditions	B-10B	2,300	.005	C.Y.		.14	.36	.50	.61
	0100	Adverse conditions	"	1,150	.010			.27	.73	1	1.22
	0200	300 HP dozer, ideal conditions	B-10M	3,000	.004			.10	.38	.48	.57
	0300	Adverse conditions	"	1,650	.007			.19	.69	.88	1.04
		021 150 | Selective Clearing									
154	0010	SELECTIVE CLEARING									
	1000	Stump removal on site by hydraulic backhoe, 1-1/2 C.Y.									
	1040	4" to 6" diameter	B-17	60	.533	Ea.		12.30	9.70	22	29.50
	1050	8" to 12" diameter	B-30	33	.727			17.60	48.50	66.10	80
	1100	14" to 24" diameter		25	.960			23	64	87	106
	1150	26" to 36" diameter		16	1.500			36.50	100	136.50	166
	2000	Remove selective trees, on site using chain saws and chipper,									
	2050	not incl. stumps, up to 6" diameter	B-7	18	2.667	Ea.		61	66	127	168
	2100	8" to 12" diameter		12	4			92	99	191	252
	2150	14" to 24" diameter		10	4.800			110	119	229	300
	2200	26" to 36" diameter		8	6			138	148	286	380
	2300	Machine load, 2 mile haul to dump, 12" diam. tree, add								150	225
		021 200 | Structure Moving									
204	0010	**MOVING BUILDINGS** One day move, up to 24' wide									
	0020	Reset on new foundation, patch & hook-up, average move				Total					8,700
	0040	Wood or steel frame bldg., based on ground floor area	B-4	185	.259	S.F.		5.70	2.57	8.27	11.70
	0060	Masonry bldg., based on ground floor area	"	137	.350			7.65	3.47	11.12	15.80
	0200	For 24' to 42' wide, add									15%
	0220	For each additional day on road, add	B-4	1	48	Day		1,050	475	1,525	2,175
	0240	Construct new basement, move building, 1 day									
	0300	move, patch & hook-up, based on ground floor area	B-3	155	.310	S.F.	5.75	7.15	11.30	24.20	30
		021 400 | Dewatering									
404	0010	**DEWATERING** Excavate drainage trench, 2' wide, 2' deep (R021-440)	B-11C	90	.178	C.Y.		4.43	2.43	6.86	9.50
	0100	2' wide, 3' deep, with backhoe loader	"	135	.119			2.95	1.62	4.57	6.35
	0700	Excavate sump pits by hand, light soil	1 Clab	7.10	1.127			24		24	38
	0300	Heavy soil	"	3.50	2.286			49		49	77
	0500	Pumping 8 hr., attended 2 hrs. per day, including 20 L.F.									
	0560	of suction hose & 100 L.F. discharge hose									
	0600	2" diaphragm pump used for 8 hours	B-10H	4	3	Day		78	11.10	89.10	132
	0620	Add per additional pump							35	35	40
	0650	4" diaphragm pump used for 8 hours	B-10I	4	3			78	23.50	101.50	146
	0670	Add per additional pump							75	75	85
	0800	8 hrs. attended, 2" diaphragm pump	B-10H	1	12			315	44.50	359.50	530
	0820	Add per additional pump							35	35	40
	0900	3" centrifugal pump	B-10J	1	12			315	58	373	545
	0920	Add per additional pump							49.50	49.50	54.50
	1000	4" diaphragm pump	B-10I	1	12			315	94	409	585
	1020	Add per additional pump							85	85	98
	1100	6" centrifugal pump	B-10K	1	12			315	220	535	720
	1120	Add per additional pump							110	110	125
	1300	CMP, incl. excavation 3' deep, 12" diameter	B-6	115	.209	L.F.	8.95	4.88	1.90	15.73	19.45
	1400	18" diameter		100	.240	"	9.95	5.60	2.19	17.74	22
	1600	Sump hole construction, incl. excavation and gravel, pit		1,250	.019	C.F.	.56	.45	.18	1.19	1.51
	1700	With 12" gravel collar, 12" pipe, corrugated, 16 ga.		70	.343	L.F.	11.90	8	3.13	23.03	29
	1800	15" pipe, corrugated, 16 ga.		55	.436		14.65	10.20	3.98	28.83	36.50
	1900	18" pipe, corrugated, 16 ga.		50	.480		13.30	11.20	4.38	28.88	37

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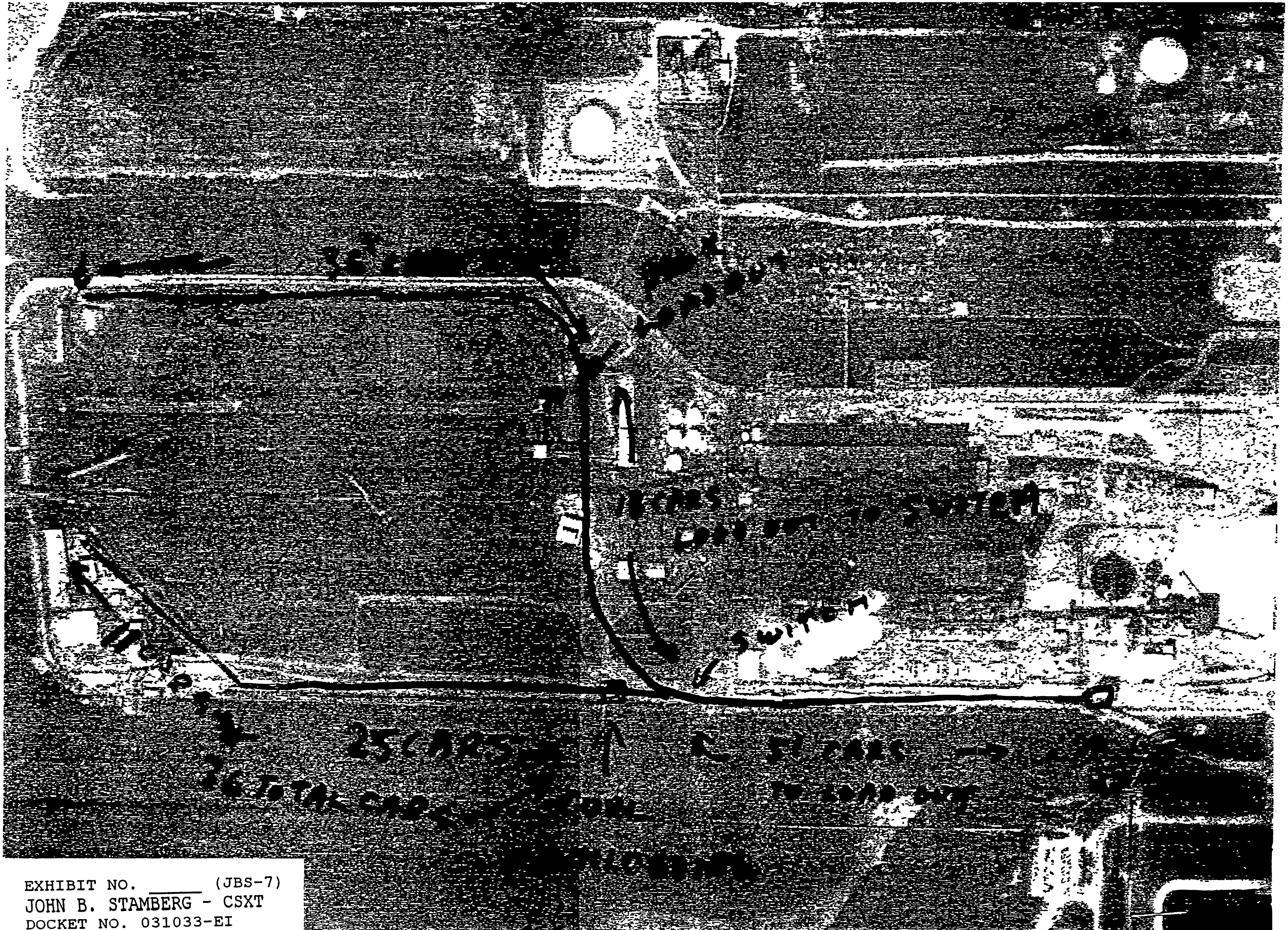
Exhibit ____(JBS-7)

Conceptual Diagram – EVA "Cooperative" Rail Delivery System



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COOP SYSTEM POLK RELOAD/BIG BEND UNLOAD

EXHIBITS 8, 9, AND 10 TO MR. STAMBERG'S TESTIMONY ARE CONFIDENTIAL AND HAVE BEEN REDACTED FROM THIS PUBLICLY FILED VERSION OF HIS TESTIMONY.

CERTIFICATE OF SERVICE
DOCKET NO. 031033

I HEREBY CERTIFY that the original and 15 copies of the foregoing testimony have been filed with the Clerk's Office, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399 and that a true and correct copy of the foregoing has been served by hand delivery(*) or by overnight courier service this 30th day of March, 2004, on the following:

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