EAST KENTUCKY POWER COOPERATIVE

October 7, 2005

HAND DELIVERED

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PUBLIC SERVICE COMMISSION

Ms. Elizabeth O'Donnell
Executive Director
Public Service Commission
211 Sower Boulevard
Frankfort, KY 4060

Case 2005-00417

Dear Ms. O'Donnell:

Please find enclosed for filing with the Commission an original and ten copies of the Application of East Kentucky Power Cooperative, Inc., for a Certificate of Public Convenience and Necessity for the Construction of a Flue Gas Desulfurization System on Spurlock Power Station Unit 2.

Very truly yours,

Charles A. Lile
Senior Corporate Counsel

Enclosures

4775 Lexington Road 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

A Touchstone Energy Cooperative

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPURLOCK POWER STATION UNIT 2	)))))	**CASE NO. 2005-** 00417

APPLICATION

1. Applicant, East Kentucky Power Cooperative, Inc., hereinafter referred to as "EKPC", Post Office Box 707, 4775 Lexington Road, Winchester, Kentucky 40392-0707, files this Application for a Certificate of Public Convenience arid Necessity for the purchase and installation of a flue gas desulfurization ("scrubber") system at its H. L,. Spurlock Generating Facility Unit 2 in Mason County, Kentucky ("Spurlock 2").

2. This Application is made pursuant to KRS §278.020 and related statutes, arid 807 KAR 5:001 Sections 8, 9, and related sections.

3. A copy of Applicant's restated Articles of Incorporation and all amendments thereto were filed with the Public Service Commission (the "Commission") in PSC Case No. 90-197, the Application of EKPC for a Certificate of Public Convenience and Necessity to Construct Certain Steam Service Facilities in Mason County, Kentucky.

4. A copy of the resolution from Applicant's Board of Directors approving the filing of this application is filed herewith as Applicant's Exhibit 1.

5. Pursuant to KRS §278.020 and 807 KAR 5:001, Section 9, Applicant states that the power requirements of EKPC and its sixteen (16) member distribution cooperatives require the

construction of the proposed scrubber facilities, wliicli are more fully described in the various exhibits filed with this Application. In further support of Applicant's contention that the public convenience and necessity requires the proposed facilities, Applicant submits the following:

(a) The need for the proposed scrubber facilities and the alternatives considered, are documented in tlie Stanley Consultants, Inc. ("Stanley") Recommendation dated August 25, 200.5, designated as Applicant's Exhibit 2; and in the Economic Evaluation Report included as Testimony Exhibit A to tlie Prepared Testimony of Frank Oliva, Applicant's Exhibit 6, which discusses and explains this evaluation;

(b) A description of the proposed scrubber facilities is included in Applicant's Exhibit 3. Maps showing the proposed locatioii of the scrubber site location at Spurlock are attached as Applicant's Exhibit 4.

(c) A Project Cost Estimate for the proposed facilities is included as Applicant's Exhibit 5.

6. The manner of financing proposed for the project, which will include the issuance of indebtedness to the United States of America through the Rural Utilities Service ("RUS"), is discussed in tlie Prepared Testimony of Frank Oliva, which is included as Applicant's Exhibit 6. Since U.S. Government financing is anticipated, which does not require Commission approval under KRS §278.300(10), no request for financing approval is made herein.

7. Applicant's plaiis for obtaining permits required for tlie proposed facilities are as follows: EKPC will submit to the Kentucky Natural Resources and Environmental Protection Cabinet ("KNREPC") Division for Air Quality requests to modify existing operating permits to reflect the installation of the proposed scrubber technologies at Spurlock Station. EKPC will

also request modifications from the KNREPC Division of Water for wastewater discharges associated with this project.

8. The Prepared Testimony of Robei-t E. Hughes, Jr., concerning the regulatory requirements surrounding the need for the proposed scrubber facilities, is attached as Applicant's Exhibit 7.

9. The Prepared Testimony of Jeff Brandt, concerning tlie need and justification for the proposed facilities, the equipment and technology involved, the capital and operating costs of the proposed facilities, and the proposed construction schedule, is attached as Applicant's Exhibit 8.

10. The Prepared Testimony of Jerry Bordes, concerning the reasons why EKPC considered installing a sulfur dioxide scrubber for Spurlock Unit 2 at this time, and the impact of the scrubber system on the fuel requirements for the plant, is attached as Applicant's Exhibit 9.

WHEREFORE, the Applicant, East Kentucky Power Cooperative, Iiic., requests that this Commission issue an order granting a Certificate of Public Convenience and Necessity for the construction of the Proposed Facilities.

Respectfully submitted,

DALE W. HENLEY

CHARLES A. LILE

ATTORNEYS FOR APPLICANT
EAST KENTUCKY POWER
COOPERATIVE, INC.
P.O. BOX 707
WINCHESTER, KY 40392-0707
(859) 744-4812

(ScbıSpur2App)

LIST OF EXHIBITS

EAST KENTUCKY POWER COOPERATIVE, INC.

EXHIBIT 1	EKPC Board Resolution – September 13,2005
EXHIBIT 2	Stanley Consultant's Recommendation
EXHIBIT 3	Description of Scrubber Facility
EXHIBIT 4	Maps of Location for Facility
EXHIBIT 5	Project Cost Estimate
EXHIBIT 6	Testimony of Frank Oliva
EXHIBIT 7	Testimony of Robert E. Hughes Jr.
EXHIBIT 8	Testimony of Jeff Brandt
EXHIBIT 9	Testimony of Jerry Bordes

**FROM THE MINUTE BOOK OF PROCEEDINGS
OF THE BOARD OF DIRECTORS OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, September 13, 2005, at 1:55 p. m., EDT, the following business was transacted:

After review and discussion of the applicable information, a motion was made by Jimmy Longmire, seconded by E. A. Gilbert, and, there being no further discussion, passed to approved the following:

Whereas, The Spurlock Power Station ("Spurlock") Unit 2 is equipped with a scrubber built in 1982;

Whereas, In 1984, an economic decision was made to bum compliance fuel and not operate the scrubber;

Whereas, This equipment has been maintained with minimal effort and no upgrades made for over twenty years, therefore, an extensive upgrade would be necessary to operate the existing scrubber;

Whereas, An economic evaluation of the viability of the Spurlock Unit 2 scrubber focused on a comparison of the all-in cost of operating a scrubber burning high-sulfur coal versus burning low-sulfur compliance coal in the non-scrubbed unit;

Whereas, Factors included were projected fuel costs, scrubber capital costs, SO_2 allowance costs, maintenance costs, limestone costs, ash landfill costs, and other operating costs;

Whereas, Three scrubber options were analyzed: (1) a refurbished lime scrubber (2) conversion of lime to limestone scrubber, (3) a new limestone scrubber;

Whereas, All three options included a wet electrostatic precipitator for SO_2 reduction and primarily due to reduced estimated annual operation and maintenance costs, the new limestone scrubber option is preferred over the refurbished limestone scrubber;

Whereas, To obtain bids for both a refurbished and a new scrubber, two sets of bid documents were issued to each of two bidders;

Whereas, Bids were received from Babcock & Wilcox (B&W), Barberton, Ohio and Alstom Power, Inc. (Alstom), Knoxville, Tennessee;

Whereas, Both bids for a refurbished scrubber were significantly higher than for a new scrubber and the bidders were asked to explain this;

Whereas, A primary reason for a higher cost for providing a refurbished scrubber is that the existing scrubber has significantly more pieces of equipment than a new scrubber and this would mean more supporting equipment as well;

Whereas, Evaluating existing equipment and the ability for this equipment to be capable of meeting the performance guarantees is extremely difficult;

Whereas, The operating and maintenance (O&M) costs would be expected to be higher with refurbished and rebuilt equipment, with O&M costs and potential for outages lower with the new equipment;

Whereas, As the new scrubber proposals were significantly lower in cost and risk than the refurbished, it was decided to only evaluate the bids for the new scrubber;

Whereas, Alstom's bid was evaluated the lowest at $135,882,910, with B&W's bid evaluated at $142,635,194, and the engineer's estimate was $148 million;

Whereas, The evaluated bids include the following recommended alternates:

- Produce wallboard quality gypsum: $4,746,000
- Stebbins tile lined reagent feed tank: $380,000
- Owner provided storage warehouse: ($133,000)

Whereas, The Fuel and Power Supply Committee and EKPC management recommend the award of a contract to Alstom to engineer, provide, and construct a new limestone scrubber, with a wet precipitator, at a cost of $139,706,060;

Whereas, This project is included in the 2005 –2007 Budget and Work Plan and should be funded with general funds, to be reimbursed with loan funds, should they become available;

Whereas, This project supports EKPC's key measure of supplying reliable and competitive energy; and

Whereas, The Fuel and Power Supply Committee and EKPC management recommend the approval to engineer, provide, and construct a new limestone scrubber at a cost of $ $162,806,060 (excluding interest during construction) and the approval to request a Certificate of Public Convenience and Necessity from the Kentucky Public Service Commission; now, therefore, be it

Resolved, That the EKPC Board hereby approves a new limestone scrubber, with a wet precipitator, at a cost of $162,806,060, and approves the request to the Kentucky Public Service Commission for a Certificate of Public Convenience and Necessity, and

authorizes the EKPC President and Chief Executive Officer or his designee to execute all documents required to submit the application for the certificate;

Resolved, That approval is hereby given for the use of general funds for this project, subject to reimbursement from loan funds, when and if such funds become available; and

Resolved, That the EKPC Board also approves the award of a contract to Alstom Power, Inc. to engineer, provide, and construct a new limestone scrubber, with a wet precipitator, on Unit 2 at Spurlock Power Station for $139,706,060, and authorizes the EKPC President and Chief Executive Officer or his designee to execute all documents required to award this contract.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 13th day of September 2005.

P. L. Rasenberger

A. L. Rasenberger, Secretary

Corporate Seal

Stanley Consultants INC
A Stanley Group Company
Engineering, Environmental and Construction Services - Worldwide

August 25, 2005

Mr. Randy Dials
East Kentucky Power Cooperative
4775 Lexington Road 40931
P.O. Box 707
Winchester, KY 40392-0707

Dear Randy:

Subject: Spurlock Unit 2
Contract D204 – Flue Gas Cleaning System
Recommendation for Award

Stanley Consultants, Inc., has conipleted a technical review of the bids as received on June 30,2005, and July 21,2005, for Contract D204 – Flue Gas Cleaning System.

Two sets of bidding documents were issued to each bidder. Base Bid 1 included the replacement of the existing scrubber and auxiliary systems for Spurlock Unit 2 with a complete new sulfur dioxide (SO_2) scrubber, liinestone preparation, storage, and pumping systems, and wet electrostatic precipitator (WESP). Base Bid 2 required that the existing scrubber system be refurbished and returned to operating condition, converted to use limestone reagent, meet more stringent emission guarantees, and updated to current industry design standards and operating practices.

Bids were received from Babcock & Wilcox (B&W), Barberton, Ohio, and Alstom Power, Inc. (Alstoni), Knoxville, Tennessee. Refer to the bid tabulation attached for the bid amounts. Both bidders had significant commercial and technical clarifications and exceptions.

Two meetings were held with each bidder for formal presentations of their proposals and to answer questions about their bids.

Base Bid 2 – Scrubber Refurbishment
Alstoin's Base Bid 2 to refurbish and upgrade the existing scrubber and auxiliary systems was $143,516,000. This amount was approximately $16 million higher than their Base Bid 1 amount for a new flue gas cleaning system. Likewise B&W's Base Bid 2 was over $23 million higher than their Base Bid 1. Reasons were requested from the bidders to explain the differences in costs.

Under Base Bid 1, one new absorber module would be installed to treat the total flue gas flow and replace the four existing absorbers. More equipment is required to operate the four existing absorber modules than a single new absorber. For example, the four existing absorbers would require 16 slurry recirculation pumps instead of four larger pumps for a new single absorber system. The cost of four larger capacity pumps is less than 16 smaller pumps. Another example is the absorber agitators. Six agitators would be required for a new single absorber installation, while as many as 20 are necessary for the four existing absorbers.

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Another consideration is the increased financial risk to the successful bidder. The performance of a new scrubber system can be predicted and established by design to a high degree of accuracy. Risks of not meeting emission and performance guarantees are minimal. There are significant risks involved in attempting to refurbish and upgrade the existing scrubber systems. The reasons include:

- The unknown condition of the existing equipment after sitting idle for over 20 years. The repair costs or the need to replace existing equipment are difficult to evaluate.
- Higher sulfur dioxide removal efficiency (98 percent) to meet environmental regulations. The height and diameter of the refurbished existing absorber modules would be less than optimums to meet current design standards and achieve guaranteed emissions.
- Conversion of the reagent used from lime to limestone. The cost of limestone is 10 percent that of lime. However, the capacities and performance of all existing auxiliary systems including tanks, pumps, piping, silos, etc., are all designed for the more reactive lime. The performance of any existing equipment if reused is questionable.

The bids received reflect the added risk and contingencies included in establishing the costs of the Base Bid 2 rebuild plan.

The maintenance and operating costs would be expected to be higher with refurbished and rebuilt equipment. East Kentucky Power Cooperative (EKPC) would benefit by having all new systems. Maintenance costs and the potential for unit outages would be lower. There are fewer pieces of equipment to operate arid maintain. Some troublesome equipment, such as absorber isolation dampers, would be eliminated.

Since Base Bid 2 for refurbishing the existing scrubber systems is higher in cost than Base Bid 1 for a new flue gas cleaning system, and with the maintenance and operating benefits for new equipment, Base Bid 2 was not evaluated further for either bidder.

Base Bid 1 – New Flue Gas Cleaning System
Alstom's lump sum Base Bid 1 price as submitted was $127,193,000. The Base Bid 1 amount from B&W as submitted was $135,892,794. Both bids included large numbers of commercial and technical exceptions. The exceptions were not sufficiently serious to declare the bids non-responsive. In addition, both bidders included certain materials and labor that are subject to escalation, but failed to provide the inaximuin amount of the escalation for bid evaluation.

Both bidders were permitted to withdraw or modify their technical exceptions arid provide additional costs where necessary to bring their bids into conformance with the bid documents. Estiniates were provided for the maximum escalation applicable to inaterials and labor subject to increases.

Operating costs were coinpared for power usage, limestone usage, water required, waste production, etc., as listed in RUS Form 200, Notice and Instructions to Bidders, paragraph 10, "Evaluation Factors." Only the difference in electrical power consumption was judged to be significant and included in the evaluated price.

The Alstom evaluated price is the lowest at $135,883,910. B&W's evaluated price is $143,027,254. There are remaining technical issues in B&W's bid that would raise their price further if pricing was obtained and included. The evaluated prices include the alternates recommended for acceptance from the list specified in the bid documents. Refer to the Base Bid 1 evaluation sheet attached for details.

Recommendation of Alternates
Seven alternates were specified in the bid documents. The following alternates are recommended for acceptance:

- Alternate 4 – Produce Wallboard Quality Gypsum: Additional expenditures for dewatering equipment, cake washing system, larger mills, larger reaction tank, and other items totaling $4,746,000 will produce a gypsum product that is suitable for sale to wallboard manufacturers. Otherwise the waste material will need to be landfilled. Initial contacts with wallboard manufacturers by EKPC indicate an interest in purchasing the gypsum. Preliminary calculations by EKPC show a short-term payback in avoided landfill costs including future new landfill development.
- Alternate 5 – Stebbins Tile Lined Reagent Feed Tank: The use of tile to line the reagent (limestone) feed tank will result in a tank impervious to corrosion and wear for this severe service. The tile will have a significantly longer life than the trowel apply vinyl ester coating specified in the base bid. The cost of this option is $380,000.
- Alternate 7 – Owner Provided Storage Warehouse: The bidder will give a credit of $133,000 if EKPC provides the storage building for critical components during construction. This is approximately the cost of building the warehouse, which would then remain after construction for EKPC's use. If the contractor provided the warehouse, it would be removed at the conclusion of construction.

Alternates 1, 2, 3, and 6 are not recommended.

- Alternates 1 and 6 – Stebbins Tile Lined Absorber and Auxiliary Storage Tank: These alternates are not recommended due to the high cost. Alloy 2205 is satisfactory as the absorber material of construction. The auxiliary feed tank will only be used during a unit shut down. The lining specified will be satisfactory with the low usage.
- Alternate **2** – Delete WESP: The WESP is recommended for installation. It should not be deleted. Firing of high sulfur coal in boilers equipped with SCR Systeins will result in the conversion of small amounts of sulfur dioxide (SO_2) to sulfur trioxide (SO_3). Sulfur trioxide is not removed in the scrubber. The result can be the emission from the chimney of a blue haze as has occurred at other utilities. Alstoin predicts the formation of 70 ppm of sulfur trioxide in the Unit 2 boiler and SCR. Levels in excess of 8 ppm can be visible from the chimney. The installation of the WESP is required to meet opacity emission regulations.

Several other alternates were proposed by bidders and should be accepted.

- Slurry Pump Mechanical Seals – Alstom proposed the use of standard slurry pump seals instead of the double mechanical seals specified. Performance will be equivalent. A deduct of $146,500 will result.

- Delete PLC and DCS Control Systems – EKPC will contract directly with ABB to provide the scrubber control systems at lower cost. A total of $626,000 will be deleted from Alstom's bid.
- Alloy 2205 Mist Eliminator Wash Headers – The alloy piping material will provide better corrosion resistant and longer life than the FRP material specified. The additional cost is $124,000.
- Ball Mill Size Increase – The limestone tested and specified for use as the scrubber reagent had a low Bond Work Index (BWI). The BWI correlates to the ability of the ball mills to grind the limestone. If the limestone supply was changed in the future to a harder limestone, the ball mills may have insufficient capacity to meet the demand. The ball mills should be upgraded to accommodate a limestone with a more typical BWI of 11. The additional cost is $480,000.

Recommendation for Award
Based on the preceding technical bid evaluation, it is recommended that EKPC award Contract D204 – Flue Gas Cleaning System for Spurlock Unit 2 to Alstom Power, Inc., for the revised Lump Sum Base Bid price of $133,706,060. The contract will be subject to escalation due to potential labor and material price increases in the future. These additional costs are estimated by Alstom to be *$6* million.

Alstom withdrew a large number of their initial commercial exceptions and clarifications. EKPC and Alstom have reached agreement on the remaining items.

The Engineer's estimate for Base Bid 1 as provided June 29,2005, was $148 million. Thus the recommended D204 contract award price is over $14 million, about 10 percent, less than the estimate. A number of future contracts will be required to complete the flue gas cleaning system project. These contracts include demolition of the existing scrubber system, high-voltage electrical upgrades, foundations, and a material handling contract for limestone reagent unloading / gypsum loading, conveying, and storage.

Sincerely,

Stanley Consultants, Inc.

Larry A Shell
Vice President

Attachments

cc: Diana Pulliam – EKPC
cc: Sam Holloway – EKPC
cc: Jeff Brandt - EKPC
cc: Steve Schebler
cc: General Files 16000

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EXHIBIT 3

FACILITY DESCRIPTION

The flue gas cleaning system proposed involves the use of a wet flue gas desulfurization ("WFGD") system and a wet electrostatic precipitator ("WESP") to reduce sulfur dioxide and total particulate emissions from the flue gas. The systein includes a state-of-the art open spray tower design that has been proven at over 33,000 MW of power generation capacity.

The WFGD/WESP scope of supply includes an absorber island, flue gas system ductwork, a reagent preparation system, limestone slurry storage and feed system, a primary dewatering system, a secondary dewatering system, a gypsum handling system, a wet electrostatic precipitator, and various auxiliary systems and miscellaneous equipment. Foundations, electrical upgrades, and system controls are also part of the project.

The absorber island iiicludes absorbers with integral reaction tanks and internals (nozzles, headers, inist eliminators), recycle spray pumps, piping, suction isolation valves, reaction tank agitators, oxidation air lances, forced oxidation compressors with sound enclosures, emergency quench header and nozzles, aiid mist eliminator wash pumps.

The flue gas system ductwork includes induced draft fans aiid hydraulic unit, inlet ductwork, absorber outlet duct to stack breaching, ductwork expansion joints, duct insulation and lagging, and duct support steel with base plates, side plates aiid stiffeners.

The reagent preparation system includes a limestone day bin and discharge isolation, dust collector fans, a wet grinding ball niill and lubrication unit, a mill recycle tank and agitator, mill recycle pumps, hydrocyclones, and interconnecting piping & valves within the grinding circuit.

The limestone slurry storage and feed system includes a limestone slurry feed tank with agitator, limestone slurry feed pumps, and limestolie slurry feed piping and valves.

The primary dewatering system includes hydrocyclone feed pumps and a primary dewatering hydrocyclone.

The secondary dewatering system includes rotary drum vacuuin filters, vat agitators, an overflow tank and agitator, overflow tank pumps, vacuum pumps, and receivers.

The gypsum handling system iiicludes a gypsum transfer sliuttle conveyor, an emergency stacker, and a radial stacker.

The wet electrostatic precipitator includes an inlet nozzle, casings, cold roofs, outlet transitions, gas distribution devices and screens, collector systems, discharge electrode systems, SIR power supplies, controls, water re-circulation pumps, fresh water pumps,

water re-circulation tanks, water filters, sprays and associated piping, gauges and valves, a Mg(OH)2 water neutralization system, weather enclosures with ventilation and heating, and insulator air flushing systems.

The auxiliary systems and miscellaneous equipment includes sump pumps, agitators, piping, pipe racks, and corrosion-resistant linings for tanks.

Other items include an absorber area elevator, buildings, maintenance shop, HVAC, lifting equipment, lighting, communications system, lightning protection, fire protection, heat tracing, pipe insulation, safety showers and eyewash stations.

Electrical and controls includes ID fans, field instrumentation, a PLC control system, control logic, motors, transformers, motor control systems, power and control cables, grounding, and an uninterruptible power supply system.

The WFGD system utilizes a countercurrent, open spray tower FGD design with liollow cone spray nozzles. The spray tower also includes performance enhancement plates which minimize sneakage of flue gas at the periphery of tlie absorber. The flue gas enters the spray tower near the bottom through an inlet of nickel alloy material that resists the corrosion that can take place at the wet/dry interface. Once in the absorber, the hot flue gas is immediately quenclied as it travels upward countercurrent to a continuous spray process slurry produced by multiple spray banks.

The recycle slurry (a 15-20 percent concentration slurry of calciuin sulfate, calcium sulfite, unreacted alkali, inert materials, flyash and various dissolved materials) extracts the sulfur dioxide from tlie flue gas. Once in the liquid phase, the sulfur dioxide reacts with the dissolved alkali (calcium carbonate) to form dissolved calcium sulfite.

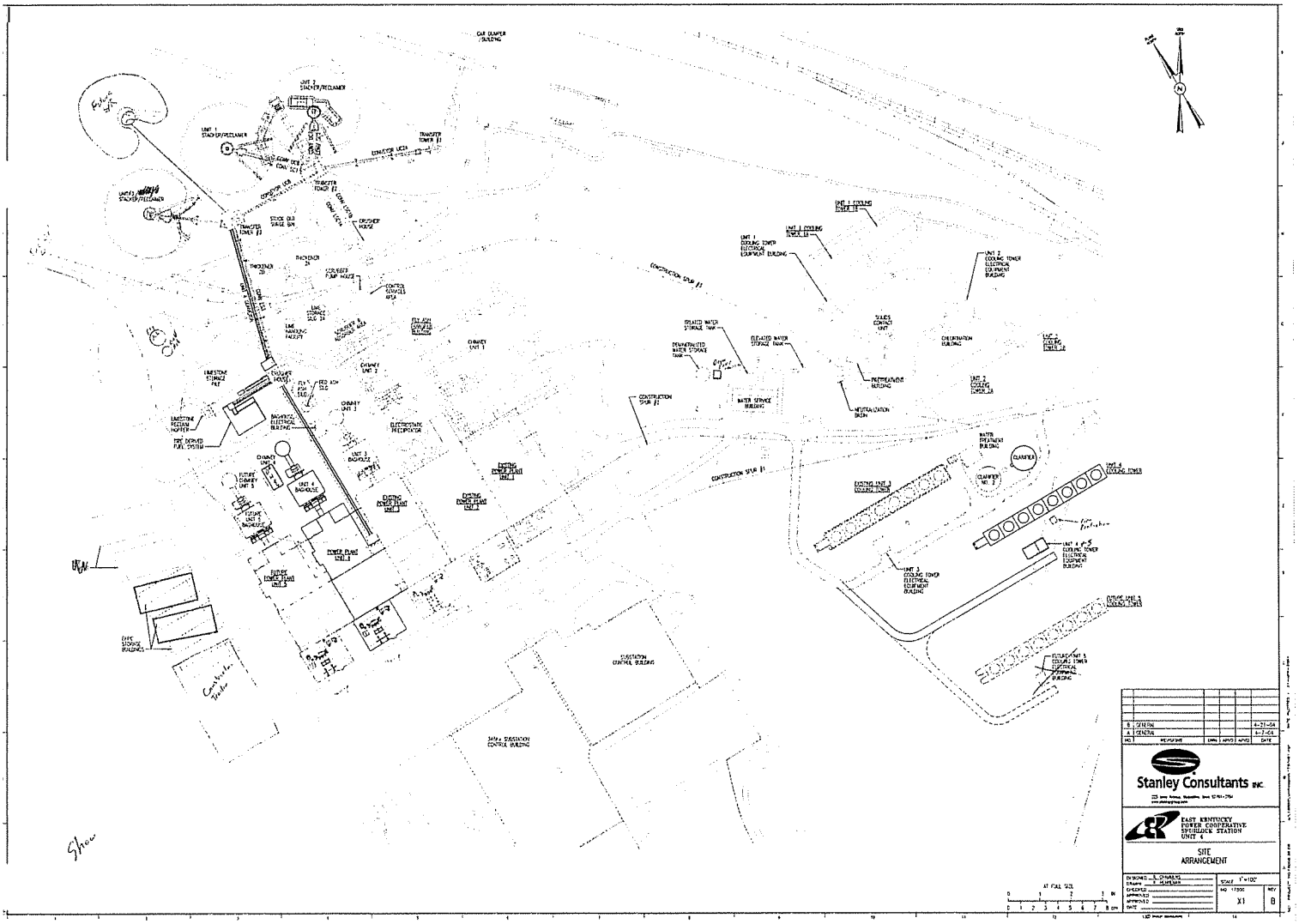
The system is designed to achieve 98% SO_2 removal efficiency without the use of organic additives at a maximum sulfur dioxide inlet loading of 42,668 lb/hr. The SO_2 removal efficiency is to be achieved without the use of the top spray level.

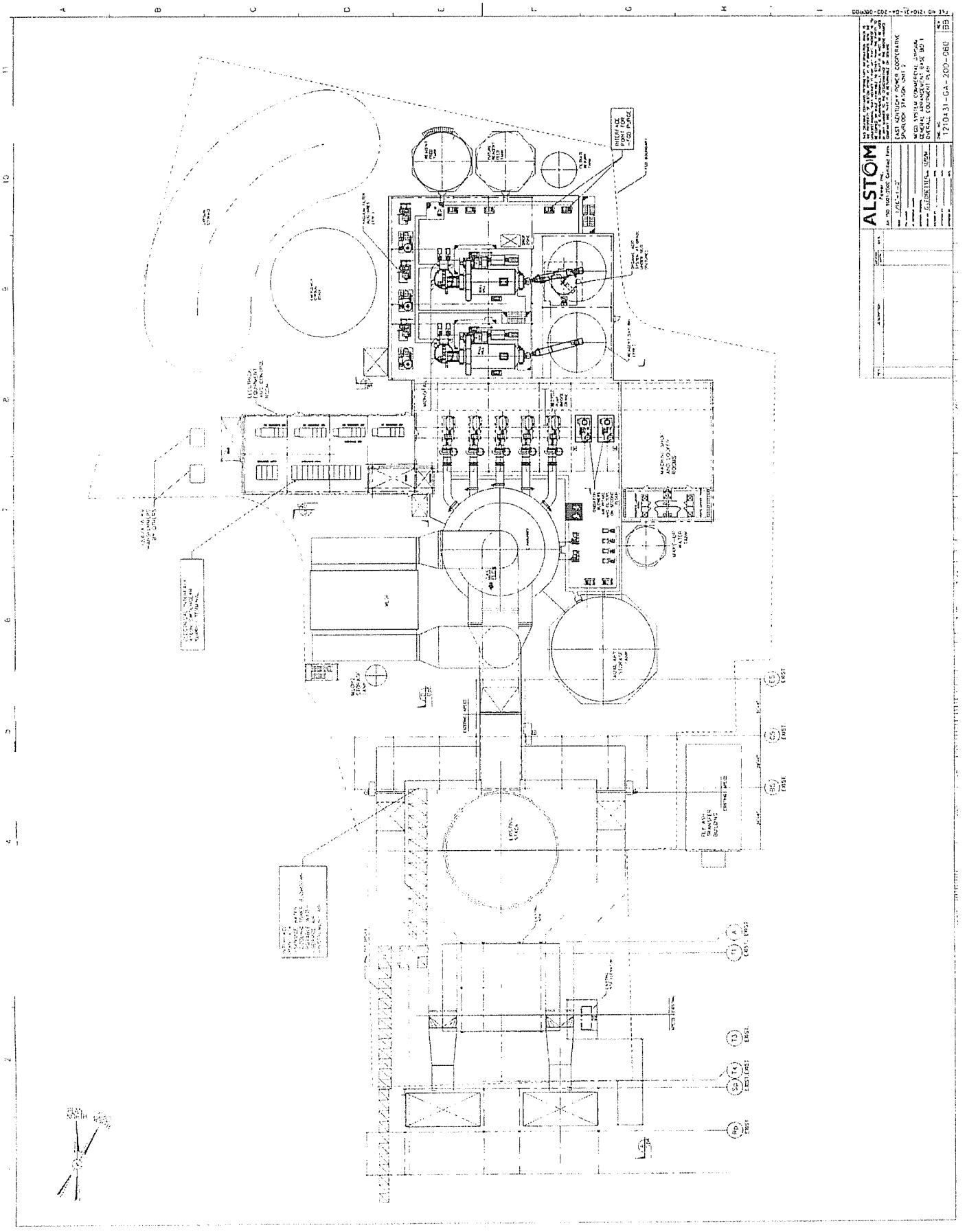
The system is designed to produce a disposable grade gypsum with a moisture content of 15 wt. %. Forced oxidation of the recycle slurry in this system produces a more manageable, easily handled gypsuin byproduct. Two 100% capacity centrifugal blowers supply air to this sparging system in tlie reaction tanlt.

Primary dewatering of the gypsum slurry is performed by a hydrocyclone classifier which splits the slui-ry into a low density stream of fines (overflow) and a high density stream of coarse crystals (underflow). The underflow is passed to the secondary dewatering system, which includes the vacuum filter system. The overflow is passed back to tlie slurry recycle tank.

Limestone will be the reagent provided to the system at a ¾" X 0" size with a Bond Work Index of 10 kwh/st. The wet grinding system is a wet closed-circuit ball mill, which produces a uniform slurry of limestone. The limestone grinding system consists of a ball

mill, a mill recycle tank, mill recycle pumps, a mill product classifier, and a distribution box. Hydrocycloiies are used in the grinding loop to classify the mill product slurry; coarse limestone in tlie underflow is returned to the mill for regrinding and fine limestone in the overflow is delivered to the reagent feed tank. Each ball mill is designed at 100% capacity at full load, design inlet SO_2 loading, 98% SO_2 removal efficiency, and 20-hour operatioii for the FGD system.


Stanley Consultants INC.
EAST KENTUCKY POWER COOPERATIVE SPURLOCK STATION UNIT 4
SITE ARRANGEMENT


ALSTOM
EAST KENTUCKY POWER COOPERATIVE
SPURLOCK STATION UNIT 2
GENERAL ARRANGEMENT PLAN
21013I-GA-200-060

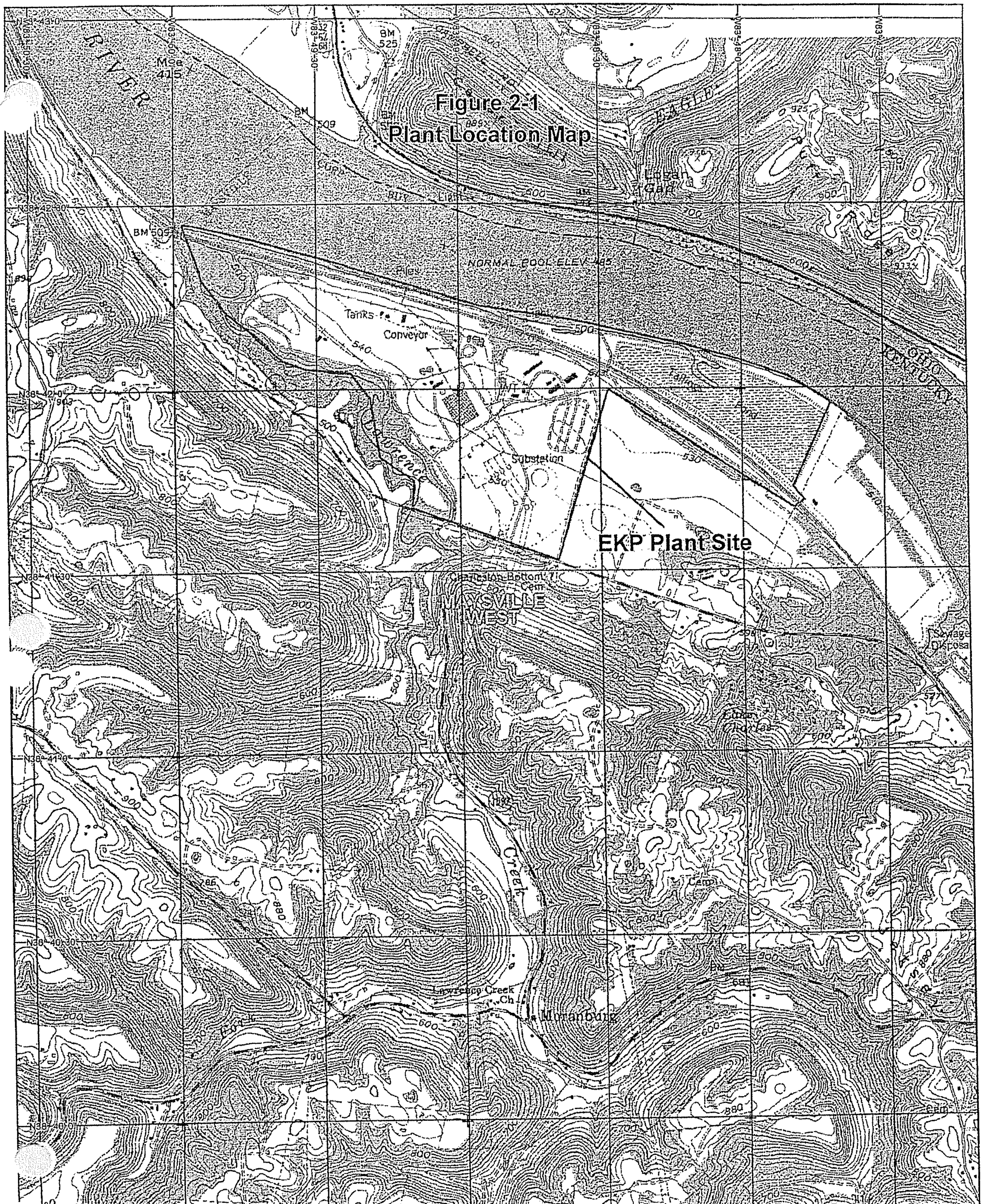


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EXHIBIT 5

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER)
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC)
CONVENIENCE AND NECESSITY FOR THE) CASE NO. 2005-
CONSTRUCTION OF A FLUE GAS DESULFUIUZATION)
SYSTEM ON SPURLOCK POWER STATION UNIT 2)

ESTIMATED PROJECT COST

SCRUBBER:	$110,676,060
WET PRECIPITATOR:	25,209,000
ELECTRICAL, UPGRADE:	3,500,000
FOUNDATIONS:	5,000,000
TRANSFORMERS:	2,000,000
OWNER'S COST:	5,000,000
SUBTOTAL:	$151,385,060
5% CONTINGENCY:	7,600,000
TOTAL:	$158,985,060

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In **the Matter** of:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPURLOCK POWER STATION UNIT 2	)))))	CASE NO. 2005-

PREPARED TESTIMONY OF FRANK J. OLIVA
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.

Q 1. Please state your name aiid address.

A1. My name is Frank J. Oliva, aiid my business address is P. O. Box 707, Winchester, Kentucky 40392-0707.

Q2. By whom are you employed and in what capacity?

A2. I am employed by East Kentucky Power Cooperative, Inc. ("EISPC"), as Manager of Finance, Planning aiid Risk Management.

Q3. As background for your testimony, please briefly describe your education background aiid work experience.

A3. I have a B.S. degree in Accouiitiiig from the University of Kentucky aiid a Masters degree in Business Administration from Xavier University. I have been employed by EKPC for 27 years. I served as General Accounting Supervisor from 1978 to 1985, Finance Manager from 1985 to 2002, and I have been in my current position with EKPC since February 2002. My responsibilities include finance, risk management, aiid power supply planning for the cooperative.

Q4. What is tlie estimated construction cost of tlie proposed scrubber facility?

A4. The estimated cost of tlie scrubber project is $158,985,060, which includes required electrical upgrades, foundations, and a wet precipitator.

Q5. Has EKPC purchased any equipment or made any financial commitments to equipment for this project?

A5. EIQC has not purcliased any equipment for tlie project. However, EKPC lias made expenditures for preliminary engineering work for tlie project.

Q6. How will EKPC finance the construction of tlie proposed facilities?

A6. This facility is proposed to be financed by a RUS long-tenn guaranteed loan from the Federal Financing Bank. Prior to approval of tlie long-term financing by RTJS, interim financing will be provided from a credit facility EIQC lias syndicated through National Rural Utilities Cooperative Finance Corporation ("CFC") and Bank of Tokyo-Mitsubishi.

Q7. Were you a participant in an evaluation which led to the decision by EISPC to construct a new limestone flue gas desulfurization ("scrubber") system at the Spurlock Generatiiig Unit No. 2?

A7. Yes.

Q8. What was your role in tliat evaluation?

A8. I was a member of the evaluation team charged with determining the best way for EKPC to comply with EPA's SO_2 coinpliaiice regulations for Spurlock Unit No. 2 in future years. I also oversaw the economic analysis that was used to evaluate EKPC's SO_2 emissions compliance alternatives.

Q9. What factors were considered in tlie economic analysis that was used to evaluate EKPC's SO_2 emissions coinpliaiice alternatives?

A9. The economic evaluatioii of tlie viability of tlie Spurlock Unit No. 2 scrubber focused on a coinparison of the all-in cost of operating a scrubber burning high-sulphur coal versus burning low-sulphur compliance coal in tlie non-scrubbed unit. Factors considered included projected fuel costs, scrubber capital costs, SO_2 allowaiice costs, maintenance costs, lime or limestone costs, ash landfill costs, and otlier operating costs. Three scrubber options were analyzed – (1) a refurbished lime scrubber, (2) a refurbished limestone scrubber, aiid (3) a new limestone scrubber.

All three options included a wet ESP, for SO_3 reduction. Primarily due to reduced estimated annual maintenance costs, the new limestone scrubber option was preferred over the refurbished liniestone scrubber.

Tlie evaluation was ruii for tlie years 2008-2036. In addition to compliance coal, various higher-sulphur fuels were evaluated. Tlie most likely to be used lion-compliance fuel was believed to be Northern Appalachian high-sulphur coal. This was generally considered as tlie baseline non-compliance fuel. A base fuel forecast through the year 2036 was done by Energy Ventures Analysis (EVA).

As the data was evaluated, it became apparent that the results of the study were influenced greatly by two variables - (1) tlie price spread between compliance coal aiid non-compliance coal, and (2) tlie cost of SO_2 emission allowances.

Tlie EVA projected price spread between compliance coal and the primary non-compliance coal averaged $1.13 per MMBtu over the evaluation period, ranging from $0.61 in 2008 to $1.70 in 2036. In tlie analysis, SO_2 emission allowance prices were based on a forecast done by EVA.

Q10. What did that economic analysis show?

A10. Over the evaluation period, the net present value (NPV) savings of operating a scrubber utilizing Northern Appalachian high-sulphur coal versus burning compliance coal in the Spurlock No. 2 unit is projected to be about $388 million. Operation of a scrubber is projected to reduce future fuel expense and SO_2 emission allowance expense by $810 inillioii and $139 million, respectively on a NPV basis. These savings will be partially offset by increased operation arid maintenance costs, as well as the fixed costs related to capital expenditures for the scrubber. See Oliva Testimony Exhibit **A** for a quantification of these assumptions, projected costs, and savings.

For the years 2008 and 2009, the projected savings due to operating a scrubber is estimated to be $5 million to $8 million, dependent on the date of commercial operation. Operation of a scrubber on the Spurlock Unit No. 2 appears to be the least-cost option when analyzed over the study period. Over the long-term, the price spread between compliance and non-compliance is projected to remain high enough to economically justify the scrubber operation.

Q11. Does this conclude your testimony?

A11. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPURLOCK POWER STATION UNIT 2	)))))	CASE NO. 2005-

AFFIDAVIT

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Frank J. Oliva, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, infoi-rnation and belief.

Frank J. Oliva

Subscribed and sworn before me on this 7th day of October, 2005.

Notary Public

My Commission expires: January 27, 2008

East Kentucky Power Cooperative
Limestone Scrubber Study
Detailed Savings (Costs) Due to Scrubber Operation

	Year 2008 - 2036 NAP-WV - Pitts 6.0 lb.
Fuel Savings	$810,203.360
Emission Allowance Savings	138,927,516
Operation Labor & Benefits for Scrubber	(61,806,250)
Scrubber Maintenance	(84,071,000)
Fixed Costs Related to Scrubber Capital Expenditures	(291,019,364)
Limestone for Scrubber	(55,506,162)
Landfill Cost Including Ash Disposal	(7,032,327)
Energy Replacement	(61.712,000)
Total Savings (Costs) Due to Scrubber Operation	**$387.983.773**

Assumptions:

Fuel comparisons are between the scenarios of Compliance Coal (CAPP - Pike 1.2 lb.) without scrubber operation versus burning Non-compliance Coal (NAP-WV - Pitts 6.0 lb.) with scrubber operation.

Fuel prices and SO2 allowance prices are from EVA projections.

East Kentucky Power Cooperative
Limestone Scrubber Study
Total Cost Analysis Including Net Present Value

	CAPP - Pike 1.2	NAP-WV - Pitts 6.0
2008	88,964,644	83,715,011
2009	88.511.806	85.617.102
2010	91,517,515	87,571,468
2011	96,830,419	88,165,892
2012	100,946,250	88,946,654
2013	105,991,508	89,210,946
2014	106.273.301	89,834,631
2015	111,111,702	90,051,304
2016	113,550,182	90,590,011
2017	112,181,770	90,660,206
2018	111,476,062	90,820,104
2019	111,267,536	91,046,390
2020	111,473,437	91,327,589
2021	112.044.121	91,656,967
2022	112,880,282	92,004,285
2023	113,932,277	92,379,254
2024	115,183,569	92,763,485
2025	116,567,964	93,164,347
2026	118,085,480	93,565,843
2027	119,703,030	93,963,677
2028	121,553,069	94,360,808
2029	123,403,861	94,757,414
2030	125,255,430	95,121,131
2031	127,107,799	95,468,871
2032	128,960,991	95,784,721
2033	130,815,031	96,069,200
2034	132,669,946	96,322,845
2035	134,525,760	96,529,790
2036	136,382,502	96,707,024
Net Present Value =	$2,138,229,111	$1,750,245,341
Savings in NPV =		$387,983,770

Spurlock Station
Delivered Coal Forecast
$ / MMbtu

Region:	CAPP	NAP-WV
	Pike	Pitts
Btu / lb:	12,000	12,200
#SO2 / MMBtu:	1.2	6.0
% Ash:	11%	10%
Transportation:	TWBG	Barge
2007	1.943	1.224
2008	1.941	1.333
2009	1.945	1.378
2010	1.978	1.416
2011	2.050	1.418
2012	2.101	1.426
2013	2.168	1.420
2014	2.222	1.438
2015	2.290	1.432
2016	2.340	1.440
2017	2.390	1.450
2018	2.440	1.460
2019	2.490	1.470
2020	2.540	1.480
2021	2.590	1.490
2022	2.640	1.500
2023	2.690	1.510
2024	2.740	1.520
2025	2.790	1.530
2026	2.840	1.540
2027	2.890	1.550
2028	2.940	1.560
2029	2.990	1.570
2030	3.040	1.580
2031	3.090	1.590
2032	3.140	1.600
2033	3.190	1.610
2034	3.240	1.620
2035	3.290	1.630
2036	3.340	1.640

Scrubber Cost Analysis
Cost assumptions

Year	Operations	Maintenance	Lime costs Per Ton	SO_2 Allowances	Scrubber Landfill costs Per Ton	Capacity Repl. Cost Per Kw	Ash Penalty for Boiler Maint. Per Ton	Ash Landfill Cost Per Ton	Limestone Cost Per Ton	Fixed Costs Rate %
2007	$2,131,250.00	$2,899,000.00	$53.50	$736.00	$2.50	$190.00	$0.162	$2.50	$8.80	11.21
2008	2,195,187.50	2,985,970.00	55.11	$600.00	2.58	195.70	0.167	2.58	9.06	11.13
2009	2,261,043.13	3,075,549.10	56.76	$562.00	2.65	201.57	0.172	2.65	9.34	11.05
2010	2,328,874.42	3,167,815.57	58.46	$662.00	2.73	207.62	0.177	2.73	9.62	10.97
2011	2,398,740.65	3,262,850.04	60.21	$806.00	2.81	213.85	0.182	2.81	9.90	10.88
2012	2,470,702.87	3,360,735.54	62.02	$929.00	2.90	220.26	0.188	2.90	10.20	10.78
2013	2,544,823.96	3,461,557.61	63.88	$1,069.00	2.99	226.87	0.193	2.99	10.51	10.68
2014	2,621,168.68	3,565,404.34	65.80	$953.00	3.07	233.68	0.199	3.07	10.82	10.57
2015	2,699,803.74	3.672.366.47	67.77	$1,078.00	3.17	240.69	0.205	3.17	11.15	10.45
2016	2,780,797.85	3,782,537.46	69.81	$1,102.00	3.26	247.91	0.211	3.26	11.48	10.32
2017	2.864.221.78	3.896.013.58	71.90	$896.00	3.36	255.34	0.218	3.36	11.83	10.18
2018	2,950.148.44	4,012,893.99	74.06	$730.00	3.46	263.00	0.224	3.46	12.18	10.03
2019	3,038,652.89	4.133.280.81	76.28	$594.00	3.56	270.89	0.231	3.56	12.55	9.87
2020	3,129.8 12.48	4.257.279.24	78.57	$483.00	3.67	279.02	0.238	3.67	12.92	9.70
2021	3,223,706.85	4,384,997.61	80.92	$394.00	3.78	287.39	0.245	3.78	13.31	9.52
2022	3,320,418.06	4.516,547.54	83.35	$321.00	3.89	296.01	0.252	3.89	13.71	9.32
2023	3,420,030.60	4,652,043.97	85.85	$261.00	4.01	304.89	0.260	4.01	14.12	9.11
2024	3,522,631.52	4,791.605.29	88.43	$213.00	4.13	314.04	0.268	4.13	14.55	8.88
2025	3.628.310.46	4,935,353.44	91.08	$173.00	4.26	323.46	0.276	4.26	14.98	8.64
2026	3,737,159.78	5,083,414.05	93.81	$141.00	4.38	333.17	0.284	4.38	15.43	8.38
2027	3,849,274.57	5,235,916.47	96.63	$115.00	4.52	343.16	0.293	4.52	15.89	8.10
2028	3,964,752.81	5,392,993.96	99.53	$103.00	4.65	353.46	0.301	4.65	16.37	7.79
2029	4,083,695.39	5,554,783.78	102.51	$91.00	4.79	364.06	0.310	4.79	16.86	7.47
2030	4,206,206.25	5,721,427.30	105.59	$79.00	4.93	374.98	0.320	4.93	17.37	7.12
2031	4,332,392.44	5,893,070.11	108.75	$67.00	5.08	386.23	0.329	5.08	17.89	6.75
2032	4,462,364.21	6,069,862.22	112.02	$55.00	5.23	397.82	0.339	5.23	18.43	6.35
2033	4,596,235.14	6,251.958.08	115.38	$43.00	5.39	409.75	0.349	5.39	18.98	5.92
2034	4,734,122.19	6,439,516.83	118.84	$31.00	5.55	422.04	0.360	5.55	19.55	5.46
2035	4,876,145.86	6,632,702.33	122.40	$19.00	5.72	434.71	0.371	5.72	20.13	4.96
2036	5,022,430.23	6,831.683.40	126.08	$7.00	5.89	447.75	0.382	5.89	20.74	4.43

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC: SERVICE COMMISSION

IN THE MATTER OF:

THE **APPLICATION** OF **EAST KENTUCKY POWER**	)	
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC	)	
CONVENIENCE AND NECESSITY FOR THE	)	CASE NO. 2005-
CONSTRUCTION OF A FLUE GAS DESULFURIZATION	)	
SYSTEM ON SPURLOCK POWER STATION UNIT 2	)	

PREPARED TESTIMONY OF ROBERT E. HUGHES JR.
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.

Q1. Please state your name and address.

A1. My name is Robert E. Hughes Jr., and my business address is P. O. Box 707, Winchester, Kentucky 40392.

Q2. By whom are you employed and in what capacity?

A2. I am employed by East Kentucky Power Cooperative, Inc., ("EKPC") and I am Environmental Affairs Manager.

Q3. As background for your testimony, please briefly describe your educational background and work responsibilities at EISPC.

A3. I received a BS and MS from the University of Kentucky in 1970 & 1973 respectively. I have been employed by EISPC since October 1973 and have occupied my current position within the EKPC organization since April 1975.

Q4. Does the EISPC Spurlock Generating Station Unit 2 ("Spurlock 2") already have a flue gas desulfurization ("scrubber") system?

A4. *Yes*, a scrubber was added to the Spurlock 2 Unit in 1982, and was operated for a period of time before EKPC determined that coinpliaiice coal could be utilized more economically.

Q5. How was EKPC able to use coinpliaiice coal as an alternative to tlie operation of the scrubber?

A5. The operating permit for Spurlock 2 gave EKPC the option to use the scrubber or compliaiice coal. Only a very few plants were given that option, at the time.

Q6. Will EKPC have tlie option to use coinpliaiice coal at Spurlock 2 indefinitely?

A6. No. EKPC anticipates that federal clean air standards will require tlie installation of a scrubber at Spurlock 2 by 2010.

Q7. Why is EKPC proposing to iiistall the new scrubber at Spurlock 2 by 2008, if it will not be required until 2010?

A7. EKPC's analysis has showii that, due to changes in the compliance coal market and other factors, it is more economical to install the scrubber in 2008.

Q8. Describe the environmental benefits of tlie proposed scrabber project.

A8. The addition of tlie proposed equipment will allow EKPC to meet the current permit requirements and assist EKPC in meeting the SO_2 allowance program requirements of tlie Clean Air Act. This equipment will provide for tlie use of a greater variety of fuels. It will also provide for tlie reduction of mercury aiid further reductions of SO_2 required by newly adopted regulations of EPA on SO_2, NO_X, and mercury emissions.

Q9. EKPC is proposing to build a wet electrostatic precipitator as a part of this project. What is the function of the wet precipitator?

A9. The wet electrostatic precipitator is designed to reduce the colored flue gas plume resulting from the addition of tlie scrubber, which would otherwise be produced due to the coinbination of a hot-side Electrostatic Precipitator ("ESP"), Selective Catalytic Reduction for NOx ("SCR") and wet scrubber systems. This colored plume, composed of SO3, leads to the formation of a sulfuric acid mist. At other generating units with similar facilities, tlie SO3 plume has proven to be a serious source of concern in local communities close to tlie plants, prompting property damage claims and complaints to environmental agencies. This SO3 pluine would also adversely affect the opacity measurements on tlie unit.

Q10. What opacity standards apply to the Spurlock 2 Unit and how is opacity measured?

A10. The opacity standard is 20% on this unit, and relates to particulate matter in the plume. The opacity is measured for reporting purposes through the use of an in-stack continuous monitor. However, the Kentucky regulations require demonstrations of compliance and enforcement actions relating to opacity limits to be based upon visible readings taken of tlie flue gas as it exits tlie stack.

Q11. How would a colored plume affect the measurement of the flue gas opacity?

A11. On Spurlock 2, visible opacity readings are currently made just above tlie opening of the stack, where water vapor in the plume has not yet condensed. Without this "clear space", the cloud of condensing water vapor in the plume would prevent a visible reading of opacity caused by particulate matter. The colored pluine of SO3 would be constantly visible in this space, so that visible readings would always indicate an opacity violation, even if the level of particulates did not exceed the limit.

Q12. How does the wet precipitator enable EKPC to comply with this opacity standard?

A12. The wet precipitator will control the SO3 emissions, eliminating the colored plume and the sulfuric acid mist, and will preserve the ability to use visible readings to confirm opacity compliance on Spurlock 2.

Q13. Are SO3 emissions limited on the Spurlock 2 Unit?

A13. SO3 emissions are not currently limited in EKPC's operating permit for Spurlock 2, but EPA is now requiring controls of sulfuric acid mist in pennits for new generating plants. The EKPC Gilbert Unit has such a limitation in its operating permit, but its circulating fluidized bed technology does not require a wet precipitator to control SO3. The Spurlock 2 permit is currently under review for a five year extension, and it is quite possible that sulfuric acid mist limits may be imposed as a condition for any renewal of the permit. Even if such limits are not included in the current renewal of the Spurlock 2 pennit, it is almost certain that such limits will be required in the next renewal of the permit in 2009. This would be within tlie next year after EISPC is proposing to start operation of the new scrubber system.

Q14. Explain how EKPC plaiis to obtain any permits required by this project?

A14. The proposed facilities will not require pennits for construction from the Division for Air Quality since they are pollution reduction devices. **A** registration and modification of the Title V operating permit will be made to identify the equipment at the plant.

Q15. Does this conclude your testimony?

A15. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPIJRLOCK POWER STATION UNIT 2	)))))	CASE NO. 2005-

AFFIDAVIT

STATE OF KENTUCKY)

COUNTY OF CLARK)

Robert E. Hughes, Jr., being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Robert E. Hughes, Jr.

Subscribed and sworn before me on this 14th day of September 2005.

Notary Public

My Commission expires: January 27, 2008

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER)
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC)
CONVENIENCE AND NECESSITY FOR THE) CASE NO. 2005-
CONSTRUCTION OF A FLUE GAS DESULFURIZATION)
SYSTEM ON SPURLOCK POWER STATION IJNIT 2)

PREPARED TESIMONY OF JEFF BRANDT
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.

Q1. Please state your name and address.

A1. My name is Jeff Brandt and my business address is PO Box 707, Winchester, Kentucky 40392-0707.

Q2. By whom are you employed and in what capacity?

A2. I am a Plant Engineer at East Kentucky Power Cooperative.

Q3. How long have you been employed at East Kentucky Power Cooperative?

A3. Since February 1993.

Q4. What are your duties and responsibilities at East Kentucky Power Cooperative?

A4. As a Plant Engineer at East Kentucky Power Cooperative, I am responsible for providing assistance in maintaining and operating Spurlock Power Station located in Maysville, Kentucky. I am also responsible for the management of capital projects at Spurlock Power Station.

Q.5. What is the purpose of your testimony?

A5. The purpose of my testimony is to outline how East Kentucky Power Cooperative ("EKPC") made the decision to build a new Flue Gas Desulfurization ("FGD" or "scrubber") system on Spurlock Unit 2.

Q6. Please explain the history of the existing scrubber system at Spurlock 2

A6. In 1982 EKPC placed into service an FGD system on Spurlock Unit 2. The FGD system ran for approximately 9000 hours and was then shut down and "moth-balled". The decision to shut the FGD system down was made because utilizing low sulfur ("compliance") coal was more economical than utilizing high sulfur ("non-compliance") coal when scrubbing costs were included. EKPC has regularly evaluated the comparative costs of scrubber operation and the continued use of compliance coal, and has found compliance coal to be the more ecoiioinical alternative until recently.

Q7. What factors led EKPC to change its mind about the use of compliance coal at Spurlock 2?

A7. In early 2004, EKPC began investigating starting up the Spurlock Unit 2 scrubber before 2010, when EPA regulations will require the installation of a scrubber. Escalating coal prices and pending EPA regulations prompted this action. EKPC formed a "Decision Analysis" team to review the decision-malting process. The Decision Team considered alternatives including starting the FGD early and continuation of utilizing coiiipliance coal and not scrubbing. The Team decided that FGD installation in 2008 was the best option.

Q8. How did EKPC select the option of constructing a iiew limestone scrubber system?

A8. Stanley Consultants, Inc. ("SCI") of Muscatine, Iowa was hired to evaluate the technical alternatives for scrubbing flue gas. Three options were considered: refurbishing the existing lime scrubber, converting tlie existing scrubber to a limestone scrubber, and building a new limestone scrubber. All three options included a wet electrostatic precipitator ("WESP") for SO3 reduction.

Q9. How was the final analysis of tlie scrubber choices conducted?

A9. Factors considered in the analysis of the three options included projected fuel costs, capital costs, SO2 allowance costs, maintenance costs, limestone vs. lime costs, and operating expenses. The two best evaluated options included utilizing limestone as the reagent.

EKPC worked with SCI to develop a bid specification. Two "Base Bids" were considered. Base Bid 1 was a new limestone FGD and Base Bid 2 was a refurbished limestone FGD. Base Bid 2 reused existing scrubber modules and tlie existing scrubber building. Both Base Bids included options for the WESP. Both Base Bids also included a sellable gypsum option. Requests for proposals ("RFPs") were then sent out to Alstom and Babcock & Wilcox ("B&W"). Alstom and B&W were considered the only viable companies for EKPC's needs. Base Bid 1 came back as the least cost option from both bidders,

Q10. What bid did SCI recommend for the FGD project?

A10. SCI recommended the $139,706,060 Alstom Lump Sum Bid. The price for that bid includes installation and the following:

Absorber	$5,966,000
WESP	$25,209,000

ID Fans	$7,195,000
Wallboard quality gypsum	$4,746,000

Other costs pertaining to this project include the following:

Electrical Upgrades	$3,500,000
Transformers	$2,000,000
Foundations	$5,000,000
Owner's Costs	$5,000,000
Contingency	$7,600,000

Q11. Does EKPC propose to accept this Alstoiii bid, in total?

A11. With one exception, EKPC believes that all elements of tlie Alstom bid are needed for tlie project. Tlie recommended wallboard quality gypsum option in the bid has been further investigated by EKPC. If wallboard quality gypsum is not produced and marketed, a landfill will have to be used for disposal of the material. The disposal cost is $3.00/ton, plus landfill development costs. The annual total estimated landfill cost is approximately $1,275,000. Over a thirty-year period, taking all costs into consideration, EKPC would have to sell the wallboard grade gypsum for niore than $4.00/ton to make tlie wallboard grade gypsum option break even in cost. At this time, tlie market does not seem to support this option. Therefore, EKPC does not plan to select this option, but $925,000 will be included in the contract to install a larger absorber module. This larger module will enable the scrubber to reduce SO2 emissions more reliably, and will enable EKPC to add equipment to produce wallboard quality gypsum in the future, if the economics change. Without the larger absorber tank, such retrofitting would not

be feasible.On that basis, the total Alstom bid price would be $135,885,060, and the total project cost would be $158,985,060, as shown oii Applicant's Exhibit 5..

Q12. What are the estimated annual operating costs for the proposed scrubber facilities?

A12. A schedule of the estimated annual operating costs is attached as Brandt Testimony Exhibit A.

Q13. What is tlie schedule for the construction of this project?

A13. The award of a contract for the engineering, purchase, and construction of the scrubber and associated equipment was approved September 13, 2005. The engineering will take place in late 2005 and early 2006. Construction is expected to begin in Spring of 2006, and continue through May of 2008. Commercial operation is expected by July 1, 2008.

Q14. Does this conclude your testimony?

A14. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPURLOCK POWER STATION UNIT 2	)))))	CASE NO. 2005-

A F F I D A V I T

STATE OF KENTUCKY)

COUNTY OF CLARK)

Jeff Brandt, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Jeff Brandt

Subscribed and sworn before me on this 9 day of September 2005.

Terry K. Lang
Notary Public

My Commission expires: July, 25, 2009

TERRY L. **LANG**
Notary Public, State at Large, **Kentucky**
My Commission Expires July 25, 2009

New; Limestone; Forced Oxidation; Disposable Gypsum; Without Organic Acid

Projected Operating Costs ($1,000)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
O&M Labor	1,045	1,086	1,130	1.175	1,222	1,271	1,322	1,374	1,429	1.487
FGD Power	2.059	2,120	2.184	2.249	2,317	2.386	2.458	2,532	2.608	2,686
Booster Fan Power	604	622	641	660	680	700	721	743	765	788
Reagent	2,389	2.485	2,584	2,687	2,795	2,907	3,023	3,144	3,270	3,401
Organic Acid	0	0	0	*0*	*0*	*0*	*0*	0	0	0
By-product	1,307	1.360	1,414	1.471	1,529	1,591	1,654	1.720	1,789	1,861
Repair/Maintenance	1,498	1,558	1,620	1,685	1.752	1,822	1.895	1,971	2.050	2,132
Taxes and Insurance	1.398	1,426	1,454	1.483	1.513	1,543	1,574	1,605	1,638	1,670
Total Annual 0 8 M Costs	10,299	10.657	11.027	11,411	11,808	12,220	12.647	13,090	13,549	14,024

2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1,546	1,608	1,672	1,739	1,809	1,881	1,956	2,035	2,116	2,201	2.289	2.380	2.475	2,574	2.677	2,784	2,896	3.012
2,766	2,849	2.935	3,023	3.114	3,207	3,303	3,402	3.504	3,610	3,718	3,829	3.944	4,063	4,185	4,310	4,439	4,573
812	836	86?	887	914	941	970	999	1,029	1,059	1.091	1,124	1.158	1.192	1.228	1.265	1.303	1,342
3,537	3.678	3,825	3.978	4.137	4,303	4,475	4.654	4.840	5.034	5.235	5,444	5,662	5.889	6,124	6,369	6,624	6.889
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,935	2,013	2,093	2,177	2,264	2,354	2,449	2,547	2,648	2.754	2.865	2.979	3,098	3,222	3.351	3,485	3,625	3.770
2,217	2.306	2,398	2,494	2,594	2,697	2,805	2,918	3.034	3,156	3,282	3,413	3.550	3,692	3,839	3,993	4.153	4,319
1,704	1.738	1.773	1.808	1,844	1,881	1,919	1,957	1,996	2,036	2,077	2.118	2,161	2.204	2.248	2.293	2.339	2,386
14,517	15.028	15,557	16.106	16.675	17.265	17,877	18.511	19,168	19,849	20,556	21.289	22.048	22,836	23,653	24,500	25.378	26.289

2036	2037	2038
3.132	3.257	58,581
4,710	4.851	97,935
1,382	1,424	28.744
7.164	7,451	133,996
0	0	0
3.920	4,077	73,323
4.491	4,671	84,005
2.433	2,482	56.698
27,234	29,213	533,282

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPURLOCK POWER STATION UNIT 2	)))))	CASE NO. 2005-

PREPARED TESTIMONY OF JERRY BORDES
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.

Q1. Please state your name and address.

A1. My name is Jerry Bordes and my business address is P. O. Box 707, Winchester, Kentucky 40392.

Q2. By whom are you employed and in what capacity?

A2. I am employed by East Kentucky Power Cooperative, Inc., ("EKPC") as Productiori Services Manager in the Production Business Unit.

Q3. As background for your testimony, please briefly describe your educational background and work responsibilities at EKPC.

A3. I graduated from the Cumberland College with a Bachelor of Science Degree in Chemistry. I have held progressively responsible positions within the Production group, and I have occupied my current position with EKPC since 2001. I am responsible for the fuel procurement for tlie generating facilities owned by EKPC.

Q4. Were you involved in an evaluation of the rebuilding or replacement of the flue gas desulfurization ("scrubber") system at the EKPC Spurlock Generating Station Unit No. 2 ("Spurlock 2")?

A4. Yes, I participated in that evaluation from tlie standpoint of analyzing fuel choices that were available for Spurloclc 2, with or without tlie scrubber, and the cost impacts of those fuel clioices.

QS. Wliat different coals were used in the scrubber evaluation?

AS. The initial evaluation included a wide range of coals from compliance coal (<1.2 lbs. SO_2/MMBtu) to Northern Appalachian and Illinois Basin high-sulfur coal (6.0 lbs. SO_2/MMBtu).

Q6. How did tlie fuel choices affect the final decision to replace tlie Spurlock 2 scrubber?

A6. The evaluation was influenced greatly by the price spread between compliance coal and non-compliance coal. Over the 30-year period of the evaluation this spread correlated to a total net present value fuel savings of approximately $810,203,360.

Q7. What is tlie basis for the fuel costs used in Applicant's Exhibit II, Projection of the Cost of Operation of the Proposed Facility?

A7. The fuel costs were based on a fuel study entitled "Updated Fuel, Emission Allowance, and Lime/Limestone Projections 2005-2015," dated June, 2005. The study was performed by Energy Ventures Analysis, Inc., ("EVA") of Arlington, Virginia.

Q6. What was the nature of your involvement in the fuel study performed by EVA?

A6. I was lead person for East Kentucky Power Cooperative. I was responsible for supplying East Kentucky Power Cooperative data, coordinating the timing of the study with EVA, and ensuring that the results were made available to East Kentucky Power Cooperative staff to perform analysis of tlie operating cost of tlie proposed facility.

Q7. Does this conclude your testimony?

A7. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A FLUE GAS DESULFURIZATION SYSTEM ON SPURLOCK POWER STATION UNIT 2	)))))	CASE NO. 2005-

A F F I D A V I T

STATE OF KENTUCKY)

COUNTY OF CLARK)

Jerry Bordes, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

JB Bordes
Jerry Bordes

Subscribed and sworn before me on this 21 day of September 2005.

Terry L Lang
Notary Public

My Commission expires: _____

TERRY L. LANG
Notary Public, State at Large, Kentucky
My Commission Expires July 25, 2009