Exhibit No.:
Witness: Sharon Hennings
Type of Exhibit: Surrebuttal Testimony
Issue: Fuel
Sponsoring Party: Ag Processing, Inc.
Case No.: HR-2005-0450

Before the Public Service Commission of the State of Missouri

In the Matter of the Tariff Filing of Aquila, Inc., to Implement a General Rate Increase for Retail Steam Heat Service Provided to Customers in its L&P Missouri Service Area.	))))	Case No. HR-2005-0450

Surrebuttal Testimony of

Sharon Hennings

FILED[2]
FEB 2 4 2006
Missouri Public Service Commission

On behalf of

Ag Processing, Inc.

Project 8418
December 13, 2005

BAI
BRUBAKER & ASSOCIATES, INC.
ST. LOUIS, MO 63141-2000

Exhibit No. 1043
Case No(s). HR-2005-0450
Date 1-08-06 Rptr KT

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In the Matter of the Tariff Filing of Aquila, Inc., to Implement a General Rate Increase for Retail Steam Heat Service Provided to Customers in its L&P Missouri Service Area.	))))	Case No. HR-2005-0450

STATE OF WISCONSIN)
) **SS**
CITY OF DANE)

Affidavit of Sharon Hennings

Sharon Hennings, being first duly sworn, on his oath states:

1. My name is Sharon Hennings. I am a consultant with Brubaker & Associates, Inc., having its principal place of business at 1215 Fern Ridge Parkway, Suite 208, St. Louis, Missouri 63141-2000. We have been retained by Ag Processing, Inc. in this proceeding on their behalf.

2. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony and schedules which were prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. HR-2005-0450.

3. I hereby swear and affirm that the testimony and schedules are true and correct and that they show the matters and things they purport to show.

Sharon Hennings

Subscribed and sworn to before this 12th day of December 2005.

Notary Public

My Commission Expires Sept 30 2007

NOTARY PUBLIC JOE STUBER STATE OF WISCONSIN

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of the State of Missouri

In the Matter of the Tariff Filing of Aquila, Inc., to Implement a General Rate Increase for Retail Steam Heat Service Provided to Customers in its L&P Missouri Service Area.	))))	Case No. HR-2005-0450

Surrebuttal Testimony of Sharon Hennings

Q PLEASE STATE YOUR NAME AND THE PURPOSE OF THIS TESTIMONY.

A My name is Sharon K. Hennings and the purpose of my surrebuttal testimony is to respond to the rebuttal testimony of Mr. Glenn P. Keefe of Aquila, Inc.

Q ARE YOU THE SAME SHARON HENNINGS THAT HAS PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

A Yes. I have previously filed direct testimony on fuel issues.

Summary

Q PLEASE SUMMARIZE YOUR SURREBUTTAL TESTIMONY.

A Aquila paid almost $5 million more than necessary for the 2004 combined costs of delivered fuel and sulfur dioxide allowances by signing a contract for C. W. Mining Company blend coal and ignoring the least-cost option of using a blend using petroleum coke. These additional 2004 combined costs include not only the cost for C. W. Mining Company coal, but also the cost of coal purchases that were necessary to replace C.W. Mining Company contract shortages. Even if the C. W. Mining Company coal had been delivered as contracted, the combined costs of a petroleum

coke blend would have been the least-cost option, $1.7 million less expensive than the planned 2004 C.W. Mining Company blend.

My surrebuttal testimony compares four alternatives that Aquila could have studied when it chose to buy coal for 2004 from C. W. Mining Company. The combined cost for each of the alternatives is presented on an equivalent apples-to-apples basis to determine the alternatives that were available for 2004. Calculations are also provided for the combined costs of Aquila's actual coal receipts during 2004. The calculations, assumptions and the sources of my information are clearly described and documented in an attached schedule. This is a better method of comparing alternatives than the confused and misleading calculations preformed by Mr. Glenn P. Keefe in his rebuttal testimony.

Pollution Control Equipment

Q WHAT PART OF HIS TESTIMONY ARE YOU ADDRESSING?

A My first comment deals with his testimony on page 2, line 19 through page 4 line 2. On page 3, lines 1 through 4, Mr. Keefe notes that I used the words "precipitators and other emission control equipment." His point is well taken. I should have used the word "scrubbers" instead of "precipitators" in my testimony. Alternatively, I could have eliminated the words, "precipitators and other" to achieve the same result. The point of that part of my testimony was that I was not considering whether Aquila's generating plants have equipment that reduces the need to purchase sulfur dioxide allowances for its flue gas emissions. Equipment, such as desulfurization equipment, can remove 85% or more of the sulfur from a coal-fired generator's flue gas emissions.

On page 3, lines 14 through 16, Mr. Keefe prepared a calculation of sulfur dioxide emissions from the pounds of sulfur contained in the solid fuel. Depending on the pollution control equipment and other conditions, the sulfur dioxide emitted by each plant is different. That is why the Acid Rain Program requires that utilities use Continuous Emissions Monitoring to measure the sulfur dioxide allowances that they use, rather than simply calculating the amount of sulfur that will be emitted based on the sulfur content of the solid fuel received.

Q HAS AQUILA INSTALLED EQUIPMENT TO REDUCE ITS NEED FOR SULFUR DIOXIDE ALLOWANCES?

A From Mr. Keefe's response, I assume that Aquila has made no such capital investments.

Q WITH THAT UNDERSTANDING, CAN THE COSTS OF BURNING A BLEND OF PETROLEUM COKE BE COMPARED WITH THE COSTS OF OTHER BLENDS, TAKING INTO ACCOUNT BOTH THE DELIVERED PRICE OF FUEL AND THE COST OF THE SULFUR DIOXIDE ALLOWANCES?

A Yes, the expected approximate level and cost of sulfur dioxide credits needed for specific blends of coal can be calculated based on the coal specifications. I will introduce a comparison based on these calculations later in my testimony.

Calculations

Q WHAT OTHER PART OF MR. KEEFE'S TESTIMONY ARE YOU ADDRESSING?

A On page 5, lines 3 through 15, Mr. Keefe attempted to factor the cost of sulfur dioxide allowances into the price comparisons between petroleum coke and other solid fuels.

Q DO YOU HAVE ANY COMMENTS ON HIS CALCULATIONS?

A Yes. His calculations used irrelevant and untimely data to compare the cost of petroleum coke with other alternatives, as follows:

1. His analysis compared the sulfur content of a blend coal, petroleum coke, with a base coal, instead of the alternative Btu boosters that can be used in the blends. Powder River Basin (PRB) coal makes up about 80% of Aquila's current coal blends. It is appropriate to compare the sulfur content of petroleum coke with PRB coal only when proposing to burn 100% PRB coal.

2. His comparison added the cost of sulfur credits only to the cost of petroleum coke. All solid fuels contain sulfur. Therefore, the amount and cost of required sulfur dioxide allowances must be calculated for all solid fuels and all blends being compared.

3. His analysis was not comprehensive. He did not include alternative blend ratios to account for differences in Btu quality. The differing heat contents of the various Btu booster fuels should be used to determine the percentage mix of the base coal with the booster fuel to achieve a standard Btu content for Aquila's generating plants. The net weighted average heat content must be the same between the blends to avoid introducing errors relating to the total quantity of fuel to be purchased.

4. His analysis used costs from different time periods, adding together current sulfur costs from late 2005 to a cost of petroleum coke that was likely determined in the last half of 2003. The coal market, the petroleum coke market and the sulfur dioxide allowance market are all volatile markets that have recently undergone dramatic escalation but were relatively stagnant at the beginning of the comparison period. An appropriate price comparison would use the same vintage of prices for the alternatives.

5. His analysis is confusing and misleading because he compares prices on a cost per ton basis. Utilities buy fuel to obtain the heat content of the fuel, not the weight. Likewise, solid fuel has no value to a utility while it is still at the mine mouth. Thus, most cost comparisons between solid fuels are done on a delivered Btu basis. This eliminates quality differences between tonnage measurements and the need to reconcile delivery costs.

Q CAN ALL THESE FACTORS BE APPROPRIATELY CALCULATED TO COMPARE THE COMBINED COSTS OF THE ALTERNATIVE BLENDS?

A Yes. I have prepared such an analysis for 2004 to compare the alternatives that Aquila had when it signed the C. W. Mining Company coal contract. This comparison

is included with my surrebuttal testimony as Schedule 1SR. I am referring to the sum of the delivered fuel costs and the calculated cost of sulfur allowances from that fuel as "combined costs."

Q WHAT GENERAL ASSUMPTIONS DID YOU USE TO DEVELOP THE COMBINED COSTS IN SCHEDULE 1SR?

A I chose 2004 for the year of the comparison and used actual delivery data to Aquila generating plants as reported in the 2004 FERC Form 423 for most of the assumptions. Where Aquila data was unavailable, I used the average delivery data from all other utilities according to the 2004 FERC Form 423 reports. Finally, to approximate the 2004 contract prices for sulfur dioxide allowances, I used a price based on the actual price in late 2003 from the Environmental Protection Agency (EPA).

Q WHAT AVERAGE HEAT CONTENT FOR SOLID FUEL DID YOU USE FOR YOUR BLEND CALCULATIONS AND HOW DID YOU USE IT TO DETERMINE THE RELATIVE QUANTITIES OF FUEL AND AVERAGE SULFUR CONTENT OF THAT FUEL FOR YOUR BLENDS?

A The average Btu content of Aquila's 2004 coal deliveries was 9,416 Btu per pound and the average heat content of the PRB base coal was 8,837 Btu per pound. The reported heat content of each Btu booster fuel is used to determine the correct percentage blend of that fuel with PRB coal. The average sulfur content of each blend is determined by applying the relative blend percentages to each component's reported sulfur content.

Q WHAT WAS THE PRICE OF SULFUR DIOXIDE ALLOWANCES OVER THE HISTORY OF ALLOWANCE SALES THROUGH LATE 2003?

A According to the EPA, the average price of sulfur dioxide allowances went from about $90 in 1995 at the beginning of the Phase II allowance sales to slightly more than $200 per allowance in the last half of 2003. Schedule 2SR, a copy of a report from the EPA, shows the cyclical nature of the allowance prices during that period.

Q WHAT PRICE OF SULFUR DIOXIDE ALLOWANCES WAS ASSUMED FOR THE 2004 COMPARISONS?

A The calculations use $200 per sulfur dioxide allowance, an approximate value from late 2003.

Q WHY IS A LATE 2003 PRICE APPROPRIATE FOR 2004 SULFUR ALLOWANCES?

A If Aquila had decided to use petroleum coke during 2004, it would have been appropriate for Aquila to contract not only for the fuel itself but also for the allowances to support the slightly increased level of sulfur dioxide from this blend. The additional incentive of federal penalties for inadequate allowances almost guarantees that utilities cover the sulfur content of their planned solid fuel deliveries with adequate allowances.

Q IS IT REASONABLE TO USE THE UPDATED SULFUR DIOXIDE ALLOWANCE COST FROM LATE 2005 AS AN OPPORTUNITY COST IN THE COMPARISON?

A No. It is not appropriate to update that single component of the cost comparison. This would be comparable to updating the price of coal under contract to the current

high spot market price of that coal and describing the substitution as an opportunity cost.

Q WHAT RESULTS WERE DETERMINED FOR ALTERNATIVE BLENDS OF COAL?

A Schedule 1SR presents 2004 combined cost results for PRB coal blended with four alternative solid fuels:

1. The blend of PRB coal and petroleum coke is shown on Line 11. The combined price of this blend is 99.6 cents per MMBtu 85.3 cents for the coal on a delivered basis and 14.3 cents for the calculated sulfur dioxide allowances.

2. The blend of PRB coal and Uinta Basin coal under the C.W. Mining Company contract with Aquila is shown on Line 12. The combined price of this blend is 103.8 cents per MMBtu, 95.4 cents for the coal and 8.4 cents for the allowances. Note that this is a pro-forma blend that assumes adequate C.W. Mining Company coal would be delivered under contract to reach the same average 9,416 Btu per pound average heat content as the other blends.

3. The blend of PRB coal and the other Uinta Basin coal that replaced C.W. Mining Company coal when the contract coal was unavailable is shown on Line 13. The combined price of this blend is 106.8 cents per MMBtu, 99.1 cents for the coal and 7.8 cents for the allowances.

4. The blend of PRB coal and the Illinois Basin coal that also replaced C. W. Mining Company coal on Line 14 is a combined price of 129.4 cents per MMBtu, 108.0 cents for the coal and 21.4 cents for the allowances.

Q WHAT DETAILS CAN YOU PROVIDE ON HOW THESE COSTS WERE CALCULATED?

A The calculations for each of these alternatives appear on lines 5 through 8. Those calculations include the relative percentage of each coal to use in the blend with PRB coal on line 2 necessary to hit the assumed average assumed Btu of the blended product on line 3. These lines also contain the calculations of the sulfur content of the resulting blend.

Q WHICH ALTERNATIVE WAS THE LEAST-COST SOLUTION FOR COAL BLENDS STARTING IN 2004?

A The blend of PRB coal and petroleum coke is the least-cost solution of the four blends above. Using the total 42,116 GBtu in coal purchases for 2004, the petroleum coke blend could have saved $1.7 million as compared with the pro-forma PRB/C.W. Mining Company combined cost in the second alternative. This savings gives the benefit of the doubt to the C.W. Mining Company contract and assumes that the contract coal would be available during 2004.

Q HOW DOES THE COMBINED COST OF THE 2004 ACTUAL COAL RECEIPTS COMPARE WITH THE PRB/PET COKE BLEND?

A The delivered coal costs and sulfur allowance credits have been calculated on line 15 of Schedule 1SR, using the data from the 2004 FERC Form 423 Reports and continuing to assume the same cost of $200 for each sulfur dioxide allowance. The combined average cost was 111.2 cents per MMBtu, $4.9 million more expensive than the combined average cost of the PRB/pet coke blend alternative.

Q YOUR SCHEDULE 1SR INCLUDED AN ALTERNATIVE ON LINE 16. COULD YOU PLEASE EXPLAIN THIS FINAL ALTERNATIVE?

A Line 16 gives the combined cost of using PRB coal by itself. Mr. Keefe's calculations comparing 100% petroleum coke with 100% PRB coal brought up this alternative. The 92.0 cents per MMBtu combined cost of this alternative is far less than any other on the page. It is not an implausible alternative. The drawback of this alternative is that it often causes capacity derates in generating plants that are designed to burn higher Btu content coals. Therefore, this alternative is often used during off-peak and

shoulder periods, when the additional power is not needed, or when the cost of additional sulfur credits can be compensated in sales for resale revenues. Alternatively, when the market demands additional generation beyond the derates, the booster coal can be used and the additional combined price of a blended product can be charged as an incremental cost to the marketplace.

Q CAN THE COMBINED COST COMPARISONS ALSO BE DONE BETWEEN THE ASSUMED BLENDS FOR 2005?

A Yes. The general assumptions for 2005 would continue pricing the four blend alternatives as though each blend alternative were finalized in contracts that continued in effect through 2005. I have not prepared the detailed calculations because the escalations in the assumed contract costs for the various solid fuels and the assumed contracted sulfur dioxide allowances would tend to continue the 2004 combined cost rankings of the blends.

Q DO YOU HAVE ANY ADDITIONAL COMMENTS ABOUT A DECISION-MAKING PROCESS THAT AQUILA SHOULD BE USING?

A Yes. Based on Mr. Keefe's rebuttal testimony, Aquila appears to have used a simplistic process to award its coal blend contract to C.W. Mining starting in 2004.

Like all electric utilities with generation resources, Aquila is now facing environmental regulations for many emissions, including sulfur dioxide, nitrous oxides, mercury and particulate matter. Its decisions will encompass not only choices between coals and other solid fuels, but also the purchase and use of various emissions allowances and the construction of equipment to reduce these emissions. If a goal of the decision process is to choose a least-cost strategy to deal with these

Aquila, Inc.
Calculation of Combined Total Blend Cost per MMBTU
Including Delivered Cost and Sulfur Dioxide Allowances
For the Year Ended December 31, 2005

	Solid Fuel Type	Source	2004 BTU per Pound (a)	2004 Sulfur Percent (b)	2004 Delivered Coal Cost Per MMBTU (c)		2004 Sulfur Allowance Cost/MMBTU (d)*	Percent of BTU from Base Coal (e) D	Percent of BTU from Blend Fuel (f) D	Sulfur from: Base Coal (g) = line 2(b)x(e)	Sulfur from: Blend Fuel (h) = (b)x(f)	Sulfur Percent in Blend (i) =(g)+(h)
1	Base Coal:											
2	Subituminous	Powder River Basin	8,837	0.31%	$ 0.85	A	$ 0.07					
3	Assumed Blend BTU Content		9,416			A						
4	Blend Fuel:											
5	Petroleum Coke	Various	14,100	5.17%	$ 0.88	B	$ 0.73	89.0%	11.0%	0.28%	0.57%	0.84%
6	Bituminous	Uinta Basin - C.W. Mining	11,685	0.81%	$ 1.36	A	$ 0.14	79.7%	20.3%	0.25%	0.16%	0.41%
7	Bituminous	Uinta Basin - Other	12,627	0.75%	$ 1.77	A	$ 0.12	84.7%	15.3%	0.26%	0.11%	0.38%
8	Bituminous	Illinois Basin	10,977	3.30%	$ 1.70	A	$ 0.60	72.9%	27.1%	0.23%	0.89%	1.12%
9	Price of SO2 Credits		$200 per Allowance			C						

	Solid Fuel Type	Source	DELIVERED COST OF COAL: Portions for: Base Coal (j) = line 2(c)x(e)	Blend Fuel (k) = (c)x(f)	Cost/MMBTU Blended (l) = (j)+(k)		COST OF SULFUR DIOXIDE ALLOWANCES: Portions for: Base Coal (m) = line 2(d)x(e)	Blend Fuel (n) = (d)x(f)	Cost/MMBTU Blended (o) = (m)+(n)	Total Blend Combined Cost/MMBTU (p) = (l)+(o)
10	Cost of Blended Coal at a 2004 Average of 9,416 BTU per pound:									
11	Petroleum Coke	Various	$ 0.756	$ 0.097	$ 0.853	B	$ 0.062	$ 0.081	$ 0.143	$ 0.996
12	Bituminous	Uinta Basin - C.W. Mining	$ 0.677	$ 0.276	$ 0.954	A	$ 0.056	$ 0.028	$ 0.084	$ 1.038
13	Bituminous	Uinta Basin - Other	$ 0.720	$ 0.270	$ 0.991	A	$ 0.059	$ 0.018	$ 0.078	$ 1.068
14	Bituminous	Illinois Basin	$ 0.620	$ 0.460	$ 1.080	A	$ 0.051	$ 0.163	$ 0.214	$ 1.294
15	Cost of Coal as Actually Received				$ 1.028				$ 0.085	$ 1.112
16	Cost of Powder River Basin Coal burned by itself		$ 0.850	$ -	$ 0.850		$ 0.070	$ -	$ 0.070	$ 0.920

Footnotes:

A The Coal sources, prices, and specifications are based on Aquila deliveries from FERC Form 423 Reports for 2004

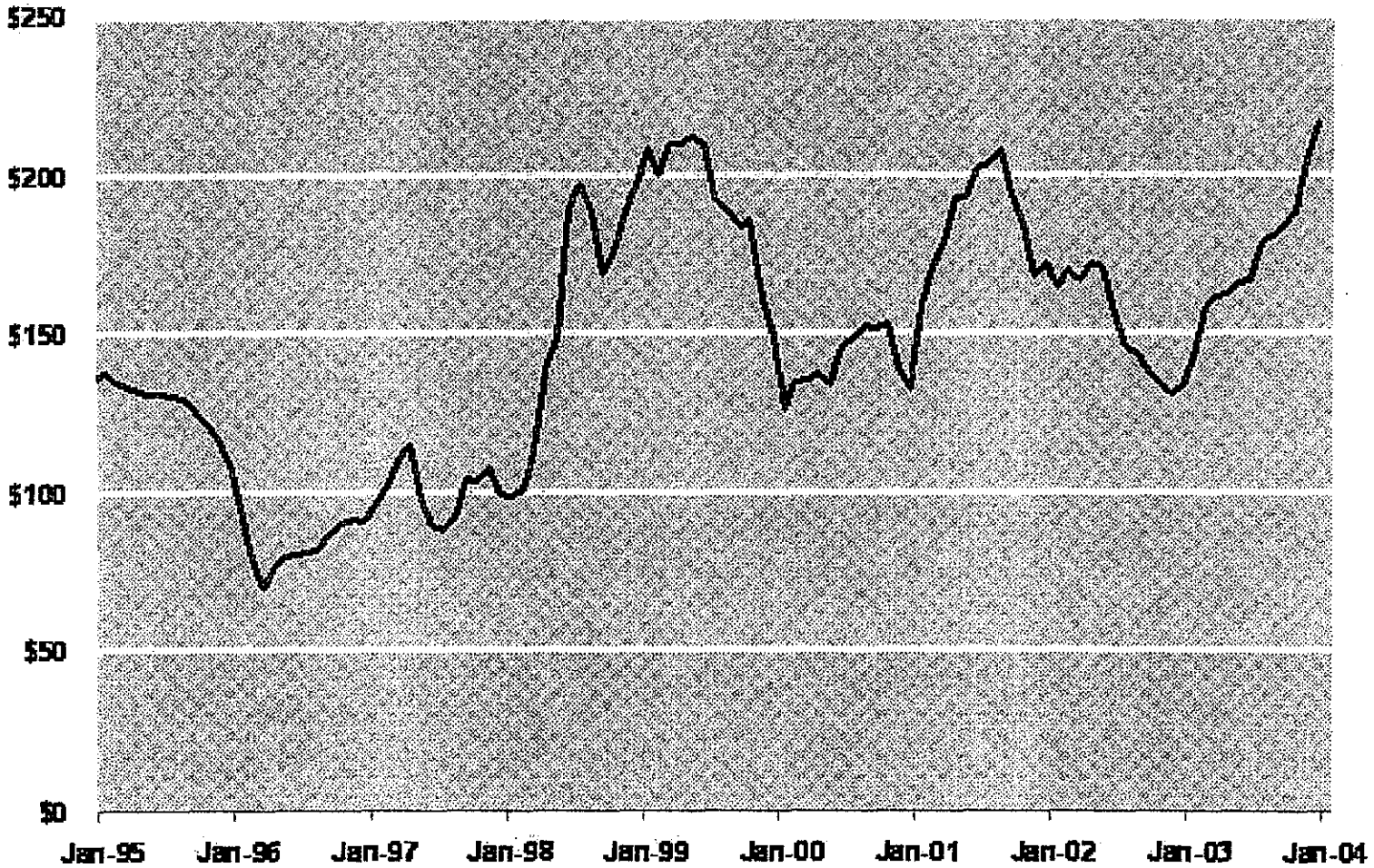
B The Petroleum Coke prices and specifications are based on all deliveries of Petroleum Coke from FERC Form 423 Reports for 2004

C The average cost of a ton of Sulfur Dioxide Allowances at the beginning of 2004 was around $200, as it had been for many years. The cost of allowances began increasing in late spring 2004.

D These are the relative percentages of the base coal and each of the blend fuels that is needed to develop the assumed blend of 9,416 BTU/pound. The formula solves for the blend fuel percentage in {[(1- the percent of blend fuel) x (the Base Fuel at 8,837 BTU/lb.)] + [(the percent of blend fuel) x(the blend fuel BTU/lb.)]} divided by an assumed heat content of 9,416 BTU/lb.

Sharon K. Hennings
Schedule 1SR

SO_2 Allowance Price Index



Source: http://www.epa.gov/airmarkets/trading/so2market/alprices.jpg

Sharon K. Hennings
Schedule 2SR