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STATE OF ILLINOIS  
Pollution Control Board  
Air Pollution Control

August 25, 2006

Illinois Pollution Control Board  
James R. Thompson Center  
100 W. Randolph  
Suite 11-500  
Chicago, Illinois 60601

PC#6287

#88

Subject: Corrected Exhibit in Mercury Hearings with Docket R06-25 (with CD)

Dear Board Members:

Sorbent Technologies' data quality-control procedures just discovered a problem with three of the data points on one of the Exhibits that was entered into evidence in the recent Illinois power plant mercury regulation hearings, the exhibit with the preliminary test results from the U.S. DOE "concrete-friendly" C-PAC injection trial at Midwest Generation's Crawford Station in Chicago.

We did three Appendix K mercury measurement-tube analyses to corroborate the Hg SCEM measurements during the first round of parametric tests at the Crawford Station Unit 7 and they were reported in the exhibit. These readings came in a bit lower than the semi-continuous emission monitor (SCEM) measurements, indicating about 90% total Hg removal with the C-PAC sorbent, versus the SCEMs' readings denoting about 80-85% removal. We recently analyzed the spiked quality-control tubes from these Appendix Ks and the percent recovery came in somewhat lower than the EPA's required 75%. Consequently, we should not use these data points – they are probably too low. Indeed, we started our 30-day continuous C-PAC run at Crawford a week ago at an injection rate of 4 lb/MMacf and we are seeing average total Hg removal rates of around 80%, where the SCEMs were, not 90%. The SCEMs and other data in the exhibit are correct, as best we can audit, but it looks like the three Appendix K measurements should be deleted. Eighty percent Hg removal at 4 lb/MMacf with a concrete-friendly sorbent is still quite an accomplishment, but it looks like a higher injection rate than 4 lb/MMacf would be required at this point in time to achieve 90% removal.

I have enclosed a Revised Crawford Exhibit to replace the previous one. The only difference is that the three suspect Appendix K measurements and their associated verbiage have been removed. However, this is an important difference because the difference between 90% Hg removal and 80% may be particularly key in Illinois. Of course, injection rates higher than 4 lb/MMacf are possible.

Please have the previous exhibit formally replaced with the new attachment. I apologize for the inconvenience involved, but we desire to be as accurate as we possibly can in the information that we provide to the Board. Please feel free to call if you have any questions or desire any updates. Thanks.

Sincerely,

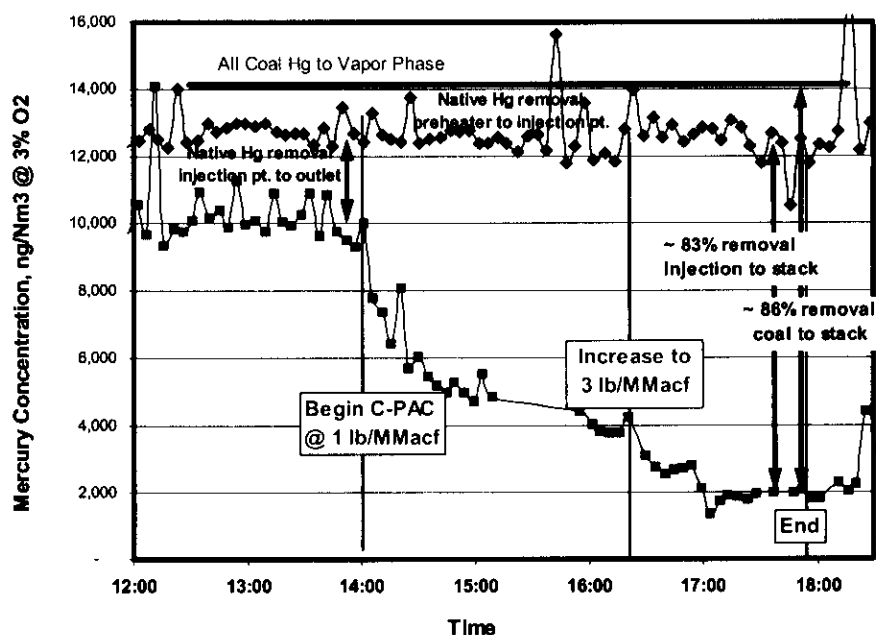
Sid Nelson Jr.  
President  
Sorbent Technologies Corp.

# **Revised Mercury Removal at Midwest Generation's Crawford Unit 7** Initial Short-Term Parametric Tests

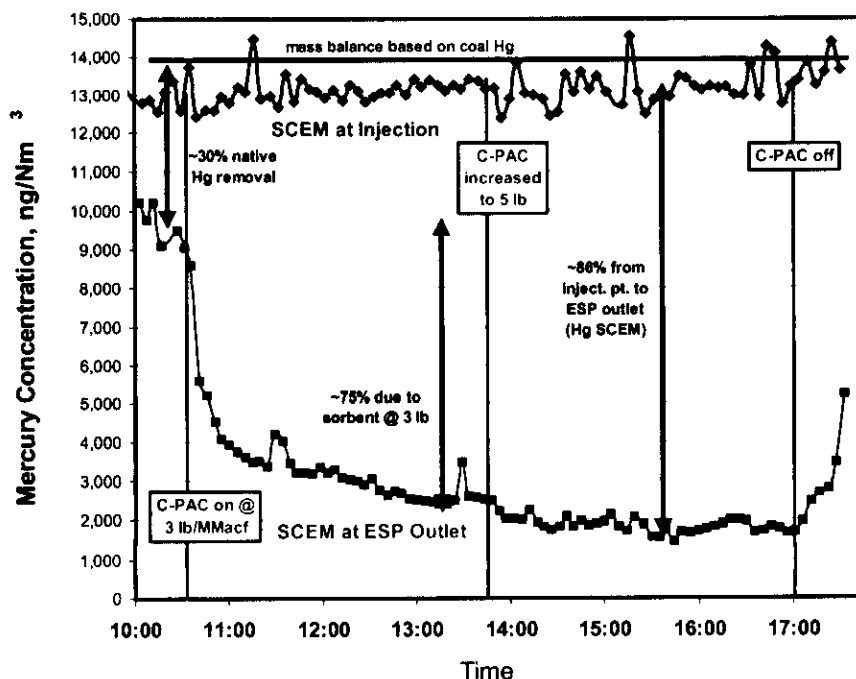
**Note: ESP SCA only 118 ft<sup>2</sup>/k acfm**

**Preliminary "concrete-friendly" C-PAC data from DOE DE-FC26-05NT42308**

**Hg Vapor Before the Injection Point and After the ESP**  
First parametric injection, Aug. 5, 2006

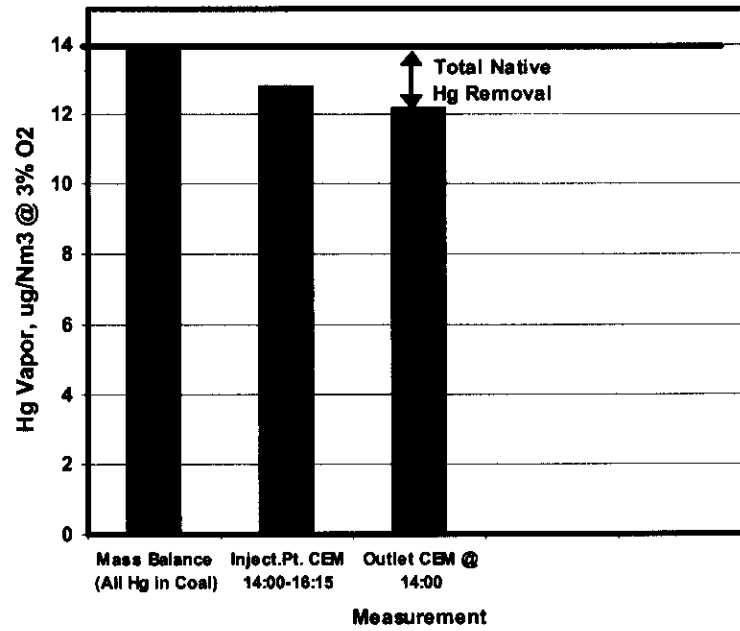


**Hg Vapor before the Injection Point & After the ESP**  
August 7, 2006



# C-PAC at 4 lb/MMacf - Aug. 8, 2006

Injection begun at 14:00 - Preliminary Data



## Opacity at Midwest Generation's Crawford Unit 7 in Chicago, Illinois

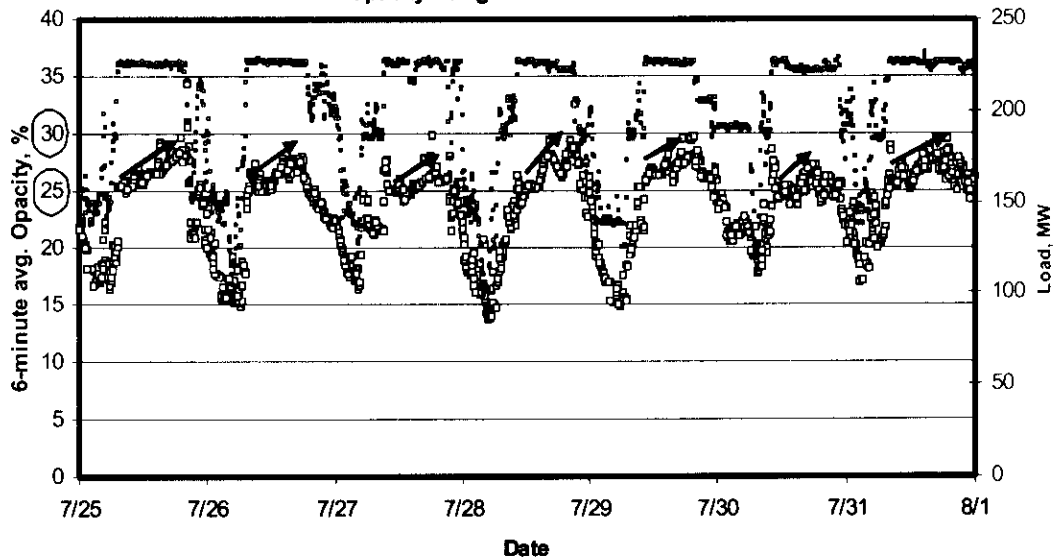
**Note: ESP SCA only 118 ft<sup>2</sup>/k acfm**

PAC Injection into reheater boiler ESP, with opacity on the combined superheat & reheater flows

Preliminary "concrete-friendly" C-PAC data from DOE DE-FC26-05NT42308

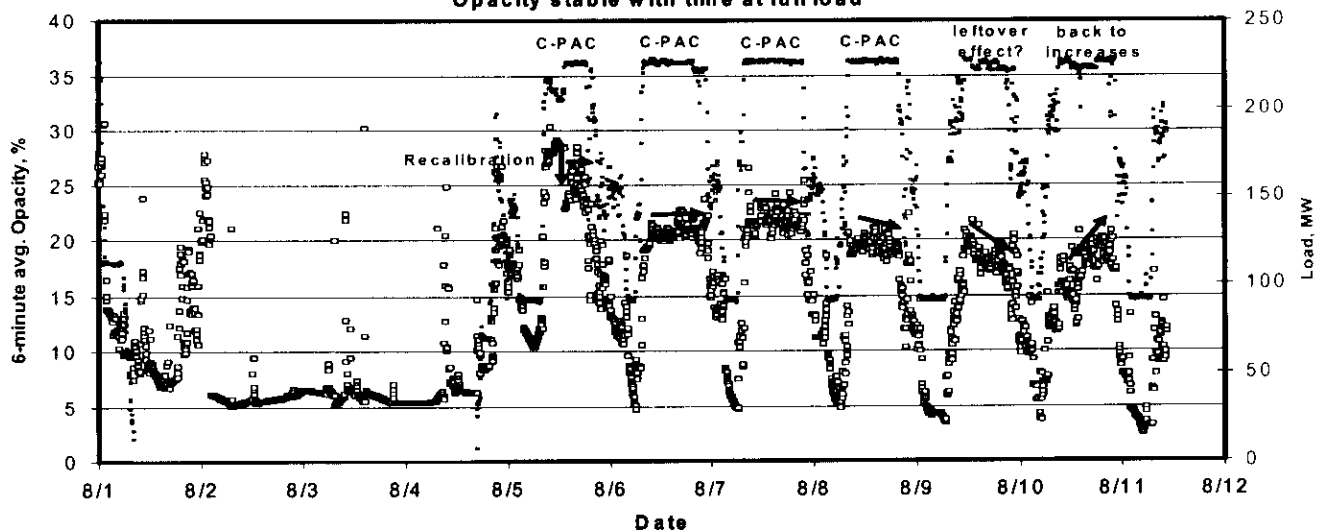
### Opacity vs Load, Last Week of July, Before Any Injection

Opacity rising with time at full load



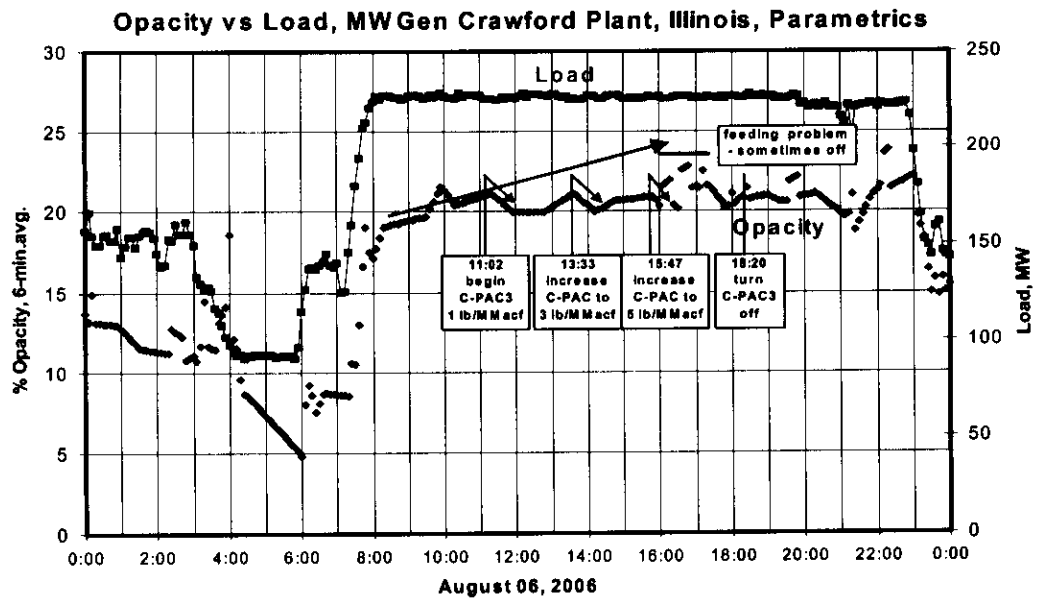
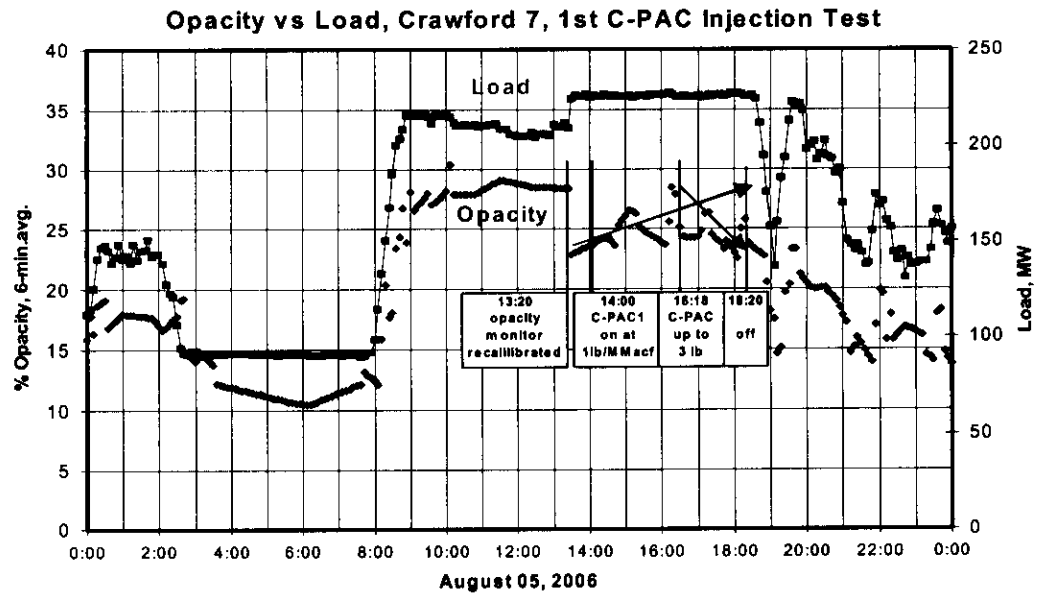
### Opacity vs Load, Week of Parametric Injection Tests

Opacity stable with time at full load

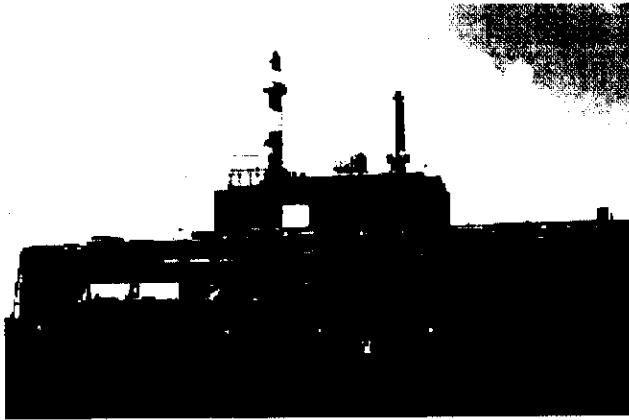


# Detail

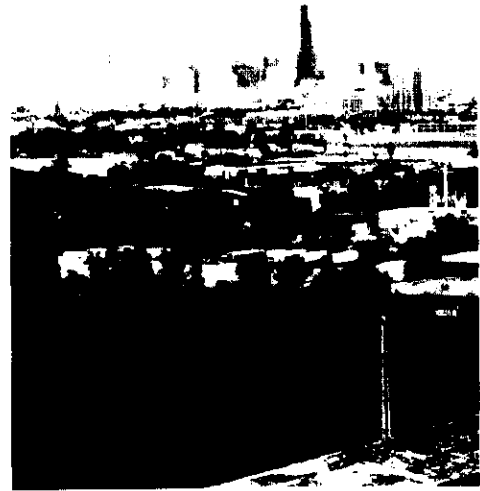
(Note that because the untreated superheat boiler ESP gas is added, any relative effects are double.)



## Concrete-Friendliness of Sorbent at Crawford Unit 7 in Chicago, Illinois



Crawford Station in downtown Chicago.



The deleterious degree to which C-PAC interferes with air-entraining admixtures in a concrete slurry is gauged by its Foam Index (FI). Lower values are better. The Foam Index of C-PAC was independently measured by Headwaters Resources, the largest fly ash marketer in the U.S., along with that of a plain carbon, as shown below. The 4 lb/MMacf injection rate at Crawford translates to a little less than 2 wt% carbon added to the fly ash.

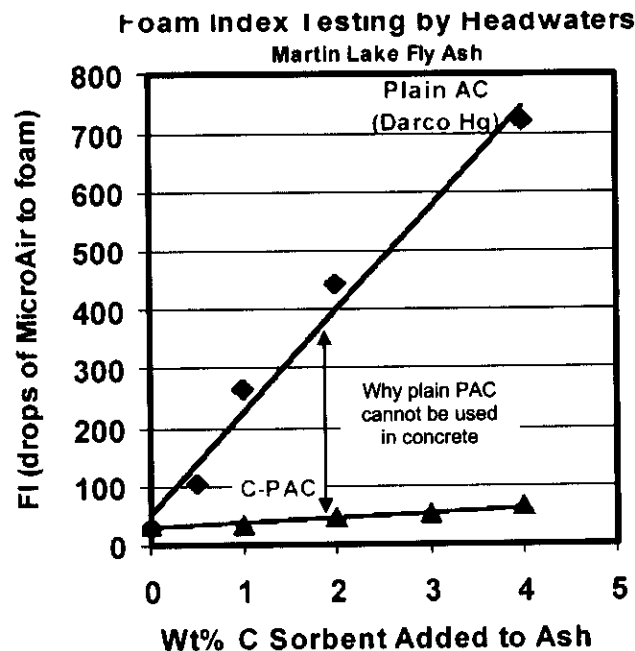


Figure 9. Low C-PAC<sup>TM</sup> Foam Indexes with a Different Ash and AEA from Headwaters.

From: Preprint, S. Nelson, Q. Zhou, & Y. Zhang, "Results in Scaling Up Concrete-Friendly Sorbents," Power Plant Air Pollution Control Mega Symposium, Baltimore MD., August 27-31, 2006.