

**ANNUAL PROJECT REPORT  
AS OF JANUARY 2005**

1. PROJECT SPONSOR: Sorbent Technologies Corporation  
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2. PROJECT MANAGER: Sid Nelson Jr.  
President  
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3. OCDO GRANT NO. CDO/D-00-25
4. PROJECT UPDATE x OR  
FINAL REPORT
5. PROJECT TITLE: MERCURY SORBENTS FOR OHIO COALS
6. PROJECT TERM: FROM: 03/01/02 TO: 08/31/05
7. BUDGET:
- | <u>CO-SPONSORS NAME</u>           | <u>COST-SHARE</u>    |
|-----------------------------------|----------------------|
| <u>OCDO</u>                       | \$ <u>250,000.00</u> |
| <u>Sorbent Technologies Corp.</u> | \$ <u>500,000.00</u> |
| TOTAL PROJECT COST:               | \$ <u>750,000.00</u> |

## I. ABSTRACT

### 8. OVERVIEW OF PROJECT & OBJECTIVES:

New sorbent materials that appear to efficiently and cost-effectively remove trace mercury from coal-fired flue gas streams are being tested in this project. No fabric filters, flue-gas cooling, or high injection rates appear to be required.

The overall objective of this project is to demonstrate the cost-effectiveness of two different types of sorbents to remove mercury from the flue gases of Ohio bituminous coals. The first sorbent, brominated powdered activated carbon (B-PAC), was previously tested at laboratory and pilot-plant scales in an earlier OCDO research project. The second sorbent, "Fluesorbent," is currently being scaled up for a full-scale industrial-boiler demonstration in a flue-gas-desulfurization (FGD) installation supported by OCDO.

### 9. WORK DONE AND CONCLUSIONS:

There was no work on this project this year.

### 10. PLANS FOR COMING YEAR:

Once the Fluesorbent FGD system at the Lausche plant is operable, the ability of Fluesorbent to remove flue-gas mercury, a "co-benefit" of its SO<sub>2</sub> removal capabilities, will be tested.

## II. HIGHLIGHTS/ACCOMPLISHMENTS

### 11.

- At Lausche, the new B-PAC sorbents removed about 70% of the flue-gas mercury at a sorbent injection rate of 3 to 5 lb-per-million-cubic-feet-of-gas (lb/MMacf). The standard commercial PAC, Norit Darco FGD, removed only 18% of the mercury at 18 lb/MMacf.
- If the B-PAC cost \$0.75/lb in bulk quantities, the mercury removal at Lausche would cost about \$10,000 per-lb-of-Hg-removed, less than 20% of DOE's current estimates of \$50,000 to \$70,000 per-lb-of-Hg-removed.
- When the B-PAC was injected into the gas, no opacity increases from the electrostatic precipitator were observed.

### III. ARTICLES/PRESENTATIONS

12.

- S. Nelson, R. Landreth, Q. Zhou and J. Miller  
“Mercury Sorbent Injection Test Results at the Lausche Plant,”  
DOE – U.S. EPA – EPRI – AWMA Power Plant Air Pollution Control MegaSymposium,  
May 19-22, 2003, Washington, DC.
- S. Nelson, R. Landreth, Q. Zhou and J. Miller  
“Coal-Fired Mercury in Ohio and Control Testing of an Ohio Site”  
Ohio Mercury Forum, April 18, 2003, Columbus, OH.
- S. Nelson, R. Landreth, Q. Zhou and J. Miller  
“2007–Generation Mercury Sorbents”  
Electric Utility Environmental Conference, January 27-30, 2003, Tucson, AZ.