

**ANNUAL PROJECT REPORT
AS OF DECEMBER 2003**

1. PROJECT SPONSOR: Sorbent Technologies Corporation
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3. OCDO GRANT NO. CDO/D-96-19
4. PROJECT UPDATE x OR
FINAL REPORT
5. PROJECT TITLE: COMMERCIAL DEMONSTRATION OF FLUESORBENT FGD
AT OHIO UNIVERSITY'S LAUSCHE HEATING PLANT
6. PROJECT TERM: FROM: 4/1/98 TO: 11/31/04
7. BUDGET:
- | <u>CO-SPONSORS NAME</u> | <u>COST-SHARE</u> |
|---------------------------------------|---------------------------------|
| <u>OCDO</u> | \$ <u>9,450,000.00</u> |
| <u>Ohio University</u> | \$ <u>3,050,000.00</u> |
| <u>Sorbent Technologies Corp.</u> | \$ <u>670,000.00</u> |
| <u>Schmidt Associates, Inc.</u> | \$ <u>73,000.00</u> |
| <u>Poly Science Engrg. Group Inc.</u> | \$ <u>-</u> |
| TOTAL PROJECT COST: | \$ <u>13,243,000.00*</u> |

* APPROVED AMENDMENT NO. 4, dated 3/25/03

* APPROVED AMENDMENT NO. 5, OAQDA, dated 9/29/03

I. ABSTRACT

8. OVERVIEW OF PROJECT & OBJECTIVES:

Design, procure, construct, startup, and continuously operate a dry, Fluesorbent duct injection FGD system for two (2) 70,000 pounds of steam per hour, traveling grate, stoker-fed, coal-fired boilers. These boilers are two of three coal-fired boilers at the Lausche Heating Plant, Ohio University, Athens, Ohio. The downstream design basis is 63,500 acfm of flue gas at 380°F.

Following the installation and startup, a one-year test and demonstration program will be carried out, including operating with a higher sulfur Ohio coal, higher than would allow Lausche to meet its Ohio EPA emission regulations. It is also anticipated that late in the 2003-2004 winter, Ohio University will attempt a Title V EPA Test on three (3) boilers simultaneously at reduced steaming rate, but in excess of 63,500 acfm of flue gas.

The spent sorbent, containing the sulfur captured during use, will become the base mineral for a high pH fertilizer to be used for alfalfa crop improvement. Fertilizer so constituted has already been successfully tested for more than four (valid) years with the assistance and under direction of the Ohio Agricultural Research and Development Center, Wooster, Ohio.

In preparation for this demonstration, Ohio University Facilities Management has moved to maximum usage of Ohio coal and minimizing natural gas. This is the primary objective of the demonstration project and allows the Ohio University to utilize coal Btu's at a current cost of one-fourth the cost of Btu's from natural gas. This FGD will allow continued use of Ohio high-sulfur coal in an environmentally acceptable and economic manner.

In the existing institutional, industrial, and municipally owned coal-fired, steam generation unit market, there are some 2,200 similar units in the northeastern U.S., of which almost 200 are facilities located in Ohio.

9. WORK DONE AND CONCLUSIONS:

- A.) Plant process design and detailed engineering is complete.
- B.) All major equipment and fabricated assemblies have been purchased. Construction is essentially 100% complete with only minor equipment and instrumentation remaining.
- C.) Field construction commenced on April 15, 2003.
- D.) As of December 1, 2003, the fabric filter baghouse and ID fans were complete and in operation with two coal-fired boilers.
- E.) Two coal-fired boilers were online through the baghouse on December 29, 2003. The Fluesorbent system is being bypassed.
- F.) Offsite Fluesorbent manufacture has been contracted. First delivery in January, 2004.

10. PLANS FOR COMING YEAR:

- A.) Begin cold commissioning in January, 2004.
- B.) Hot commissioning in late January, 2004.
- C.) Commence Test Program at the operational steam load required to meet demand on the Lausche Plant. Over the Test Period and seasons, the steam load will vary.
- D.) Carry out parametric tests, higher sulfur coal operating tests, and a (proposed) Title V Test in 2004.

II. HIGHLIGHTS/ACCOMPLISHMENTS

- 11.
- A.) Procurement phase 99.9% complete.
 - B.) Construction of plant 99.9% complete.
 - C.) Final approval of Amendment #4 increasing the Total Project Value and contributions approved.
 - D.) Construction contracts awarded per State of Ohio bidding requirements.
 - E.) Project Test Plan submitted to OCDO for approval.
 - F.) Completed contract for offsite manufacture of sorbent by CAMCO Chemical Co.
 - G.) Startup and online operation of fabric filter baghouse and ID fans on coal-fired boilers.

III. ARTICLES/PRESENTATIONS

- 12.
- 1.) December, 2003/January, 2004
Submit a paper abstract for Fluesorbent FGD Demonstration Plant Project to "U.S.-China Workshop for Advanced Technology of Industrial Boilers" (June 10-June 18, 2004, Beijing, China).
 - 2.) December, 2003
Presentation of Process Description and Demonstration Project and plant tour to the Ohio Coal Research Consortium, Athens, Ohio.
 - 3.) March, 2003
Presentation on Multi-Pollutant Control Fluesorbent Process to generating members of AMP-Ohio, Inc., Columbus, Ohio.
 - 4.) September, 2002
Prepared a brief summary of the technical and economic factors for a Cleveland, Ohio-based privately-owned company with holdings and equity investments in Peoples Republic of China.
 - 5.) November/December, 2001
Provided process description, projected cost information, and operating utility requirements for a 10-MWe coal-fired plant in China to EVERCLEANING ENVIRONMENTAL, INC., a company based in Philadelphia, with an operating company in mainland China.