Quarterly Management Report

WBS Element	Project Title	Contract Number	Contract Start	Contract End
ORNL 3(E)	Carbon Fiber Composite Molecular Sieves (CFCMS)	FWP FEAA 028	10/01/03	09/30/04

Performer Name and Address	Principal Investigator(s)
Frederick S. Baker Oak Ridge National Laboratory PO Box 2008, MS-6087 Oak Ridge, TN 37831-6087	Dr. Frederick S. Baker

BUDGET AND COST REPORT

Prior Year Funds [$K]	4
Total Current Year Commitment $K]	118
Projected Current Year Costs [$K]	122

	O	N	D	J	F	M	A	M	J	J	A	S
Planned Costs	10	20	15	15	15	10	15	15	5	2	0	0
Actual Costs	10	20	15	15	15	10	16					
Variance	0	0	0	0	0	0	(1)	15	5	2	0	0

MILESTONE REPORT

Milestone Designation	Milestone Description	Due Date	Revised Due Date	Completion Date
54	Publish ORNL TM reporting preliminary study of air separation using CFCMS	05/31/04	06/30/04	
55	Complete gas flow loop parametric study of air separation using CFCMS	09/30/04		

TECHNICAL HIGHLIGHTS

A preliminary study of the separation of air has been completed and a draft ORNL Technical Memorandum (TM) prepared. The abstract of the TM is given below. It is anticipated that the TM will be published 6/31/2004.

The adsorption behavior of O2 and N2 on a novel adsorbent carbon is reported. Kinetic studies of O2 and N2 adsorption behavior clearly show that O2 is adsorbed more rapidly than N2 despite being less favored under equilibrium conditions. It is shown that the carbon is capable of separating oxygen and nitrogen from air on the basis of the markedly different diffusion rates of the respective molecules in narrow or constricted pores. The dependence of the micropore size in the novel adsorbent carbon on the degree of burn-off is reported. Preliminary dynamic separation experiments are reported and it is shown that O2/N2 separations from air are possible with the novel carbon. A separation process using the novel carbon, and based upon a process enabled by the material's unique properties, is reported. Finally, recommendations are made regarding further research required to advance this novel gas separation technology.

The new project PI, Dr. F Baker, will report to work in May 2004.

ISSUES

None

Report Prepared By	Date
T Burchell/F Baker	05/25/04