Quarterly Management Report

WBS Element	Project Title	Contract Number	Contract Start	Contract End
ORNL-2(B)	Extended-Lifetime Alloys and Coatings for High-Temperature Environmental Protection	FEAA028	10/01/03	09/30/04

Performer Name and Address	Principal Investigator(s)
Oak Ridge National Laboratory P.O. Box 2008 Oak Ridge, Tennessee 37831-6156	B.A. Pint, P.F. Tortorelli, and I.G. Wright

BUDGET AND COST REPORT

Prior Year Funds [$K]	0
Total Current Year Commitment $K]	200
Projected Current Year Costs [$K]	200

	O	N	D	J	F	M	A	M	J	J	A	S
Planned Costs	17	33	50	67	83	100	117	133	150	167	183	200
Actual Costs	15	34	60									
Variance	2	(1)	(10)	67	83	100	117	133	150	167	183	200

MILESTONE REPORT

Milestone Designation	Milestone Description	Due Date	Revised Due Date	Completion Date
ORNL-2(B)-1	Complete draft report on modeling work.	09/30/03	12/31/03	12/31/03
ORNL-2(B)-2	Complete study of the effectiveness of reactive element additions to low-Al iron-aluminum compositions.	05/04/04		

TECHNICAL HIGHLIGHTS

- Aluminide coatings on both ferritic (Fe-9Cr-1Mo) and austenitic (304L) substrates are being tested in long-term oxidation tests to define their performance limitations. Specimens have been tested past 5,000h at 700°C in air + 10% water vapor using a 100h cycle frequency. This is substantially longer than the 2,000h lifetime found when a 1h cycle frequency was used. Since fossil energy systems tend to operate on long intervals between shutdown, the improved aluminide coating performance with longer cycle time is a positive indication.
- The effect of substrate composition on coating performance also is being investigated. Initial results on a low N version of 304L found a more adherent as-deposited coating than on commercial 304L with 800ppm N. Coatings on modified alloys are being tested to determine the effect of substrate composition on coating performance.

ISSUES

Report Prepared By	Date
B. A. Pint	02/05/04