

DOE/PC/95231-42
DIST. CATEGORY UC-112
UTSI-01-04

**UTSI/CFFF MHD PROGRAM COMPLETION
AND RELATED ACTIVITY**

Quarterly Technical Progress Report

Report Period Start Date: January 1, 2004
Report Period End Date: March 31, 2004

Joel W. Muehlhauser,
Administrator

May 7, 2004

DOE Contract No. DE-AC22-95PC95231

The University of Tennessee
Space Institute
Energy Conversion Research and Development Programs
411 B. H. Goethert Parkway
Tullahoma, TN 37388

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

ABSTRACT

The Discharge Monitoring Reports (DMRs) for the CFFF for December 2003, January 2004 and February 2004 were prepared and submitted to the Tennessee Department of Environment and Conservation. In March 2004, the TDEC issued a revised Discharge Permit for the CFFF that will allow yearly rather than monthly DMRs. The new permit goes into effect on April 1, 2004.

Groundwater testing and reporting to TDEC is required on a semi-annual basis. A sampling event took place in November 2003 and the report submitted in December. Due to typographical errors in the report it was reissued in January 2004. Reportable amounts of controlled water pollutants continue to be found in the groundwater well samples. For the last two years groundwater sampling has been conducted by TVG Environmental, Inc. of Nashville, TN. Quantum Environmental and Engineering Services of Knoxville, TN was recently awarded the state contract for environmental services, and they were contacted about providing this service for the CFFF for calendar year 2004. A purchase order was placed with Quantum in March, but was later cancelled due to a pricing conflict. The May sampling event will be conducted by TVG Environmental, and bids will be solicited for future environmental services.

TABLE OF CONTENTS

	Page
DISCLAIMER.....	ii
ABSTRACT.....	iii
LIST OF TABLES AND FIGURES.....	v
INTRODUCTION.....	vi
EXECUTIVE SUMMARY.....	vii
EXPERIMENTAL.....	1
RESULTS AND DISCUSSIONS.....	1
TASK 1 – FACILITY MAINTENANCE AND PROPERTY MANAGEMENT.....	1
TASK 2 – REPORTING AND ARCHIVING.....	1
TASK 3 – SITE ENVIRONMENTAL COMPLIANCE AND REMEDIATION.....	1
TASK 4 – SITE REACTIVATION.....	2
TASK 5 – DISASSEMBLY AND DISMANTLEMENT (D&D) OF THE CFFF.....	2
TASK 6 – ADVANCED TECHNOLOGY, RESEARCH, DEVELOPMENT AND ENGINEERING FOR OTHER FEDERAL OR DOE PROGRAMS.....	2
<u>Subtask 6.02 – Evaluation of Methods for Application of Epitaxial Buffer and Superconductor Layers.....</u>	2
<u>Subtask 6.03 – Coated Conductor Development and Program Management.....</u>	2
<u>Subtask 6.04 – Optimum Coated Conductor.....</u>	2
<u>Subtask 6.05 – Cost/Performance Analyses of Potential Manufacturing Processes.....</u>	2
<u>Subtask 6.06 – Development of Real Time Process Control Using In-Situ Diagnostics.....</u>	2
OPEN ITEMS.....	2
QUARTERLY VARIANCE REPORT FOR JANUARY 1, 2004 – MARCH 31, 2004.....	3
CONCLUSIONS.....	4
REFERENCES.....	4
LIST OF ACRONYMNS.....	4
APPENDICES.....	4

LIST OF TABLES AND FIGURES

Not applicable for the work performed.

INTRODUCTION

Maintenance work on the DOE CFFF facility and other related government property is no longer authorized under this contract in accordance with the DOE-UT Settlement Agreement. Environmental remediation preservation of the facility is going on. Government property has been transferred to UTSI as owner, which frees up many items for proper disposal. Actions are underway to dispose of other wastes, and control pests and water at the DOE CFFF.

EXECUTIVE SUMMARY

The Discharge Monitoring Reports (DMRs) for the CFFF for December 2003, January 2004 and February 2004 were prepared and submitted to the Tennessee Department of Environment and Conservation. In March 2004, the TDEC issued a revised Discharge Permit for the CFFF that will allow yearly rather than monthly DMRs. The new permit goes into effect on April 1, 2004.

Groundwater testing and reporting to TDEC is required on a semi-annual basis. A sampling event took place in November 2003 and the report submitted in December. Due to typographical errors in the report it was reissued in January 2004. Reportable amounts of controlled water pollutants continue to be found in the groundwater well samples. For the last two years groundwater sampling has been conducted by TVG Environmental, Inc. of Nashville, TN. Quantum Environmental and Engineering Services of Knoxville, TN was recently awarded the state contract for environmental services, and they were contacted about providing this service for the CFFF for calendar year 2004. A purchase order was placed with Quantum in March, but was later cancelled due to a pricing conflict. The May sampling event will be conducted by TVG Environmental, and bids will be solicited for future environmental services.

EXPERIMENTAL

Not applicable for the work performed.

RESULTS AND DISCUSSIONS:

The progress in each task is as follows:

TASK 1 – FACILITY MAINTENANCE AND PROPERTY MANAGEMENT

In September 1998, a stop-work order was issued for work activity in the DOE Facility maintenance area. Work to administer government-owned property continued.

On September 22, 1999, Department of Energy and the University of Tennessee signed a SETTLEMENT AGREEMENT resolving all claims and property accountable under Tasks 1-5.

TASK 2 - REPORTING AND ARCHIVING

January, February and March 2004 Monthly Technical Progress reports have been submitted.

The Quarterly Key Staffing Report for the period October 1, 2003 – December, 2003, was slightly delayed and as a result was submitted on April 26, 2004.

Quarterly Technical Progress Report for the period October 1, 2003 – December 31, 2003, was submitted on January 20, 2004

TASK 3 - SITE ENVIRONMENTAL COMPLIANCE AND REMEDIATION

UTSI shall continue implementation and compliance with the State of Tennessee approved plan for groundwater remediation. UTSI shall remove from the site, and properly dispose of, all industrial type non-hazardous wastes. In addition, UTSI shall properly remove all asbestos-containing cooling water tower materials and dispose of these materials properly. In addition, UTSI shall continue the monitoring and treatment of holding pond effluent per the site Water Discharge Permit with the State of Tennessee.

The Discharge Monitoring Reports (DMRs) for the CFFF for December 2003, January 2004 and February 2004 were prepared and submitted to the Tennessee Department of Environment and Conservation. In March 2004, the TDEC issued a revised Discharge Permit for the CFFF that will allow yearly rather than monthly DMRs. The new permit goes into effect on April 1, 2004.

Groundwater testing and reporting to TDEC is required on a semi-annual basis. A sampling event took place in November 2003 and the report submitted in December. Due to typographical errors in the report it was reissued in January 2004. Reportable amounts of controlled water pollutants continue to be found in the groundwater well samples. For the last two years groundwater sampling has been conducted by TVG Environmental, Inc. of Nashville, TN. Quantum Environmental and Engineering Services of Knoxville, TN was recently awarded the state contract for environmental services, and they were contacted about providing this service for the CFFF for calendar year 2004. A purchase order was placed with Quantum in March, but was later cancelled due to a pricing conflict. The May sampling event will be conducted by TVG Environmental, and bids will be taken for future environmental services.

TASK 4 - SITE REACTIVATION

No work was scheduled or performed

TASK 5 - DISASSEMBLY AND DISMANTLEMENT (D&D) OF THE CFFF

No work was scheduled or performed

TASK 6 – ADVANCED TECHNOLOGY, RESEARCH, DEVELOPMENT AND ENGINEERING FOR OTHER FEDERAL OR DOE PROGRAMS

Subtask 6.02 Evaluation of Methods for Application of Epitaxial Buffer and Superconductor Layers

No Activity.

Subtask 6.03 Coated Conductor Development and Program Management

Discontinued effective September 30, 1999.

Subtask 6.04 Optimum Coated Conductor

No Activity.

Subtask 6.05 Cost Performance Analysis of Potential Manufacturing Processes

Discontinued effective August 31, 1999.

Subtask 6.06 Development of Real Time process Control using In-Situ Diagnostics

Discontinued effective September 30, 1999.

OPEN ITEMS

January 2000 – March 31, 2004 Monthly Technical Progress Reports

October 1999 – December 31, 2003 Quarterly Technical Progress Report

Kevin Trembath's Thesis Topical Report, "Statistically Designed Experimental Study of Sol-Gel Based Film Coating Scheme for High Temperature Superconductors and Buffer Materials and Related Manufacturing Process Cost Evaluation" submitted August 31, 2000.

JANUARY 1, 2004, THROUGH MARCH 31, 2004, QUARTERLY VARIANCE REPORT

Planned vs. Actual Expenditures

(thousands of dollars)

TASK	PLANNED	ACTUALS	VARIANCE
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	5.6	-5.6
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
TOTALS	0.0	5.6	-5.6
COST ELEMENT			
DIRECT LABOR	0.0	0.0	0
FRINGE BENEFITS	0.0	0.0	0
EQUIPMENT	0.0	0.0	0
EXPENDABLE MATERIAL	0.0	1.8	-1.8
OUTSIDE CONTRACTS	0.0	2.0	-2
TRAVEL	0.0	0.0	0
TOTAL DIRECT COSTS	0	3.8	-3.8
INDIRECT COSTS	0.0	1.8	-1.8
TOTAL	0.0	5.6	-5.6

Planned vs. Authorized Funding

Cumulative

Task	PLANNED	AUTHORIZED FUNDING
1	1495.2	1495.2
2	574.0	574
3	561.0	561
4	0.0	0
5	0.0	0
SUBTOTAL	2630.2	2630.2
6	3820.9	3820.9
TOTAL	6451.1	6451.1

CONCLUSIONS:

Environmental restoration activities at the CFFF will continue and funding to cover these activities will be continued in accordance with the SETTLEMENT AGREEMENT.

Contract reporting requirements are being met on time. Future contract reporting requirements need to be reviewed and modified in accordance with the SETTLEMENT AGREEMENT.

REFERENCES:

Not applicable for the work performed.

LIST OF ACRONYMS:

Not applicable for the work performed.

APPENDICES:

Not applicable for the work performed.