CONTRACT STATUS REPORT
FOR
MHD RESEARCH AND DEVELOPMENT
AND
OPERATION OF THE MHD
COAL FIRED FLOW FACILITY

For The Month Ending
May 31, 1995

Work Performed Under Contract No. DE-AC02-79ET10815

Prepared by
The University of Tennessee
Space Institute
Energy Conversion Research & Development Programs

For
The United States Department of Energy

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MR-10815-177
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PROJECT STATUS REPORT

1. CONTRACT OBJECTIVE - No change since last report.

2. TECHNICAL APPROACH CHANGES - None

3. CONTRACT TASKS - In this report, UTSI reports on the status/progress by program tasks identified in Chapter 3 (Work Plan) of the draft Contract Management Plan for the FY95 period, which was submitted to DOE February 17, 1995.

TASK I - CONTRACT MANAGEMENT AND CLOSEOUT

The final October-December 1994 and January-March 1995 Quarterly Technical Progress Reports were issued.

Final preparations are being made for the 33rd Symposium on Engineering Aspects of Magnetohydrodynamics hosted by UTSI and ERC, Inc. June 12-16, 1995.

In response to a DOE/PETC letter of 5/23/95, discussions and work were initiated on the development of a contract proposal package for "UTSI/CFFF MHD Program Completion and Related Activity."

Personnel medical records were returned to UTSI from the Occupational Medical Consultant (OMC) as a result of the OMC subcontract termination.

The contract status report for April 1995 was issued to DOE.

A no-cost contract extension (MOD #M112), extending contract performance through September 30, 1995, was received, signed and returned to DOE.

DOE letter authorizing purchases through GSA sources was received.

Personnel staffing for the month was 21.9 equivalent full-time (EFT) personnel versus a planned level of 26.2 EFT.

TASK II - FACILITY AND PROPERTY DISPOSITION

Facility activities this month were confined to the continuation of preventative maintenance and repairs required to maintain the Coal-Fired Flow Facility (CFFF) in a standby condition.
The reconditioning of the CFFF process water cooling tower continued. A two week shutdown has been scheduled for this system to complete the work.

Control of government property and the maintenance of records were continuing.

Property custodians completed their review of all property items to determine if any property should be retired or placed on a surplus list if not required. Several property items are expected to be processed for disposition.

**TASK III - DATA REPORTING AND ARCHIVING**

Preparation of topical reports pertaining to the MHD POC test program continued.

Corrosion analyses of the Superheater Test Module tube specimens from the Western Coal POC tests were continuing.

Continued the small scale laboratory experiments to acquire fundamental data on secondary combustion in the presence of potassium compounds. This work is to be documented in a doctoral dissertation, when completed.

All data and documentation developed thus far on the MHD/CFFF project and identified for archiving are continuing to be maintained for archiving storage.

**TASK IV - SITE ENVIRONMENTAL COMPLIANCE AND REMEDIATION**

Under a subcontract for the first round of groundwater samples which will be used as a screening technique to verify what parameters must be analyzed in the other six wells that will be installed. This technique will save funds by eliminating all groundwater pollutants except those detected above drinking water standards.

Monitoring of the holding pond effluent continued in order to comply with the UTSI water discharge permit. Water is checked for pH, temperature, flow rate, oil and grease content, total dissolved solids, and total suspended solids. All parameters continue to be measured by the UTSI chemistry lab. Any changes in CFFF operation might require monitoring of additional parameters.

4. **OPEN ITEMS**

   A. **DOE:** The following reports/documents were in DOE review for comments and/or approval as of May 31, 1995.

   FY1995 Management Plan  UTSI ltr 02/17/95
B. **UTSI:** The following actions were in process or preparation as of May 31, 1995.

- Superheater/Air Heater Tube Corrosion Studies  
  Est. Completion 09/30/95
- NO\textsubscript{x} Formation and Control, Topical Report  
  Est. Completion 06/30/95
- Western Coal Processing System, Topical Report  
  Est. Completion 06/30/95
- Western Coal 1,000 Hr POC & Final Summary Report  
  Est. Completion 06/30/95

5. **SUMMARY STATUS ASSESSMENT AND FORECAST**

The CFFF continues in standby condition as preventive maintenance and repairs are accomplished as needed.

Efforts on the preparation of topical reports continued.
# Milestone Schedule and Status Report

1. **Contract Identification**
   
   **OPERATION OF THE COAL-FIRED FLOW FACILITY**

2. **Reporting Period**
   
   May 1, 1995 - May 31, 1995

3. **Contract Number**
   
   DE-AC02-79ET10815

4. **Contractor: Name, Address**
   
   THE UNIVERSITY OF TENNESSEE SPACE INSTITUTE
   TULLAHOMA, TENNESSEE 37388

5. **Contract Start Date**
   
   10 - 01 - 78

6. **Contract Completion Date**
   
   September 30, 1995

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<tr>
<th>Reporting Category - Contract Line Item or Work Breakdown Structure Element</th>
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<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Accrued</th>
<th>EAC**</th>
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<tr>
<td>I Contract Management and Close Out</td>
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<td></td>
<td></td>
<td></td>
<td>B▼</td>
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<td></td>
<td>B▼</td>
<td>C▼</td>
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<td>III Data Reporting and Archiving</td>
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<td></td>
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<td>B▼</td>
<td>C▼</td>
<td>D▼</td>
<td>E▼</td>
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<td>IV Site Environmental Compliance and Remediation</td>
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<td>C▼</td>
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<td>C▼</td>
<td>C▼</td>
<td>B▼</td>
<td>C▼</td>
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</table>

| Total Costs: | 1241 | 2000 |

11. **Remarks:**
   
   *Costs Appear in Thousands based on MIS Reporting System, and are cumulative for the FY95 Program.*

   *EAC - Estimate at Completion of September 30, 1995.*

12. **Signature of Contractor's Project Manager & Date**
   
   [Signature] 6/15/95

13. **Signature of Government Representative & Date**
   
   [Signature]
## MILESTONE LOG

<table>
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<tr>
<th>I.D. NO.</th>
<th>DESCRIPTION</th>
<th>ACTUAL COMPLETION DATE</th>
<th>PLANNED COMPLETION DATE</th>
<th>EXPECTED COMPLETION DATE</th>
<th>COMMENTS</th>
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<td><strong>TASK I - CONTRACT MANAGEMENT &amp; CLOSE OUT</strong></td>
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<td>I A</td>
<td>Issue Management Plan for FY95</td>
<td>Feb 95</td>
<td>Feb 95</td>
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<td>I B</td>
<td>Issue Monthly Reports</td>
<td>Apr 95</td>
<td>As Indicated</td>
<td>Completed April '95 report</td>
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<td>I C</td>
<td>Issue Quarterly Reports</td>
<td>Apr 95</td>
<td>As Indicated</td>
<td>Completed Jan-Mar 95 report</td>
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<td><strong>TASK II - FACILITY &amp; PROPERTY DISPOSITION</strong></td>
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<td>II B</td>
<td>Complete all Engineering Drawings</td>
<td>Dec 94</td>
<td>Dec 94</td>
<td>All drawings completed/updated</td>
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<td>Annual Government Property Inventory</td>
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<td>Identify Data for Archiving</td>
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<tr>
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<td>Prepare data/documentation for archiving</td>
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<td>Feb 95</td>
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<td>Issue Superheater/Air Heater Tube Corrosion Studies</td>
<td>Mar 95</td>
<td>Sep 95</td>
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<td>III D</td>
<td>Issue Topical Report - Western Coal Processing System</td>
<td>Apr 95</td>
<td>Jun 95</td>
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<td>Issue Topical Report - NOₓ/SOₓ Formation &amp; Control</td>
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<td>Jun 95</td>
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<td>III F</td>
<td>Issue Western Coal 1000 Hr POC &amp; Final Program Summary Report</td>
<td>May 95</td>
<td>Jun 95</td>
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<td><strong>TASK IV - SITE ENVIRONMENTAL COMPLIANCE &amp; REMEDIATION</strong></td>
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<td>IV A</td>
<td>Complete Removal of Asbestos in the CFFF Cooling Tower</td>
<td>Feb 95</td>
<td>Mar 95</td>
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<td>Install additional groundwater wells for monitoring</td>
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<td>Jul 95</td>
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<td>Issue Monthly Water Discharge Monitoring Reports</td>
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<td>The University of Tennessee Space Institute B. H. Goethert Parkway Tullahoma, Tennessee 37386-8897</td>
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<td>6. Government Fundings</td>
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<td>16. Reporting Category (e.g. contract line item or work breakdown structure element)</td>
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<td>17. Acquired Cost Cash Basis**</td>
<td>During Reporting Period Cumulative to Date a. Subsequent Reporting Period b. Balance of Fiscal Year c. Total Contract thru 9/30/95 Value</td>
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<td>OVERHEAD*</td>
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<td>14,417,756.63</td>
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<td><strong>GRAND TOTAL</strong></td>
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<td>561,031.85</td>
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23. REMARKS: * Overhead rate effective 7/1/94 is 18% of TOC less capital equipment, outside contracts over $25,000, and GRA maintenance fees. ** Actual costs are on cash basis and do not include outstanding costs listed in column 21. *** Includes orders outstanding costs listed in column 21.

24. Dollars Expressed In: THOUSANDS

25. Signature of Contractor's Project Manager and Date W. Muehlauser, PhD, Administrator

26. Signature of Contractor's Authorized Financial Representative & Date

27. Signature of Government Technical Representative and Date
1. Contract Identification
Operation of the MHD Coal-Fired Flow Facility

2. Reporting Period
May 1 through May 31, 1995

3. Contract Number
DE-AC02-79ET10815

4. Contractor (Name and Address)
The University of Tennessee Space Institute
B. H. Goethert Parkway
Tullahoma, Tennessee 37388

5. Cost Plan Date
February 1995

6. Contract Start Date
October 1, 1978

7. Contract Completion Date
September 30, 1995

8. Government Funding
$105,842,540.00

9. Contractor Funding
-0-

10. Number of Invoices Billed
Letter of Credit

11. Frequency
N/A

12. Number of Invoices Paid
N/A

13. Total Invoice Amounts Billed
$105,316,280.85

14. Total Payment Received

15. Identification Numbers
16. Reporting Category
(e.g., contract line item or work breakdown structure element)
17. Accrued Cost
Cash Basis FY1994

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<td>Data Reporting and Archiving</td>
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<td>Site Environmental</td>
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<td>209,183.70</td>
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18. Estimated Accrued Costs
a. Subsequent Reporting Period
b. Balance of Fiscal Year
c. Total Contract

| Total | 164,431.42 | 191 | 1,275,886.30 | 1,804 |

19. Total Contract Value
21. Unfilled Orders Outstanding

20. Variance

22. TOTAL

23. REMARKS: * Approximately $214,130 of this amount accounts for the liquidation of prior years' outstanding obligations. Cumulative plan and actual cost distributions for October-December 1994 have been revised to be in accordance with new Management Plan issued in February 1995.

24. Dollars Expressed In: THOUSANDS

25. Signature of Contractor's Project Manager and Date

26. Signature of Contractor's Authorized Financial Representative & Date

27. Signature of Government Technical Representative and Date