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# Task 8 - Management and Reporting

## Semi-Annual Report
## April 1 - September 30, 1997

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# TASK 8 – MANAGEMENT AND REPORTING

## 1.0 INTRODUCTION

The task of addressing the environmental needs of nuclear defense complex sites under the U.S. Department of Energy (DOE) Environmental Management (EM) Program requires the timely availability of appropriate cleanup technologies. Fostering the commercialization of these technologies is the mission of EM-50, the EM Program Office of Science and Technology. DOE's Federal Energy Technology Center (FETC) pursues activities integral to the EM-50 mission through its Cooperative Agreement with the EM Office of Science and Technology.

On the road to commercialization, technologies must overcome significant barriers with respect to technical issues, proof of performance, partnering, capitalization, and regulatory acceptance. The Energy & Environmental Research Center (EERC), a not-for-profit, contract-supported organization focused on research, development, demonstration, and commercialization (RDD&C) of energy and environmental technologies, is completing the third year of a Cooperative Agreement with FETC designed to 1) overcome commercialization barriers through technical support, real-world demonstrations, and partnering; and 2) support the integration and deployment of "winner" technologies at EM sites. Table 1 lists the task name and number, period of performance, and total cost for Years 1–3 of the FETC–EERC EM Cooperative Agreement.

## 2.0 OBJECTIVES

The primary objective of Task 8 is to ensure the effectiveness of the EMCA. This is accomplished through 1) the coordination of internal EMCA activities and coordination with the FETC contractor's representative, 2) the coordination and expansion of the EMCA, and 3) effective technical transfer.

## 3.0 ACCOMPLISHMENTS

Accomplishments during the reporting period include:

- Sent out mailing providing information on the services available under the FETC–EERC EM Cooperative Agreement (EMCA) to over 30 new FETC Industry Program participants identified from a review of the April 1997 set of Technology Development Data Sheets (TDDS). This mailing was followed up by telephone contact with industry partners who responded to the mailing and with other industry partners with technologies having a good match to EERC core capabilities.

TABLE 1

FETC–EERC Environmental Management Cooperative Agreement
Comprehensive Task Summary for Years 1–3[1]

| Task No. | Task Name | Period of Performance | Total Cost, $ |
|---|---|---|---|
| 1 | Provide Information Required for Compliance with the National Environmental Policy Act (NEPA) | Sept. 1994 – Sept. 1995 | 5K |
| 2 | Extraction and Analysis of Pollutant Organics | Sept. 1994 – Jan. 1997 | 383K |
| 3 | Pyrolysis of Plastic Waste | Sept. 1994 – Dec. 1997 | 590K |
| 4 | Stabilization of Vitrified Waste by Enhanced Crystallization and Development of a Protocol to Predict Long-Term Stability | Sept. 1994 – Sept. 1995 | 80K |
| 5 | Extraction of Hazardous Metals from Mixed Solid Wastes by Chelation and Supercritical Fluid Extraction[2] | NA | NA |
| 6 | Subcritical Water Extraction of Organic Pollutants[2] | NA | NA |
| 7 | Demonstration of a Low-Temperature Plasma Remediation Technology[2] | NA | NA |
| 8 | Industrial Outreach, Management and Reporting | Sept. 1994 – Dec. 1997 | 245K |
| 9 | Centrifugal Membrane Filtration | Sept. 1994 – Dec. 1997 | 463K |
| 10 | Technology Development Integration | July 1995 – Dec. 1997 | 14,443[3] |
| 11 | Systems Analysis of Environmental Management Technologies | April 1996 – Dec. 1997 | 507[3] |
| 12 | Laser Cleaning of Contaminated Painted Surfaces | Sept. 1995 – Dec. 1997 | 210K |
| 13 | Cone Penetrometer for Subsurface Metal Detection | Dec. 1996 – Dec. 1997 | 190K |
| 14 | Bubbleless Gas-Transfer Technology | Dec. 1996 – Dec. 1997 | 140K |
| 15 | Remediation of Organically Contaminated Soil Using Hot/Liquid (Subcritical) Water | Dec. 1996 – Dec. 1997 | 174K |
| 16 | Preparation of Sampling/Analysis and Availability Assurance Plans for the Vortec Vitrification Demonstration Plant | Dec. 1996 – Dec. 1997 | 40K |
| 17 | Use of Acoustic Energy and Humic Acids to Mobilize DNAPLs in the Subsurface | June 1997 – Dec. 1997 | 43K |
| | Total | | $17,513,000 |

[1] This information reflects the revision for Tasks 2, 15, and 17 requested on June 17, 1997.

[2] Initially proposed but not funded.

[3] Tasks 10 and 11 include a Waste Policy Institute (WPI) subcontract – Task 10 for $13,768,740 and Task 11 for $16,227.

- Coordinated preparation for the Technical Project Review held September 9 at the Morgantown, West Virginia, office of FETC. Materials included slides, overheads, and presentation binders. An agenda and a list of action items from the meeting are attached.

- Preparations were initiated for the annual Industry Partnerships to Employ Environmental Technology meeting scheduled to be held at the Morgantown, West Virginia, office of FETC October 21–23. The EERC is scheduled to give a presentation on the Year 3 activities in the EMCA program.

- A new task, Task 17 – Use of Acoustic Energy and Humic Acids to Mobilize DNAPLs from the Subsurface, was given preliminary approval by FETC in June.

- Contact was established with the new FETC program managers. The FETC program managers were updated with respect to the status and projections for EMCA activities.

- EERC representatives attended the 4th Annual Nuclear Decommissioning Decision Makers Forum in Chicago June 24–27, 1997.

- A review of Year 3 activities and an assessment of the results of program outreach was undertaken as a basis for developing the Year 4 program plan. The proposed list of tasks for Year 4 is shown on Table 2. It is proposed that five technical tasks (9, 12, 13, 15, and 17) continue and that three new technical tasks (18, 19, and 20) be initiated. Further, technology integration activities will be expanded as a way to enhance coordination among stakeholders and ensure relevance of EMCA activities to the DOE program.

## 4.0 WORK PLANNED FOR NEXT 6 MONTHS

Efforts during the period October 1, 1997, through March 31, 1998, will focus on the following: 1) update TDDS quarterly, 2) continue to identify commercial partners' promising technologies and outreach opportunities, 3) continue efforts to team with EM sites to match needs with technologies and provide demonstration venues, 4) continue enhancement of Task 8 effectiveness, 5) complete materials for the FETC Industry Partnership meeting, 6) attend the Industry Partnership meeting at FETC (Morgantown) and other select meetings, and 7) facilitate progress on the action items from the September 1997 project review meeting.

TABLE 2

Proposed Year 4 Tasks for the FETC–EERC EM Cooperative Agreement

| Task No. Task Name Task Description | | 1998 Funding Request, $ |
|---|---|---|
| Task 8 | Industrial Outreach, Management, and Reporting<br>An active program of outreach and coordination will be continued to perform joint venture brokering, technical support, and systems engineering assessment in support of EM technology commercialization. Limited exploratory tests may be conducted under this task. | 100K |
| Task 9 | Centrifugal Membrane Filtration – Technology Partnering<br>Evaluation of the feasibility of combining the technologies of two FETC industry partners (SpinTek centrifugal membrane filtration and 3M Empore™ filters) to create a more effective system for removal of radionuclides from liquid mixed wastes. | 100K |
| Task 12 | Laser Cleaning of Contaminated Painted Surfaces<br>Distribute, assess user input, and, if needed, recommend revisions to the computer cost model developed in 1997 for comparing surface-cleaning methods; perform air sampling and analysis. | 40K |
| Task 13 | Cone Penetrometer for Subsurface Metals Detection<br>Complete laboratory calibration and validation; provide technical support for field-testing; and develop procedures for data collection, reduction, and analysis. | 210K |
| Task 15 | Remediation of Organically Contaminated Soil Using Hot/Liquid (Subcritical) Water<br>Address issues related to reactor plugging, extraction of polar and nonpolar organics, and wastewater quality cleanup; undertake a field test; and complete an economic assessment. | 170K |
| Task 17 | Use of Acoustic Energy and Humic Acids to Mobilize DNAPLs in the Subsurface<br>Complete a laboratory-based assessment of DNAPL mobilization using Weiss's acoustic excitation technology coupled with the EERC's humic acid surfactant. | 80K |
| Task 18 | Carbon Sorbent Optimization and Evaluation for High Levels of Mercury Contamination<br>Laboratory-based performance testing of EERC mercury sorbents under MRS process conditions. | 170K |
| Task 19 | Sampling, Analysis, and Vitrification Study for the Thermochem Steam Reformer Treatment Technology<br>Development of sampling and analysis plans, analysis for material stability and composition, and development of temperature and viscosity profiles for waste products. | 90K |
| Task 20 | Prevention of Chloride Corrosion in High-Temperature Waste Treatment Systems<br>Development of a technology to separate and recover chlorine from unsorted mixed wastes for incorporation into GTS Duratek incineration and vitrification systems. | 40K |