EM Task 8 - Management and Reporting

**Semi-Annual Report
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EM TASK 8 – MANAGEMENT AND REPORTING

EXECUTIVE SUMMARY

Management and reporting tasks over the last six months focused on the annual project review, preparations for the Year Five agreement, and a presentation at the Spectrum '98 Conference. The annual project review was held at the Energy & Environmental Research Center (EERC) in late September. The review focused on the projects from the fourth year of the agreement. Discussion were also held at the annual review for the Year Five proposal. A series of projects were presented and refined based on discussions after the meeting. A paper was accepted for presentation at the Spectrum '98 Conference in Denver; however, because of the Northwest Airlines strike, no presentation was given.

EM 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 (CA) 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 of energy and environmental technologies, is in the fourth year of a CA 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 EMCA, and Table 2 summarizes the tasks for Year 4.

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 are outlined in Table 3.

4.0 FUTURE ACTIVITIES

Future activities are outlined in Table 3.

TABLE 1

FETC-EERC EMCA Comprehensive Task Summary for Years 1-3¹

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 ⁴ in the Subsurface	June 1997 - Dec. 1997	43K
Total			\$17,513,000

TABLE 2

Year 4 Tasks for the FETC-EERC EMCA

Task No.	Task Name and Description	Funding, \$
8	Industrial Outreach, Management, and Reporting Continue an active program of outreach and coordination 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
9	Centrifugal Membrane Filtration – Technology Partnering Evaluate 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
12	Laser Cleaning of Contaminated Painted Surfaces 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
13	Cone Penetrometer for Subsurface Metals Detection Complete laboratory calibration and validation; provide technical support for field testing; and develop procedures for data collection, reduction, and analysis.	210K
15	Remediation of Organically Contaminated Soil Using Hot/Liquid (Subcritical) Water 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
17	Use of Acoustic Energy and Humic Acids to Mobilize DNAPLs in the Subsurface Complete a laboratory-based assessment of DNAPL mobilization using Weiss's acoustic excitation technology coupled with the EERC's humic acid surfactant.	80K
18	Carbon Sorbent Optimization and Evaluation for High Levels of Mercury Contamination Conduct laboratory-based performance testing of EERC mercury sorbents under MRS process conditions.	170K
19	Sampling, Analysis, and Vitrification Study for the Thermochem Steam Reformer Treatment Technology Develop sampling and analysis plans, analysis for material stability and composition, and temperature and viscosity profiles for waste products.	90K
20	Prevention of Chloride Corrosion in High-Temperature Waste Treatment Systems Develop a technology to separate and recover chlorine from unsorted mixed wastes for incorporation into GTS Duratek incineration and vitrification systems.	40K

TABLE 3

Status of Action Items

Item No.	Item Description	Status
1	Explore the potential of a concentrating step prior to the vitrification of high-moisture waste to potentially increase the processing rate. The EERC will contact GTS Duratek to discuss.	GTS Duratek visited the EERC in January 1998 for further discussions. This idea was proposed along with many others.
2	Bob Bedick will get the EERC on the mailing list for all reports generated from FETC for the various focus areas.	Pending.
3	Bruce Utz will get the EERC a list of FETC task managers and FETC key contacts and focus area leads.	Completed 9/9/97.
4	Madhav Ghate will set up a meeting between FIU and the EERC to ensure a complementary relationship between projects. A meeting at the October Industrial Partners meeting is probable.	Completed; the meeting was held at the X-Change '97 Conference 12/97.
6	For every technology developed/enhanced under the EMCA, the EERC will determine, with the aid of industry partners, FETC personnel, site personnel, and Site Technology Coordinating Groups (STCGs), a specific scenario for its application (including a site-specific application and baseline and competing technologies). The scenario will be used in the selection of technologies to be supported in next year's agreement and in directing the research efforts.	Completed for Tasks 9, 13, 15, 17, and 18.
7	The EERC will cross-reference activities that share information between the EMCA and the fossil fuel Cooperative Agreement.	Ongoing.
8	Industry Partners Meeting, October 21-23, Morgantown, West Virginia; prepare a) abstract, b) oral presentation, and c) proceedings paper.	a) Completed 10/6/97. b) Completed 10/20/97. c) Completed 12/5/97.
9	Summary of EERC testing and analytical capabilities.	In progress.
10	Continuation Application for EMCA Year 5: a) submit application, and b) address reviewer's comments.	a) Expected 11/9/98. b) Pending comments.
11	Spectrum 98 Meeting, September 1998, Denver, Colorado.	Paper was submitted, but because of a Northwest strike, a presentation was not made.
12	2006 Plan Meeting, Washington, DC, May 11-12, 1998.	EERC attended.
13	Mixed Waste Mercury Workshop in Atlanta	Scheduled for November 18-20, 1998.
14	Industrial Partners Meeting at FETC in October, 1998.	Meeting is on hold.

Specific activities in Year 4 under Item 6 (Table 3) are summarized in Table 4.

TABLE 4

Year 4 Activities

Activity	Comments
1 STCG needs assessment	A listing of potential matches between STCG needs and EMCA technologies was completed 3/9/98.
2 Unmet site needs	A preliminary listing of potential matches between site needs and EMCA technologies and capabilities was completed 3/9/98 and will be reevaluated in the coming quarter.
3 EMCA technology integration team	A listing of technology integration team members was completed 3/9/98.
4 EMCA technology competitors	A listing of baseline technology and competing innovative technologies was completed for Tasks 9 (SpinTek) and 13 (SEA cone penetrometer).
	Listings for technologies under Tasks 15, 17, and 18 will be completed in the coming quarter.