

Task 8 - Management and Reporting

Semi-Annual Report

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TASK 8 - MANAGEMENT AND REPORTING

1.0 INTRODUCTION

The task of restoring nuclear defense complex sites under the U.S. Department of Energy (DOE) Environmental Management (EM) program presents an unprecedented challenge to the environmental restoration community. Effective and efficient cleanup requires the timely development or modification of novel cleanup technologies applicable to radioactive wastes. Fostering the commercialization of these innovative technologies is the mission of EM-50, the EM Program Office of Science and Technology. DOE's Morgantown Energy Technology Center (METC) pursues activities integral to the EM-50 mission through its Cooperative Agreement with the EM Office of Science and Technology.

The advancement of innovative technologies is often arrested at the "valley of death," the general term for barriers to demonstration and commercialization. Alternatively, commercialization and deployment are impacted by a lack of clear choices among competing technologies. 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 in the second year of a Cooperative Agreement with METC designed 1) to deliver EM technologies into the commercial marketplace through a unique combination of technical support, real-world demonstrations, and brokering; 2) to facilitate decisions regarding deployment and support for commercialization by providing comparative performance data through systems analysis; and 3) to support the integration and deployment of "winner" technologies at EM sites. These activities, along with program management, make up the four program areas of the METC-EERC EM Cooperative Agreement (EMCA): Technology Commercialization, Systems Engineering, Technology Integration, and Management and Reporting. These areas are profiled on Table 1.

This report addresses the Management and Reporting program area, Task 8 under EMCA.

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 METC contractor's representative; 2) the coordination and expansion of the EMCA; and 3) effective technical transfer.

3.0 ACCOMPLISHMENTS

Specific activities under Task 8, Management and Reporting, are summarized below.

TABLE 1

Profile of Year 2 EMCA Program Areas		
Program Area	Description	EMCA Tasks
Technology Commercialization	Facilitate the commercialization and deployment of innovative cleanup technologies through a hands-on process of technical support, brokering, and performance testing termed "Dynamic Partnership"	Year 2 Technology Activities (see Table 2) – Task 2 (SFE/FT-IR) – Task 3 (Thermal Treatment of Organics) – Task 12 (Laser Surface Cleaning) – Task 9 (Centrifugal Membrane Filtration)
Systems Engineering	Provide a basis for technology development and deployment by evaluating candidate EM cleanup technologies	Task 11
Technology Integration	Provide support for the appropriate deployment of cleanup technologies at EM sites	Task 10 (subcontract to Waste Policy Institute)
Management and Reporting	– Internal coordination of EMCA and liason with METC – Coordination with other programs, partnership development, and program development – Effective technology transfer	Task 8

- METC Industry Partner outreach – A summary of EERC capabilities and an EMCA profile were sent to all METC EM Industry Partners. Ten IPs responded with requests for additional information. Two indicated that the EERC could benefit their technology commercialization activities, and these IPs (Vortec Corporation and Science Engineering Associates, Inc.) formed the basis of proposed Year 3 activities.
- EERC undertook a review of in-house technologies under development with commercial partners. Eighteen technologies were identified with a strong EM match. Profiles of these technologies were forwarded to METC. One of these candidates (Baumgartner Environics, Inc.) formed the basis for a proposed activity in the Year 3 Cooperative Agreement.
- EERC proposed the Hot/Liquid (Subcritical) Water Technology, a highly promising technology currently without a commercial partner, as the final Year 3 activity.

- A Technology Development Data Sheet (TDDS) was completed for the overall EMCA program and forwarded to Mr. Roger Wetzels of Energetics in April. An updated TDDS was submitted to Energetics in September, and arrangements were made to update the TDDS on a quarterly basis to match the METC TDDS publication schedule.
- As a result of discussions during the December EMCA program review meeting at the EERC, it was decided to develop a Systems Engineering program area. A Systems Engineering task proposal was accepted by METC in April, with Tom Erickson designated as the lead.
- The unique hands-on approach for activities under the Technology Commercialization area was designated "Dynamic Partnership," and this terminology was applied in the TDDS and used in the contribution for the SPECTRUM meeting.
- An evaluation of EERC core expertise with respect to EM technology needs was updated to reflect the revised EM nomenclature and the proposed Year 3 activities. Results of this evaluation are shown in Table 3. This evaluation will continue to be used to guide the development of opportunities under the Technology Commercialization area and for the Systems Engineering area.
- A profile of the program can be found in Attachment A.
- Two activities were emphasized for internal program coordination:
 - The personal computer-based listing of EM-related contacts in support of technology development activities was refined and expanded.
 - Technology and site characterization activity to support technical demonstration and marketing was pursued as time allowed.

TABLE 2

Year 2 Technology Commercialization Activities for the METC-EM Cooperative Agreement

Focus Area	Technology	Commercial Partner	EERC Manager	METC \$K	Description
Mixed Waste Characterization, Treatment, and Disposal	Supercritical fluid extraction infrared/Fourier transform infrared (SFE-IR/FT-IR) analysis	Suprex Corporation	Hawthorne	250	EERC technology for extraction and analysis of organic pollutants by SFE in CO ₂ and IR/FT-IR analysis.
	Thermal treatment (organics)	-	Ness	400	EERC technology for thermal conversion and destruction of organic substances and separation of inorganics based on pyrolysis of mixed organic wastes and staged low-severity depolymerization, hydrolysis, and hydrogenation.
Facility Stabilization, Decommissioning, and Final Disposition	Laser surface cleaning	F2 Associates	Grisanti	110	Technical support for the development of on-line analytical systems for trace metals; economic assessment; laser cleaning unit decontamination design.
Radioactive Tank Waste Remediation	Centrifugal membrane filtration	SpinTek Membrane Systems, Inc.	Stepan	120	Technical support for optimizing separation of organics and inorganics from liquid waste streams using selective self-cleaning membranes.

TABLE 3

Matrix of EERC Core Expertise and EM Technology Needs

EERC Core Expertise	EM Focus Areas					
	1	2	3	4	5	
Extraction/Analysis						1 Subsurface Contaminants
Cementation						2 Mixed-Waste Characterization, Treatment, and Disposal
Vitrification						3 Radioactive Tank Waste Remediation
Leaching Assessment						4 Facility Stabilization, Decommissioning, and Final Disposition
Catalysis						5 Plutonium Stabilization and Immobilization
Thermal Conversions (liquefaction, pyrolysis, FBC)						 Technology Tasks
Plasma						
Biotreatment						
Carbon Sorbents						
Separations						
Sensors						
Systems Analysis						

EERC 1108300.CDR

4.0 WORK PLANNED FOR NEXT 6 MONTHS

Efforts during the period October 1, 1996, through March 31, 1997, will focus on the following: 1) update TDDS quarterly; 2) finalize preparations for attending "Industry Partnerships to Deploy Environmental Technology"; 3) ensure a smooth transition from Year 2 to Year 3 activities; 4) continue to identify commercial partners, promising technologies, and outreach opportunities; 5) continue efforts to team with EM sites to match needs with technologies and provide demonstration venues; and 6) continue enhancement of Task 8 effectiveness.

ATTACHMENT A

**METC-EERC ENVIRONMENTAL MANAGEMENT
COOPERATIVE AGREEMENT PROFILES**

METC-EERC ENVIRONMENTAL MANAGEMENT COOPERATIVE AGREEMENT

TASK SUMMARY

Task Name	Task Number	Period of Performance	Total Cost (\$1000)
Provide Information Required for Compliance with the National Environmental Policy Act (NEPA)	1	Sept. 94 – Sept. 95	5
Extraction and Analysis of Pollutant Organics	2	Sept. 94 – Sept. 96	430
Pyrolysis of Plastic Waste	3	Sept. 94 – Sept. 96	590
Stabilization of Vitrified Waste by Enhanced Crystallization and Development of a Protocol to Predict Long-Term Stability	4	Sept. 94 – Sept. 95	80
Extraction of Hazardous Metals from Mixed Solid Wastes by Chelation and Supercritical Fluid Extraction	5 (unfunded)	NA	NA
Subcritical Water Extraction of Organic Pollutants	6 (unfunded)	NA	NA
Demonstration of a Low-Temperature Plasma Remediation Technology	7 (unfunded)	NA	NA
Management and Reporting	8	Sept. 94 – Sept. 96	235
Centrifugal Membrane Filtration	9	Sept. 94 – Sept. 96	433
Technology Development Integration	10	July 95 – Sept. 96	14,309*
Systems Analysis of Environmental Management Technologies	11	April 96 – Sept. 96	641
Laser Cleaning of Contaminated Painted Surfaces	12	Sept. 95 – Sept. 96	240
Cone Penetrometer for Subsurface Metal Detection	13 (proposed)	Sept. 96 – Sept. 97	230
Bubbleless Gas-Transfer Technology	14 (proposed)	Sept. 96 – Sept. 97	140
Remediation of Organically Contaminated Soil Using Hot/Liquid (Subcritical) Water	15 (proposed)	Sept. 96 – Sept. 97	140
Preparation of Sampling/Analysis and Availability Assurance Plans for the Vortec Vitrification Demonstration Plant	16 (proposed)	Sept. 96 – Sept. 97	41
Total (\$1000)			\$17,514

* Includes WPI subcontract of \$13,644.00.

METC-EERC ENVIRONMENTAL MANAGEMENT COOPERATIVE AGREEMENT

COMMERCIAL PARTNERS

Task Name	Small Business Partner	
	METC Industry Partner	EERC Industry Partner
Provide Information Required for Compliance with the National Environmental Policy Act (NEPA)	NA	NA
Extraction and Analysis of Pollutant Organics		Suprex Corporation
Pyrolysis of Plastic Waste	Negotiations in progress	
Stabilization of Vitrified Waste by Enhanced Crystallization and Development of a Protocol to Predict Long-Term Stability	NA	NA
Management and Reporting	NA	NA
Centrifugal Membrane Filtration	SpinTek Membrane Systems, Inc.	
Technology Development Integration	NA	NA
Systems Analysis of Environmental Management Technologies	NA	NA
Laser Cleaning of Contaminated Painted Surfaces	F2 Associates, Inc.	
Cone Penetrometer for Subsurface Metal Detection*	Science & Engineering Associates	
Bubbleless Gas-Transfer Technology*		Baumgartner Environics Inc.
Remediation of Organically Contaminated Soil Using Hot/Liquid (Subcritical)*	To be determined	
Preparation of Sampling/Analysis and Availability Assurance Plans for the Vortec Vitrification Demonstration Plant*	Vortec Corporation	

* Proposed for Year 3.

METC-EERC ENVIRONMENTAL MANAGEMENT COOPERATIVE AGREEMENT

PRIMARY AND SECONDARY APPLICATIONS FOR EM FOCUS AREAS

Task Name	DOE EM Focus Areas				
	Subsurface Contaminants	Mixed Waste Characterization, Treatment, and Disposal	Radioactive Tank Waste Remediation	Facility Stabilization, Decommissioning, and Final Disposition	Plutonium Stabilization and Immobilization
Extraction and Analysis of Pollutant Organics	P	-	-	-	-
Pyrolysis of Plastic Waste	-	P	-	X	-
Stabilization of Vitrified Waste by Enhanced Crystallization and Development of a Protocol to Predict Long-Term Stability	-	X	X	P	-
Centrifugal Membrane Filtration	P	-	X	-	-
Laser Cleaning of Contaminated Painted Surfaces	-	-	-	P	-
Cone Penetrometer for Subsurface Metal Detection	P	-	-	-	-
Bubbleless Gas-Transfer Technology	P	-	-	-	-
Remediation of Organically Contaminated Soil Using Hot/Liquid (Subcritical) Water	P	-	-	-	-
Preparation of Sampling/Analysis and Availability Assurance Plans for the Vortec Vitrification Demonstration Plant	-	P	-	-	-

P = primary.

X = secondary.

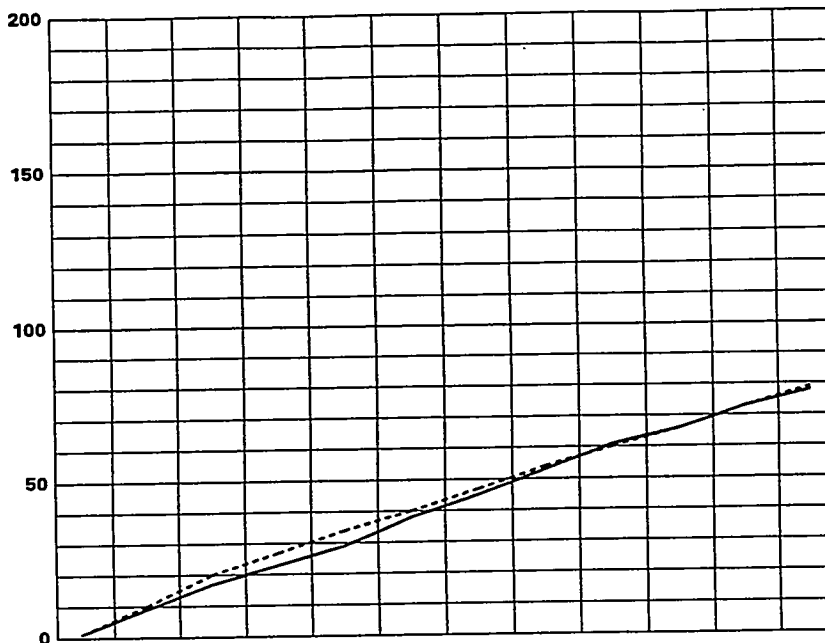
U.S. DEPARTMENT OF ENERGY
FEDERAL ASSISTANCE MANAGEMENT SUMMARY REPORT

1. Program/Project Identification No. DE-FC21-94MC31388	2. Program/Project Title EM Task 8 - Management and Reporting	3. Reporting Period 7/1/96 through 9/30/96
4. Name and Address Energy & Environmental Research Center University of North Dakota PO Box 9018, Grand Forks, ND 58202-9018 (701) 777-5000		5. Program Start Date 9/30/94
		6. Completion Date 9/29/99

7. FY 95/96	8. Months or Quarters Quarters	b. Dollar Scale	1st OCT NOV DEC	2nd JAN FEB MAR	3rd APR MAY JUN	4th JUL AUG SEP
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9. Cost Status
a. Dollars Expressed in Thousands

Fund Source		Quarter				Cum. to Date	Tot. Plan
		1st	2nd	3rd	4th		
DOE	P	20	20	20	19	79	105
	A	17	21	23	17	78	
	P						
	A						
	P						
	A						
	P						
	A						
Total P		20	20	20	19	79	105
Total A		17	21	23	17	78	
Variance		3	(1)	(3)	2	1	



P= Planned A = Actual		c. Cumulative Accrued Costs												
Total Planned Costs for Program/Project \$105		Planned			20			40			60			79
		Actual			17			38			61			78
		Variance			3			2			(1)			1

11. Major Milestone Status	Units Planned	Units Complete
8.2 Provide Overall Management and Coordination of the Proposed Effort	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	

12. Remarks

13. Signature of Recipient and Date <i>[Signature]</i> 10/25/96	14. Signature of DOE Reviewing Representative and Date <i>[Signature]</i>
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7. FY 98/97	8. Months or Quarters Quarters	b. Dollar Scale	1st OCT	NOV	DEC	2nd JAN	FEB	MAR	3rd APR	MAY	JUN	4th JUL	AUG	SEP
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9. Cost Status **a. Dollars Expressed in Thousands**

Fund Source		Quarter				Cum. to Date	Tot. Plan
		1st	2nd	3rd	4th		
DOE	P	3	2	13	8	105	105
	A	1	3	13	4	99	
	P						
	A						
	P						
	A						
Total P		3	2	13	8	105	105
Total A		1	3	13	4	99	
Variance		2	(1)	0	4	6	

P = Planned A = Actual

Total Planned Costs for Program/Project \$105		c. Cumulative Accrued Costs												
		Planned			82			84			97			105
		Actual			79			82			95			99
		Variance			3			2			2			6

11. Major Milestone Status	Units Planned	
	Units Complete	
8.2 Provide Overall Management and Coordination of the Proposed Effort	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	
	P	
	C	

12. Remarks	
13. Signature of Recipient and Date 10/25/96	14. Signature of DOE Reviewing Representative and Date

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				6. Completion Date 9/29/99	
Milestone ID. No.	Description	Planned Completion Date	Actual Completion Date	Comments	
Year 1					
8.0	Management and Reporting				
8.2	Provide Overall Management and Coordination of the Proposed Effort			100%	
Year 2					
8.2	Provide Overall Management and Coordination of the Proposed Effort	9/96	9/96	100%	