MONTHLY PROGRESS REPORT FOR CONTRACT NO. 500-00-036

PROJECT 2.1 – ENHANCED LANDFILL GAS PRODUCTION USING BIOREACTORS

REPORT PREPARED BY: COMMONWEALTH ENERGY TEAM

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What we planned to accomplish this period:

On Project 2.1, a primary focus of activity was to have been the continued coordination with San Bernardino County's engineer on conceptual design issues related to the bioreactor project. This was to include identification of all the activities required by this project. In addition, a draft Memorandum of Understanding was to have been prepared and reviewed with San Bernardino County outlining the goals, roles and responsibilities of the County and the Commonwealth PIER Project Team. It was also anticipated that the Waste Characterization Report would be completed in November.

What we actually accomplished this period:

Task 2.1.1 Characterize Waste to be Placed in Bioreactor:

- The Waste Characterization Report was finalized in light of the decision by San Bernardino County to refocus its efforts at the Mid-Valley site. This decision was based upon input from its engineer and the local representative of the Regional Water Quality Control Board

Task 2.1.3 Conceptual Design for First Bioreactor

- In November, activities were undertaken on the preparation of the Conceptual Design Report and working with the host, San Bernardino County. Information from the County regarding the Mid-Valley site was reviewed and there were many consultations with BAS, the County's design engineer, to create more detailed plans for developing the bioreactor at Mid-Valley. The approach being taken is to develop a bioreactor in a portion of the Unit 3 cell at Mid-Valley, such that the bioreactor, if successful, can be expanded to include the entire cell. This approach of having the PIER work conducted in support of future commercial scale projects was discussed, and plans were formulated to implement this approach in

discussions with County officials and their design engineer. In general, the conceptual approach that is being pursued is consistent with the direction received from the Project TAC and the RPAC.

- Another key activity in this period was the inclusion of Brian A Stirrat and Associates (BAS) into the Commonwealth Team. By bringing BAS, who is completing the next phase of the design on the Mid-Valley project, onto the team it will be possible to integrate the County's design efforts for the next phase of development at Mid-Valley with those of the Commonwealth Team. This will lead to an integration of PIER and match fund activities, as well as establish a model that can be used in future bioreactor projects in California. CH_2 staff are working closely with BAS to develop a detailed plan for completing the bioreactor project at Mid-Valley.
- Consistent with this integrated approach, regular conference calls involving BAS and CH_2M were held. These calls, which will be held periodically throughout the project, will enable coordination of a wide range of issues. Initially, efforts have focused on developing an integrated set of activities for the bioreactor and landfill expansion. This information will allow a project implementation plan to be established for the Mid-Valley bioreactor project. The primary focus of these calls in November was the development of a detailed integrated plan for linking the ongoing work at Mid-Valley and the PIER program's bioreactor project.

How we are doing compared to our plan:

Work is generally proceeding as anticipated. An important challenge has been in gaining regulatory acceptance of the bioreactor landfill project. As part of this effort, EPA activity to implement an R&D exemption for bioreactors is being closely followed. This regulation will be very important in successfully permitting the bioreactor project. Developments in this area are being closely followed. Also important on this project is the development of an approach involving key stakeholders in San Bernardino County and elsewhere for such a project. Staff from the County, its operator and engineer, the Regional Water Quality Board, the Commission and various other State and local entities were consulted and all contributed valuable input to the development of the project. It is important to keep such staff involved in the formulation of the project as it moves forward. Also on this project, after a series of key meetings, San Bernardino County Staff decided to undertake the bioreactor development work at the Mid-Valley facility. Because this is an active commercial landfill and accepts most of San Bernardino County's waste, it is important that efforts be undertaken to closely coordinate the efforts of the PIER program with those of the County's design engineer, BAS, to ensure this work is completed in a timely and efficient manner.

Significant problems or changes:

There are no significant fiscal problems to report during this period and work is proceeding within Project budget. Progress and expenditures will result in the project being completed on time under the revised Exhibit B schedule and within budget.

What we expect to accomplish during the next period:

A primary focus of activity will be coordination with San Bernardino County's engineer on conceptual design issues related to the bioreactor project and preparation of a schedule and budget for the development of a commercial-scale demonstration project. The overall intent of the Program is to have the PIER program test the concept of the bioreactor in a portion of Unit 3 at Mid-Valley. If the bioreactor is a success then it could then be expanded to include all of Unit 3. Also in December, a draft Memorandum of Understanding is to be reviewed with San Bernardino County outlining the goals, roles and responsibilities of the County and the PIER Project Team. It is also anticipated that efforts on completing the Waste Characterization Report will be finalized. Minimal modification is anticipated by the team given the decision to proceed with the Mid-Valley project.

Status of Milestones and Deliverables:

Table 1 below summarizes the status of Project 2.1 task deliverables as of the end of the current reporting period.

Table 1: Summary of Project Status and Deliverables – Project 2.1

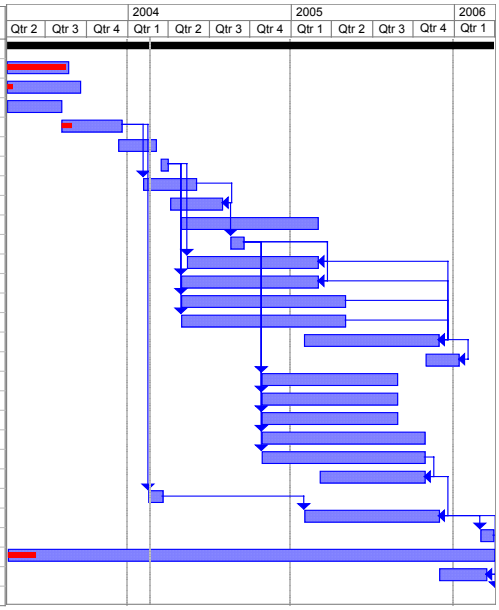
Task No.	Description	Start Date		Due Date		Status (%)
		Planned	Actual	Planned	Actual	
2.1.1a	Characterize MSW and Source-Separated Organic Waste to be Placed in Both Bioreactors	01/10/02	1/24/03	05/31/02 08/21/03	08/20/03	95%
2.1.1b	Characterize Food or Animal Wastes to be Placed as Amendment in the Second Bioreactor	03/25/02	1/24/03	On Hold		7%
2.1.2	Identify Amendment Source Locations for the Second Bioreactor	05/26/02		On Hold		
2.1.3a	Prepare Conceptual Design for the First Bioreactor	09/28/02		12/18/03		15%
2.1.6	Coordinate with RPAC/TAC	01/10/02		04/26/06		

Explanation of any Difference(s) in Schedule:

Task 2.1.1a – Landfill Feedstock Characterization Report – Information needed to complete this report took longer to collect than anticipated as the primary data to be used was not available in an electronic format. This delay will not affect the overall schedule for the project as that is being affected by the issuance of R&D exemption mentioned above and other developments that could affect the overall development of the bioreactor.

Overall Schedule for Project 2.1:

Task Name	Duration	Start Date	End Date
Project 2.1 - Enhanced Landfill Gas Production Using Bioreactors	**799 days**	**Mon 4/7/03**	**Thu 4/27/06**
Task 2.1.1a - Characterize MSW and Source Separated Organic Waste	99 days	Mon 4/7/03	Thu 8/21/03
Task 2.1.1.b - Characterize Food or Animal Wastes to be Placed as Arr	119 days	Mon 4/7/03	Thu 9/18/03
Task 2.1.2. - Identify Amendment Source Locations for the Second Bior	88 days	Mon 4/7/03	Wed 8/6/03
Task 2.1.3.a - Prepare Conceptual Design for the First Bioreactor	97 days	Wed 8/6/03	Thu 12/18/03
Task 2.1.3.b - Prepare Test and Construction Plans for the First Biorea	62 days	Thu 12/11/03	Fri 3/5/04
Critical Project Review Meeting	12 days	Tue 3/16/04	Wed 3/31/04
Task 2.1.3.c - Prepare Conceptual Design for the Second Bioreactor	85 days	Thu 2/5/04	Wed 6/2/04
Task 2.1.3.d - Prepare Test and Construction and Plans for the Second	83 days	Wed 4/7/04	Fri 7/30/04
Task 2.1.4.a.(1) - Construct and Operate the First Bioreactor	219 days	Fri 4/30/04	Wed 3/2/05
Critical Project Review Meeting	21 days	Wed 8/18/04	Wed 9/15/04
Task 2.1.4.a(2) - Construct and Operate the First Bioreactor	208 days	Fri 5/14/04	Tue 3/1/05
Task 2.1.4.a(3) - Construct and Operate the First Bioreactor	218 days	Fri 4/30/04	Tue 3/1/05
Task 2.1.4.a(4) - Construct and Operate the First Bioreactor	262 days	Fri 4/30/04	Mon 5/2/05
Task 2.1.4.a(5) - Construct and Operate the First Bioreactor	262 days	Fri 4/30/04	Mon 5/2/05
Task 2.1.4.a(6) - Construct and Operate the First Bioreactor	215 days	Mon 1/31/05	Fri 11/25/05
Critical Project Review Meeting (Optional)	54 days	Fri 10/28/05	Wed 1/11/06
Task 2.1.4.b(1) - Construct and Operate the Second Bioreactor	218 days	Wed 10/27/04	Fri 8/26/05
Task 2.1.4.b(2) - Construct and Operate the Second Bioreactor	218 days	Wed 10/27/04	Fri 8/26/05
Task 2.1.4.b(3) - Construct and Operate the Second Bioreactor	218 days	Wed 10/27/04	Fri 8/26/05
Task 2.1.4.b(4) - Construct and Operate the Second Bioreactor	261 days	Wed 10/27/04	Wed 10/26/05
Task 2.1.4.b(5) - Construct and Operate the Second Bioreactor	261 days	Wed 10/27/04	Wed 10/26/05
Task 2.1.4.b(6) - Construct and Operate the Second Bioreactor	169 days	Fri 3/4/05	Wed 10/26/05
Task 2.1.5.a - Prepare Final Report Outline for Project 2.1	22 days	Mon 2/16/04	Tue 3/16/04
Task 2.1.5.b - Prepare Draft Final Report for Project 2.1	215 days	Mon 1/31/05	Fri 11/25/05
Task 2.1.5.c - Prepare Final Report for Project 2.1	21 days	Mon 2/27/06	Mon 3/27/06
Task 2.1.6 - Coordinate with RPAC	798 days	Mon 4/7/03	Wed 4/26/06
Task 2.1.7.a - Evaluate Project 2.1: Draft Report	76 days	Mon 11/28/05	Mon 3/13/06
Task 2.1.7.b - Evaluate Project 2.1: Final Report	19 days	Mon 4/3/06	Thu 4/27/06



Overview of Fiscal Status:

Table 2 below summarizes the fiscal status of Project 2.1 by task/deliverable as of the end of the current reporting period.

Table 2: Fiscal Status By Task – Project 2.1

Task Number	Budget	Invoiced To-Date	Fiscal Status *
2.1.1 a	$52,117	$0	OT
2.1.1 b	$53,064	$0	OT
2.1.2	$40,476	$0	OT
2.1.3 a	$103,578	$0	OT
2.1.6	$45,024	$0	OT

*Fiscal Status – Please indicate if you are "On Track" (OT), OverBudget (OB), or UnderBudget (UB)