

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:**

A primary focus of activity planned for September was to have been responding to questions and issues raised at the meeting on the Mid-Valley bioreactor project held on August 28th. Another important activity planned for September was the Technical Advisory Committee (TAC) meeting scheduled for September 10th. It was planned that information developed in response to issues arising in the August 28th Project meeting and September 10th TAC meetings would be valuable and presented at the meeting with the Renewable Program Advisory Committee (RPAC) scheduled for September 24<sup>th</sup>. It was also anticipated that efforts on completing the Waste Characterization Report would be undertaken, including incorporation of comments received on it.

**What we actually accomplished this period:**

Task 2.1.1 Characterize Waste to be Placed in Bioreactor:

- In September, activities were undertaken in support of preparation of the Conceptual Design Report and in otherwise working with the expected host, San Bernardino County. Information from the County about the San Timoteo landfill was received and reviewed.
- Also, in support of this effort and Task 2.1.3, coordination activity was undertaken for several meetings. This included follow up to a meeting held on August 28 in San Bernardino, preparation for and participation in the TAC meeting held in Sacramento on September 10th and preparation for and participation in the RPAC meeting held on September 24th. Follow up to the August 28th meeting included assembling information about the project schedule and its importance in evaluating options for developing the bioreactor at either San Timoteo or Mid Valley. It also involved working with the landfill operator and the County's design engineer, in going over the issues raised by the County regarding Mid Valley site at the August

28<sup>th</sup> meeting. Activities related to the TAC and RPAC coordination meetings are discussed under the next Task.

*Task 2.1.3 Conceptual Design for First Bioreactor*

- Comments received on documents related to the bioreactor's conceptual design that were prepared and distributed prior to the August 28th meeting in San Bernardino were considered. In general, these documents included conceptual layouts and drawings of a bioreactor, which would be installed in the north portion of the existing cell at the Mid-Valley site. These documents, however, would be applicable to other locations as they were conceptual in nature.
- As noted above, CH<sub>2</sub> staff planned and participated in the Technical Advisory Committee meeting held on September 10th. At this meeting the results of the meetings held earlier with San Bernardino were discussed. Also discussed was the bioreactor preliminary design work completed to date. Topics covered included: schedule, permitting and regulatory strategy, relative merit of applying water on the surface or below the surface, as well as the approach to the project. Overall, the TAC and Commission staff stressed the need to get a decision from San Bernardino County Waste Management about proceeding with a project that could be implemented in the timeframe that would meet the Commonwealth Program's contractual schedule. Additionally, the merit of moving the bioreactor concept closer to commercialization - such as would occur with the proposed San Bernardino project was viewed favorably, provided the Project Team was confident that the schedule could be met.
- Preliminary results related to the Conceptual Design work were also presented at the Critical Program Review meeting attended by the RPAC. The key point made at the meeting regarding the bioreactor project, was the fact that there were two options for the future direction of this task. The first was to continue to focus on building two smaller, research-scale bioreactors, one with an amendment and one without vs. focusing the project on activities on a larger bioreactor much closer to commercial deployment in California. The RPAC indicated their preference to have activity focus on a larger scale project that would mark an important advancement in implementing a bioreactor project in a relatively large operating commercial landfill, as compared to more separate and distinct stand-alone research-scale bioreactors.

**How we are doing compared to our plan:**

Work is generally proceeding as anticipated. An important challenge is 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 as well as the Regional Water Quality Board, the Energy Commission and various other State and local entities were consulted and 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, San Bernardino County staff expressed the view that it could be better to undertake this work at the San Timoteo rather than the Mid-Valley landfill site. Given the overall schedule, comments of the TAC and Commission staff, it is important that efforts be undertaken quickly to determine the optimal location for the bioreactor and then begin implementation activities.

**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 continuing to respond to questions and issues raised at the meeting on the Mid Valley bioreactor project held on August 28th and the TAC meeting held on September 10th. In addition, guidance received from the RPAC to focus on one bioreactor, suitable for commercial-scale implementation will be considered. A follow up meeting with San Bernardino County, Burtech, Regional Water Quality Control Board, and the County's design engineer is also planned for October. The intent of activities planned for October is to reach consensus on where the bioreactor can be located, so that it meets the Program's objectives within the allowable PIER Contract term. It is also anticipated that efforts on completing the Waste Characterization Report will be completed. Minimal modification is anticipated if the project is implemented at Mid-Valley, while changes are anticipated if it is located elsewhere.

**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.

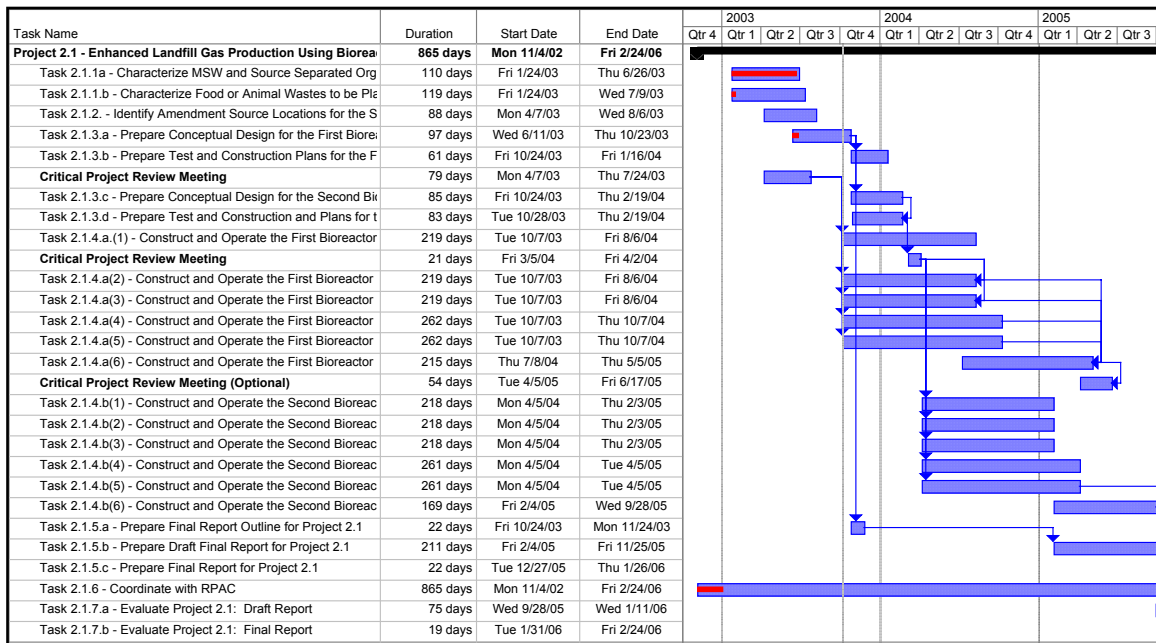
**Table 1: Summary of Project Status and Deliverables – Project 2.1**

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 Renewables Project Advisory Committee/TAC Critical Project Review meeting	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 the EPA R&D Exemption and other issues that could affect the overall development of the bioreactor project.

**Overall Schedule for Project 2.1:**



**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	\$0	\$0	OT

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