

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

PROJECT 2.1 – ENHANCED LANDFILL GAS PRODUCTION USING BIOREACTORS

REPORT PREPARED BY: COMMONWEALTH ENERGY TEAM

May 2004

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What we planned to accomplish this period:

In May, the focus of activity was to be on finalizing the design of the bioreactor project including preparation of the *Construction and Test Plans*. Efforts were to be initiated on preparation of detailed costs estimates for the individual elements of the bioreactor project, based on the conceptual design report previously submitted. This information was to be utilized in preparing and refining the *Construction and Test Plans* and in discussions with San Bernardino County related to finalizing the *MOU*. Engineering documents and other information that describe the construction plans were to be prepared in order to be used to by the contractor to finalize the construction activity undertaken in constructing the bioreactor elements of the proposed project at Mid-Valley.

It was further anticipated that discussions were to continue with Mid-Valley as related to the finalization of the *MOU* between Commonwealth and San Bernardino County. The primary focus of *MOU* discussions was to clarify each entity's responsibilities in light of the construction plans being developed and in establishing a mutually acceptable arrangement whereby, gas could be used by Commonwealth for generation activities anticipated within the Program. In addition, Commonwealth sought to work with San Bernardino County to use the *MOU* to develop much larger projects at Mid-Valley. The tasks anticipated by the County on its landfill liner extension project, were to be integrated to ensure that information developed under the extension project was to be appropriate for subsequent bioreactor project activity. In order to ensure that this integration is effective collaboration with San Bernardino County's engineer, Brian A Stirrat and Associates would continue. It was also anticipated that San Bernardino County would continue the process of obtaining the necessary permits, which relate to the matching fund activity for this project. This was to include documentation required by the California Environmental Quality Act (CEQA)

Other activity planned for May included scheduling the next meeting of the Technical Advisory Committee (TAC) for Project 2.1. It was anticipated that comments on the *Draft Conceptual Design Report* would be received and the report could be finalized.

What we actually accomplished this period:

Task 2.1.1 Characterize Waste to be Placed in Bioreactor:

- As the *Waste Characterization Report* was previously submitted and approved by the Commission, minimal tasks were undertaken in May. Data from this effort were reviewed and used to facilitate the completion of the Project 1.1, Task 1.1.10 *Prioritization Report* and other Project 2.1 activities.

Task 2.1.3.a Conceptual Design for First Bioreactor

- In May, activities focused on incorporating the results of the *Conceptual Design Report* into the *Construction and Test Plans*, as well as ongoing coordination with the host, San Bernardino County. As anticipated, consultations continued with BAS, the County's design engineer, as part of the effort to design and implement detailed plans for developing the bioreactor at Mid-Valley. The *Draft Conceptual Design Report* submitted for review in April was used in subsequent efforts on this project.
- The CE Team continued work on the first phase of the approach, previously provided to Commission staff, implementing environmental permitting and design activities that link the PIER bioreactor project and the County's ongoing program. When the later phases of this plan are implemented, it will include linking approximately \$4 million in matching funds for construction and approximately \$4 million in matching funds for operations with the PIER program

Task 2.1.3.b Construction and Test Plans for First Bioreactor

- Utilizing information presented in the *Conceptual Design Report*, the CE Team continued to work on elements of the *Construction and Test Plans* that link the bioreactor project with the ongoing design project of extending the liner, a portion of which will serve as the test area for the bioreactor. This effort includes permitting (being undertaken under a separate effort funded by the County), engineering, construction elements, and in general, involves the integration of PIER bioreactor project elements into the ongoing work of the Unit 3 expansion. BAS, the County's design engineer, prepared an addendum to its design document so that the County's design contractor would be able to proceed with implementation of the bioreactor elements of the project once Commission approval was received.
- Work continued in a manner that will ensure that the contractor selected to complete this work, will do so following the approach the County will follow, through a public bidding process. As a result of this approach, the *Construction and Test Planning* effort is also being undertaken in the same manner, thereby

ensuring that the contractor selected to implement the liner extension project at Mid-Valley would also be able to install the bioreactor elements. This approach was developed so that the project could be implemented in a manner that would not adversely impact the overall liner extension project.

- Conference calls involving BAS, the County's design engineer and the CE Team continued. Extensive coordination is required so that elements of the proposed bioreactor project are fully compatible with the County's ongoing project to extend the liner within Mid-Valley Unit 3, particularly given the County's need to have the liner extended in the second half of 2004 so that waste can be placed in this area in 2005. The primary focus of these calls, continues to be the exchange of information needed to complete the ongoing conceptual design activities linking work at Mid-Valley with the PIER program's bioreactor project – specifically in light of technical, environmental, schedule and funding considerations.

How we are doing compared to our plan:

Work is proceeding as anticipated although it is important that efforts on the bioreactor in the next month proceed as expeditiously as possible so as to not jeopardize the County's schedule for extending the Mid-Valley liner. The CE Team continues to closely coordinate the work of the PIER program with that of the County's design engineer, BAS to ensure that the work is completed in a timely and efficient manner, and in accordance with PIER Program guidelines and timeframes. With the submission of the *Conceptual Design Report* in April, efforts on the *Construction Test Plans* intensified. Such an effort is needed in May so that the County's schedule to have the bioreactor elements of the project ready to implement by late June can be achieved. As noted previously, it is very important that this schedule be met because the County must be able to place waste in the area of the proposed bioreactor by early 2005. If there are delays in the bioreactor elements being approved, the liner extension project could have to go forward without the bioreactor elements.

Significant problems or changes:

The County is proceeding with the construction of the Unit 3 liner extension project so that construction of the liner extension will occur starting this summer. This will enable the waste to be placed in the bioreactor starting late this year. This could be very advantageous to the Commonwealth PIER Program as the County is planning on placing approximately 800,000 tons of waste in the area to become the bioreactor during the first year of its operation. At the same time, the County cannot delay the liner extension project. Therefore, it is important that PIER program meet this schedule. The key challenge in this regard is gaining approval to proceed with the one commercial scale bioreactor project and reallocating the budget as recommended in late 2003 so that Project efforts could focus on one commercial scale bioreactor instead of two research scale bioreactors as initially proposed. Changing the focus of the project to a larger commercial scale type facility is

consistent with the comments made by RPAC members at the program kickoff meeting and at the Program Review meeting in September 2003. If one commercial scale bioreactor is constructed, instead of the two research scale bioreactors, it is anticipated that the total project budget would be reduced.

What we expect to accomplish during the next period:

It is anticipated that the bioreactor’s design will be finalized including incorporation of any comments received on the *Conceptual Design Report*. Also, preparation of *Construction and Test Plans* will continue to ensure that the project is defined in sufficient detail so the contractor can construct it in accordance with the project requirements and unit cost bid prices. This is to be accomplished within the time frame of the liner extension project so that the County can meet its schedule of accepting waste by early 2005. It is also anticipated that the Critical Project Review meeting will be scheduled so that the Technical Advisory Committee (TAC) will have the opportunity to provide guidance to the project as well as comments on the deliverable and proposed implementation of the project. It is also anticipated that discussions will continue between Commonwealth and the County on the proposed Memorandum of Understanding (*MOU*) on the bioreactor’s project and gas rights for all of Unit 3. As noted in previous reports, several iterations of discussions have occurred and most of the issues related to the *MOU* have been resolved. It is anticipated that all substantive issues will be addressed and resolved in June so that the *MOU* can be finalized by early July.

Status of Milestones and Deliverables:

Table 1 on the following page 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

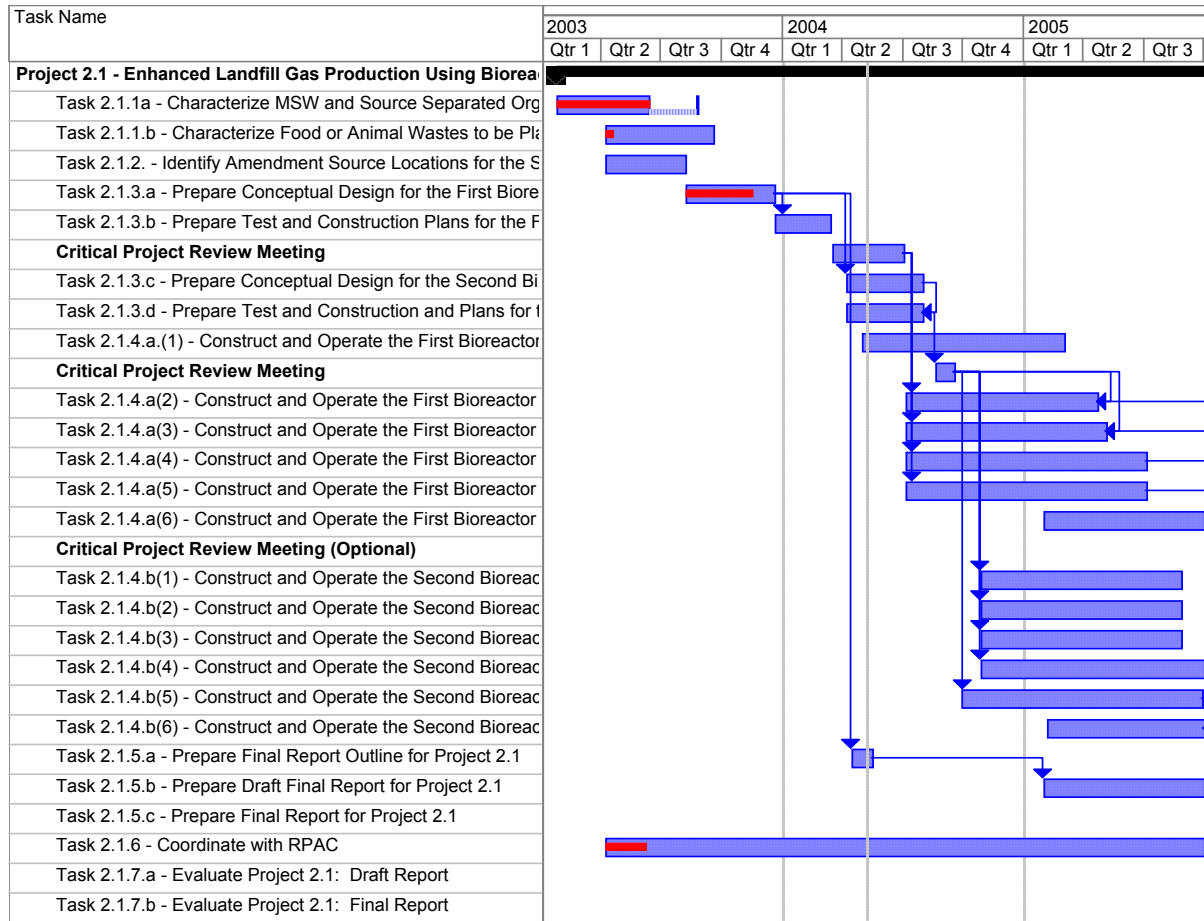
Task No.	Description	Start Date		Due Date		Status (%)
		Planned	Actual	Planned	Actual	
2.1.1a	Characterize MSW and Source-Separated Organic Waste to be Placed in Both Bioreactors	01/10/02	1/24/03	05/31/02 08/21/03	DR: 08/20/03	100%
2.1.1b	Characterize Food or Animal Wastes to be Placed as Amendment in the Second Bioreactor	03/25/02	1/24/03	On Hold		8%
2.1.2	Identify Amendment Source	05/26/02		On Hold		

	Locations for the Second Bioreactor					
2.1.3a	Prepare Conceptual Design for the First Bioreactor	09/28/02		12/18/03	4/22/04	95%
2.1.3.b	Prepare Construction and Test Plans for First Bioreactor	12/11/03		3/6/04		70%
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:



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 ¹	Fiscal Status *
2.1.1 a	\$52,117	\$52,117	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

¹ Invoiced To-Date indicates the total amount invoiced prior to 10% retention being withheld

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

Page: 7