

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

PROJECT 3.1 – DAIRY WASTE TO ENERGY PROJECT

REPORT PREPARED BY: COMMONWEALTH ENERGY TEAM

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What we planned to accomplish this period:

Activities in September were planned to focus on incorporating comments received from the Commission and Kurt Roos in relation to the Digester Comparison Report. Information requests made in August from other project developers, were anticipated to be received in September. Additionally, it was anticipated that the Test Plans and Protocols would have been completed and provided to the Commission. It was the Commonwealth Team's intent that this information would have been made available for use in completing the Prioritization Report and other reports for Project 1.1. Emphasis in Project 3.1 was anticipated to be placed on co-digestion, improved pretreatment and several other projects well suited to centralized dairy projects in the Chino Basin and elsewhere in California.

Overall, efforts were to continue in defining an approach, which facilitates incorporation of the results of the comparative analysis of technologies (plug flow v. complete mix) and the Mini-Grid analysis into the process selection activities. We planned to continue to conduct such activities as preliminary information became available although it was recognized that the Project 3.1 Tasks cannot be fully completed until the results from Project 1.1 were finalized.

What we actually accomplished this period:

Task 3.1.1: Assess, Evaluate and Select Animal Waste to Energy Technology

- Efforts on this task continued in September with the primary focus being on responding to comments on the draft Digester Comparison Report submitted previously. Responses and changes to the report were made in response to Energy Commission comments. Efforts were also initiated on responding to comments received from Kurt Roos on the Digester Comparison Report although the

Commonwealth Team, were awaiting responses from of the data requests made during the previous month.

- Additional technology reviews continued using information provided by NIRAS and various vendors involved in manure digestion. These efforts focused on assessing different technologies that are applicable to dairy cluster projects with the intent of identifying those that could be evaluated at projects in the Chino Basin.
- Project staff also prepared for and participated in the RPAC meeting and addressed topics related to this task. Efforts focused on describing the merit of evaluating centralized dairy facilities in the Chino Basin and technologies that could be used to make these facilities more efficient and economic. Various technologies identified in the prioritization report were considered and evaluated. Initial assessment of these technologies continued. As indicated in the Draft Prioritization Report, it was initially envisioned that these technologies would be tested at the manure digestion facility at IEUA Regional Plant 5. This site is the centralized plug flow digester operated by IEUA. At the RPAC meeting, and in a subsequent meeting with Commission staff, it was determined that it would be much more appropriate to test these technologies at a complete mix digester more typical of what would exist elsewhere in the State. Consequently all work related to RP-5 was ended and it was determined that future testing of technologies being evaluated under this task would only occur at RP 1 or in a new complete mix digester at RP-5 which could provide a “side by side” comparison. The only future work at RP-5 to be potentially undertaken at RP-5 is monitoring activity.

Task 3.1.3. Develop Bench Scale and Other Test Plans and Protocols

- Efforts continued in September on the protocols for testing different processes for optimizing performances at existing dairy cluster projects at RP-1 and RP-5. These test plans were compiled into a report, which enabled reviewers to assess the technologies and their potential benefits to the centralized dairy facilities in the Chino Basin and elsewhere in California. This draft report was completed and submitted to the Commission. Initially these test plans and protocols were developed for potential use at either RP-1 or RP-5. As noted above, it was indicated in the initial draft of Prioritization Report, that efforts would focus on RP-5. Subsequent to the RPAC and related follow up meeting with Commission staff, it was determined that only measures, which could be tested at RP-1 would go forward. Consequently, efforts related on the test plans and protocols were shifted with the focus being on defining those test plans and protocols, which could be better tested at RP-1.

How we are doing compared to our plan:

As indicated above, delays in the completion and submittal of biogas and T&D impacts related reports in Project 1.1 have impacted the Project 3.1 schedule. Work on the project

continues, and the CE team does not anticipate that the delays will adversely affect the revised schedule or project budget.

Significant problems or changes:

On Project 3.1, Dairy Waste to Energy, it is clear that a key element on the project is to define and quantify the environmental and economic benefits of the dairy waste to energy project. This is particularly true for centralized dairy projects which may offer the best potential for achieving environmental benefits for a range of dairy digestion projects. The Commonwealth Team is working with IEUA and is seeking to present cost information for centralized dairy waste to energy projects in a form that can be appropriately used to present the relative benefits of on farm and centralized facilities in Europe and North America. They are also seeking to identify an approach to monetize the environmental benefits to help the overall economic performance of the project. Related to this, the Chino Basin is very well suited for centralized dairy digestion projects. Efforts are needed, however, to see that such systems are optimized as such system will face increasing economic and environmental pressures as they are developed or expanded.

As noted previously, several important changes were discussed at the September 24th RPAC meeting, and at the related follow-up meetings. For Project 3.1, it was concluded that efforts should be focused on centralized manure digestion facilities, but that future PIER activities should be conducted at RP-1 or a new complete mix digester at RP-5. It was determined that modifications at RP-5 were not appropriate because building a plug flow digester and then converting it to complete mix digester was not a likely scenario for future projects in California.

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

What we expect to accomplish during the next period:

Activities in October will focus on responding to comments made at the September 24th RPAC and follow-up meetings. The primary activity will be the preparation of a plan that describes the implementation of this project in light of guidance received at these meetings. Other activities, will be limited until the Plan is reviewed with Commission staff. Additionally, the CE team will focus on finalizing previously submitted work including completion of the Digester Comparison Report. Information requests from other project developers, anticipated to be received in September were not all received. Using information that has been received, as well as any new data that becomes available in October, the report will be revised and finalized. It is also anticipated that the Test Plans and Protocols will be

revised to focus on activities that can be undertaken at locations other than the existing plug flow project at RP-5.

Status of Milestones and Deliverables:

Table 1 below summarizes the status of Project 3.1 task deliverables as of the end of the current reporting period.

Table 1: Summary of Project Status and Deliverables – Project 3.1

Task No.	Description	Start Date		Due Date		Status (%)
		Planned	Actual	Planned	Actual	
3.1.1a(1)	Technical Memorandum Comparing Plug Flow and Complete-Mix Digestion Performance & Economics	01/24/02	04/04/03	06/27/03	06/27/03	95%
3.1.1a (2)	Preliminary Draft Process Recommendation Report	01/24/02	04/04/03	10/25/03		20%
3.1.1a (3)	Draft Processes Recommendations Report	01/24/02		11/18/03		
3.1.1.b	Assess Evaluate, and Select Animal Waste to Energy Technology	01/24/02		01/17/04		35%
3.1.2	Site Selection	01/24/02		12/20/03		
3.1.3a	Test Plan and Protocols	03/25/02	04/04/03	09/10/03		87%
3.1.8	Coordinate with Renewables Project Advisory Committee	01/24/02		05/12/06		

Explanation of any Difference(s) in Schedule

The following listing provides the explanation for the reported changes in the schedule at the project task/deliverable level.

Task 3.1.1.(a).1 – Technical Memorandum Comparing Plug Flow and Complete Mix Digestion and Economics – This report, initially planned to be submitted in mid-May was delayed.. The primary cause of the delay was the length of time required to assemble the cost information for the RP-5 project so that it is in a form that it can be readily compared to the other digester projects. Comments received from the Energy Commission have been responded to so the document could be resubmitted to the Energy Commission. Comments received from Kurt Roos required contacting a number of developers and requesting additional information. Some of the information

requested was received and it is anticipated that the report will be resubmitted in October.

Task 3.1.3.a – Test Plan and Protocols – This report builds on the finding of the digester comparison report submitted as a part of Task 3.1.1.(a).1 described above. Thus, the initial submittal on this report was made without the benefit of a fully complete digester comparison report. The Test Plan and Protocols report has been submitted and completion of the final will await completion of the digester comparison report and the receipt of comments from the draft Test Plan and Protocols. Since this test plan and protocol is the initial part of the design task, with more detailed design activities to be completed in the second half of the year, the delay in the submittal of this document should not affect the overall task or project schedule.

Overall Schedule for Project 3.1:

Task Name	Duration	Start Date	End Date	2003				2004				2005			
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Project 3.1 - Dairy Waste to Energy	765 days?	Mon 2/3/03	Fri 1/6/06												
Task 3.1.1 - Assess, Evaluate, and Select Animal Waste to E	45 days	Mon 3/17/03	Fri 5/16/03												
Task 3.1.1a(1) - Technical Memorandum Comparing Plug Fil	75 days?	Mon 3/17/03	Fri 6/27/03												
Task 3.1.1a(2) - Preliminary Draft Process Recommendation	123 days?	Wed 2/5/03	Fri 7/25/03												
Task 3.1.1a(3) - Assess, Evaluate, and Select Animal Waste	134 days?	Wed 2/5/03	Mon 8/11/03												
Task 3.1.1.b - Assess, Evaluate, and Select Animal Waste to	151 days	Mon 2/3/03	Mon 9/1/03												
Task 3.1.2 - Site Selection	131 days	Wed 2/5/03	Wed 8/6/03												
Task 3.1.3 - Prepare Pilot Plant Final Design & Dairy Was	176 days?	Fri 4/4/03	Fri 12/5/03												
Task 3.1.3a - Prepare Test Plan and Protocols	54 days?	Fri 4/4/03	Wed 6/18/03												
Task 3.1.3b - Conduct Bench Scall and Other Testing A	143 days?	Wed 5/21/03	Fri 12/5/03												
Critical Project Review Meeting (Optional)	22 days	Thu 9/11/03	Fri 10/10/03												
Task 3.1.4(a)1 - Construct Pilot Plant(s)	130 days	Mon 10/20/03	Fri 4/16/04												
Task 3.1.4(a)2 - Construct Pilot Plant(s)	174 days	Mon 10/20/03	Fri 6/18/04												
Task 3.1.4(a)3 - Construct Pilot Plant(s)	173 days	Mon 1/19/04	Thu 9/16/04												
Task 3.1.4(b) - Construct Pilot Plant(s)	130 days	Tue 8/3/04	Mon 1/31/05												
Task 3.1.4(c) - Construct Pilot Plant(s)	66 days	Tue 8/3/04	Tue 11/2/04												
Task 3.1.5 - Operate and Test Pilot Plant(s)	306 days	Thu 12/18/03	Thu 2/17/05												
Task 3.1.6.a - Conduct Economic and Environmental Assess	111 days	Fri 12/17/04	Fri 5/20/05												
Task 3.1.6.b - Conduct Economic and Environmental Assess	21 days	Mon 6/20/05	Tue 7/19/05												
Task 3.1.7.a - Prepare Final Report Outline for Project 3.1	16 days	Tue 8/12/03	Tue 9/2/03												
Task 3.1.7.b - Prepare Draft Report for Project 3.1	156 days	Fri 4/15/05	Fri 11/18/05												
Task 3.1.7.c - Prepare Final Report for Project 3.1	22 days	Mon 11/21/05	Tue 12/20/05												
Task 3.1.8 - Coordinate with RPAC	763 days	Wed 2/5/03	Fri 1/6/06												
Task 3.1.9.a - Evaluate Project 3.1: Draft Evaluation Report	96 days	Mon 8/23/04	Mon 1/3/05												
Task 3.1.9.b - Evaluate Project 3.1: Final Evaluation Report	22 days	Thu 2/3/05	Fri 3/4/05												

Overview of Fiscal Status:

Table 2 below summarizes the fiscal status of Project 3.1 by task as of the end of the current reporting period.

Table 2: Fiscal Status by Task – Project 3.1

Task Number	Budget	Invoiced To-Date	Fiscal Status *
3.1.1 a (1)	\$48,000	\$0	OT
3.1.1 a (2)	\$72,000	\$0	OT
3.1.1 a (3)	\$120,706	\$0	OT
3.1.1.b	\$240,706	\$0	OT
3.1.2	\$171,240	\$0	OT
3.1.3	\$301,177	\$0	OT
3.1.8	\$0	\$0	OT

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