

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:**

Work was initiated in late January for this project. A formal Kick-off meeting will be held in February.

**What we actually accomplished this period:**

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

Initial efforts on this task are continuing to focus on different technologies to capture the energy value of the collectable manure and most effectively convert it to energy. This includes assessment of European and North American technologies. It also involves using information collected during the preparation of the Project 1.1 inventory reports as well as information from various vendors and other organizations involved in the animal waste electric generation projects.

NIRAS, a Danish firm with longtime expertise in biogas energy, assembled information useful in this task and gave two presentations in California in mid-February on this subject. This included a presentation in the Chino Basin on February 12 and in Sacramento on February 13<sup>th</sup>. These presentations made several interesting points including the recommendation to look seriously at co-digestion as a means to increase gas production and improve the overall economics of Regional Projects. Regional Projects in Denmark are comparable to dairy cluster projects in the United States. NIRAS staff also suggested that the Danish experience had pushed European operations toward *complete-mixed*, as compared to *plug-flow*, digesters. A third recommendation was that the Project team should look at biological, as opposed to chemical processes for gas and water streams from manure to energy projects whenever possible. The trend to biological systems was one that has already occurred in Europe.

The kick-off meeting for Project 3.1 was also planned and conducted on February 28<sup>th</sup> in Sacramento. The work scope elements as well as an overview of the findings of the Planning and Analysis Project tasks that affected Project 3.1 were presented by CH<sub>2</sub>. Also, during this meeting, considerable discussion was held on the merit of plug flow and complete-mixed digestion systems. It was also suggested that more economic and environmental analysis of these systems should be undertaken earlier in the Project than had been originally planned. The Commonwealth Team was to look at ways to accelerate some of the environmental and economic analysis activity for this task. Approaches to accomplish this objective were to be developed after the meeting, in early March.

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

Work is proceeding as anticipated.

**Significant problems or changes:**

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

**What we expect to accomplish during the next period:**

Activities in March will focus on responding to comments made at the kick-off meeting related to accelerating the analysis of economic and environmental analysis components of various plug flow and complete mixed digestion technologies. A proposed approach will be developed to modify the schedule of Project 3.1 activities so that some of these comparative activities can be completed early in Project 3.1 and then subsequently used in the development of recommended projects at the appropriate point(s) later in the project.

This will also involve further analysis of technologies used in Europe and North American and on the work of NIRAS, which is scheduled to be completed in March or early April. It should also be noted, that the findings related to which projects should be recommended in prioritization and Project 1.1 final reports will influence how work on this project proceeds. Therefore in March, efforts will be undertaken to define an approach, which facilitates incorporation of the results of the comparative analysis of technologies (plug flow versus completed mixed) and the Mini-Grid analysis into the process and site selection activities. It is anticipated that the schedule for Project 3.1 will be adjusted, so that the Project 1.1 and the comparative analysis described above can be fully incorporated into the scope of this Project.

**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	
3.1.1.a	Assess, Evaluate, and Select Animal Waste to Energy Technology	02/05/03		03/28/03		20%
3.1.1.b	Assess Evaluate, and Select Animal Waste to Energy Technology	02/05/03		04/27/03		
3.1.2	Site Selection	03/06/03		06/05/03		
	<b>Critical Project Review Meeting</b>	<b>06/15/03</b>		<b>07/05/03</b>		
3.1.3	Prepare Pilot Plant Final Design & Dairy Waste to Energy Project Test Plan	05/06/03		12/05/03		
3.1.7.a	Prepare Final Report Outline for Project 3.1	05/16/03		06/22/03		
3.1.8	<b>Coordinate with Renewables Project Advisory Committee</b>	<b>02/05/03</b>		<b>06/09/05</b>		

*Explanation of any Difference(s) in Schedule*

Work in proceeding as anticipated, however, it is possible that Task 3.1.1’s deliverable date may be revised.

**Overall Schedule for Project 3.1:**

Task Name	Duration	Start Date	End Date	Cost	2003				2004				2005						
					Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1					
<b>Project 3.1 - Dairy Waste to Energy</b>	<b>825 days</b>	<b>Wed 10/23/02</b>	<b>Tue 12/20/05</b>	<b>\$0.00</b>															
Task 3.1.1.a - Assess, Evaluate, and Select Animal Waste to	36 days	Fri 1/24/03	Fri 3/14/03	\$240,705.50															
Task 3.1.1.b - Assess, Evaluate, and Select Animal Waste to	58 days	Sat 2/1/03	Wed 4/23/03	\$240,705.50															
Task 3.1.2 - Site Selection	131 days	Wed 10/23/02	Wed 4/23/03	\$171,240.00															
Task 3.1.3 - Prepare Pilot Plant Final Design & Dairy Waste t	152 days	Thu 2/13/03	Fri 9/12/03	\$301,177.00															
<b>Critical Project Review Meeting (Optional)</b>	15 days	Mon 9/29/03	Fri 10/17/03	\$16,960.00															
Task 3.1.4(a)1 - Construct Pilot Plant(s)	130 days	Mon 10/20/03	Fri 4/16/04	\$200,000.00															
Task 3.1.4(a)2 - Construct Pilot Plant(s)	174 days	Mon 10/20/03	Fri 6/18/04	\$200,000.00															
Task 3.1.4(a)3 - Construct Pilot Plant(s)	173 days	Mon 1/19/04	Thu 9/16/04	\$198,466.00															
Task 3.1.4(b) - Construct Pilot Plant(s)	130 days	Tue 8/3/04	Mon 1/31/05	\$300,000.00															
Task 3.1.4(c) - Construct Pilot Plant(s)	66 days	Tue 8/3/04	Tue 11/2/04	\$100,000.00															
Task 3.1.5 - Operate and Test Pilot Plant(s)	306 days	Thu 12/18/03	Thu 2/17/05	\$587,358.00															
Task 3.1.6.a - Conduct Economic and Environmental Assessi	111 days	Fri 12/17/04	Fri 5/20/05	\$320,754.00															
Task 3.1.6.b - Conduct Economic and Environmental Assessi	21 days	Mon 6/20/05	Tue 7/19/05	\$80,189.00															
Task 3.1.7.a - Prepare Final Report Outline for Project 3.1	27 days	Mon 2/24/03	Tue 4/1/03	\$20,007.00															
Task 3.1.7.b - Prepare Draft Report for Project 3.1	156 days	Fri 4/15/05	Fri 11/18/05	\$150,052.00															
Task 3.1.7.c - Prepare Final Report for Project 3.1	22 days	Mon 11/21/05	Tue 12/20/05	\$30,010.00															
Task 3.1.8 - Coordinate with RPAC	591 days	Fri 12/13/02	Fri 3/18/05	\$0.00															
Task 3.1.9.a - Evaluate Project 3.1: Draft Evaluation Report	96 days	Mon 8/23/04	Mon 1/3/05	\$80,065.00															
Task 3.1.9.b - Evaluate Project 3.1: Final Evaluation Report	22 days	Thu 2/3/05	Fri 3/4/05	\$20,016.00															

**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	\$240,706	\$0	OT
3.1.1.b	\$240,706	\$0	OT
3.1.2	\$171,240	\$0	OT
3.1.3	\$301,177	\$0	OT
3.1.7.a	\$20,007	\$0	OT
3.1.8	\$0	\$0	OT

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