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Texas Commission on Environmental Quality
New Technology Research & Development (NTRD) Program
Monthly Project Status Report

Contract Number: __582-5-70807-0011 ____

Grantee: __Rolling Frito Lay Sales, LP_____

Date Submitted: _November 8, 2006_____

Report for the **Monthly** period:

Starting Date __11/01/06_____ Ending Date __11/30/06___

Section I. Accomplishments (*Please provide a bulleted list of project accomplishments as well as a description of their importance to the project.)*

- ***Project Management***
  - A proposed fourth contract amendment has been submitted but not yet formally approved. The Frito-Lay project team is going forward with the assumption that the amendment will be approved as-is.
  - Due to the International/Eaton truck will be arriving much later than expected, the Azure Dynamics and baseline trucks have been sent to Southwest Research for emissions testing. The International/Eaton truck will be tested when it arrives in Texas.
  - Due to the changes in initiation of on-road testing of the various trucks, the testing regime has been modified to run up to 4 runs per day per truck, with 2 trucks being on the road on a given day.
  - The two baseline diesel trucks have been selected for the study. The trucks to be used in the study are shown below:

Hybrid Project Test Trucks

	Baseline 1 - Older Diesel	Baseline 2 - Newer Diesel	Gas Hybrid	Diesel hybrid
FL Unit #	R70226	R07337	RH2006	tbd
Year Model	1998	2003	2005	2005
Chassis Manufacturer	General Motors	Workhorse Custom Chassis	Workhorse Custom Chassis	Workhorse Custom Chassis
Engine Manufacturer	General Motors	Cummins	General Motors	International
Engine Model	6.5L	ISB4	4.8L	VT275
Engine Type	V8	Inline 4, turbo	V8	V6 turbo
Engine Hp	150@3400	170@2600	270@5200	200@2700
Engine Torque	292@1700	420@1600	285@4000	440@1800
Transmission	4L80E?	Allison 1000	n/a	Eaton Hybrid
Data Link Type	none	J1708	OBDII	J1708/1939
Mileage at Test Initiation	236,000	81,000	290	tbd
Weight, empty	tbd	tbd	tbd	tbd

Baseline 1 is a representative fleet candidate for replacement with HEV
Baseline 2 is a recent purchase with relatively low miles.
The project schedule and budget with Southwest Research will not allow at this time to test a baseline gasoline vehicle on the dynamometer. Depending on time, there may potential to perform on-road testing with the PEMS on a baseline gasoline vehicle after the base study of these 4 vehicles is complete.

- ***Vehicle Construction & Delivery*** –

  - Azure Dynamics – The Azure Dynamics truck has been on-site at the Frito-Lay Fleet Service Center in Ft. Worth, Texas for several weeks, undergoing minor preparations for testing. The truck has received a special decal package in anticipation of engaging in the on-road testing phase.

  - See photo of the truck ready for Phase I testing below:

Unit RH2006, Azure Dynamics Gas-Electric Hybrid Delivery Truck

  - ***Eaton/International*** – A re-write of the engine calibration software has been successful in overcoming the previous drivability and tunability issues that prevented have caused the recent delivery delays. Eaton and International agree that the truck runs well enough at this point to begin hybrid drive unit tuning. Both firms are committed to the delivery date of 12/30 to Southwest Research to begin Phase I testing. If delivered in ready condition on 12/30, the truck will have approximately 9 weeks available for on-road testing.

- ***Testing/Data Acquisition***

- The Azure Dynamics and baseline trucks have been sent to Southwest Research Institute for Phase I testing on the heavy-duty chassis dynamometer. Testing on the three trucks is expected to take approximately 1 week. The Light Duty Urban Dynamometer Driving Schedule (UDDS) has been selected for the testing. The UDDS is the best fit with Frito-Lay drive patterns in terms of macro statistics among a number of industry-accepted driving schedules. The UDDS will be used for all 4 trucks in the study, with the same driver to be used on the dynamometer for best consistency between runs and vehicles.

- A meeting will be held during the week of 12/11 to finalize the routing to be used for the on-road tests. A revised testing routine has been developed whereby the trucks will not run in a regular delivery route each day, but will be run on simulated delivery routes carrying a ballast load of weight to simulate ½ of the normal cargo capacity. Southwest research, agrees that this is a reasonable approach and will provide data representative of routine delivery.

- Clean Air Technologies International, Inc., makers of the portable emissions monitoring system (PEMS) to be used for the on-road portion of the study will be at Southwest Research in San Antonio, Texas for the Phase I dynamometer testing on the two baseline trucks and the gas hybrid. The intent is to be able to calibrate the PEMS against the Southwest Research lab results to ensure accuracy of the results during the on-road testing in Phase II.

- The Texas region fleet manager is currently searching for several drivers who can be dedicated to the on-road testing. Due to the upcoming holidays, we may not be able to get started with the on-road testing until January 2, but will make every effort to hire and on-board or transfer drivers as soon as possible. In the meantime, the project team will drive the trucks with the PEMS as practice runs to ensure the data taking routine is flawless prior to test initiation.

- GPS units are on order from Networkcar. The GPS units will be installed on all 4 trucks in the study and will record daily route and distance as well as interface with the truck Engine Control Module (ECM) to obtain data such as fuel consumption, daily miles, fault codes or engine malfunctions, etc, etc.

Indicate which part of the Grant Activities as defined in the grant agreement, the above accomplishments are related to:

The above activities are directly related to Article 2, Scope of Work, Task 1: Development and Delivery of Hybrid Vehicles (Section 2.1.1 through 2.1.4), and Task 2: Testing of Existing Fleet and Prototype Vehicles (Sections 2.2.1 through 2.2.2)

Section II: Problems/Solutions

Problem(s) Identified (*Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)*	*No unanticipated difficulties not previously reported*
Proposed Solution(s) *(Please report any possible solution(s) to the problem(s) that were considered/encountered)*	*N/A*
Action(s) Conducted and Results *(Please describe the action(s) taken to resolve the problem(s) and its effect)*	*N/A*

Section III. **Goals and Issues for Succeeding Period**: (*Please provide a brief description of the goal(s) you hope to realize in the coming period and identify any notable challenges that can be foreseen)*

1.

2. *Finalize testing design with "offline" test scheme.*

3. *Continue to work with the local FL team to identify routes within Frito-Lay delivery system for the on-road testing and other details related to readying the trucks and team for testing.*

_____ Date:__*December 6, 2006*__

Authorized Project Representative's Signature

NOTE*: Please attach any additional information that you feel should be a part of your report or that may be required to meet the deliverable requirements for tasks completed during this reporting period.*