

NTRD Program Disclaimers

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**Texas Commission on Environmental Quality
New Technology Research & Development (NTRD) Program
Monthly Project Status Report
GTI Project # 20484**

Contract Number: 582-5-70807-0001

Grantee: Gas Technology Institute

Date Submitted: June 10, 2006

Report for the Monthly period: May 2006

Starting Date: May 1, 2006

Ending Date: May 31, 2006

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

Accomplishment	Importance to the Project
GTI is in the final site selection process. A major Texas University partner, and major federal government agency are likely participants in the eventual deployment of this technology.	Identifying a suitable deployment site is important during this phase of the project in order to properly scale the hydrogen station supply capability and to configure a hydrogen-fueled vehicle that can be incorporated into the host site's daily operations. This process continues from last month.
GTI is negotiating a vehicle supply agreement for a fuel cell bus that can be operated by a transit agency in Texas.	The choice of a bus as the targeted vehicle technology should meet and/or exceed the original project goals, as it will provide on-road testing experience and the potential for greater outreach than earlier options being considered. GTI has located a promising vehicle technology partner and is now finalizing an agreement to bring a fuel cell bus to Texas as part of this project.
GTI and GreenField are in the design and engineering phase of the integrated hydrogen fueling system	The integrated fueling system, consisting of the fuel steam methane reformer, hydrogen purification system, compressor, storage, and dispenser components represents the first such system that will be ready for field deployment.
GTI continues with design and engineering of the Steam Methane Reformer (SMR) hydrogen generation system	The hydrogen generation system is the key technology at the heart of the integrated hydrogen station. It converts pipeline-quality natural gas to "reformat" that is then purified to a hydrogen gas stream. This process continues from last month's report.

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

Accomplishment	Grant Activity
Host site negotiations for station deployment	Task 1, Article 2.1.2 in the Project S.O.W.
Vehicle proposal evaluations	Task 2
Integrated fueling station engineering and design	Task 1
SMR design, fabrication and testing	Task 1, Article 2.1.1.1 in the Project S.O.W.

Section II: Problems/Solutions

<p>Problem(s) Identified</p> <p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<ol style="list-style-type: none"> 1) GTI reviewed two alternative technical solutions for the vehicle portion of the project: <ol style="list-style-type: none"> a. Modifying an existing vehicle as a fuel cell “plug-in hybrid” that is supplied by the deployment site host, or b. Identifying supplemental funding from new project participant(s) to purchase a fuel cell powered vehicle from an OEM. 2) It is probable that the vehicle portion of the project will necessitate a time extension <p>This issue continues from last month’s report.</p>
<p>Proposed Solution(s)</p> <p><i>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</i></p>	<p>GTI has submitted a grant request to a federal agency to assist with the deployment of the vehicle technology. A multi-party letter of intent is being drafted that will allow Texas to utilize a fuel cell bus at a major transit agency in Texas as a result of this project.</p> <p>Once GTI has a completed proposal from all the funding contributors for the fuel cell bus, GTI will propose a new timeline for the vehicle portion of this project.</p>

<p>Action(s) Conducted and Results</p> <p><i>(Please describe the action(s) taken to resolve the problem(s) and its effect)</i></p>	<p>GTI is pursuing a combination solution of both (a) and (b) mentioned above. An “almost-new” fuel cell bus has been identified that requires upgrading at a cost that exceeds the allowable project funds. GTI has a preliminary agreement in place with a transit agency in Central Texas to operate the fuel cell bus.</p> <p>GTI is making progress toward gaining supplemental vehicle funding from a partner group that includes entities in other states. GTI has also submitted a joint grant request with the University of Texas for supplemental funding to a federal agency for the vehicle technology deployment. The notification for federal funding will be in August, 2006.</p>
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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)*

- Continue preliminary work on the most likely deployment location and begin on-site permitting, gas supply, and operating groundwork.
- Continue to work on supplemental vehicle funding.
- Finalize design and preliminary engineering for SMR and for integrated station (will continue for at least two more months)
- Continue the fabrication and testing of the hydrogen generation system.



Date: 6-10-2006

Authorized Project Representative's Signature

**J. Brian Weeks, Associate Director,
Hydrogen Energy Systems
Gas Technology Institute**

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.*

**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: __June 09, 2006_____

Report for the **Monthly** period:

Starting Date __05/01/06_____ Ending Date __05/31/06__

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

- **Vehicle Construction** –

- **Azure Dynamics** – In the course of testing the hybrid truck, Azure has discovered that the fuel efficiency is lower than expected. Upon closer investigation, the problem is related to how the GM electronic transmission downshifts when the vehicle decelerates. Azure has explored options around how to intervene in the transmission control and has identified a path forward. The new control scheme will require both hardware and software development, and is expected to take approximately 3 months to develop, implement, test, and optimize. Vehicle delivery is now slated for mid-September.
- **Eaton/International** – Drivetrain conversion to hybrid continues. The hybrid drive unit (HDU) has been test-fitted in the chassis. International has sent engineers from the integration team to one of Frito-Lay's distribution sites near Detroit to evaluate body packaging and potential interference points with mounting the various hybrid-related components (batteries, controls, cooling, etc). Vehicle completion and delivery is currently scheduled for 9/29.

Frito-Lay and International have reached agreement on all purchasing terms and conditions and the Field Evaluation Agreement. Issuance of a formal purchase order is in progress at Frito-Lay and is expected by 6/12.

- TCEQ has been contacted regarding a schedule extension to the contract. TCEQ has indicated that there is a firm deadline of May 31, that by that date, 1) The final study report to be submitted and approved, and 2) all reimbursable expenditures be incurred by that point. Frito-Lay will submit a formal request for the contract extension in June.
- The overall project schedule has been updated to reflect the new vehicle delivery timing. The delay has eaten into any contingency timing in the project, so a special focus on delivery of the project schedule from all vendors will be taken.

- **Testing/Data Acquisition**

- LopezGarcia Group**

- Testing Protocol

- The testing protocol document has been revised by Lopez Garcia, and now is awaiting further input from Frito-Lay. Upon finalization, the proposal document will be submitted to TCEQ for approval.

- Emissions Instrumentation

- A Purchase order for the Clean Air Technologies emissions monitoring system has been issued. Initial arrangements are being made for the installation of the equipment on the trucks prior to testing at SwRI. CATI believes they can easily install the units on the trucks once they arrive at SWRI without disruption to the testing schedule.

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, specifically sections 2.1.1, 2.1.2, and 2.1.3.

Section II: Problems/Solutions

<p>Problem(s) Identified</p> <p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<p><i>Both International Corp. and Azure Dynamics have indicated they expect to deliver the vehicles mid-end of September versus the original schedule of mid-April.</i></p>
<p>Proposed Solution(s)</p> <p><i>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</i></p>	<ol style="list-style-type: none"> 1) <i>Continue to pressure each truck vendor to examine ways to accelerate;</i> 2) <i>Petition TCEQ for a contract extension to reflect the new timing;</i> 3) <i>Focus on detail planning and execution to be able to remove contingency time from the timeline and still deliver the project goals.</i>
<p>Action(s) Conducted and Results</p> <p><i>(Please describe the action(s) taken to resolve the problem(s) and its effect)</i></p>	<p><i>Schedule visited and re-emphasized in weekly conference calls with truck vendors.</i></p> <p><i>Overall project timeline examined for further risk areas.</i></p>

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. *Continue vehicle construction activities with each supplier. Increase the frequency and depth of communication on progress against vehicle construction.*
2. *Issuance of a Purchase Order needs to International Corp.*
3. *Finalize proposed testing protocol and submit for TCEQ approval.*



Date: June 09, 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.*