

## **NTRD Program Disclaimers**

### **1. Disclaimer of Endorsement:**

The posting herein of progress reports and final reports provided to TCEQ by its NTRD Grant Agreement recipients does not necessarily constitute or imply an endorsement, recommendation, or favoring by TCEQ or the State of Texas. The views and opinions expressed in said reports do not necessarily state or reflect those of TCEQ or the State of Texas, and shall not be used for advertising or product endorsement purposes.

### **2. Disclaimer of Liability:**

The posting herein of progress reports and final reports provided to TCEQ by its NTRD Grant Agreement recipients does not constitute by TCEQ or the State of Texas the making of any warranty, express or implied, including the warranties of merchantability and fitness for a particular purpose, and such entities do not assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represent that its use would not infringe privately owned rights.

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

Contract Number: 582-5-70807-0002

Grantee: County of El Paso

Date Submitted: 10-06-05

Report for the **Monthly** period:

Starting Date 09-01-05

Ending Date 09-30-05

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

To date, El Paso County, Ruby Mountain Inc., the Idaho National Lab, and Border Quality Campaign of El Paso del Norte have been coordinating with industry and local service providers in El Paso on the development of the natural gas shuttle bus for El Paso County. This has included the following:

- ARBOC regarding manufacture of the bus.
- John Deere, Bell Power Systems (Cummins) and Emissions Solutions about the feasibility of integrating engines into the International chassis. This includes details regarding the wiring harness, physical size of the engine and transmission.
- Taylor-Wharton about the different sizes and configurations as well as required components to configure and install onboard the bus.
- Border International trucks regarding the service of the International chassis.
- Idaho Transportation Department regarding lessons learned on a rural transportation district they have developed in Pocatello Idaho.
- Integration of the natural gas system on this bus.
- Research industry progress to identify comparable or better engine options for project bus regarding size, power, fit, and emission levels.
- Collaboration with Emission Solutions on emission levels and certification of International DT466E base engine including target emission goals, Southwest Research emission test levels and certifications time frame related to project timeline.
- Conducted interviews with fleet managers using identified engines to determine in use durability, serviceability and overall performance level of potential engine.
- Report to project partners on findings of technical considerations and interview findings and collaborate on selection and installation requirements needed for project application.
- Held meetings and conference calls on warranty, project service and support agreements with engine suppliers. Reviewed facilities and processes at engine manufacturer's headquarters.
- Facility visits to International dealer to determine dimensional restrictions and needed modifications to install potential engine selection in new 4300 chassis application. Report engine compartment differences to engine supplier to formulate modification plan.

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

Task 1: Engineering Design and Packaging

## Section II: Problems/Solutions

<p><b>Problem(s) Identified</b></p> <p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<p>As stated last month, integrating the John Deere Model 6081 natural gas engine into the International Tractor caused two primary concerns:</p> <ol style="list-style-type: none"> <li>1) The first concern dealt with the physical dimensions of the Deere Engine and that it may not physically fit into the engine cavity of the International Tractor; and,</li> <li>2) The second primary concern being the operating temperature of the Deere Model 6081 Natural Gas Engine. The Deere engine burns extremely hot and works very well on a rear-mount vehicle, but when the same engine is deployed in a front-mount vehicle, heat (and getting a sufficient radiator to vent that heat) becomes a concern</li> </ol>
<p><b>Proposed Solution(s)</b></p> <p><i>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</i></p>	<p>The project team has determined that the John Deere Model 6081 and the International Tractor are not compatible (in terms of physical dimensions). Subsequently, the project team continued exploring multiple alternatives to the Deere engine, including examination of engine size, availability and maintainability.</p>
<p><b>Action(s) Conducted and Results</b></p> <p><i>(Please describe the action(s) taken to resolve the problem(s) and its effect)</i></p>	<p>The engine technologies researched included: Cummins 5.9L natural gas engine; International 365 natural gas engine; and the Navistar DT466 natural gas engine. The International engine was immediately ruled out and a decision was made to rank the remaining two engines as follows: 1) Navistar DT466 natural gas engine and 2) Cummins 5.9L natural gas engine. We are currently awaiting EPA/CARB Certification on the Navistar engine.</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)*

**Work in the next month of the project period will focus on the following contract tasks:**

Task 1: Engineering Design and Packaging

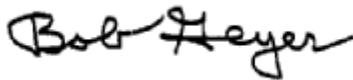
2.1 Task Statement: Engineering design and packaging to integrate the HLA and LNG engine to the ADA transit bus chassis and will submit the design to TCEQ for approval prior to installation and fabrication described under Task 2.

2.1.1. Engineering and design and packaging to integrate the HLA and LNG engine to the ADA transit bus chassis.

2.1.1.1. Package HLA in low floor rear drive chassis.

2.1.1.2. Design/detail required parts sufficient for fabrication.

In October, we will be getting the different components of the bus ordered and the process of development commenced. This will include a 4300 International chassis, the LNG and CNG tanks, define the type of fueling nozzles that will be used and get the corresponding connections mounted on the tanks, and further evaluation of the use of the economizer valve to regulate fuel pressure from a CNG and LNG source. The project partners will also continue setting up service, maintenance and warranty arrangements with local and regional providers. Publicity on the project is also slated to begin in October.



*Authorized Project Representative's Signature*

October 10, 2005

*Date*

**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.*