

NTRD Program Disclaimers

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**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: 12-13-06

Report for the **Monthly** period:

Starting Date 11-1-06 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.)*

In November, El Paso County, Ruby Mountain Inc. (RMI), the Idaho National Laboratory (INL) and Border Quality Campaign of El Paso del Norte (BQC) have been coordinating with industry and local service providers in El Paso on the activities summarized below:

- Coordination with Hydraulic Launch Assist (HLA) manufacturer Eaton Technologies to arrange for installation of the HLA device, including determination of final costs and logistics and scheduling a December meeting in Detroit, MI between Eaton and RMI to discuss final details prior to installation of the HLA device on the El Paso County vehicle in early 2007.
- Coordination with Bell Power Systems in Essex, CT to ensure the re-power of the project vehicle from diesel to natural gas and subsequent installation of the L/CNG fueling system. Following installation of the LNG and CNG fuel tanks, the primary issue in November was final design of the natural gas fueling system – both CNG and LNG. Project partners will finalize the design for submission to TCEQ in December. Weekly conference calls were held in November to ensure sufficient technical coordination existed between the vehicle manufacturer ARBOC, the INL, BQC, RMI and Bell Power.
- With the project vehicle coming online, there will need to be training for the operators and maintenance personnel. The training will include at minimum:
 - 1) Operations and managing the low floor design. This includes understanding the mechanisms associated with the airbag system, shutoff valves, what triggers the release of air causing the vehicle to kneel, what triggers the airbags to fill;
 - 2) Understanding the operations and configuration of the rear axle split gear differential;
 - 3) Understanding of the drop gear box associated with the driveline;
 - 4) Training on extending and retracting the ramp mechanism;
 - 5) Training on the fueling system operations, methodology, and configuration;
 - 6) General vehicle operations and maintenance. This would include the folding and storing of benches in wheelchair seating areas, DVD players, air control system, etc.; and,
 - 7) Operations and maintenance associated with the hydraulic launch assist system.

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

Task 2: Installation and Fabrication

2.2 Task Statement: The performing party will install and fabricate the necessary components to construct the transit bus with ADA capabilities with the HLA and the natural gas engine.

Task 4: Reporting

2.4 Task Statement: Prepare and submit monthly detailed project reports and a comprehensive final report while ensuring compliance with all TCEQ program requirements.

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>Issue #1 – Fuel Receptacles</p> <p>Bell Power identified that there is not sufficient space to accommodate both the fill line for the LNG and CNG in the same fill location that the diesel receptacle was in. They had identified an enclosure that would fit below the drivers’ side steps that the CNG receptacle could be mounted. This would require two different locations for fueling but did not pose a problem since at a fueling station the pumps are at differing locations anyway.</p> <p>Issue #2 – CNG Tank Installation</p> <p>Because of the limited space for the tanks, Bell Power was looking into tank mounts that would get the tanks closer together. They are checking with a manufacturer on availability.</p> <p>International claimed they had found a dual fuel fill box for both LNG & CNG, and had designed the rear section of the bus to accommodate this enclosure. Additional investigation was going to be taken to see if the structure to support such an enclosure is in place.</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>Issue #1 – Fuel Receptacles</p> <p>The solutions being investigated for the fill receptacles include: 1) if available and the structure is there, installing a dual fuel fill receptacle, or if this is not available, 2) install a CNG fill box under the stair on the drivers’ side of the vehicle. Each solution is being investigated.</p> <p>Issue #2 – CNG Tank Installation</p> <p>The solutions associated with the CNG tanks not fitting are being addressed in two areas: 1) moving a cross member a few inches and re-installing to create the space; and, 2) using different tank mounts to allow the tanks to fit closer together.</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>Issue #1 – Fuel Receptacles</p> <p>The fuel receptacles associated with the CNG and LNG tanks has been an issue based on mounting them both within one fill box area. Ideas were considered on separate locations for the receptacles (one receptacle for CNG and one for LNG), but the resolution of having ARBOC make the modifications to accommodate both receptacles (CNG and LNG) within one fill box was decided upon. The changes will be made once the vehicle is back at the manufacturer in Elkhart, IN.</p> <p>Issue #2 – CNG Tank Installation</p> <p>Issues have arisen regarding the installation of the CNG tanks. After examination of all viable options, a resolution was reached regarding the tank mounts which accommodated all four CNG tanks to fit under the vehicle within the parameters initially identified. Currently the tanks are installed and both the CNG and LNG fueling lines are being installed.</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)*

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

Task 2: Installation and Fabrication of bus.

2.2 Task Statement: The performing party will install and fabricate the necessary components to construct the transit bus with the L/CNG engine and tank systems.

2.2.1 Install and fabricate the necessary components to construct the transit bus with L/CNG engine:

- a. Install CNG fuel system
- b. Fabricate and install LNG system
- c. Fabricate and install economizer valve
- d. Design interface software to integrate CNG and LNG system
- e. Integrate L/CNG system with engine



Date: 12-13-06

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.*