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

Contract Number: 592-5-70807-0004

Grantee: Baytech Corporation

Date Submitted: 14 June 2005

Report for the **Monthly** period:

Starting Date: 3 January 2005 Ending Date: 31 May 2005

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

1) Modified Baytech CNG sequential Multi-Port Fuel Injection (MPFI) system developed for the 8.1L GM engine for propane operation. This included new hardware (propane gaseous injectors/injector block, propane vaporizer, propane filters) and initial modifications to the fuel control software to optimize for propane fuel.
2) Installed prototype Baytech sequential MPFI propane system and 80 gallon propane tank on Baytech-owned 8.1L GMC 4500 flatbed development vehicle.
3) Conducted extensive driveability and performance evaluations. Test instrumentation was utilized to monitor engine parameters during these evaluations, and the engine calibration software was optimized for propane. This process was conducted at Baytech's California facility, and during the 1800 mile trip to Southwest Research Institute (SwRI) in San Antonio under a wide variety of driving conditions.
4) The 8.1L engine was removed from Baytech's development vehicle by Harrison in San Antonio and transported to SwRI for heavy duty engine dynamometer testing. The engine was installed on the dynamometer; several sets of exhaust systems (including catalytic converters) provided by Baytech were cut/re-welded to fit the dynamometer apparatus and were drilled/tapped for thermocouple fittings to measure catalyst and exhaust temperatures during testing.
5) A series of dynamometer tests were conducted on the propane and CNG fueled 8.1L engine. Baytech made adjustments to the engine calibration between tests to achieve low NOx certifcation levels.
6) Formal HD Transient Test Procedures test protocols required by EPA and CARB for heavy duty engine calibration were conducted for propane and CNG fuels.
7) The 8.1L engine was reinstalled in Baytech's C4500 development vehicle and the vehicle was driven back to Baytech's Alameda, CA facility using propane and gasoline fuels for comparison.
8) Baytech prepared and submitted certification applications to EPA and CARB for both propane and CNG versions of the 8.1L Heavy Duty engine. The certification applications utilized the data obtained from the formal HD Transient Test Procedures tests required for certification. End-of-life deterioration factors were applied to the emission results in accordance with EPA and CARB regulations. These applications were submitted in late March 2005.

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

Items 1, 2, and 3 are related to the activities in SOW Task 1 for the 8.1L vehicle.
Items 4, 5, 6 and 7 are related to the activities in SOW Task 3 for the 8.1L vehicle.
Item 8 is related to the activities in SOW Task 2 for the 8.1L vehicle.

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 problems are anticipated that will affect progress toward successful completion of the project.
Proposed Solution(s) *(Please report any possible solution(s) to the problem(s) that were considered/encountered)*	

Action(s) Conducted and Results *(Please describe the action(s) taken to resolve the problem(s) and its effect)*	

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)*

Baytech anticipates receiving EPA and CARB certifications for the 8.1L Heavy Duty engine in early June, based upon recent discussions with both organizations. Baytech has already received orders for both propane and CNG versions of the engine for shuttle buses.

Baytech will continue to market the propane and CNG 8.1L engine as part of our commercialization efforts. This will include developing relationships with large propane delivery fleets that can market Baytech's certified propane vehicles/engines to their customers.

Baytech currently plans to conduct the 6.0L Heavy Duty engine portion of the project beginning in September 2005. This work will be conducted using a 2006 Model Year vehicle/engine.

Richard P Jun Date: 6/15/05

Authorized Project Representative's Signature