

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.

**New Technology Research & Development Program
Grant Contract 582-5-70807-0004**

**Task 4 Deliverable Report
Final Report**

The preparation of this report is based on work funded in part
by the State of Texas through a Grant from the
Texas Commission on Environmental Quality.

21 December 2006

Final Report:

**DEVELOPMENT AND CERTIFICATION OF LOW NO_x EMISSIONS LPG
AND CNG MULTI-PORT FUEL INJECTION SYSTEMS FOR HEAVY
DUTY ENGINES**

Prepared for:

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
NTRD Grant 582-5-70807-0004**

Submitted by:

**BAYTECH CORPORATION
P.O. Box 1148, Los Altos, CA 94023
Tel: (650) 949-1976
Fax: (650) 949-1970**

TABLE OF CONTENTS

1.0 PROJECT OBJECTIVES

2.0 MODIFY HD VEHICLES WITH BAYTECH MPFI LPG SYSTEM

2.1 Modify MPFI System for LPG Operation

2.2 Install LPG MPFI system on Development Vehicles

2.3 Data Collection and Performance Evaluation

3.0 TASK 3 -- HEAVY DUTY ENGINE DYNAMOMETER TESTING

3.1 Emission Test Results

4.0 EMISSIONS CERTIFICATION

4.1 8.1L Engine EPA Certificates of Conformity

4.2 8.1 Engine CARB Executive Orders

4.3 6.0L Engine EPA Certificates of Conformity

4.4 6.0L Engine CARB Executive Orders

5.0 CONCLUSIONS

1.0 PROJECT OBJECTIVES

The objective of this project was to develop, emissions test, and emissions certify with EPA and CARB a low NO_x LPG and Low NO_x CNG fueling system for GM heavy duty 8.1L and 6.0L engines. The technology is based upon Baytech's Compressed Natural Gas (CNG) sequential Multi-Port Fuel Injection (MPFI) system, which was modified to operate on LPG. Emissions testing was conducted on both fuels. The NO_x emission goal for both engines was 0.1 g/bhp-hr.

The project consisted of three technical tasks:

Task 1: Modify Heavy Duty Vehicles with Baytech MPFI LPG System

Task 2: EPA and CARB Certification Applications

Task 3: Perform Heavy Duty Engine Emission Testing

This report describes the work performed on the project and project results.

2.0 MODIFY HEAVY DUTY VEHICLES WITH BAYTECH MPFI LPG SYSTEM

2.1 Modify MPFI System for LPG Operation

The baseline technology for this project is Baytech's sequential Multi-Port Fuel Injection system for gaseous fuels. The system was originally developed by Baytech for Compressed Natural Gas (CNG), and was modified in this project task to operate on propane. Hardware components were specified and selected to meet the operating requirements. Key hardware modifications were:

- Higher flow gaseous fuel injector for propane. The MPFI system requires one injector per cylinder, or eight injectors total for both the 6.0 and 8.1L engines.
- Modified fuel injector block to accommodate the dimensions of the propane injectors.
- Propane vaporizer that vaporizes the liquid propane fuel and maintains a very stable output pressure. (The CNG system utilizes a gas pressure regulator.)
- Addition of a cooling fan to Baytech's injector driver module to mitigate the additional heat generated by driving the larger propane injectors.
- Liquid propane filter and a vapor propane filter (with a custom designed filter element housing) to reduce fuel contaminants that can effect system performance. (The CNG system utilizes a coalescing filter to eliminate any oil in the CNG.)

Baytech's propane engine control calibration software is implemented in the GM Powertrain Control Module (PCM). Baytech modified the engine control calibration software originally developed for CNG to optimize engine performance with propane fuel. Initial engine calibrations were developed for the 8.1L and 6.0L propane engines using strategies similar to Baytech's CNG system.

The system is a closed loop control system, maintaining stoichiometric air/fuel ratio via feedback from oxygen sensors in the exhaust system. Parameters modified included spark advance, air/fuel ratio control, idle speed, crank fuel, deceleration fuel, acceleration fuel, and

diagnostics. The initial propane engine calibration software developed for each engine was modified during performance evaluations described in Section 2.3.

A block diagram of Baytech's propane sequential MPFI system is shown in Figure 1.

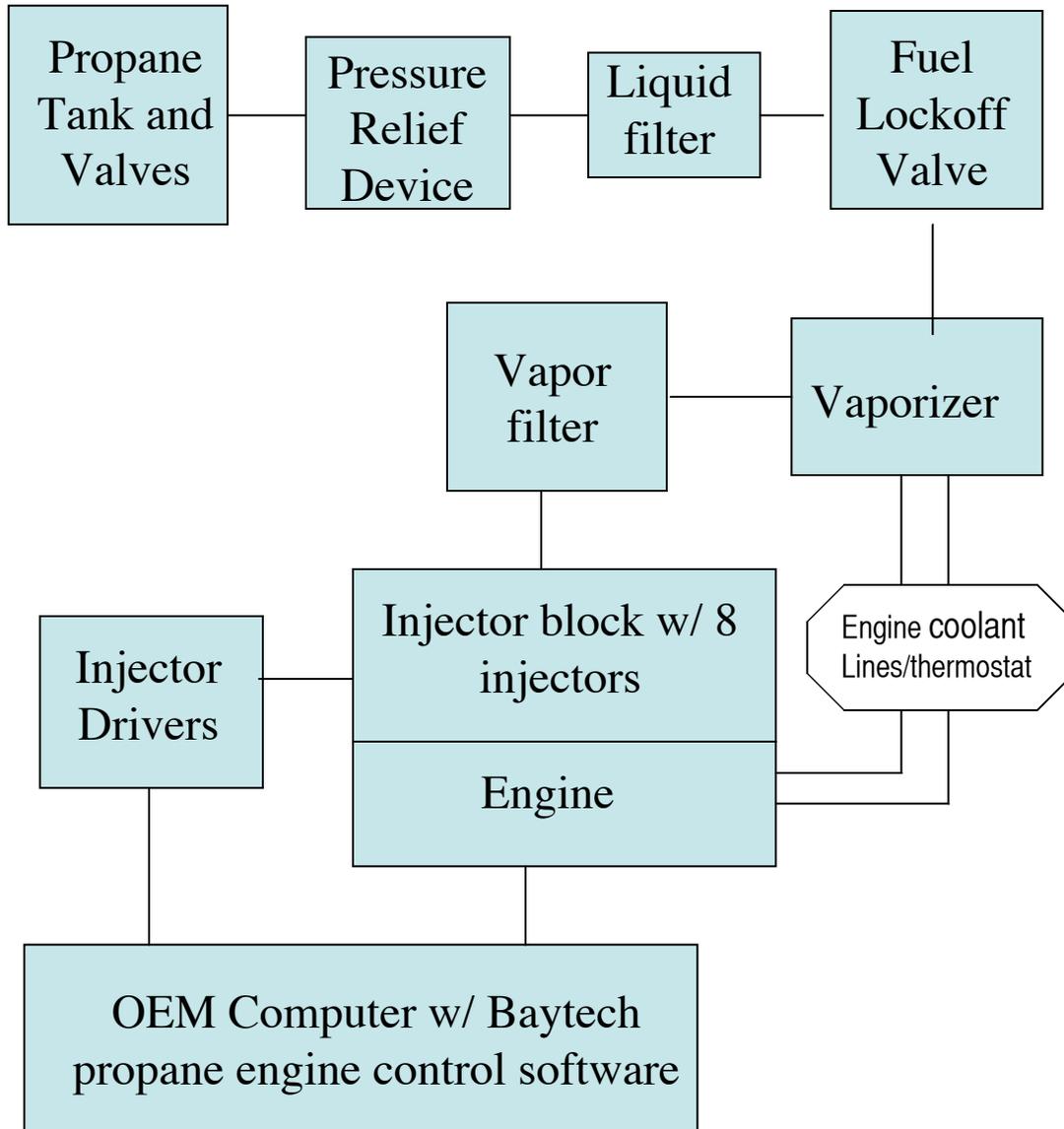


Figure 1 Baytech Propane System Block Diagram

2.2 Install LPG MPFI system on Development Vehicles

2.2.1 8.1L Development Vehicle

Baytech's GMC C4500 8.1L development vehicle, shown in Figure 2, was utilized to develop the 8.1L heavy duty propane engine MPFI system. Baytech installed the prototype propane MPFI system, and an 80 gallon propane tank on the flatbed. The vehicle was already equipped with CNG tanks. The propane tank is mounted behind the CNG tanks, which are covered.



Figure 2 8.0L Development Vehicle

The engine intake manifold cover was removed from the engine, and intake ports were drilled and tapped to insert the tubes that deliver the gaseous fuel to each cylinder port from the respective injector in the injector block assembly. A closeup picture of one intake port is shown in Figure 3.

Figure 4, taken from inside the vehicle with the engine cover removed, shows the injector block mounted on top of the engine manifold. The vapor filter is mounted to the front (vapor input side) of the injector block, with the vapor hose from the vaporizer leading to the vapor filter. The injector driver wire harness is located to the left of the injector block.

Figure 5, also taken from inside the vehicle with the engine cover removed, shows the vaporizer mounted on the lower right hand side of the engine. The picture also shows the vapor outlet hose from the vaporizer to the injector block, and the engine coolant lines from the engine to the vaporizer with in-line thermostat.

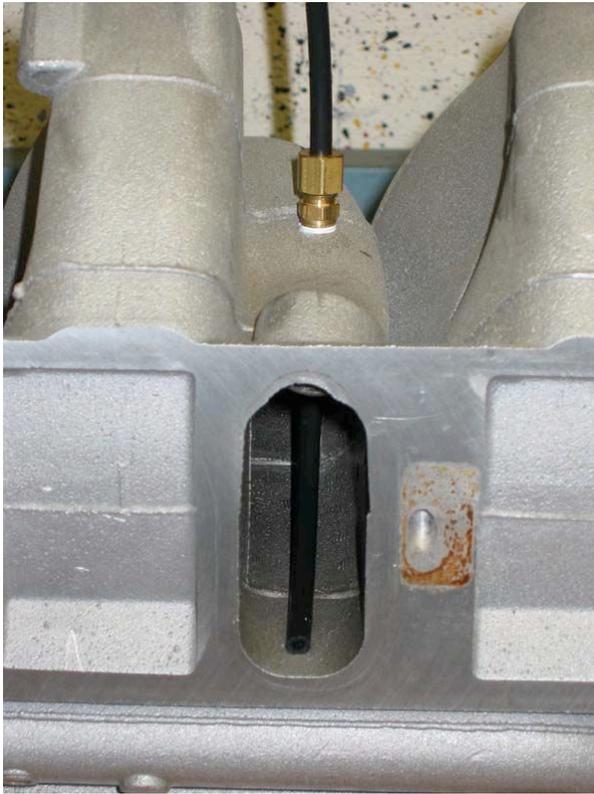


Figure 3 Fuel Delivery to Intake Port

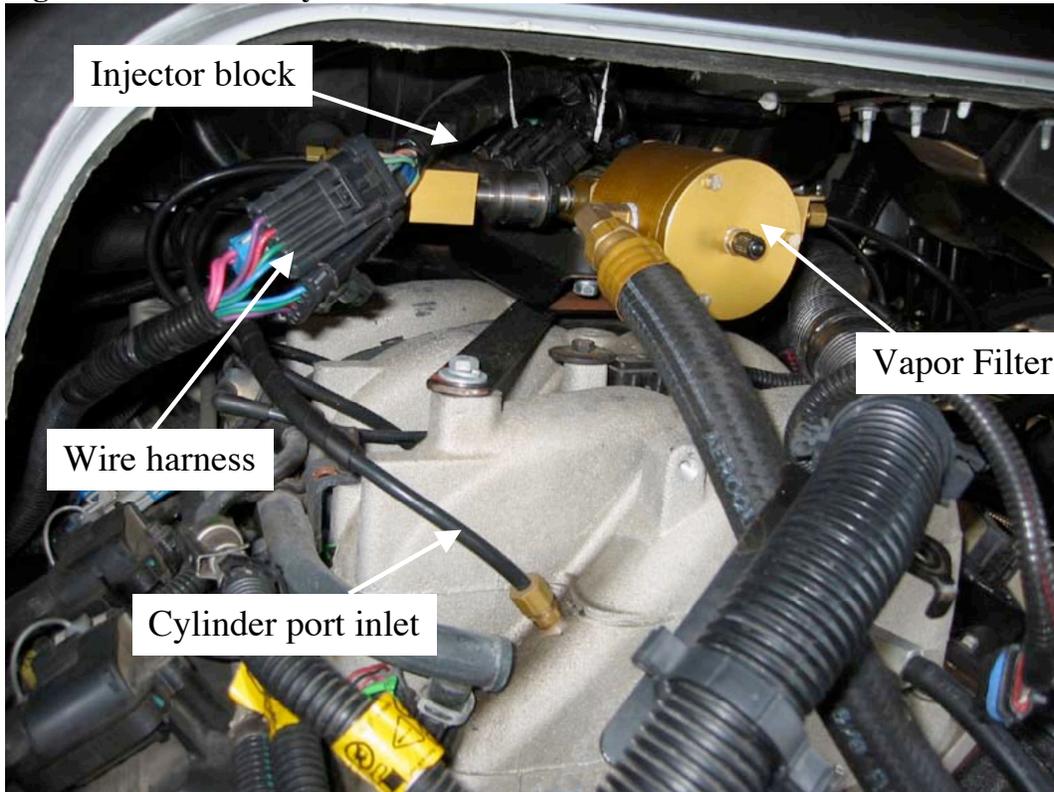


Figure 4 -- 8.1L Injector Block

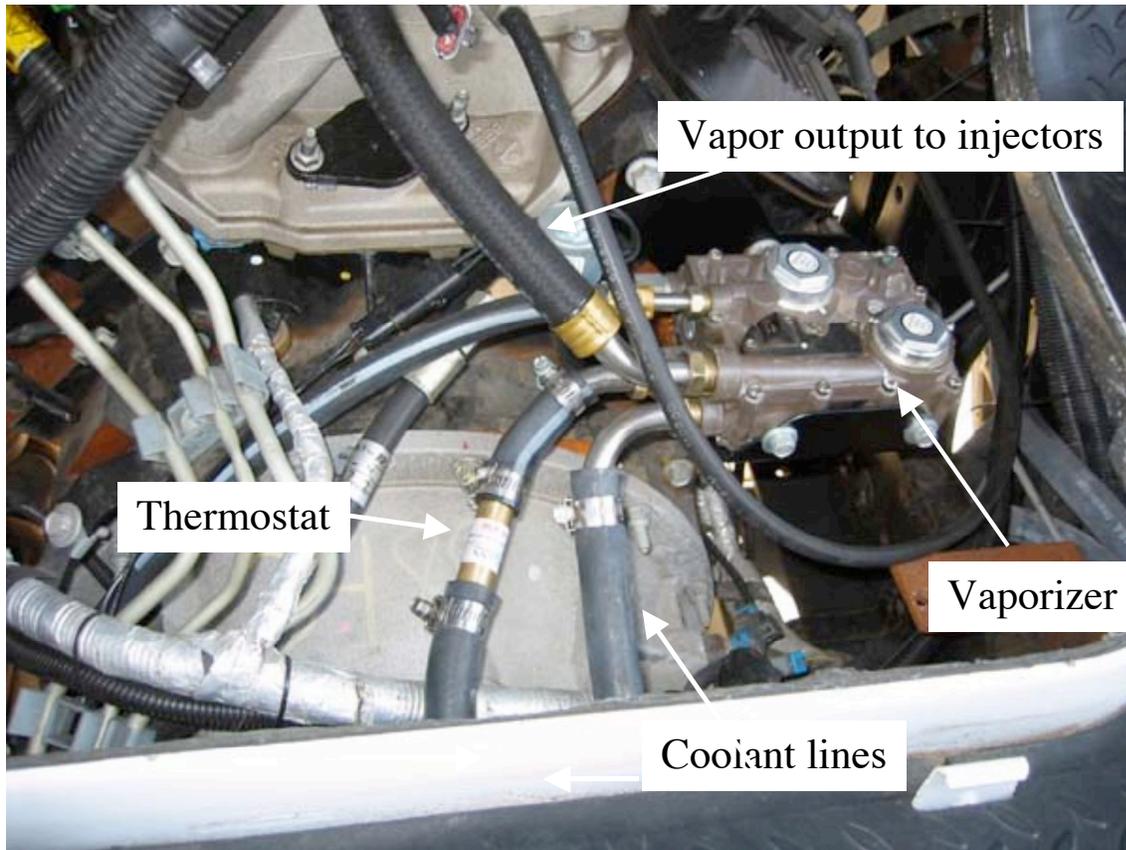


Figure 5 -- 8.1L Vaporizer

2.2.2 6.0L Development Vehicle

For development of the 6.0L heavy duty propane engine MPFI system, Baytech utilized a Chevrolet Silverado C2500HD pickup truck, shown in Figure 6. A 60 gallon propane tank was mounted in the truck bed against the cab, shown in Figure 7.



Figure 6 6.0L Development Vehicle



Figure 7 60 Gallon Propane Tank Mounted in 6.0L Vehicle Pick-Up Bed

The same hardware component configuration is used in the 6.0L vehicle as is used in the 8.1L vehicle, except for the fuel injectors. Modifications were made to the propane fuel injectors to meet the idle and full throttle fuel requirements of the 6.0L engine. Figure 8 shows the injector block mounted on top of the 6.0L engine manifold, and the tubes going from each injector to a cylinder port. The engine manifold was drilled and tapped for each fuel tube from the injectors as it was for the 8.1L engine.

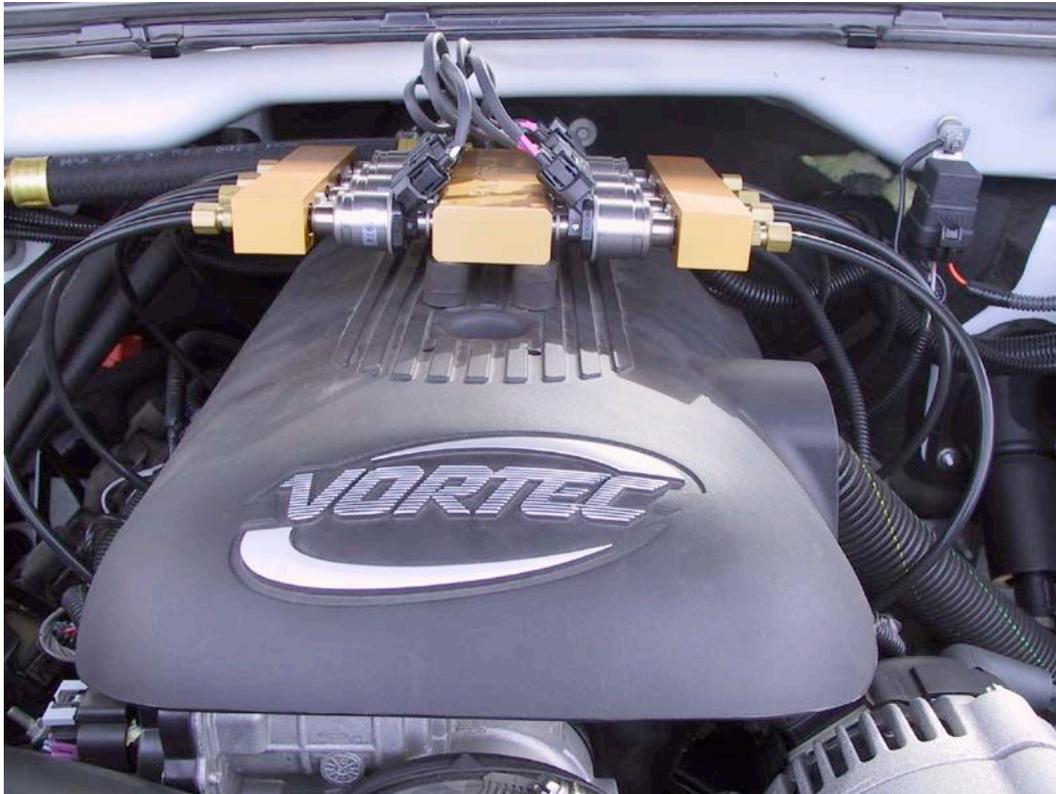


Figure 8 Propane Fuel Injector Block Mounted on 6.0L Engine

Figure 9 shows the vaporizer and vapor filter mounted on the back left hand side of the engine compartment. Unlike the 8.1L configuration, the vapor filter is not mounted directly on the injector block. Also visible in the picture is the lock-off valve, which is closed when the ignition is off.

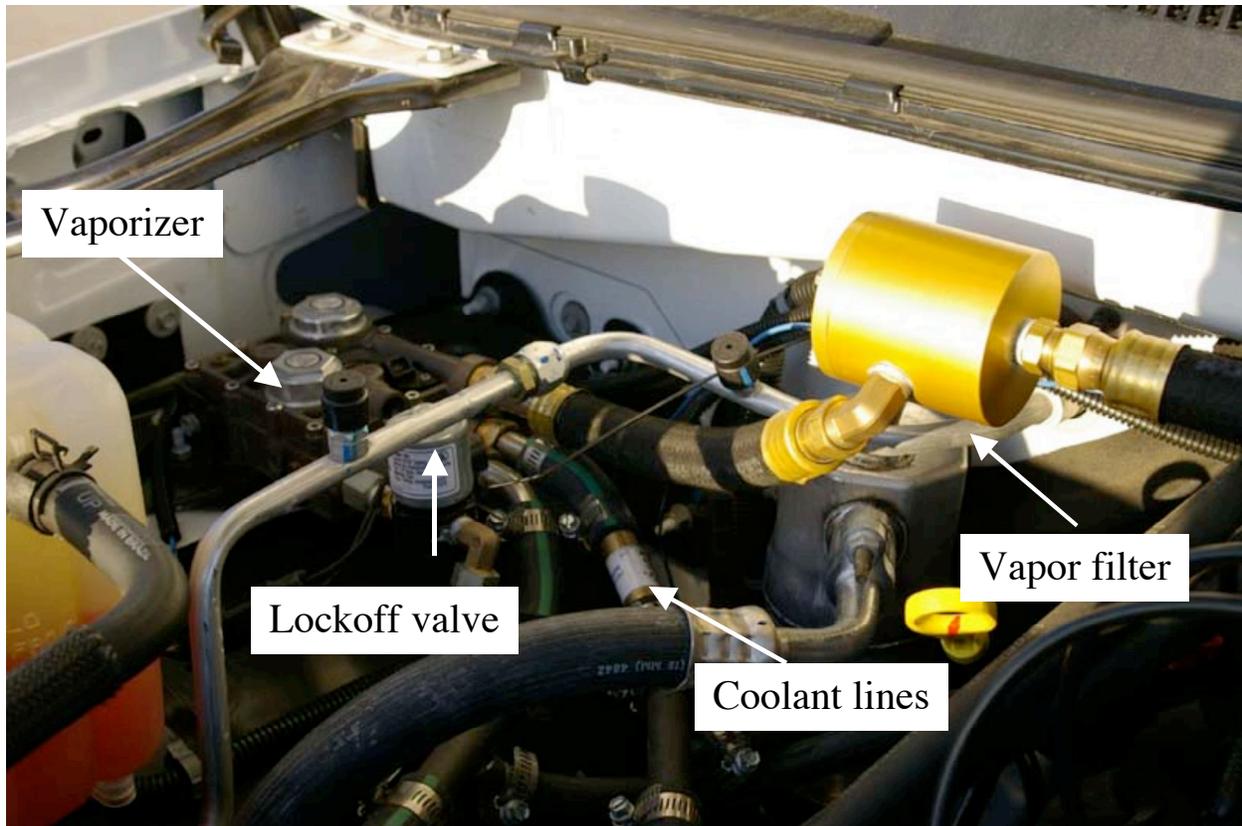


Figure 9 -- 6.0L Vaporizer

2.3 Data Collection and Performance Evaluation

Baytech conducted extensive driveability and performance evaluations of both the 8.1L GMC C4500 and 6.0L Chevrolet Silverado C2500HD propane development vehicles. 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; 8.1L performance evaluations were also performed during the 1200 mile trip to Southwest Research Institute (SwRI) in San Antonio under a wide variety of driving conditions.

2.3.1 Instrument Development Vehicles

Baytech's engine calibration software is implemented in the OEM Powertrain Control Module (PCM). Therefore, Baytech's propane (and CNG) sequential MPFI systems are fully compatible

with the OEM on-board diagnostic systems. Baytech used two engine scanning devices, connected to the diagnostic ports of each vehicle, to monitor engine performance during on-road evaluations. These devices were the GM Tech 2 scanning tool and the MasterTech scanning tool. These devices can be used to capture snapshots of engine parameters versus time during on-road evaluations under different operating conditions. Selected engine parameter time history data can be downloaded to a PC for evaluation.

Baytech also instrumented the exhaust system of the 8.1L development vehicle with thermocouples to measure exhaust temperatures upstream and downstream of the catalytic converters.

2.3.2 Performance Evaluations

Baytech conducted extensive performance and driveability evaluations of the 8.1L and 6.0L propane engines. These evaluations covered a wide range of operating conditions, including cold/hot start, cold/hot idle, cruise, acceleration, full throttle acceleration from a stop, full throttle hill climbs, and high altitude. Engine parameters were monitored during each of these operating conditions, and numerous iterative changes to the engine control calibration software were made until Baytech was satisfied with the overall performance.

The 8.1L propane MPFI system was developed first, and received the most extensive performance testing and updating of the engine calibration software. The engine calibration developed for the 8.1L engine was then used as the baseline calibration for the 6.0L engine.

Initially, Baytech implemented the same propane fuel injectors on the 6.0L propane development vehicle that were used on the 8.1L propane engine. Idle instability performance problems were encountered, which were solved by changing the propane fuel to lower flow injectors. Significant changes to the engine calibration software were required to accommodate the new injectors, as they affected engine performance throughout the engine operating range (idle through full throttle under load).

Detailed on-road test data for the 8.1L and 6.0L propane engines, showing engine parameters under many different test conditions, are presented in the project's Task 1 report.

2.3.3 Ready for Testing

Based upon the extensive performance evaluations of the 8.1L and 6.0L propane engines, and numerous iterations of the engine calibration software and hardware adjustments on each engine to optimize engine performance, Baytech determined that the engines were ready for engine dynamometer emissions testing (Task 3 of the project).

3.0 HEAVY DUTY ENGINE DYNAMOMETER TESTING

Baytech conducted heavy duty engine dynamometer testing on the 8.1L and 6.0L propane and CNG fueled engines at Southwest Research Institute (SwRI) in San Antonio. The 8.1L engine was tested in February 2005. The 6.0L engine was tested in July 2006.

Two exhaust system configurations of the 8.1L engine were tested, 1) a configuration with two catalytic converters that is used on the GM C/4500/5500 series heavy duty trucks, and 2) a configuration with one catalytic converter that is used on the GM C6500/7500/8500 series heavy duty trucks. The exhaust systems were cut/re-welded to fit the engine dynamometer apparatus and were drilled/tapped for thermocouple fittings to measure catalyst and exhaust temperatures during testing. Baytech developed different engine calibrations for each of these 8.1L heavy duty engine configurations,

A series of development tests were conducted on the propane and CNG fueled 8.1L and 6.0L engines. The results from development tests were used to make adjustments to the engine calibration between tests in order to achieve low-NOx certification levels.

Formal HD Transient Test Procedures test protocols required by US Environmental Protection Agency (EPA) and California Air Resources Board (CARB) for heavy duty engine certification were conducted for propane and CNG fuels, and for baseline gasoline. The HD Transient tests were performed according to the Federal Register and CA Title 13 regulations.

3.1 EMISSIONS TEST RESULTS

Baytech conducted a series of certification tests on the two 8.1L heavy duty engine configurations and the 6.0L heavy duty engine (three test series total). Each test series consisted of tests using the following fuels:

- Dedicated CNG
- Dual fuel CNG and gasoline
- Dedicated propane
- Dual fuel propane and gasoline

Table 1 presents the emissions results for each series of certification tests conducted by Baytech:

- The first column shows the Baytech Test Group, assigned by Baytech, that represents a distinct EPA certification. The seventh and eighth digits identify the engine (8.1 or 6.0).
- The second column shows the fuel tested.
- The third column presents two sets of emissions data for each test group. The “Test Results” line presents the actual test emissions results. The “Certification Level” line presents the emissions level after applying EPA-assigned deterioration factors, which are designed to represent end-of-life emissions levels. The “Certification Level” emissions numbers are used in the heavy duty engine emissions certification applications submitted to EPA and CARB. (Note: the 6.0L engine testing was conducted using end-of-life aged emissions components. Baytech achieved extremely low emissions test results, even under this worse case condition.)
- The fourth through tenth columns present emissions test results, and certification levels after applying deterioration factors, for Total Hydrocarbons (THC), Non-Methane Hydrocarbons (NMHC), Oxides of Nitrogen (NOx), Carbon Monoxide (CO), formaldehyde (HCHO),

and Idle CO percent. Units for all emissions data are presented in grams per brake horsepower-hour (g/bhp-hr), except Idle CO expressed in percent.

Table 1 Heavy Duty 8.1L and 6.0L Engine Dynamometer Emission Test Results

Test Group	Fuel		THC (g/bhp-hr)	NMHC (g/bhp-hr)	NMHC+NOx (g/bhp-hr)	CO (g/bhp-hr)	NOx (g/bhp-hr)	HCHO (g/bhp-hr)	IDLE CO %
6BYTH08.1C13	dedicated CNG	Test Results	0.21	0.00		1.34	0.23	0.0006	0.001
		Certification Level		0.0	0.3	2.1	0.3	0.001	0.00
6BYTH08.1C23	dual fuel CNG	Test Results	0.21	0.00		1.34	0.23	0.0006	0.001
		Certification Level		0.0	0.3	2.1	0.3	0.001	0.00
	dual fuel Gasoline	Test Results	0.1	0.06		1.70	0.12	0.0007	0.005
		Certification Level		0.1	0.3	2.7	0.2	0.002	0.01
6BYTH08.1P13	dedicated Propane	Test Results	0.1	0.06		2.56	0.21	0.0006	0.003
		Certification Level		0.1	0.4	4.1	0.3	0.001	0.01
6BYTH08.1P23	dual fuel Propane	Test Results	0.1	0.06		2.56	0.21	0.0006	0.003
		Certification Level		0.1	0.4	4.1	0.3	0.001	0.01
	dual fuel Gasoline	Test Results	0.1	0.06		1.70	0.12	0.0007	0.005
		Certification Level		0.1	0.3	2.7	0.2	0.002	0.01
6BYTH08.1C12	dedicated CNG	Test Results	0.56	0.09		3.40	0.21	0.001	0.001
		Certification Level		0.2	0.5	5.4	0.3	0.002	0.00
6BYTH08.1C22	dual fuel CNG	Test Results	0.56	0.09		3.40	0.21	0.001	0.001
		Certification Level		0.2	0.5	5.4	0.3	0.002	0.00
	dual fuel Gasoline	Test Results	0.17	0.11		3.80	0.21	0.001	0.001
		Certification Level		0.2	0.5	6.1	0.3	0.002	0.00
6BYTH08.1P12	dedicated Propane	Test Results	0.34	0.26		5.45	0.25	0.001	0.001
		Certification Level		0.6	0.9	8.7	0.3	0.002	0.00
6BYTH08.1P22	dual fuel Propane	Test Results	0.34	0.26		5.45	0.25	0.001	0.001
		Certification Level		0.6	0.9	8.7	0.3	0.002	0.00
	dual fuel Gasoline	Test Results	0.17	0.11		3.80	0.21	0.001	0.001
		Certification Level		0.2	0.5	6.1	0.3	0.002	0.00
7BYTH06.0613	dedicated CNG	Test Results *	0.24	0.02		1.83	0.12	0.0006	0.001
		Certification Level		0.0	0.2	2.9	0.2	0.001	0.00
6BYTH06.0623	dual fuel CNG	Test Results *	0.24	0.02		1.83	0.12	0.0006	0.001
		Certification Level		0.0	0.2	2.9	0.2	0.001	0.00
	dual fuel Gasoline	Test Results *	0.05	0.04		1.28	0.21	0.0007	0.009
		Certification Level		0.1	0.4	2.0	0.3	0.002	0.01
6BYTH06.0633	dedicated Propane	Test Results *	0.05	0.03		4.09	0.11	0.0006	0.001
		Certification Level		0.1	0.2	6.5	0.1	0.001	0.00
6BYTH06.0643	dual fuel Propane	Test Results *	0.05	0.03		4.09	0.11	0.0006	0.001
		Certification Level		0.1	0.2	6.5	0.1	0.001	0.00
	dual fuel Gasoline	Test Results *	0.05	0.04		1.28	0.21	0.0007	0.009
		Certification Level		0.1	0.4	2.0	0.3	0.002	0.01

* Tested with End of Life Aged Emission Components
Certification Level represents test results with EPA-assigned Deterioration Factors applied

The certification level data, after applying EPA-assigned deterioration factors, meet EPA and CARB emissions standards for all test groups. These data were used in Baytech's heavy duty engine certification applications to EPA and CARB for all of the test groups shown in the first column of Table 1.

4.0 EMISSIONS CERTIFICATION

In this task, Baytech prepared emissions certification applications to EPA/CARB for dedicated and bi-fuel versions of the 8.1L and 6.0L heavy duty propane and CNG fueled engines using the certification level emissions test results presented in Table 1

Copies of the certification applications were included in the Task 2 report. This section presents summaries of the EPA certificates of conformity and CARB Executive Orders received by Baytech for the 8.1L and 6.0L heavy duty propane and CNG engines. Copies of the EPA and CARB certifications are included in Appendices A through D to this report.

4.1 8.1L Heavy Duty Engine EPA Certificates of Conformity

Baytech received U.S. Environmental Protection Agency Certificates of Conformity for Baytech's 8.1L propane, CNG and dual fuel (propane or gasoline and CNG or gasoline) engines for 2006 Model Years. The following table summarizes the certificates. Copies of the certificates are contained in Appendix A.

EPA Certificates of Conformity – 8.1L Heavy Duty Engine

Baytech Engine Family	Fuel	EPA Certification No.	Service class
6BYTH08.1C13	CNG	BYT-ONHWY-06-01.1	HDG1, HDG2
6BYTH08.1P13	Propane	BYT-ONHWY-06-02.1	HDG1, HDG2
6BYTH08.1C23	CNG or gasoline	BYT-ONHWY-06-03	HDG1, HDG2
6BYTH08.1P23	Propane or gasoline	BYT-ONHWY-06-04	HDG1, HDG2
6BYT08.1C12	CNG	BYT-ONHWY-06-05	HDG2
6BYT08.1C22	CNG or gasoline	BYT-ONHWY-06-06	HDG2
6BYTH08.1P12	Propane	BYT-ONHWY-06-07	HDG2
6BYT08.1P22	Propane or gasoline	BYT-ONHWY-06-08	HDG2

4.2 8.1L Heavy Duty Engine CARB Executive Orders

Baytech received CARB Executive Orders for Baytech's 8.1L propane, CNG and dual fuel (propane or gasoline and CNG or gasoline) engines for 2006 Model Years. The following table summarizes the Executive Orders. Copies of the Executive Orders are contained in Appendix B.

CARB Executive Orders – 8.1L Heavy Duty Engine

Baytech Engine Family	Fuel	Executive Order No.	Service class
6BYTH08.1C13	CNG	A-330-0126	HDO ¹
6BYTH08.1P13	Propane	A-330-0129	HDO ¹
6BYTH08.1C23	CNG or gasoline	A-330-0133	HDO ¹
6BYTH08.1P23	Propane or gasoline	A-330-0137	HDO ¹
6BYT08.1C12	CNG	A-330-0139	HDO ¹
6BYT08.1C22	CNG or gasoline	A-330-0142	HDO ¹
6BYTH08.1P12	Propane	A-330-0140	HDO ¹
6BYT08.1P22	Propane or gasoline	A-330-0145	HDO ¹
6BYTH08.1P13	Propane	A-330-0130	HDO ²
6BYTH08.1C23	CNG or gasoline	A-330-0134	HDO ²
6BYTH08.1P23	Propane or gasoline	A-330-0138	HDO ²
6BYTH08.1P12	Propane	A-330-0141	HDO ²
6BYT08.1C22	CNG or gasoline	A-330-0143	HDO ²
6BYT08.1P22	Propane or gasoline	A-330-0146	HDO ²

Notes:

1 On-Road Heavy Duty Engines

2 On-Road Heavy Duty Vehicles

4.3 6.0L Heavy Duty Engine EPA Certificates of Conformity

Baytech received U.S. Environmental Protection Agency Certificates of Conformity for Baytech's 6.0L propane, CNG and dual fuel (propane or gasoline and CNG or gasoline) engines for 2007 Model Years. The following table summarizes the certificates. Copies of the certificates are contained in Appendix C.

EPA Certificates of Conformity –6.0L Heavy Duty Engine

Baytech Engine Family	Fuel	Certificate No.	Service class
7BYTH06.0613 ()	CNG	BYT-ONHWY-07-01	HDG1
7BYTH06.0623	CNG or gasoline	BYT-ONHWY-07-02	HDG1
7BYTH06.0633	Propane	BYT-ONHWY-07-03	HDG1
7BYTH06.0643	Propane or gasoline	BYT-ONHWY-07-04	HDG1

4.4 6.0L Heavy Duty Engine CARB Executive Orders

Baytech received CARB Executive Orders for Baytech’s 6.0L propane, CNG and dual fuel (propane or gasoline and CNG or gasoline) engines for 2007 Model Years. The following table summarizes the Executive Orders. Copies of the Executive Orders are contained in Appendix D.

CARB Executive Orders –6.0L Heavy Duty Engine

Baytech Engine Family	Fuel	Executive Order No.	Service class
7BYTH06.0613	CNG	A-330-0160	CA medium duty ¹
7BYTH06.0613	CNG	A-330-0161	CA medium duty ²
7BYTH06.0613	CNG	A-330-0162	HDO ³
7BYTH06.0633	Propane	A-330-0163	HDO ³
7BYTH06.0633	Propane	A-330-0164	HDO ⁴
7BYTH06.0623	CNG or gasoline	A-330-0165	HDO ³
7BYTH06.0623	CNG or gasoline	A-330-0166	HDO ⁴
7BYTH06.0643	Propane or gasoline	A-330-0167	HDO ³
7BYTH06.0643	Propane or gasoline	A-330-0168	HDO ⁴
7BYTH06.0653	CNG	A-330-0170	HDO ⁴

Notes:

- 1 New engines for Incomplete medium duty vehicles
- 2 Incomplete medium duty vehicles using certified engines
- 3 On-Road Heavy Duty Engines
- 4 On-Road Heavy Duty Vehicles

5.0 PROJECT CONCLUSIONS

The challenging project goal was to achieve 0.1g/bhp-hr NOx certification test emissions on both the 8.1L and 6.0L propane heavy duty engines. This goal was achieved on the 6.0L heavy duty engine for both propane and CNG. This represents extremely low NOx emissions for a heavy duty engine. NOx certification test emissions achieved on the 8.1L engine were 0.2 g/bhp-hr for both propane and CNG, also very low NOx emissions for a heavy duty engine.

As shown in Section 4, Baytech received eight EPA Certificates of Conformity and fourteen CARB Executive Orders for propane, CNG and bi-fuel propane/gasoline and CNG/gasoline 8.1L heavy duty engines. Baytech received four EPA Certificates of Conformity and ten CARB Executive Orders for dedicated propane, bi-fuel propane/gasoline, CNG and bi-fuel CNG/gasoline 6.0L heavy duty engines. All versions of these engines have been commercialized by Baytech.

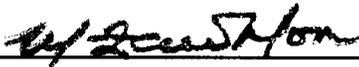
APPENDIX A

8.1L HEAVY DUTY PROPANE AND CNG ENGINE EPA CERTIFICATES OF CONFORMITY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1C13**
Certificate Number: **BYT-ONHWY-06-01.1**
Intended Service Class: **HDG 1 (<=14K LBS), HDG 2 (>14K LBS) (CFF/ILEV)**
Fuel Type: **NATURAL GAS**
FELs: **g/bHp-hr** NMHC+NOx: **N/A** NOx: **N/A** PM: **N/A**
Effective Date: **5/26/2005**
Date Issued: **JUN 03 2005**



Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

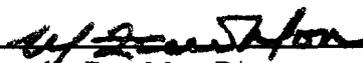
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1P13**
Certificate Number: **BYT-ONHWY-06-02.1**
Intended Service Class: **HDG 1 (<=14K LBS), HDG 2 (>14K LBS) (CFF/ILEV)**
Fuel Type: **PROPANE**
FELs: **g/bHp-hr** NMHC+NOx: **N/A** NOx: **N/A** PM: **N/A**
Effective Date: **5/26/2005**
Date Issued: **JUN 03 2005**


Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts **86** and **88** and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts **86** and **88**. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

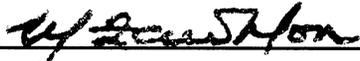
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part **86**. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1C23**
Certificate Number: **BYT-ONHWY-06-03**
Intended Service Class: **HDG 1 (<=14K LBS), HDG 2 (>14K LBS) (CFF/ULEV)**
Fuel Type: **DUAL-FUEL 1(CNG OR GASOLINE)**
FELs: g/bHp-hr NMHC+NOx: N/A NOx: N/A PM: N/A
Effective Date: **5/31/2005**
Date Issued: **JUN 03 2005**



Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

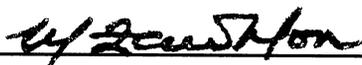
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1P23**
Certificate Number: **BYT-ONHWY-06-04**
Intended Service Class: **HDG 1 (<=14K LBS), HDG 2 (>14K LBS) (CFF/ULEV)**
Fuel Type: **DUAL-FUEL 3(PROPANE OR GASOLINE)**
FELs: g/bHp-hr NMHC+NOx: N/A NOx: N/A PM: N/A
Effective Date: **6/1/2005**
Date Issued: **JUN 03 2005**



Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1C12**
Certificate Number: **BYT-ONHWY-06-05**
Intended Service Class: **HDG 2 (>14K LBS) (CFF/ILEV)**
Fuel Type: **NATURAL GAS**
FELs: **g/bHp-hr** NMHC+NOx: **N/A** NOx: **N/A** PM: **N/A**
Effective Date: **6/1/2005**
Date Issued: **JUN 03 2005**



Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

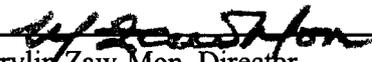
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1C22**
Certificate Number: **BYT-ONHWY-06-06**
Intended Service Class: **HDG 2 (>14K LBS) (CFF/ULEV)**
Fuel Type: **DUAL-FUEL 1(CNG OR GASOLINE)**
FELs: g/bHp-hr NMHC+NOx: N/A NOx: N/A PM: N/A
Effective Date: **6/1/2005**
Date Issued: **JUN 03 2005**


Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

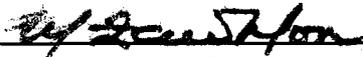
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1P12**
Certificate Number: **BYT-ONHWY-06-07**
Intended Service Class: **HDG 2 (>14K LBS) (CFF/ILEV)**
Fuel Type: **PROPANE**
FELs: **g/bHp-hr** NMHC+NOx: **N/A** NOx: **N/A** PM: **N/A**
Effective Date: **6/2/2005**
Date Issued: **JUN 03 2005**



Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

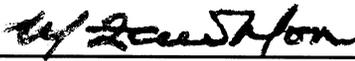
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **6BYTH08.1P22**
Certificate Number: **BYT-ONHWY-06-08**
Intended Service Class: **HDG 2 (>14K LBS) (CFF/ULEV)**
Fuel Type: **DUAL-FUEL 3(PROPANE OR GASOLINE)**
FELs: g/bHp-hr NMHC+NOx: N/A NOx: N/A PM: N/A
Effective Date: **6/2/2005**
Date Issued: **JUN 03 2005**



Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 86 and 88 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 86 and 88. This certificate of conformity does not cover vehicles imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

APPENDIX B

6.0L HEAVY DUTY PROPANE AND CNG ENGINE CARB EXECUTIVE ORDERS

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹		STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			CNG				
2006	6BYTH08.1C13	8.1	CNG		Otto	HDD	2TWC, 2HO2S, SFI
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)					
8.1		L18 / 10 (195), 20 (283), 30 (283)					
*		*					
*		*					
*		*					

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter, hp=horsepower, kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDD=heavy duty Otto;
 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECMPCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.3	*	2.1	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 10th day of June 2005.

Allen Lyons
 Allen Lyons, Chief
 Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹		STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			LPG				
2006	6BYTH08.1P13	8.1			Otto	HDO	2TWC, 2HO2S, SFI
ENGINE MODELS / CODES (rated power, in hp)							
ENGINE (L)	L18 / 10 (225), 20 (332), 30 (332)						
8.1							
*							
*							
*							

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
¹ =liter; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFA/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SF/MP=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; (2004may26)
ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.4	*	4.1	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

* g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 10th day of June 2005.

J. Lawrence
Allen Lyons, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			Dual Fuel: CNG or Gasoline			
2006	6BYTH08.1C23	8.1		Otto	HDO	2TWC, 2HO2S, SFI
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)				
8.1		L18 / 10 (195/CNG, 219/Gasoline), L18 / 20 (283/CNG, 317/Gasoline), L18 / 30 (283/CNG, 317/Gasoline)				
*		*				
*		*				
*		*				

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
¹ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
² L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SF/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.3 [0.3]	*	2.1 [2.7]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 16th day of August 2005.


J. Allen Lyons, Chief
 Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹		STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			Dual Fuel: LPG or Gasoline				
2006	6BYTH08.1P23	8.1			Otto	HDO	2TWC, 2HO2S, SFI
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)					
8.1		L18 / 10 (225/LPG, 219/Gasoline), L18 / 20 (332/LPG, 317/Gasoline), L18 / 30 (332/LPG, 317/Gasoline)					
*		*					
*		*					
*		*					

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
¹ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
² L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; (2004may26)
 ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.4 [0.3]	*	4.1 [2.7]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 16th day of August 2005.

Allen Lyons, Chief
 Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION					
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)		
FAMILY	UL (K)							
6BYTE0000000	150	50, 75, 100	2006	Workhorse Custom Chassis P30	8.1	L18 / 30 (332)		
6BYTE0000000	150	35, 50, 60, 80, 88	2006	C4: Chevrolet Kodiak C4500, GMC Topkick C4500 C5: Chevrolet Kodiak C5500, GMC Topkick C5500	8.1	L18 / 10 (225), 20 (332)		
*	*	*	*	*	*	*		
*	*	*	*	*	*	*		
*	*	*	*	*	*	*		

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; l=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/MH HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/O2=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDV/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)⁴

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.4	*	4.1	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde.

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) (evaporative emission standards), 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 10th day of June 2005.

J. Lyons
Allen Lyons, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
					Dual Fuel: CNG or Gasoline			
Baytech Corporation	A-330-0133	2006	6BYTH08.1C23	8.1		Otto	HDO	2TWC, 2HO2S, SFI
VEHICLE DESCRIPTION								
Gasoline, LPG or Alcohol Vehicles Only								
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)		
FAMILY	UL (K)							
6BYTE0407000	150	40, 60, 75	2006	Workhorse Custom Chassis P30	8.1	L18 / 30 (283/CNG, 317/Gasoline)		
6BYTE0300998	150	25, 32, 40, 60, 80	2006	C4: Chevrolet Kodiak C4500, GMC Topkick C4500 C5: Chevrolet Kodiak C5500, GMC Topkick C5500	8.1	L18 / 10 (195/CNG, 219/Gasoline) L18 / 20 (283/CNG, 317/Gasoline)		
*	*	*	*	*	*	*		
*	*	*	*	*	*	*		
*	*	*	*	*	*	*		

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
¹ L=liter; K=1000 miles; hp=horsepower; kw=kiowatt;
CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
² L/M/H HDO=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SPI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.3 [0.3]	*	2.1 [2.7]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 16th day of August 2005.


Allen Lyons, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION									
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³	
					Dual Fuel: LPG or Gasoline				
Baytech Corporation	A-330-0137	2006	6BYTH08.1P23	8.1	Dual Fuel: LPG or Gasoline	Otto	HDO	2TWC, 2HO2S, SFI	
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION						
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)			
FAMILY	UL (K)								
6BYTE0407000	150	40, 60, 75	2006	Workhorse Custom Chassis P30	8.1	L18 / 30 (332/LPG, 317/Gasoline)			
6BYTE0300998	150	25, 32, 40, 60, 80	2006	C4: Chevrolet Kodiak C4500, GMC Topkick C4500 C5: Chevrolet Kodiak C5500, GMC Topkick C5500	8.1	L18 / 10 (225/LPG, 219/Gasoline) L18 / 20 (332/LPG, 317/Gasoline)			
*	*	*	*	*	*	*			
*	*	*	*	*	*	*			
*	*	*	*	*	*	*			

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
¹ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
² L/MH HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDQ=heavy duty Otto;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.) ⁴

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.4 [0.3]	*	4.1 [2.7]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 16th day of August 2005.

Allen Lyons, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	ENGINE DESCRIPTION		STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
					FUEL TYPE ¹				
Baytech Corporation	A-330-0140	2006	6BYTH08.1P12	8.1	LPG		Otto	HDO	2TWC, 2HO2S, SFI
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION						
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS		ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)		
FAMILY	UL (K)								
6BYTE0000000	150	35, 50, 60, 75, 88, 100	2006	C6: Chevrolet Kodiak C6500, GMC Topkick C6500 C7: Chevrolet Kodiak C7500, GMC Topkick C7500		8.1	L18 / 10 (225), L18 / 20 (279)		
6BYTE0000000	150	35, 50, 60, 75, 88, 100	2006	C8: Chevrolet Kodiak C8500, GMC Topkick C8500		8.1	L18 / 20 (279)		
*	*	*	*	*		*	*		
*	*	*	*	*		*	*		
*	*	*	*	*		*	*		

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
¹ L=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDO=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SF/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; (2004may26)
 ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)⁴

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.9	*	8.7	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 23rd day of June 2005.


Allen Lyons, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
2006	6BYTH08.1C12	8.1	CNG	Otto	HDO	TWC, 2HO2S, SFI
ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)					
8.1	L18 / 10 (195), L18 / 20 (256)					
*	*					
*	*					
*	*					

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
¹ =liter; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;
 (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.5	*	5.4	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

¹ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-330-0139 dated June 23, 2005.

Executed at El Monte, California on this 7th day of February 2006.


Allen Lyons, Chief
 Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
2006	6BYTH08.1P12	8.1	LPG	Otto	HDO	TWC, 2HO2S, SFI
ENGINE (L)						
ENGINE MODELS / CODES (rated power, in hp)						
8.1						
L18 / 10 (225), L18 / 20 (279)						
*						
*						
*						

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
² =liter; hp=horsepower; kw=kilowatt;
³ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
L/MH HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.9	*	8.7	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

¹ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-330-0140 dated June 23, 2005.

Executed at El Monte, California on this 7TH day of February 2006.

Allen Lyons, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			Dual Fuel: CNG or Gasoline			
2006	6BYTH08.1C22	8.1		Otto	HDO	TWC, 2HO2S, SFI
ENGINE (L)						
ENGINE MODELS / CODES (rated power, in hp)						
8.1	L18 / 10 (195/CNG, 219/Gasoline), L18 / 20 (256/CNG, 296/Gasoline)					
*	.					
*	.					
*	.					

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
² =filter; hp=horsepower; kw=kilowatt;
³ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
L/M/H HDO=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/O2=three-way/oxidizing catalyst; WU (prefix)=warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFV/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.5 [0.5]	*	5.4 [6.1]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methanehydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-330-0142 dated August 24, 2005.

Executed at El Monte, California on this 7th day of February 2006.

Allen Lyons, Chief
Mobile Source Operations Division



California Environmental Protection Agency

AIR RESOURCES BOARD**BAYTECH CORPORATION****EXECUTIVE ORDER A-330-0145-1**
New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			Dual Fuel: LPG or Gasoline			
2006	6BYTH08.1P22	8.1		Otto	HDO	TWC, 2HO2S, SFI
ENGINE (L)						
ENGINE MODELS / CODES (rated power, in hp)						
8.1	L18 / 10 (225/LPG, 219/Gasoline), L18 / 20 (325/LPG, 296/Gasoline)					
*	.					
*	.					
*	.					

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
¹l=liter; hp=horsepower; kw=kilowatt;
²CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a. universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; ID/IDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; (2004may26)
ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.9 [0.5]	*	8.7 [6.1]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

* g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-330-0145 dated August 18, 2005.

Executed at El Monte, California on this 7TH day of February 2006.

Allen Lyons, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
					Dual Fuel: CNG or Gasoline			
Baytech Corporation	A-330-0142-1	2006	6BYTH08.1C22	8.1		Otto	HDO	TWC, 2HO2S, SFI
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION					
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS		ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)	
FAMILY	UL (K)							
6BYTE0300998	150	Gasoline: 35, 50, 70, 75, 100	2006	C8: Chev Kodiak C8500, GMC Topkick C8500 C7: Chev Kodiak C7500, GMC Topkick C7500		8.1	L18 / 10 (195/CNG, 219/Gasoline) L18 / 20 (256/CNG, 296/Gasoline)	
6BYTE0300998	150	Gasoline: 35, 50, 70, 75, 100	2006	C8: Chev Kodiak C8500, GMC Topkick C8500		8.1	L18 / 20 (256/CNG, 296/Gasoline)	
*	*	*	*	*		*	*	

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/O2=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPFF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SF/MPFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.) ⁴

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.5 [0.5]	*	5.4 [6.1]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-330-0143 dated August 24, 2005.

Executed at El Monte, California on this 7th day of February 2006.

Allen Lyons, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
					Dual Fuel: LPG or Gasoline			
Baytech Corporation	A-330-0145-1	2006	6BYTH08.1P22	8.1	Dual Fuel: LPG or Gasoline	Otto	HDO	TWC, 2HO2S, SFI
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION					
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS		ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)	
FAMILY	UL (K)							
6BYTE0300998	150	Gasoline: 35, 50, 70, 75, 100 LPG: 35, 50, 60, 75, 88	2006	C6: Chev Kodiak C6500, GMC Topkick C6500 C7: Chev Kodiak C7500, GMC Topkick C7500		8.1	L18 / 10 (225/LPG, 219/Gasoline) L18 / 20 (325/LPG, 296/Gasoline)	
6BYTE0300998	150	Gasoline: 35, 50, 70, 75, 100 LPG: 35, 50, 60, 75, 88	2006	C8: Chev Kodiak C8500, GMC Topkick C8500		8.1	L18 / 20 (325/LPG, 296/Gasoline)	

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter, K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; ID/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0 [1.0]	*	37.1 [37.1]	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.9 [0.5]	*	8.7 [8.1]	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

¹ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

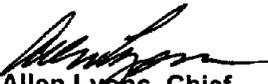
BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-330-0146 dated August 18, 2005.

Executed at El Monte, California on this 7TH day of February 2006.


Allen Lyons, Chief
Mobile Source Operations Division

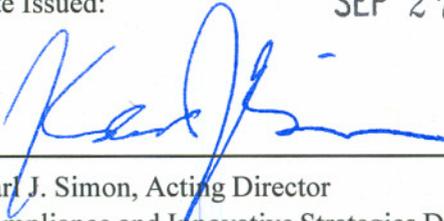
APPENDIX C

**6.0L HEAVY DUTY PROPANE AND CNG ENGINE EPA CERTIFICATES OF
CONFORMITY**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2007 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **7BYTH06.0613**
Certificate Number: **BYT-ONHWY-07-01**
Intended Service Class: **HDG 1 (<=14K LBS)**
Fuel Type: **NATURAL GAS**
FELs: g/bHp-hr **NMHC+NOx: 0.25** **NOx: NA** **PM: NA**
Effective Date: **9/27/2006**
Date Issued: **SEP 27 2006**



Karl J. Simon, Acting Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 86 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 86.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 86, Subpart C. Failure to comply with these provisions may render this certificate void ab initio.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2007 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **7BYTH06.0623**
Certificate Number: **BYT-ONHWY-07-02**
Intended Service Class: **HDG 1 (<=14K LBS)**
Fuel Type: **DUAL-FUEL 1(CNG OR GASOLINE)**
FELs: g/bHp-hr NMHC+NOx: **.5** NOx: **NA** PM: **NA**
Effective Date: **9/27/2006**
Date Issued: **SEP 27 2006**



Karl J. Simon, Acting Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 86 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 86.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 86, Subpart C. Failure to comply with these provisions may render this certificate void ab initio.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2007 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **7BYTH06.0633**
Certificate Number: **BYT-ONHWY-07-03**
Intended Service Class: **HDG 1 (<=14K LBS)**
Fuel Type: **PROPANE**
FELs: g/bHp-hr NMHC+NOx: **.25** NOx: **NA** PM: **NA**
Effective Date: **9/27/2006**
Date Issued: **SEP 27 2006**



Karl J. Simon, Acting Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 86 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 86.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 86, Subpart C. Failure to comply with these provisions may render this certificate void ab initio.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2007 Model Year Certificate of Conformity

Manufacturer: **BAYTECH CORPORATION**
Engine Family: **7BYTH06.0643**
Certificate Number: **BYT-ONHWY-07-04**
Intended Service Class: **HDG 1 (<=14K LBS)**
Fuel Type: **DUAL-FUEL 3(PROPANE OR GASOLINE)**
FELS: g/bHp-hr NMHC+NOx: **.5** NOx: **NA** PM: **NA**
Effective Date: **9/27/2006**
Date Issued: **9/27/2006**



Karl J. Simon, Acting Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 206 of the Clean Air Act (42 U.S.C. section 7525), 40 CFR Part 86, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which represent the following motor vehicle engines, by engine family, and is subject to the terms and conditions prescribed in those provisions.

This certificate of conformity covers only those new motor vehicle engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 86 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 86.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 86, Subpart C. Failure to comply with these provisions may render this certificate void ab initio.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 86.096-7, 86.606, and 86.1006 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 86. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 86.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

APPENDIX D

6.0L HEAVY DUTY PROPANE AND CNG ENGINE CARB EXECUTIVE ORDERS



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
				Otto	HDO	
2007	7BYTH06.0613	6.0	CNG	Otto	HDO	2TWC, 2HO2S(2), SFI
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)				
6.0		LQ4 / 50 (268)				
.		.				
.		.				

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
¹ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
² L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFU/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1	*	*	*	*	*
FEL	*	*	*	*	0.25	*	*	*	*	*	*	*
CERT	*	*	*	*	0.20	*	2.9	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

* g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.

Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
2007	7BYTH06.0633	6.0	LPG	Otto	HDO	2TWC, 2HO2S(2), SFI
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)				
6.0		LQ4 / 50 (290)				
.		.				
.		.				

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 85.abc=Title 40, Code of Federal Regulations, Section 85.abc; L=liter; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ LJM/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1	*	*	*	*	*
FEL	*	*	*	*	0.25	*	*	*	*	*	*	*
CERT	*	*	*	*	0.21	*	6.5	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

¹ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.

Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			Dual-Fuel: CNG or Gasoline			
2007	7BYTH06.0623	6.0		Otto	HDO	2TWC, 2HO2S(2), SFI
ENGINE (L)			ENGINE MODELS / CODES (rated power, in hp)			
6.0			LQ4 / 50 (266 CNG / 287 Gasoline)			
.			.			
.			.			
.			.			

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/MH HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffx)=in series; (2004may28)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1 (37.1)	*	*	*	*	*
FEL	*	*	*	*	0.5 (0.5)	*	*	*	*	*	*	*
CERT	*	*	*	*	0.2 (0.4)	*	2.8 (2.0)	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

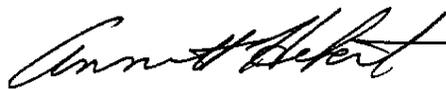
BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.


Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
			Dual-Fuel: LPG or Gasoline	Otto	HDO	
2007	7BYTH06.0643	6.0		Otto	HDO	2TWC, 2HO2S(2), SFI
ENGINE (L) ENGINE MODELS / CODES (rated power, in hp)						
6.0 LQ4 / 50: (290 LPG / 287 Gasoline)						
*						
*						

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc;
 L=liter; hp=horsepower; kw=kilowatt;
 1 CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
 2 L/M/H HDO=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
 3 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; (2004may26)
 ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1 (37.1)	*	*	*	*	*
FEL	*	*	*	*	0.5 (0.5)	*	*	*	*	*	*	*
CERT	*	*	*	*	0.2 (0.4)	*	6.5 (2.0)	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

* g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

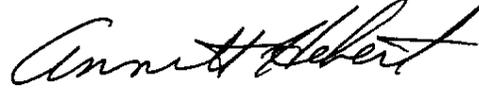
BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.


Annette Hebert, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
2007	7BYTH06.0853	6.0	CNG	Otto	HDO	2TWC, 2HO2S(2), SFI
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)				
6.0		LQ4 / 50 (266)				
.		.				
.		.				
.		.				

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDV/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	1.0	*	37.1	*	*	*	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	*	*	*	*	0.20	*	2.9	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

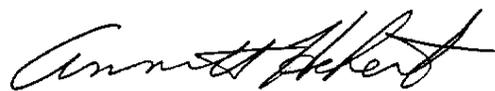
BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 5 day of December 2006.


Annette Hebert, Chief
Mobile Source Operations Division



Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
BAYTECH CORPORATION	A-330-0163	2007	7BYTH06.0633	6.0	LPG	Otto	HDO	2TWC, 2HO2S(2), SFI
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION					
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS		ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)	
FAMILY	UL (K)							
7BYTE0000000	150	50, 58, 85, 100, 130	2007	Workhorse Custom Chassis P30		6.0	LQ4 / 50 (290)	
7BYTE0000000	150	50, 58, 85, 100, 130	2007	G30: Chevrolet Express Commercial Cutaway 3500, GMC Savana Special Cutaway 3500		6.0	LQ4 / 50 (290)	
7BYTE0000000	150	50, 58, 85, 100, 130	2007	Isuzu NPR-HD; W45: Chevrolet W4500, GMC W4500		6.0	LQ4 / 50 (290)	
*	*	*	*	*		*	*	
*	*	*	*	*		*	*	

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SF/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1	*	*	*	*	*
FEL	*	*	*	*	0.25	*	*	*	*	*	*	*
CERT	*	*	*	*	0.21	*	6.5	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

¹ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) (evaporative emission standards), 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.

Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
BAYTECH CORPORATION	A-330-0165	2007	7BYTH06.0623	6.0	Dual-Fuel: CNG or Gasoline	Otto	HDO	2TWC, 2HO2S(2), SFI
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION					
EVAPORATIVE		GASOLINE FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)		
FAMILY	UL (K)							
7BYTE0407000	150	31, 40, 75	2007	Workhorse Custom Chassis P30	6.0	LQ4 / 50 (266 CNG / 287 Gasoline)		
7BYTE0300998	150	33, 57	2007	G30: Chevrolet Express Commercial Cutaway 3500, GMC Savana Special Cutaway 3500	6.0	LQ4 / 50 (266 CNG / 287 Gasoline)		
7BYTE0300998	150	30	2007	Isuzu NPR-HD; W45: Chevrolet W4500, GMC W4500	6.0	LQ4 / 50 (266 CNG / 287 Gasoline)		
*	*	*	*	*	*	*		
*	*	*	*	*	*	*		

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/O2C=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series. (2004 may 26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1 (37.1)	*	*	*	*	*
FEL	*	*	*	*	0.5 (0.5)	*	*	*	*	*	*	*
CERT	*	*	*	*	0.2 (0.4)	*	2.9 (2.0)	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

¹ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde.

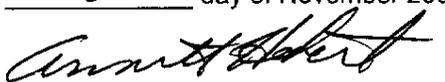
BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) (evaporative emission standards), 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 6 day of November 2006.


Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION								
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³
					Dual-Fuel: LPG or Gasoline			
BAYTECH CORPORATION	A-330-0167	2007	7BYTH06.0643	6.0	Dual-Fuel: LPG or Gasoline	Otto	HDO	2TWC, 2HO2S(2), SFI
Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION					
EVAPORATIVE		LPG (GASOLINE) FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)		
FAMILY	UL (K)							
7BYTE0407000	150	50, 58, 85, 100 (31, 40, 75)	2007	Workhorse Custom Chassis P30	6.0	LQ4 / 50: (290 LPG / 287 Gasoline)		
7BYTE0300998	150	50, 58, 85, 100 (33, 57)	2007	G30: Chevrolet Express Commercial Cutaway 3500, GMC Savana Special Cutaway 3500	6.0	LQ4 / 50: (290 LPG / 287 Gasoline)		
7BYTE0300998	150	50, 58, 85, 100 (30)	2007	Isuzu NPR-HD; W45: Chevrolet W4500, GMC W4500	6.0	LQ4 / 50: (290 LPG / 287 Gasoline)		
*	*	*	*	*	*	*		
*	*	*	*	*	*	*		

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=filter; K=1000 miles; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	37.1 (37.1)	*	*	*	*	*
FEL	*	*	*	*	0.5 (0.5)	*	*	*	*	*	*	*
CERT	*	*	*	*	0.2 (0.4)	*	6.5 (2.0)	*	*	*	*	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

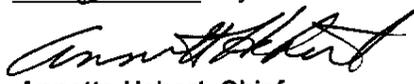
BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 6 day of November 2006.


Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following diesel or incomplete medium-duty vehicles (MDV) with a manufacturer's GVWR from 8501 to 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION									
MODEL YEAR	ENGINE FAMILY	ENGINE MANUFACTURER	EMISSION STD CATEGORY ²	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	ENGINE SIZES (L)	ECS & SPECIAL FEATURES ³	EF OBD	
	7BYTH06.0613			CNG		6.0			
2007	EXECUTIVE ORDER	BAYTECH CORPORATION	SULEV	Otto			2TWC, 2HO2S(2), SFI	OBD(P)	
	A-330-0160								
VEHICLE DESCRIPTION									
EVAPORATIVE			VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	VEH. OBD	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)	ENG. OBD	
FAMILY	UL (K)	FUEL TANK CAPACITY (gallons)							
7BYTE0000000	*	*	2007	CK10: Chevrolet Silverado 1500HD, GMC Sierra 1500HD; CK20: Chevrolet Silverado 2500, 2500HD; GMC Sierra 2500, 2500HD	OBD(P)	6.0	LQ4 / 30, 40 (266)	OBD(P)	
7BYTE0000000	*	*	2007	CK30 Chevrolet Silverado: 3500, 3500 Cab Chassis CK30 GMC Sierra: 3500, 3500 Cab Chassis	OBD(P)	6.0	LQ4 / 30, 40 (266)	OBD(P)	
7BYTE0000000	*	*	2007	G30: Chevrolet Express Commercial Cutaway 3500, GMC Savana Special Cutaway 3500	OBD(P)	6.0	LQ4 / 30 (266)	OBD(P)	
7BYTE0000000	*	*	2007	Isuzu NPR; W35: Chevrolet W3500, GMC W3500	OBD(P)	6.0	LQ4 / 30 (266)	OBD(P)	

*=not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt; EF=engine family;
¹ CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a BF=bi fuel; DF=dual fuel; FF=flexible fuel;
² SULEV / ULEV / LEV=super ultra / ultra / low emission vehicle;
³ ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; ID/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; OBD(I) / (P) / (\$) =full / partial / partial with a fine / on-board diagnostic; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.8; 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For dual- and flexible-fuel, the CERT values in brackets [] are those when tested on conventional test fuel.)

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	*	*	*	*	*	*	7.2	*	*	*	0.025	*
FEL	*	*	*	*	0.25	*	*	*	*	*	*	*
CERT	*	*	*	*	0.20	*	2.8	*	*	*	0.001	*
NTE	*	*	*	*	*	*	*	*	*	*	*	*

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: The listed engine models have been certified to the optional emission standards and test procedures in 13 CCR 1956.8 applicable to diesel or incomplete MDV with a 8501-14000 pound GVWR and shall be subject to 13 CCR 2139(c) (in-use testing of engines certified for use in diesel or incomplete MDV with a 8501-14000 pound GVWR).

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1968.2 (on-board diagnostic, full or partial compliance), 13 CCR 1976(b)(1)(B)-(C) or 13 CCR 1976(b)(1)(F) (evaporative emission standards), 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 (fill pipes and openings of motor vehicle fuel tanks). (The braces { } are for gasoline, LPG or alcohol fueled vehicles only. The brackets [] are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order shall conform to all applicable California emission regulations. The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.


Annette Hebert, Chief
Mobile Source Operations Division

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in diesel or incomplete medium-duty vehicles with a manufacturer's GVWR from 8501 to 14000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	EMISSION STD CATEGORY ²	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	ENGINE SIZES (L)	ECS & SPECIAL FEATURES ³	OBD COMPLIANCE	
			CNG					
2007	7BYTH06.0613	SULEV	CNG	Otto	6.0	2TWC, 2HO2S(2), SFI	OBD(P)	
ENGINE MODELS / CODES (rated power, in hp)							ENGINE (L)	OBD COMPLIANCE
LQ4 / 30, 40 (266)							6.0	OBD(P)
.							.	.
.							.	.
.							.	.

¹ =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ SULEV / ULEV / LEV=super ultra / ultra / low emission vehicle;
 ECS=emission control system; TWC/O2=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; OBD(F) / (P) / (S)=full / partial / partial with a fine / on-board diagnostic; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.8; 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For dual- and flexible-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel.)⁴

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	7.2	.	.	.	0.025	.
FEL	0.25
CERT	0.20	.	2.8	.	.	.	0.001	.
NTE

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: The listed engine models have been certified to the optional emission standards and test procedures in 13 CCR 1956.8 applicable to diesel or incomplete medium-duty vehicles with a GVWR from 8501 to 14000 pounds and, therefore, shall be subject to 13 CCR 2139(c) (in-use testing of engines certified for use in diesel or incomplete medium-duty vehicles with a 8501-14000 pound GVWR).

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1968.2 (on-board diagnostic, full or partial compliance), and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations. The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 30 day of October 2006.


 Annette Hebert, Chief
 Mobile Source Operations Division