California Environmental Protection Agency AIR RESOURCES BOARD	QUANTUM TECHNOLOGIES, INC.	EXECUTIVE ORDER A-328-0040 New Engines for Diesel or Incomplete Medium-Duty Vehicles

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

IT IS ORDERED AND RESOLVED: That 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 gross vehicle weight rating (GVWR) from 8,501 to 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 SIZE (liter)	FUEL TYPE (CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas)	STANDARDS & TEST PROCEDURE	EMISSION STANDARD CATEGORY	ON-BOARD DIAGNOSTIC COMPLIANCE
2004	4TJXH06.0583	6.0	Dual Fuel CNG or Gasoline	Otto	ULEV	Full
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS		ENGINE MODELS / CODES (rated power in horsepower, hp)				
2TWC, SFI, 2HO2S(2)		LQ4 CNG / 01 (287 hp for CNG, 311 hp for Gasoline)				

TWC/OC=three-way/oxidizing catalyst WU (prefix) =warm-up cat. O2S=oxygen sensor HO2S=heated O2S TBI=throttle body fuel injection MFI=multi port fuel injection SFI=sequentialMFI DDI/IDI=direct /indirect diesel injection TC/SC=turbo/super charger CAC=charge air cooler EGR=exhaust gas recirculation AIR=secondary air injection PAIR=pulsed AIR SPL=smoke puff limiter ECM/PCM=engine /powertrain control module EM=engine modification 2 (prefix)=parallel (2) (suffix)=in series

The following are the exhaust emission standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) in grams per brake horsepower-hour (g/bhp-hr) for this engine family for non-methane hydrocarbon (NMHC) plus oxides of nitrogen (NOx) (NMHC+NOx), NMHC, carbon monoxide (CO) [except that "diesel" CO certification compliance may have been demonstrated pursuant to Code of Federal Regulations, Title 40, Section 86.091-23(c)(2)(i) in lieu of testing], particulate matter (PM), and formaldehyde (HCHO) (Title 13, California Code of Regulations, (13 CCR) Section 1956.8): (For flexible- and dual-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel.)

* = not applicable [g/bhp-hr]	NMHC+NOx	NMHC	CO	PM	HCHO
(DIRECT) STANDARD	1.5	*	14.4	*	0.050
CORPORATE AVERAGE STANDARD	*	*	*	*	*
FAMILY EMISSION LIMIT (FEL)	*	*	*	*	*
CERTIFICATION LEVEL	0.5 [0.6]	*	2.0 [3.1]	*	0.001 [0.005]

BE IT FURTHER RESOLVED: That 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: That the listed engine models have been certified to the optional emission standards and test procedures in 13 CCR Section 1956.8 applicable to diesel or incomplete medium-duty vehicles with a GVWR from 8,501 to 14,000 pounds and, therefore, shall be subject to 13 CCR Section 2139(c) (in-use testing of engines certified for use in diesel or incomplete medium-duty vehicles with a 8,501-14,000 pound GVWR).

BE IT FURTHER RESOLVED: That the listed engine models have been certified to the Option 1 federal NMHC+NOx emission standard listed above pursuant to 13 CCR Section 1956.8.

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

Engines 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 6TH day of October 2003.

Allen Lyons, Chief
Mobile Source Operations Division