California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR INC.	EXECUTIVE ORDER U-R-001-0373 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2010	ACPXL08.8ESX	8.8	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Engine Control Module	Loader, Tractor, Generator, Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
225 ≤ kW < 450	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		FEL	N/A	N/A	N/A	N/A	0.18	N/A	N/A	N/A
		CERT	--	--	3.7	1.3	0.14	17	7	27

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

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

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 15 day of April 2009.

Annette Hebert

Annette Hebert, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Template

U-R-001-0373

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
ACPXL08.8ESX	Cert Test	C9	480@1800	269	163	NA	NA	NA	ECM, EM, DI, TC, CAC
ACPXL08.8ESX	1	C9	480@1800	265	160	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	2	C9	374@1800	209	127	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	3	C9	386@1500	253	127	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	4	C9	373@1500	245	124	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	5	C9	480@1800	265	160	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	6	C9	374@1800	209	127	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	7	C9	373@1500	245	124	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	8	C9	386@1500	253	127	NA	NA	NA	EM, DI, TC,
ACPXL08.8ESX	9	C9	261@1800	153	93	915@1400	187	88	EM, DI, TC,
ACPXL08.8ESX	10	C9	286@1800	167	101	1000@1400	203	96	EM, DI, TC,
ACPXL08.8ESX	11	C9	264@1800	163	99	991@1300	204	89	EM, DI, TC,
ACPXL08.8ESX	12	C9	350@1800	206	125	1148@1400	232	109	EM, DI, TC,
ACPXL08.8ESX	13	C9	259@1600	171	92	926@1400	186	88	EM, DI, TC,
ACPXL08.8ESX	14	C9	306@1900	178	114	1023@1300	214	94	EM, DI, TC,
ACPXL08.8ESX	15	C9	300@1900	177	113	1008@1300	211	92	EM, DI, TC,
ACPXL08.8ESX	16	C9	264@1800	162	98	991@1300	203	89	EM, DI, TC,