California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0232 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 engine and emission control system 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)
2004	4CPXL34.5ERK	34.5	Diesel	8000

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

The engine models and codes are attached.

The following are the exhaust certification standards (STD) 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
KW > 560	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
		CERT	0.4	7.9	--	0.8	0.21	12	2	26

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 15TH day of December 2003.

Allen Lyons, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Su nary Form

Manufacturer: **Caterpillar Inc**

Engine category: **Nonroad CI**

EPA Engine Family: **4CPXL34.5ERK**

Mfr Family Name:

Process Code: **New Submission**

U-R-001-0232

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
1	3508B	1676@1800	714	577	4887@1800	NA	NA	CAC, EM,DI,TC,ECM
2	3508B	936@1800	413	333	3618@1300	524	305	EM,DI,TC,ECM
3	3508B	880@1750	394	310	3325@1300	471	275	EM,DI,TC,ECM
4	3508B	1000@1750	462	362	3599@1300	525	306	EM,DI,TC,ECM
5	3508B	861@1750	376	295	3046@1300	426	249	EM,DI,TC,ECM
6	3508B	784@1200	524	282	3431@1200	NA	NA	EM,DI,TC,ECM
7	3508B	915@1200	599	323	4000@1200	NA	NA	EM,DI,TC,ECM
8	3508B	988@1200	663	357	4322@1200	NA	NA	EM,DI,TC,ECM
9	3508B	1234@1800	526	425	3597@1800	NA	NA	EM,DI,TC,ECM
10	3508B	1341@1800	583	471	3910@1800	NA	NA	EM,DI,TC,ECM
11	3508B	1502@1800	635	513	4379@1800	NA	NA	EM,DI,TC,ECM
12	3508B	915@1200	578	311	4000@1200	NA	NA	EM,DI,TC,ECM
13	3508B	1298@1800	545	440	3785@1800	NA	NA	EM,DI,TC,ECM
14	3508B	915@1200	578	311	4000@1200	NA	NA	EM,DI,TC,ECM
15	3508B	920@1750	413	324	3311@1300	472	275	EM,DI,TC,ECM
16	3508B	1019@1800	434	351	2971@1800	NA	NA	EM,DI,TC,ECM
17	3508B	900@1200	583	314	4434@900	668	270	EM,DI,TC,ECM
18	3508B	1000@1800	418	337	3233@1350	494	299	EM,DI,TC,ECM
19	3508B	1050@1800	436	352	3233@1350	494	299	EM,DI,TC,ECM
20	3508B	1100@1800	455	367	3233@1350	494	299	EM,DI,TC,ECM
21	3508B	760@1200	504	271	3840@900	586	237	EM,DI,TC,ECM
22	3508B	1000@1800	418	337	3233@1350	494	299	EM,DI,TC,ECM
23	3508B	1070 @ 1800	492	397	3120 @ 1800	NA	NA	EM,DI,TC,ECM