California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0250 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	4CPXL14.6ESK	14.6	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module	Loader, Dozer, Scraper, Dump truck 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
225≤KW<450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	5.8	1.5	0.15	6	2	7

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 Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL14.6ESK**

Mfr Family Name: **N/A**

Process Code: **New Submission**

U-R-001-0250

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
Note: Peak HP	and Peak torque	fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change.	
1 - Cert Engine	3406	593 @ 2100	292	206.1	2000 @ 1400	398	187.8	EM, DI, TC, ECM,
2	3406	425 @ 2100	211	148.8	1435 @ 1400	276	130.2	EM, DI, TC, ECM,
3	3406	450 @ 2100	222	156.9	1520 @ 1400	294	138.5	EM, DI, TC, ECM,
4	3406	525 @ 2100	257	181.6	1774 @ 1400	347	163.4	EM, DI, TC, ECM,
5	3406	565 @ 2100	278	196.2	1908 @ 1400	379	178.6	EM, DI, TC, ECM,
6	3406	575 @ 2100	283	200.1	1942 @ 1400	387	182.4	EM, DI, TC, ECM,
7	3406	525 @ 2100	258	182.4	1708 @ 1400	333	157.0	EM, DI, TC, ECM,
8	3406	500 @ 2100	250	176.7	1688 @ 1400	332	156.1	EM, DI, TC, ECM,
9	3406	462 @ 2100	226	159.7	1636 @ 1400	319	150.1	EM, DI, TC, ECM,
10	3406	393 @ 1800	219	132.4	1490 @ 1200	289	116.7	EM, DI, TC, ECM,
11	3406	358 @ 1800	199	120.6	1280 @ 1200	249	100.4	EM, DI, TC, ECM,
12	3406	528 @ 1900	211	134.5	1583 @ 1200	304	122.8	EM, DI, TC, ECM,
13	3406	394 @ 2100	194	137.2	1438 @ 1200	288	116.0	EM, DI, TC, ECM,
14	3406	441 @ 1900	232	148.5	1778 @ 1200	338	136.5	EM, DI, TC, ECM,
15	3406	441 @ 2100	217	153.1	1778 @ 1260	360	146.0	EM, DI, TC, ECM,
16	3406	380 @ 2000	196	132.0	1319 @ 1200	258	104.2	EM, DI, TC, ECM,
17	3406	346 @ 2000	178	119.4	1292 @ 1200	251	101.5	EM, DI, TC, ECM,
18	3406	337 @ 2000	180	120.9	1221 @ 1200	240	97.0	EM, DI, TC, ECM,
19	3406	475 @ 2100	232	163.9	1604 @ 1400	306	144.1	EM, DI, TC, ECM,
20	3406	400 @ 2000	216	145.1	1561 @ 1200	319	128.8	EM, DI, TC, ECM,
21	3406	337 @ 2000	180	120.9	1221 @ 1200	240	97.0	EM, DI, TC, ECM,
22	3406	337 @ 2000	180	120.9	1221 @ 1200	240	97.0	EM, DI, TC, ECM,
23	3406	337 @ 2000	180	120.9	1221 @ 1200	240	97.0	EM, DI, TC, ECM,
24	3406	500 @ 2100	250	176.7	1688 @ 1400	332	156.1	EM, DI, TC, ECM,
25	3406	348 @ 2000	178	119.4	1292 @ 1200	251	101.5	EM, DI, TC, ECM,
26	3406	378 @ 2100	194	137.0	1362 @ 1700	278	159.0	EM, DI, TC, ECM,
27	3406	410 @ 2100	213	150.3	1349 @ 1600	273	147.0	EM, DI, TC, ECM,
28	3406	346 @ 2000	178	119.0	1292 @ 1200	251	101.0	EM, DI, TC, ECM,
29	3406	378 @ 2100	190	135.0	1345 @ 1600	251	135.0	EM, DI, TC, ECM,
30	3406	410 @ 2100	207	146.0	1345 @ 1600	251	135.0	EM, DI, TC, ECM,

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL14.6ESK**

Mfr Family Name

Process Code: **Running Change - 2**

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
35	3406	393@1800	219	132.4	1490@1200	289	116.7	EM,DI,TC,ECM,CA
36	3406	393@1800	220	133.1	1490@1200	290	116.9	EM,DI,TC,ECM,CA
37	3406	337@2000	180	120.9	1221@1200	248	100.0	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL14.6ESK**

Mfr Family Name:

Process Code: **Running Change - 1**

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
31	3406	524@2100	256	181.2	1773@1400	347	163	EM,DI,TC,ECM,CA
32	3406	393@1800	219	132.4	1490@1200	289	116.6	EM,DI,TC,ECM,CA
33	3406	358@1800	199	120.6	1280@1200	249	100.4	EM,DI,TC,ECM,CA
34	3406	500@2100	250	176.7	1688@1400	332	156.1	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL14.6ESK**

Mfr Family Name:

Process Code: **Running Change - 1**

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
31	3406	524@2100	256	181.2	1773@1400	347	163	EM,DI,TC,ECM,CA
32	3406	393@1800	219	132.4	1490@1200	289	116.6	EM,DI,TC,ECM,CA
33	3406	358@1800	199	120.6	1280@1200	249	100.4	EM,DI,TC,ECM,CA
34	3406	500@2100	250	176.7	1688@1400	332	156.1	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL14.6ESK**

Mfr Family Name:

Process Code: **Running Change - 2**

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
35	3406	393@1800	219	132.4	1490@1200	289	116.7	EM,DI,TC,ECM,CA
36	3406	393@1800	220	133.1	1490@1200	290	116.9	EM,DI,TC,ECM,CA
37	3406	337@2000	180	120.9	1221@1200	248	100.0	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL14.6ESK**

Mfr Family Name:

Process Code: **Running Change - 4**

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
39	3406	343@2000	178	119.6	1312@1200	258	104.0	EM, DI, TC, ECM,
40	3406	377@2000	194	130.7	1312@1200	258	104.0	EM, DI, TC, ECM,