California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0255 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	4CPXL15.2ESK	15.2	Diesel	8000

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

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
450 ≤ KW < 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	N/A	N/A	N/A
		FEL	N/A	N/A	4.0	N/A	--	N/A	N/A	N/A
		CERT	--	--	3.4	3.4	0.15	--	--	--

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 13TH day of July 2004.

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: **4CPXL15.2ESK**

Mfr Family Name: **NA**

Process Code: **New Submission**

U-R-001-0255

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.	EM,DI,TC,ECM,CAC
1 Cert Engine	C15	717@1800	399	241.7	NA	NA	NA	EM,DI,TC,ECM,CAC

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL15.2ESK**

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
2	C15	412@2100	222	156.5	1465@1400	292	137.7	EM,DI,TC,ECM,CA
3	C15	361@2100	194	137.0	1283@1400	259	122.1	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL15.2ESK**

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
4	C15	347@1850	197	122.8	1449@1300	296	129.4	EM,DI,TC,ECM,CA

Return to Template

Engine Model Summary Template

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. Dev
4CPXL15.2ESK	5	C15	475@2100	248	175	1601@1400	327	154	EN
4CPXL15.2ESK	9	C15	457@1700	273	156	1779@1200	360	145	EN
4CPXL15.2ESK	10	C15	469@1800	268	163	1779@1200	356	143	EN
4CPXL15.2ESK	11	C15	436@1700	255	146	1692@1200	344	139	EN
4CPXL15.2ESK	12	C15	413@1700	244	139	1606@1200	324	131	EN
4CPXL15.2ESK	13	C15	540@2000	288	194	1737@1400	351	166	EN

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL15.2ESK**

Mfr Family Name:

Process Code: **Running Change - 3**

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
6	C15	433@1800	246	148.8	1516@1400	316	148.7	EM,DI,TC,ECM,CA
7	C15	447@1800	261	157.8	1305@1350	269	122.0	EM,DI,TC,ECM,CA
8	C15	430@1800	254	153.5	1322@1425	272	130.1	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL15.2ESK**

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
5	C15	475@2100	248	175	1601@1400	327	154	EM,DI,TC,ECM,CA
9	C15	457@1700	273	156	1779@1200	360	145	EM,DI,TC,ECM,CA
10	C15	469@1800	268	163	1779@1200	356	143	EM,DI,TC,ECM,CA
11	C15	436@1700	255	146	1692@1200	344	139	EM,DI,TC,ECM,CA
12	C15	413@1700	244	139	1606@1200	324	131	EM,DI,TC,ECM,CA
13	C15	540@2000	288	194	1737@1400	351	166	EM,DI,TC,ECM,CA
14	C15	540@2100	281	198	1817@1400	364	171	EM,DI,TC,ECM,CA
15	C15	580@2100	309	218	1954@1400	389	183	EM,DI,TC,ECM,CA
16	C15	595@2100	318	224	2005@1400	398	187	EM,DI,TC,ECM,CA
17	C15	401@1800	235	142.1	1387@1250	286	120.1	EM,DI,TC,ECM,CA
18	C15	375@1800	219	132.5	1354@1250	278	116.9	EM,DI,TC,ECM,CA
19	C15	401@1900	218	139.0	1438@1200	296	119.4	EM,DI,TC,ECM,CA
20	C15	408@1700	244	139.4	1589@1200	326	131.7	EM,DI,TC,ECM,CA
21	C15	389@1700	232	132.9	1512@1200	311	125.7	EM,DI,TC,ECM,CA
22	C15	369@1700	221	126.4	1435@1200	299	120.6	EM,DI,TC,ECM,CA
23	C15	394@1800	231	139.7	1498@1200	308	124.2	EM,DI,TC,ECM,CA
24	C15	359@1800	210	127.0	1286@1200	266	107.4	EM,DI,TC,ECM,CA
25	C15	354@1800	205	123.8	1285@1200	268	108.2	EM,DI,TC,ECM,CA
26	C15	331@1800	193	117.1	1232@1200	258	104.2	EM,DI,TC,ECM,CA

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **4CPXL15.2ESK**

Mfr Family Name:

Process Code: **Running Change-5**

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
27	C15	347@1850	207	128.7	1449@1300	297	130.0	EM,DI,TC,ECM,CA