California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0195 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-45-9;

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)
2002	2CPXL08.8HSK	8.8	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module	Loader, Tractor 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
130≤KW<225	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
225≤KW<450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	0.3	5.0	5.3	1.2	0.15	9	1	15

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 20th day of December 2001.

R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Form

U-R-001-0195

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **2CPXL08.8HSK**

Mfr Family Name: **NA**

Process Code: **New Submission**

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	C-9	345 @ 2200	164	121.1	1134 @ 1400	218	102.8	EM, DI, TC, ECM,
2	C-9	209 @ 2200	110	73.2	767 @ 1300	158	73.4	EM, DI, TC, ECM,
3	C-9	276 @ 1800	157	94.3	943 @ 1400	187	87.1	EM, DI, TC, ECM,
4	C-9	274 @ 2200	134	98.3	882 @ 1400	170	79.0	EM, DI, TC, ECM,
5	C-9	299 @ 2200	143	105.0	968 @ 1400	182	84.6	EM, DI, TC, ECM,
6	C-9	229 @ 2000	123	81.8	806 @ 1300	166	71.8	EM, DI, TC, ECM,
7	C-9	195 @ 2000	106	70.8	745 @ 1000	142	47.2	EM, DI, TC, ECM,
8	C-9	228 @ 2100	117	81.9	810 @ 1400	155	72.4	EM, DI, TC, ECM,
9	C-9	317 @ 2100	157	110.0	1124 @ 1400	209	97.5	EM, DI, TC, ECM,
10	C-9	335@ 2200	161	118.2	1100 @ 1400	212	98.6	EM, DI, TC, ECM,
11	C-9	300 @ 2200	145	106.5	1065 @ 1400	201	93.6	EM, DI, TC, ECM,
12	C-9	189 @ 2000	103	68.5	695 @ 1300	144	62.1	EM, DI, TC, ECM,
13	C-9	275 @ 2200	133	97.7	904 @ 1400	175	81.6	EM, DI, TC, ECM,
14	C-9	300 @ 2100	144	105.6	985 @ 1400	189	88.3	EM, DI, TC, ECM,
15	C-9	339 @ 2100	168	117.3	1050 @ 1400	196	91.3	EM, DI, TC, ECM,
16	C-9	339 @ 1800	168	117.3	1005 @ 1400	196	91.3	EM, DI, TC, ECM,
17	C-9	264 @ 1800	148	88.4	902 @ 1400	176	82.1	EM, DI, TC, ECM,
18	C-9	299 @ 2200	143	105.0	995 @ 1200	191	76.3	EM, DI, TC, ECM,
19	C-9	251 @ 2100	213	125.8	890 @ 1400	170	79.2	EM, DI, TC, ECM,
20	C-9	284 @ 2100	216	144.6	1010 @ 1400	128	89.6	EM, DI, TC, ECM,
21	C-9	320 @ 2100	160	111.8	1100 @ 1400	205	95.7	EM, DI, TC, ECM,

CAC