California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR INC.	EXECUTIVE ORDER U-R-001-0348 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 December 15, 1998 Settlement Agreement between the Air Resources Board and the manufacturer, and any modifications thereof to the Settlement Agreement;

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)
2009	9CPXL11.1ESK	11.1	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module	Loader 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 < 450	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		CERT	--	--	3.6	3.3	0.20	17	3	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 15 day of January 2009.

Annette Hebert

Annette Hebert, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 2

Engine Model Summary Template U-R-001-0348

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
9CPXL11.1ESK	Cert Test 2	C11	450@1800	266	160.8	1507@1350	301	136.9	DDI, CAC EM, DI, TC, ECM
9CPXL11.1ESK	1 Cert Engine	C11	450@1800	256	154.9	1509@1400	297	139.7	EM, DI, TC,
9CPXL11.1ESK	1B	C11	450@1800	256	154.9	1509@1400	297	139.7	EM, DI, TC,
9CPXL11.1ESK	2	C11	450@1800	265	160.5	1507@1350	295	134	EM, DI, TC,
9CPXL11.1ESK	3	C11	450@2100	231	163.4	1516@1400	296	139.6	EM, DI, TC,
9CPXL11.1ESK	4	C11	364@2100	188	133	1294@1400	251	118.1	EM, DI, TC,
9CPXL11.1ESK	5	C11	325@1800	190	115.2	1125@1300	226	99	EM, DI, TC,
9CPXL11.1ESK	6	C11	350@1800	204	123	1181@1400	238	112	EM, DI, TC,
9CPXL11.1ESK	7	C11	286@1800	165	100	972@1400	204	96	EM, DI, TC,
9CPXL11.1ESK	8	C11	385@2100	207	146.4	1297@1400	262	123	EM, DI, TC,
9CPXL11.1ESK	9	C11	308@1800	180	108.7	1070@1300	214	93.7	EM, DI, TC,
9CPXL11.1ESK	10	C11	294@1800	176	106.7	1013@1300	207	90.5	EM, DI, TC,
9CPXL11.1ESK	11	C11	308@1800	180	108.7	1055@1300	214	93.7	EM, DI, TC,
9CPXL11.1ESK	12	C11	294@1800	176	106.7	1003@1300	207	90.5	EM, DI, TC,
9CPXL11.1ESK	13	C11	278@1800	165	99.7	951@1300	197	86.1	EM, DI, TC,
9CPXL11.1ESK	14	C11	264@1800	159	96.6	929@1000	193	65.1	EM, DI, TC,
9CPXL11.1ESK	15	C11	270@1800	160	96.7	949@1000	196	66	EM, DI, TC,
9CPXL11.1ESK	16	C11	275@1800	164	99.3	968@1000	202	68	EM, DI, TC,
9CPXL11.1ESK	17	C11	281@1800	167	101.3	988@1000	206	69.3	EM, DI, TC,
9CPXL11.1ESK	18	C11	286@1800	169	102.1	1008@1080	210	70.6	EM, DI, TC,
9CPXL11.1ESK	19	C11	291@1800	171	103.4	1027@1080	210	70.6	EM, DI, TC,
9CPXL11.1ESK	20	C11	297@1800	174	105.4	1047@1080	213	71.7	EM, DI, TC,
9CPXL11.1ESK	21	C11	302@1800	177	107.4	1067@1080	220	74.1	EM, DI, TC,
9CPXL11.1ESK	22	C11	325@2100	181	127.9	1095@1400	219	102.9	EM, DI, TC,
9CPXL11.1ESK	23	C11	350@2100	191	135.1	1179@1400	232	109.3	EM, DI, TC,
9CPXL11.1ESK	24	C11	420@1800	237	143.5	1406@1400	278	126.3	EM, DI, TC,
9CPXL11.1ESK	25	C11	420@2100	208	146.8	1415@1400	283	133.5	EM, DI, TC,
9CPXL11.1ESK	26	C11	324@1800	205	121	1008@1600	213	112	EM, DI, TC,

ATTACHMENT 2 OF 2

Engine Model Summary Template U-R-001-0348

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
9CPXL11.1ESK	27	C11	353@1800	208	125.8	1089@1600	227	120	DOI, CAC EM, DI, TC, ECM
9CPXL11.1ESK	28	C11	286@1800	168	102	972@1400	203	96	EM, DI, TC,