California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER U-R-002-0428 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)
2008	8CEXL045.AAA	45.0	Diesel	8000

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

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
kW > 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		FEL	N/A	N/A	9.0	N/A	N/A	N/A	N/A	N/A
		CERT	--	--	9.0	1.7	0.18	15	4	28

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 6 day of December 2007.

Annette Hebert, Chief
Mobile Source Operations Division

ATTACHMENT Pg 1 of 1

Engine Model Summary Form

u-R-002-0428

Manufacturer: **Cummins Inc.**

Engine category: **Nonroad CI**

EPA Engine Family: **8CEXL045.AAA**

Mfr Family Name: **A593**

Process Code: **Running Change**

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
2469:FR6289	QSK45-C	1500@1900	402	515	5042@1300	464	407	DDI,ECM,TC,CAC
2469:FR6307	QSK45-C	1350@1800	377	458	4525@1300	419	367	DDI,ECM,TC,C
2469:FR6388	QSK45-C	1200@1900	327	419	4424@1300	403	353	DDI,ECM,TC,C
2823:FR6262	QSK45-C	2000@1900	535	686	5805@1500	530	536	DDI,ECM,TC,C
2823:FR6291	QSK45-C	1500@1800	419	509	4727@1500	442	447	DDI,ECM,TC,C
2823:FR6305	QSK45-C	1600@1900	444	539	5042@1500	469	474	DDI,ECM,TC,C
2823:FR6408	QSK45-C	2250@1900	602	772	6299@1500	579	586	DDI,ECM,TC,C
2823:FR6435	QSK45-C	1675@1800	466	566.2	5375@1500	502	508.1	DDI,ECM,TC,C
2853:FR6289	QSK45-C	1500@1900	402	515	5042@1300	464	407	DDI,ECM,TC,C
2853:FR6307	QSK45-C	1350@1800	377	458	4525@1300	419	367	DDI,ECM,TC,C
2853:FR6388	QSK45-C	1200@1900	327	419	4424@1300	403	353	DDI,ECM,TC,C
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2854:FR6408	QSK45-C	2250@1900	602	772	6299@1500	579	586	DDI,ECM,TC,C
2854:FR6435	QSK45-C	1675@1800	466	566.2	5375@1500	502	508.1	DDI,ECM,TC,C
2853:FR6459	QSK45-C	1287@1800	374	454	5805@1500	530	536	DDI,ECM,TC,C
2854:FR6546	QSK45-C	2250@1900	602	772	6299@1500	579	586	DDI,ECM,TC,C
1795:FR6707	QSK45-C	2250@1900	602	772	6299@1500	579	586	DDI,ECM,TC,C