Diesel Emissions Standards Factsheet

Emissions Standards are used to classify non-road diesel engines into Tiers based on particulate matter (PM) emission rates. Metro Vancouver's *Non-Road Diesel Engine Emission Regulation Bylaw No. 1161, 2012* (the Bylaw) has based approved emission standards on US Environmental Protection Agency (EPA) and European Commission (EC) emission standards for non-road diesel engines (Tier 1 to Tier 4) and emission factors developed for Tier 0 engines, by the California Air Resources Board (CARB).

The EPA implemented the first non-road diesel engine emissions standards (Tier 1 engines) in 1996. This established emission rates for new non-road engines built for use in the United States. Canada introduced the Off-Road Compression-Ignition Engine Emission Regulations in 2005 to establish emission standards for diesel engines used in off-road applications for 2006 and later model year.

Engines manufactured for use in Canada, the United States or European Union before 1996 are referred to as Tier 0 engines. Please note that engines manufactured for sale in other markets are considered Tier 0 engines, unless the emissions can be demonstrated to meet a higher Tier.

The table on the next page entitled, "Metro Vancouver PM Emission Standards" presents the bylaw's approved emission standards for Tier 0 to Tier 4 non-road diesel engines. These standards are used to determine:

- Engine Tier classifications,
- Registration fees for Tier 0 and Tier 1 engines, and
- Fee reductions and refunds, when an engine is upgraded using an approved emission reduction measures (ERM).

Please contact us if you have any questions at nonroaddiesel@metrovancouver.org or 604-451-6655.

Web Resources:

1. EPA National Clean Diesel Campaign (NCDC)
2. European Commission, Directives for Emissions from Mobile Non-Road Machinery.
3. CARB In-Use Off-Road Diesel Vehicle Regulation
4. Canadian Off-Road Compression-Ignition Engine Emission Regulations

Metro Vancouver PM Emission Standards by Horsepower and Year (g/bhp-hr)									
	Horsepower Groups								
Year	**25≤49**	**50≤74**	**75≤99**	**100≤174**	**175≤299**	**300≤599**	**600≤749**	**750≤1199**	**1200+**
1900	0.95	1.2	1.2	1.1	1.1	0.95	0.95	0.95	
1969	0.95	1.2	1.2	1.1	1.1	0.95	0.95	0.95	
1970	0.95	1.2	1.2	0.94	0.94	0.81	0.81	0.81	
1972	0.95	1.2	1.2	0.78	0.78	0.68	0.68	0.68	
1973	0.95	1.2	1.2	0.78	0.78	0.68	0.68	0.68	0.72
1988	0.95	1.2	1.2	0.78	0.54	0.49	0.49	0.5	0.72
1989	0.95	1.2	1.2	0.78	0.54	0.49	0.49	0.5	0.72
1996	0.95	1.2	1.2	0.78	0.4	0.4	0.4	0.5	0.72
1997	0.95	1.2	1.2	0.6	0.4	0.4	0.4	0.5	0.72
1998	0.95	1.09	1.09	0.6	0.4	0.4	0.4	0.5	0.72
1999	0.6	1.09	1.09	0.6	0.4	0.4	0.4	0.5	0.72
2000	0.6	1.09	1.09	0.6	0.4	0.4	0.4	0.4	0.72
2001	0.6	1.09	1.09	0.6	0.4	0.15	0.4	0.4	0.72
2002	0.6	1.09	1.09	0.6	0.4	0.15	0.15	0.4	0.54
2003	0.6	1.09	1.09	0.22	0.15	0.15	0.15	0.4	0.54
2004	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.4	0.54
2005	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.4	
2006	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.15	
2007	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.15	
2008	0.22	0.22	0.3	0.22	0.15	0.15	0.15	0.15	
2009	0.22	0.22	0.3	0.22	0.15	0.15	0.15	0.15	
2010	0.22	0.22	0.3	0.22	0.15	0.15	0.15	0.15	
2011	0.22	0.22	0.3	0.22	0.015	0.015	0.015	0.07	
2012	0.22	0.22	0.015	0.015	0.015	0.015	0.015	0.07	
2013	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.07	
2014	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.07	
2015	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	
2016	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	
2017	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	
2018	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	
2019	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	
2020	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03	

Tier 0 Engine
Tier 1 Engine
Tier 2 Engine
Tier 3 Engine
Interim Tier 4
Tier 4 Engine