

**REGULATORY APPROACHES
TO REDUCE PARTICULATE MATTER EMISSIONS FROM
TRANSPORT REFRIGERATION UNITS**



January 16, 2002



California Environmental Protection Agency

Air Resources Board

What is a TRU?

- Transport refrigeration units are refrigeration units powered by an internal combustion engine
 - ◆ Semi-trailer van reefers
 - ◆ Straight truck van reefers
 - ◆ Shipping container reefers
 - ◆ Rail car reefers



General Overview

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General Overview

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TRU Emissions and Engine Inventory (2000)

Horsepower Category	Population	Emissions (tons per year)			
		TOG	CO	NOx	PM
<25	1,517	15	20	39	4
25 – 50	8,412	601	1,462	1,021	156
50 – 120	30,902	1,246	3,623	8,314	791
Totals	40,831	1,862	5,105	9,374	951

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Current Offroad Compression Ignition Engine Standards

Engine Power (hp)	Tier	Model Year	[NOx + HC] (g/hp-hr)	CO (g/hp-hr)	PM (g/hp-hr)
<11	Tier 1	2000	7.8	6.0	0.75
	Tier 2	2005	5.6	6.0	0.60
11-25	Tier 1	2000	7.1	4.9	0.60
	Tier 2	2005	5.6	4.9	0.60
25-50	Tier 1	2000	7.1	4.1	0.60
	Tier 2	2004	5.6	4.1	0.45

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Current Offroad Compression Ignition Engine Emission Standards

Engine Power (hp)	Tier	Model Year	[NO _x + HC] (g/hp-hr)	CO (g/hp-hr)	PM (g/hp-hr)
50-100	Tier 1	NA	NA	NA	NA
	Tier 2	2004	5.6	3.7	0.30

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Diesel Risk Reduction Plan Goals for Offroad Mobile (TRUs)

- Looking for PM emission reductions from both
 - ◆ New TRUs
 - ◆ Existing TRUs
- Reduce TRU-related risk to communities near
 - ◆ Facilities frequented by TRUs
 - ◆ Roadways

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Tentative Schedule

- Workshops between now and October 2002
- Release draft regulation and staff report October 2002
- Board Hearing - December 2002

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TRU Workgroup Meeting

- Time: 1:30 to 3:30 p.m. (today)
- Place: Training Room 2 East & West
- Goal: Sign up committed partners
- Objectives:
 - ◆ Refine engine and emission inventory
 - ◆ Understand fleets, engines, TRUs
 - ◆ Discuss regulatory approaches
 - ◆ Explore demonstration projects

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