

## Training Seminar: 2010 Off-road Diesel Vehicle Regulation for Large Fleets



February 10, 2010  
Sacramento, CA

California Environmental Protection Agency  
Air Resources Board



## Outline

- Review 2010 Requirements
- Reduced Horsepower and Activity Credit
- 2010 Compliance Summary
- BACT Changes
- Fleet Average Calculator
- Retrofit Visibility and Exemptions



## Review 2010 Requirements



3

## Regulation Status

- Off-road regulation not delayed
- July 2009 amendments grant significant relief to fleets impacted by recession
  - Two year credit if activity or fleet size down  $\geq 32\%$
- Updates to Board in April and July 2010

4

## Current Requirements

- Reporting and Labeling
- Cannot Buy Tier 0 Vehicles
  - After March 1, 2010, if a large fleet does not meet fleet averages, must be Tier 2 or better
- Idling Restriction and Idling Policy
- Disclosure with Vehicle Sales

5

## Regulation Background

By March 1, 2010, large fleets must:

- Meet the fleet average for NO<sub>x</sub>,  
or
  - Turn over 8% of fleet horsepower (or use credits)
- Meet the fleet average for PM  
or
  - Retrofit 20% of fleet horsepower (or use credits)

6

## Fleet Averages

Calculated in DOORS, fleet average calculators, alternate compliance planning tools

Target Year	2009	2010	2011	2012	2013	2014
Nox Target	0.0	6.8	6.4	6.1	5.7	5.3
Nox Average (2009)	6.6					
PM Target	0.00	0.27	0.27	0.22	0.22	0.17
PM Average (2009)	0.37					

DOORS Fleet Summary Page

7

## BACT: NO<sub>x</sub> and PM

### NO<sub>x</sub> BACT: Turnover

- Sell / Retire (or Replace)
- Repower
- Verified NO<sub>x</sub> retrofits,
- Designate permanent low use

### PM BACT

- Level 2 or 3 retrofits (currently all verified retrofits are level 3)
- Tier 0 retirements in shrinking fleet

8

## Additional Provisions

- Alternative fuels
- Electric vehicles
- Delay Tier 1 turnover to 2013
- Yearly low-use designation
- Specialty vehicles
- Adding vehicle requirements

9

## Reduced Horsepower



10

## Reduced Horsepower Credit

- If total fleet horsepower reduced from March 1, 2006, to March 1, 2010, credit is granted for the difference.

**Example:** A fleet has 10,000 horsepower on March 1, 2006, and has 7,000 horsepower on March 1, 2010.

$$10,000 - 7,000 = 3,000 \text{ Hp Credit}$$

11

## Reduced Horsepower Credit

- Credit applied to both NOx (turnover requirements) and PM (retrofit requirements)
- Credit does not expire (lasts until used)
- Age or Tier of vehicles retired does not affect credit

12

## Reporting Reduced Horsepower

Include all vehicles the fleet owned since March 1, 2006, in the fleet report in DOORS

Line #	EIN	Veh serial num	Your veh num	Type	Manufacturer
10				Bore/Drill Rigs	A&L

Edit	Delete	Sell/Retire	Line #	EIN	Veh serial num	Your veh num	Type	Veh Manufacturer	Veh Model	Veh MY	Purch
<a href="#">Edit</a>	<a href="#">Delete</a>	<a href="#">Sell/Retire</a>	9	H3MA67	sludhr89479uh	29348	Bore/Drill Rigs	A&L	23423423	2009	1989-0
<a href="#">Edit</a>	<a href="#">Delete</a>	<a href="#">Sell/Retire</a>	8	HLSB79	345345345cgb	4345	Skid Steer Loaders	A&L	899NA006	2003	1999-0
<a href="#">Edit</a>	<a href="#">Delete</a>	<a href="#">Sell/Retire</a>	7	MAQH35	7899jlooooo	4345	Skid Steer Loaders	A&L	899NA006	2003	1999-0

13

## Reporting Reduced Horsepower

Sell/Retire all of the vehicles no longer in the fleet.

Edit	Delete	Sell/Retire	Line #	EIN
<a href="#">Edit</a>	<a href="#">Delete</a>	<a href="#">Sell/Retire</a>	8	SE4F95
<a href="#">Edit</a>	<a href="#">Delete</a>	<a href="#">Sell/Retire</a>	7	SR8T44

Sold vehicles will be shown below the others, in grey.

[www.arb.ca.gov/msprog/ordiesel/documents/doors/retiredorsold.pdf](http://www.arb.ca.gov/msprog/ordiesel/documents/doors/retiredorsold.pdf) 14

## Reduced Activity



15

## Reduced Activity

- Compare fleet activity from the period **January 1, 2007 to December 31, 2007**, to the period **March 1, 2009 to February 28, 2010**

Example: My fleet worked 20 percent less between March 2009 to February 2010 than I did in all of 2007. My fleet on July 1, 2007, was 10,000 hp. I get

$$20\% \times 10,000 \text{ Hp} = 2,000 \text{ Hp Credit}$$

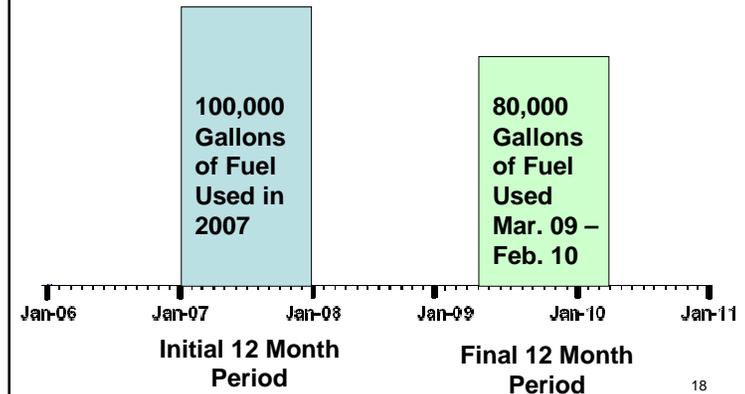
16

## Reduced Activity Credit

- Credit applied to both NOx (turnover requirements) and PM (retrofit requirements)
- Good for 2010 and 2011 requirements only (unused credit expires if not used in 2011).
- Percent reduction in activity multiplied by July 1, 2007, horsepower

17

## Reduced Activity Timeline



18

## Uncapped Reduced Activity Indicators

- **Vehicle hours**
  - Records for 95% of the fleet or more (by Hp)
  - Weighted by horsepower
- **Off-road Diesel Fuel Use**
  - Red dye diesel use
  - May include regular diesel if claimed for tax credit
- **Operating Engineer Hours Paid**

19

## Capped Reduced Activity Indicators

### Records capped at 20% credit:

- **Total employment**
  - Records of overall employment by the agency or company
- **Production Information**
  - Tons mined, flights ran, acres cleared, etc.
- **Business Revenue**

20

## Reporting Reduced Activity

### **Three Steps**

1. Online in DOORS
2. Complete ARB forms
3. Mail in ARB form with fleet records

<http://www.arb.ca.gov/msprog/ordiesel/activity.htm>

21

## Reporting Reduced Activity: Online

Hours of operation:

Model	MY	2007 Hours	2010 Hours
350G	2002	476	351
456	2009	176	158
140G	1981	190	205

22

## Reporting Reduced Activity: Online

### **Alternate Indicators**

Uncapped or Capped

- Off-road Diesel Fuel Use
- Total Vehicle Operator Hours Paid

- Revenue
- Total Number of employee
- Production
- Other (Specify Below)

23

## Reporting Reduced Activity Forms

Complete ARB form, and include fleet records (paper and/or electronic)



<http://www.arb.ca.gov/msprog/ordiesel/activity.htm>

24

## What Fleet Records are Required?

- Hour meter logs, vehicle tracking software
- Payroll records, tax records for employees
- Fuel receipts, tax records for fuel
- Revenue from tax receipts
- Shipping records for goods / services
- Production / services records

25

## Low Use Vehicles



26

## Low Use Vehicles Must Choose:

- **Year by year**
  - Drop out of fleet horsepower / averages
  - Enter hours for 12 months prior to March 1, 2010 (or 36 months prior)
  - No credits to PM or NOx, just lower requirements
- **Designate permanent low use**
  - Vehicle will always be low use in the future
  - Enter current hour meter (but not previous)
  - Credit towards NOx (turnover credit)

27

## Reporting Low Use

Not Low Use	Year to Year	Year to Year Outside	Designated	Designated Outside	EIN
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	AN8D86
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	gN4G66
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	GY9X45
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	HA3T95
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	HL5B79

28

## Inputting Hour Meter Records

Low Use Type	EIN	2007	2009	2010	CA Total
Year to Year	AU7Y86	3410		3610	
Designated	DL3H95			8910	
Year to Year Outside	GX7W84		3000	3450	75

<http://www.arb.ca.gov/msprog/ordiesel/faq/faqlowuse.pdf>

29

## 2010 Compliance Summary

### Fleet is not 2010 Compliant

Fleet must: Turnover 5,978 Hp or meet the NOx fleet average.  
May be met with [early credit](#) or [vehicle turnover](#).

**Fleet Size:** Large  
**First Compliance Date:** March 1, 2010  
**Requirements:** NOx and PM

**2010 NOx Requirements:** Not Met  
NOx Fleet Average: Not Met  
NOx BACT Requirements: Not Met  
Required BACT Turnover: 10,474 Hp  
(8% of Fleet Horsepower)  
Current Turnover Credit: 4,496 Hp

**2010 PM Requirements:** Met  
PM Fleet Average: Not Met  
PM BACT Requirements: Met  
Required BACT Retrofits: 26,186 Hp  
(20% of Fleet Horsepower)  
Current Retrofit Credit: 42,972 Hp

**Turnover Requirements:** 5,978 Hp  
If you meet the fleet average before accruing this turnover, you have met the 2010 requirements.  
For more information on accumulating turnover credit see the [2010 guided to compliance](#) or the [early credit guide](#).

**Carryover PM Credit:** 16,786 Hp  
Carryover credit is applied to 2011 requirements. Unused Reduced Activity Credit expires if not used in 2010 or 2011.

30

## Compliance Summary

- Official status of the fleet vs. 2010 requirements
- Fleet averages, credits, size, dates
- 2010 only, no future dates
- Released to calculate a single DOORS ID compliance status initially
- Subfleets included in the future

31

## Compliance Summary

### Fleet is not 2010 Compliant

Fleet must: Turnover 5,978 Hp or meet the NOx fleet average.

Summary: compliant or not?

Brief summary of outstanding requirements  
(if any)

32

## Compliance: NOx

<b>2010 NOx Requirements:</b>	<b>Met</b>
Nox Fleet Average:	Met
Nox BACT Requirements:	NA
Required BACT Turnover: (8% of Fleet Horsepower)	2,112 Hp
Current Turnover Credit:	0 Hp

33

## NOx BACT Credits

<b>Nox Credit</b>	
2006-2010 Retirement:	391
Reduced Activity:	6,401
Early Replacement:	0
Repowers	4,931
2009-2010 Turnover:	0
<b>Total:</b>	<b>11,724</b>

34

## Fleets Not in Compliance

1. Check credits / dates reported in DOORS
2. Double check credits reported in DOORS
3. Determine distance from fleet averages
4. Determine required turnover/retrofit requirements

35

## Fleets Not in Compliance

5. NOx BACT: Turnover
  - Tier 0 vehicles
    - Retire / Replace / Repower
    - Designate permanent low use
    - NOx retrofit by March 1
  - No turnover required for Tier 1 or better until after March 1, 2012

36

## Fleets Not in Compliance

### 6. PM BACT: Retrofit

- Install retrofits by March 1, 2010
- Retire any vehicles to reduce March 1, 2010 total hp from March 1, 2006
- Retire Tier 0s to reduce March 1, 2010 total hp from March 1, 2009

37

## BACT Changes 2011-2013



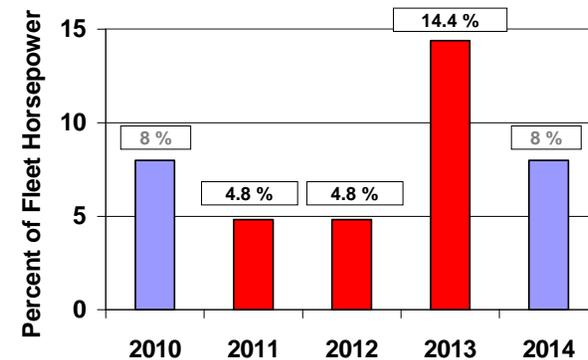
38

## BACT Schedule Changes

- Amendment modifies 2011 to 2013 requirements. Effectively:
  - 2011: Reduce requirements by 40%
  - 2012: Reduce requirements by 40%
  - 2013: Increase requirements by 80%

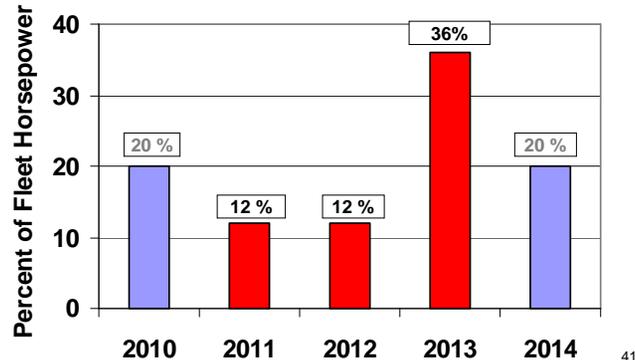
39

## Turnover Requirements



40

## Retrofit Requirements



41

## BACT Changes: Exemptions

- Fleets meeting the fleet averages in 2011 or 2012 and medium fleets will not have their overall requirements increased.
- Example:
  - A fleet that meets the fleet averages in 2012 will not benefit from the amendments, and therefore would not have increased BACT requirements in 2013.

42

## Fleet Average Calculator

- Compliance planning in Excel based tool
- Independent from DOORS

Equipment Name (Optional)	Hours of Operation	Engine Model Year	Horsepower
1	340	1995	334
2	335	1992	452
3	190	1999	239
4	1190	2004	125
5	450	2000	220

43

## Compliance Scenarios

Early Reduced Horsepower Credit =	2431
Reduced Activity Credit	1209
Early Repower, NOx Retrofit Credit Earned through 2009 (hp):	120.0
Early PM VDECS Credit Earned through 2009 (hp):	298.0

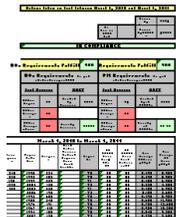
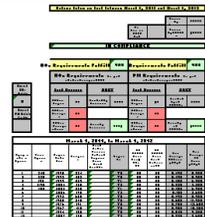
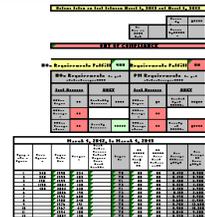
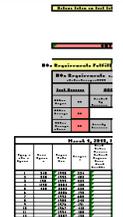
- Enter a number of different scenarios
- Determine the best / easiest way to comply

NOx Requirements Fulfilled?		YES	
Current Hp Turnover =	3339.9	Needed Hp Turnover =	493.0

44

## Extended Compliance Planning

- Plan for 2011 to 2020 compliance requirements

2011	2012	2013	2014...
			

45

## Retrofit Visibility



46

## Interim Visibility Policy

- The regulation exempts vehicles from retrofitting where a retrofit would be unsafe
- CalOSHA is considering a standard for retrofit visibility (late 2010 or 2011)
- To prevent installs now that would later violate CalOSHA standards, ARB will exempt vehicles that cannot be retrofit without impacting visibility
- See Interim Visibility Policy at <http://www.arb.ca.gov/msprog/ordiesel/documents/interim%20vis%20policy.pdf>

47

## 2010 Retrofit Requirements

- For 2010 requirements, select vehicles to retrofit where the retrofit does not block operator visibility
- If no vehicles in the fleet can be retrofit without blocking operator visibility, the fleet will be temporarily exempt from retrofit requirements

48

## Operator Visibility

- Visibility defined by an operator of average height and weight, looking in any direction around a vehicle
- Retrofit installation should not block their view of surroundings in any direction

49

## Installations that Create Masking



50

## Installations that Create Masking 2



51

## Installations without Masking



<http://www.arb.ca.gov/msprog/ordiesel/vdecssafety.htm>

52

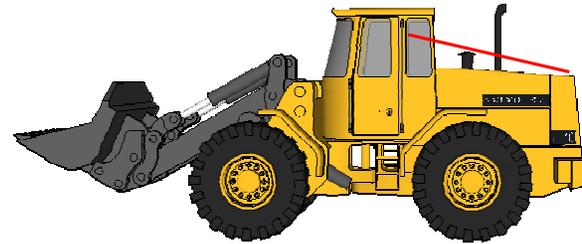
## Installations without Masking 2



53

## Determining Visibility

- For cases that are unclear, use the guide at [www.arb.ca.gov/msprog/ordiesel/vdecssafety.htm](http://www.arb.ca.gov/msprog/ordiesel/vdecssafety.htm)

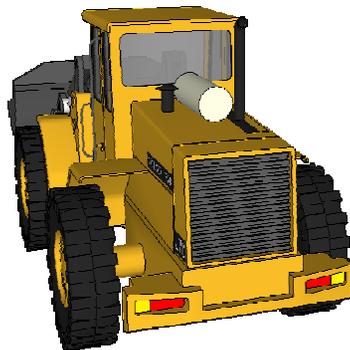


54

## Using the Operator Eye-point

The guide provides a consistent, repeatable method to test a vehicle before retrofitting.

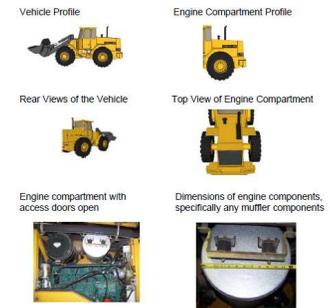
1. Center the seat
2. Define seat  
• Compression
3. Use standard seated  
• height



55

## Claiming an Exemption

- Follow exemption guide and application
- Submit paperwork to ARB



<http://www.arb.ca.gov/msprog/ordiesel/vdecssafety.htm>

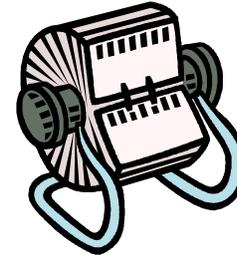
56

## Exemption Process

- Exemption will be reviewed by retrofit manufacturers / installers
- Vehicles that could be retrofit will not be exempt
- Vehicles that cannot be retrofit will be posted (multiple fleets will not all have to submit an exemption request)

57

## Information and Contacts



California Environmental Protection Agency

**Air Resources Board**



58

## Information and Contacts

Off-road Diesel Homepage: Reporting, Fleet  
Average Calculator, Training Information

[www.arb.ca.gov/ordiesel](http://www.arb.ca.gov/ordiesel)

Knowledge Center (FAQs, Advisories)

[www.arb.ca.gov/msprog/ordiesel/knowcenter.htm](http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm)

Help Line: (877) 59-DOORS

[doors@arb.ca.gov](mailto:doors@arb.ca.gov)

59