Table of Contents

Scope, Applicability & Exemptions .................................................. 3
Agricultural Exemption .................................................................... 4
Forest Operations Exemption ............................................................ 5
Fleet Size Parameters ...................................................................... 6
Initial Fleet Reports ......................................................................... 7
Annual Compliance Report dates ...................................................... 8
Overview of Routes to Compliance .................................................. 9
Fleet Average & List of Attainment Counties .................................... 10
Chart of Fleet Average Targets .......................................................... 11
BACT Requirements ....................................................................... 12
Roadmap to Annual Compliance ...................................................... 13
Early Action Credits ...................................................................... 14
Low Usage, Order of Turnover, Retrofit Exemptions ...................... 15
Vehicle Labeling ........................................................................... 16
Examples from Fleet Calculator ....................................................... 17
Engine Tiers by Horsepower ............................................................. 18
Initial Steps to Comply ................................................................... 20
Compliance Timeline for Small Fleets ............................................ 21
Compliance Timeline for Medium Fleets ........................................ 22
Compliance Timeline for Large Fleets ............................................. 23
Scope of Off-Road Regulation

- Adopted by CARB on July 26, 2007

- **Applicability:**
  - Commercial Off-Road Diesel Vehicles >25 Horsepower
  - Impacted industries include: Construction, Mining, Industrial, Airport Ground Support Equipment

- **Exemptions:**
  - Locomotives, Commercial Marine Vessels, Recreational Vehicles, Military, and **Agricultural Operations**
What is considered Agricultural Operations?

- From the regulation: **Section 2449 (c) (1)**
  - (1) growing or harvesting crops from soil and the raising of animals for the primary purpose of making a profit, providing a livelihood or for instruction at an educational institution.

or

- (2) **agricultural crop preparation** services such as packinghouses, cotton gins, nut hullers and processors, dehydrators, and feed and grain mills. Crop preparation includes only the first processing after harvest, not subsequent processing or canning.
Are vehicles used for forestry considered agricultural?

- Agricultural crop preparation is exempt
- From the regulation: Section 2449 (c) (1)
  - “For forest operations, agricultural crop preparation services include milling, peeling, producing particleboard and medium density fiberboard, and producing woody landscape materials”

- A vehicle is considered agricultural only if over half of its operating hours are for agricultural operations
Rule Requirements

- The rule varies by the size of the fleet
- Fleet sizes are determined by the total Horsepower of the fleet

<table>
<thead>
<tr>
<th>Fleet Type</th>
<th>Total Hp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small*</td>
<td>&lt; 2500</td>
</tr>
<tr>
<td>Medium</td>
<td>2501-5000</td>
</tr>
<tr>
<td>Large</td>
<td>&gt;5000</td>
</tr>
</tbody>
</table>

*Small fleets are NO LONGER required to meet the definition of a small business in California
Initial Fleet Reports

- All fleets are required to file initial fleet reports to CARB in 2009

<table>
<thead>
<tr>
<th>Fleet Type</th>
<th>Total Hp</th>
<th>Initial Fleet Report due:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>&lt; 2500</td>
<td>August 1, 2009</td>
</tr>
<tr>
<td>Medium</td>
<td>2501-5000</td>
<td>June 1, 2009</td>
</tr>
<tr>
<td>Large</td>
<td>&gt;5000</td>
<td>April 1, 2009</td>
</tr>
</tbody>
</table>

- Report will reflect each fleet as of March 1, 2009
### Annual Compliance Report

- Annual Compliance Report will indicate if a fleet is in compliance to the rule.
- If a fleet is in compliance, CARB will issue a "Certificate of Reported Compliance".

<table>
<thead>
<tr>
<th>Fleet Type</th>
<th>Total Hp</th>
<th>Initial Fleet Report due:</th>
<th>First Annual Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>≤ 2500</td>
<td>August 1, 2009</td>
<td>August 1, 2014</td>
</tr>
<tr>
<td>Medium</td>
<td>2501-5000</td>
<td>June 1, 2009</td>
<td>June 1, 2012</td>
</tr>
<tr>
<td>Large</td>
<td>&gt;5000</td>
<td>April 1, 2009</td>
<td>April 1, 2010</td>
</tr>
</tbody>
</table>

- Fleets report fleet information as it was on March 1.
What is Required for Compliance?

- CARB has given fleets two options for compliance

- Option 1: Meet NOx and PM Fleet Average Targets

- Option 2: Utilize the “Best Available Control Technology (BACT) Off-Ramp”
Compliance Option 1: Fleet Averaging

- Large and Medium Fleets must meet NOx and PM Average Targets
  - Fleets must meet targets every year throughout regulation
  - Targets decline over time
- Small Fleets are exempt from the NOx requirements

- Fleets that operate exclusively within attainment counties are exempt from the NOx requirements

- Attainment Counties:
  - Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, Yuba.
Compliance Option 1: Fleet Averaging

Annual PM Fleet Average Targets

PM Targets for Medium and Large Fleets

Annual NOx Fleet Average Targets

NOx Targets for Medium and Large Fleets
Compliance Option 2: BACT

- If a fleet cannot meet the fleet averages in a compliance year they may take the “BACT Off-Ramp”:
  
  - To meet NOx requirements: a fleet must turnover 8% of their Hp (10% after 2015)
    • Turnover means – Replace, Repower, Retire
  
  - To meet PM requirements: a fleet must retrofit 20% of its fleet with Verified Diesel Emission Control Systems
A Road Map to Annual Compliance

Start Here:
Determine Normal Turnover for the next compliance date

NOx Requirements

Will fleet meet NOx Fleet average Target?
YES
Will required % of total Hp have been turned over in previous year?
YES
Turnover another engine

NO
Will fleet meet NOx Fleet average Target?
NO

PM Requirements

Will fleet meet PM Fleet Average?
YES
Will 20% of total Hp have been retrofit with highest level VDECS in previous year?
YES
Done for Year

NO
Retrofit another engine

NO

Start Planning for next year
Credit for Early Action

- **Early Repowers**
  - If a fleet repowers a Tier 0 engine to a Tier 1 or higher engine prior to March 1, 2009 they will receive credit towards the NOx turnover requirements.

- **Early Retirement**
  - If you retire Tier 0 vehicles at a rate greater than required between March 1, 2006 and March 1, 2009 you receive credit towards both the NOx and PM requirements of the rule.

- **Early Retrofit**
  - Large Fleets that retrofit with the highest level VDECS before March 1, 2009 receive **double credit** towards PM requirements.
Other Provisions

- Fleets cannot add any Tier 0 equipment after March 1, 2009
- Order of Turnover:
  - All Tier 0 machines must be turned over before you can get credit for turning over Tier 1, 2 or 3
- Low Usage
  - Vehicles operated under 100 hours are exempt (3 yr rolling avg)
- Turnover Exemptions
  - No machine needs to be turned over if it is less than 10 years old
- Retrofit Exemptions
  - No machine less than 5 years old needs to be retrofit
Vehicle Labeling

- After submitting the initial fleet report, CARB will assign an Equipment Identification Number (EIN)
  - Labeling must occur within 30 days of receiving the number
  - EIN must be white letters on a red background
  - Must be in clear view on the right (starboard) side of the vehicle
  - Label must be 5 feet above ground
  - Letters to be 3” high and 1.5” wide

ARB 2156
**Fleet Calculator Examples**

- **Total Hp = 6,803**
  - Can’t make fleet avg for NOx or PM in 2010
  - Needs 544 Hp of turnover to meet 2010
  - Needs 1360 Hp of Retrofits to meet 2010
  - (roughly 7 retrofits)

- **Total Hp = 23,152 (with 12 early repowers)**
  - Can’t make fleet avg for NOx or PM in 2010
  - Meets NOx BACT in 2010
  - Needs 4630 Hp of Retrofits to meet 2010 PM
  - (roughly 30 retrofits!!)

- **Total Hp = 30,890**
  - Meets fleet average for NOx thru 2016
  - Meet fleet average for PM thru 2013
“OK...What do I need to do?”

1. Document your fleet
   - Equipment Name
   - Engine Model Year
   - Horsepower
2. Document any changes to your fleet since March 2006
3. Put your fleet in the CARB fleet Calculator
4. Determine your fleet size (small, medium, large)
5. Using the Fleet Calculator start to think about compliance options – EVERY FLEET IS DIFFERENT
6. In 2009 – file your initial fleet report with CARB
7. File your annual compliance reports with CARB in 2009
## Compliance Timeline for Small Fleets

- **Small Fleets:**
  - < 2,500 Hp
  - Meet Small Business Requirements (does not have to be a certified small business)
  - Subject to PM requirements only

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Fleet Report Due</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliance Report Due</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Tier 0 equipment can be added</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit for Early Retrofit</td>
<td>Double Carryover Credit (hp) for PM</td>
<td>Single Carryover PM Credits for retrofits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Retirement Credits Available for Tier 0's</td>
<td>Expires 3/1/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credits for early Repower</td>
<td>Expires 3/1/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Timeline:**
  - August 1, 2009
  - March 1, 2009
Compliance Timeline for Medium Fleets

- Medium Fleets:
  - 2,501-5,000 Hp

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Fleet Report Due</td>
<td>Q2</td>
<td>Q3</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q1</td>
</tr>
<tr>
<td>Compliance Report Due</td>
<td>May</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
<td>June</td>
</tr>
<tr>
<td>No Tier 0 equipment can be added</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
<td>01/02/03/04</td>
</tr>
<tr>
<td>Credit for Early Retrofit</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
<td>March 1, 2009</td>
</tr>
<tr>
<td>NOx Turnover requirement</td>
<td>8%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Compliance Timeline for Large Fleets

- Large Fleets:
  > 5,000 Hp

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Fleet Report Due</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>Q1</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>01</td>
<td>02</td>
<td>03</td>
</tr>
<tr>
<td>Compliance Report Due</td>
<td>April 1, 2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Tier 0 equipment can be added</td>
<td>March 1, 2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit for Early Retrofit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Carryover Credit (hp) for PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Retirement Credits</td>
<td>Expires 3/1/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available for Tier 0's</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credits for early Repower</td>
<td>Expires 3/1/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOx Turnover requirement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Contact Information

Cummins West

- Tripp Heller
  Emissions Compliance Manager
  510-347-6164
  tripp.c.heller@cummins.com

- California Air Resources Board
  http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm
  1-866-6DIESEL