

LOW
SULPHUR

FUEL

RULE

1/29/02

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

1. Rule Development and Health Based Justification

- In December 2000, EPA finalized a rule reducing emissions of particulate matter (PM) and nitrogen oxides (NO_x) from 2007 and newer large trucks and buses.
- To achieve these reductions, manufacturers must install after treatment devices that require use of ultra low sulfur diesel fuel (15 parts per million (ppm) or less sulfur).
- Operators of heavy-duty diesel trucks and buses will have to use ultra-low sulfur diesel or risk engine damage, loss of warranty, and federal penalties.
- Why this rule? There will be improved air quality with use of the new fuel - the new vehicles will have up to a 90% reduction in PM and NO_x emissions.
- Particulate matter may exacerbate asthma, cause lung cancer, or increased mortality.
- Nitrogen oxides are an ozone precursor. Ozone is implicated in respiratory illness.
- Particulate matter and nitrogen oxides contribute to haze formation.

2. Economic/Distribution Impacts

- Fuel will cost more.
- EPA estimates ultra-low sulfur fuel to cost \$0.05 more in the lower-48. Costs to Alaskans –especially rural Alaskans - will likely be higher due to distribution logistics. **Note:** Fuel may have to be imported due to high costs of in-state production. May be difficult to find 15 ppm sulfur diesel meeting arctic grade fuel specifications.
- Tankage systems to separate 15 ppm sulfur diesel from other fuels may be expensive.
- 15 ppm sulfur will have approximately 3% less energy (BTU's) per gallon, leading to a loss of efficiency (this is especially important if used in power generation).
- If this fuel is used universally, costs also will increase for such things as home heating or power generation.
- Use of 15 ppm sulfur diesel in 2006 and older vehicles will cause no impact.

3. Options to Transition to Ultra Low Sulfur Diesel Fuel

- Only 5% of diesel fuel used in Alaska is destined for on-highway vehicles compared to approximately 40% in lower-48.
- Due to unique environmental, geographical and economic costs documented in exemption to previous fuel regulations, EPA approved flexibility for Alaska to develop a transition plan specific to Alaska for the new 15 ppm fuel.

➤ National Plan

- At least 80% of on-highway diesel as 15 PPM sulfur and no more than 20% on-highway diesel as higher sulfur.
- 100% 15 PPM sulfur diesel by 2010.

➤ Market Based Phase-in Plan

- Fuel provided based on market demand – lower percentage of the fuel in the early years (2007, 2008).
- In state refiners may not be able to provide the fuel.
- The percent 15 PPM diesel increases each year.
- Timeline for 100% 15 PPM sulfur diesel may extend past 2010 to 2012.

➤ Buy the Truck – Buy the Fuel Market Based Approach – Rural only (off the contiguous road system)

- Allow community to use uncontrolled (>500 PPM) diesel indefinitely until:
 - A 2007 or later diesel vehicle is imported, and 15 PPM diesel fuel must be imported for that vehicle.
 - Community and community members can decide if:
 - They will buy a 2007 model year diesel vehicle.
 - They will switch all diesel vehicles to the new fuel regardless of model year.
 - The entire community will switch to the new fuel, including power generation.

➤ Mandate for All Fuels

- Require all diesel fuel not destined for aircraft to switch to 15 PPM sulfur diesel.
- This is a regulatory process and may also require legislative action.
- Retailers/Distributors/Refiners responsible for providing fuel.
- Cost impacts - incentives and assistance in changeover costs may have to be considered and may also require legislative action.

4. Status

- We have held 3 workshops in Anchorage between April and July to discuss options.
 - Most participants were from urban Alaska.
 - Consensus was not reached.
 - A little over half chose the national plan or something more stringent.
 - Refineries indicated that they would not refine the ultra low sulfur fuel initially.
- We are currently visiting rural hub communities (e.g., Nome, Kotzebue, Barrow, Kodiak, Dillingham, Bethel, Unalaska/Dutch Harbor)
 - No consensus at this time.

5. Actions Taken or To Be Taken

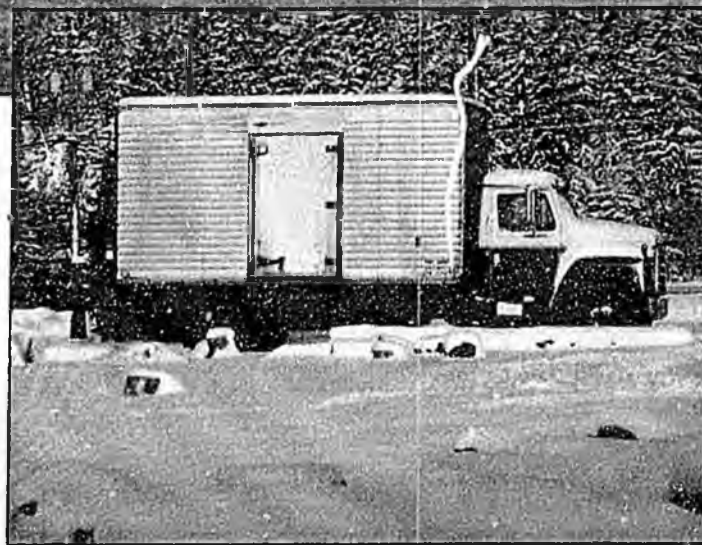
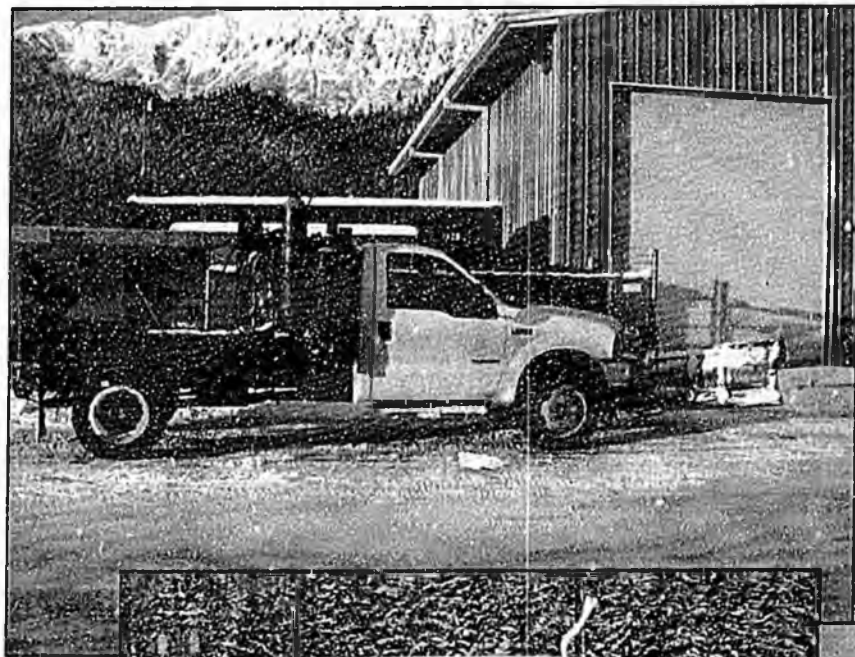
- Develop and finalize a transition plan for Alaska – due April 1, 2002.
- May want to split Urban and Rural in our submission.
- Working with the Alaska Native Health Board (ANHB) and the Institute of Circumpolar Health at UAA to develop a low dose exposure study to particulate matter and subsequent health impacts from diesel fuel use in rural Alaska.

6. Future Impacts

- Sulfur must be reduced in gasoline by 2007.
- EPA is developing sulfur fuel requirements for non-road engines (e.g., road construction equipment, farm tractors, etc.).
- Vehicle and engine manufacturers indicate that light duty diesel cars and trucks will also need the ultra low sulfur fuel by 2006/2007.

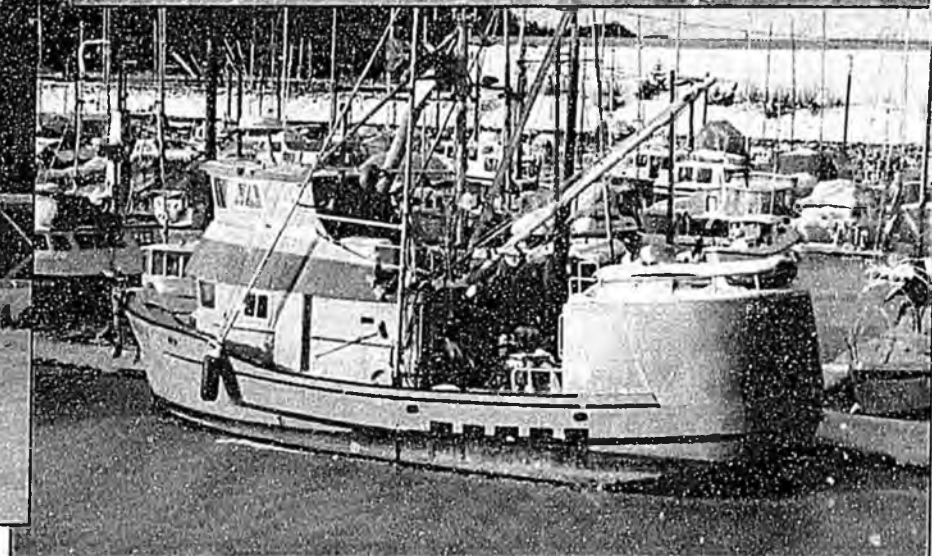
Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Types of Vehicles Covered by the Rule



Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Types of Vehicles/Equipment NOT Covered by the Rule:



New Diesel Fuel Regulations & Impact on Rural Alaska

January 29, 2002

by Ron King



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Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Why are we here today?

- We need your help
- We want to consult with and get recommendations from you on the best way to transition to ultra-low sulfur diesel fuel in rural Alaska.
- We want to provide information to you on the EPA rule

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Presentation Overview

- History
- Options
- Pros and Cons
- Questions and Answers
- Closing Remarks

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Remember when...

- Cars switched from leaded gas to unleaded gas?

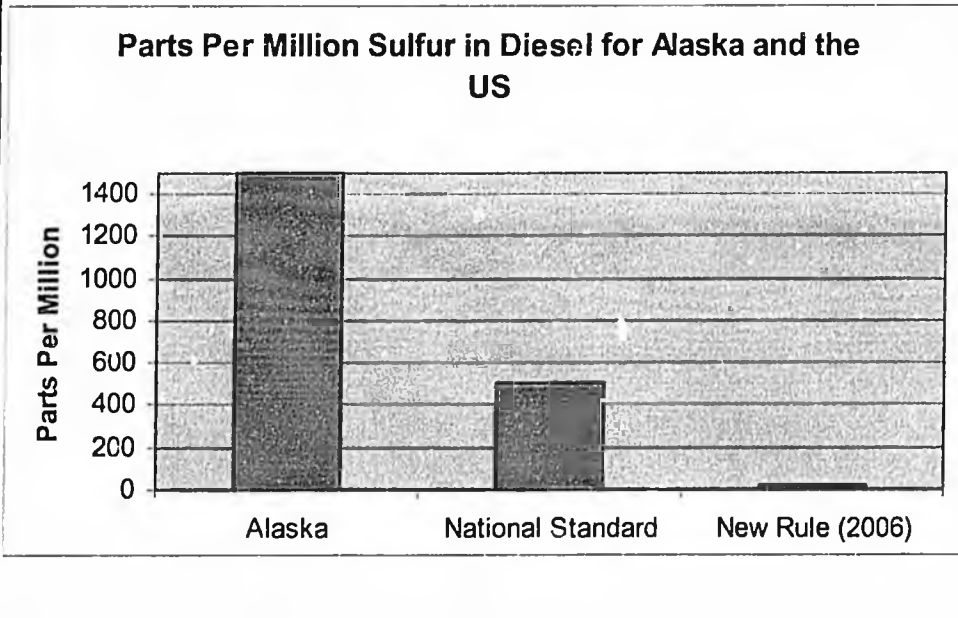
This time Alaska has a choice in how to implement a change!

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

History: The EPA Rule

- In 2001, EPA established a rule to reduce air pollution from large trucks and buses starting in 2007.
- New emission control equipment is required for model year 2007 diesel trucks.
- In 2006, diesel trucks and buses must start using diesel that has 15 parts per million (ppm) or less sulfur.
- We call this new fuel - ultra-low sulfur diesel.

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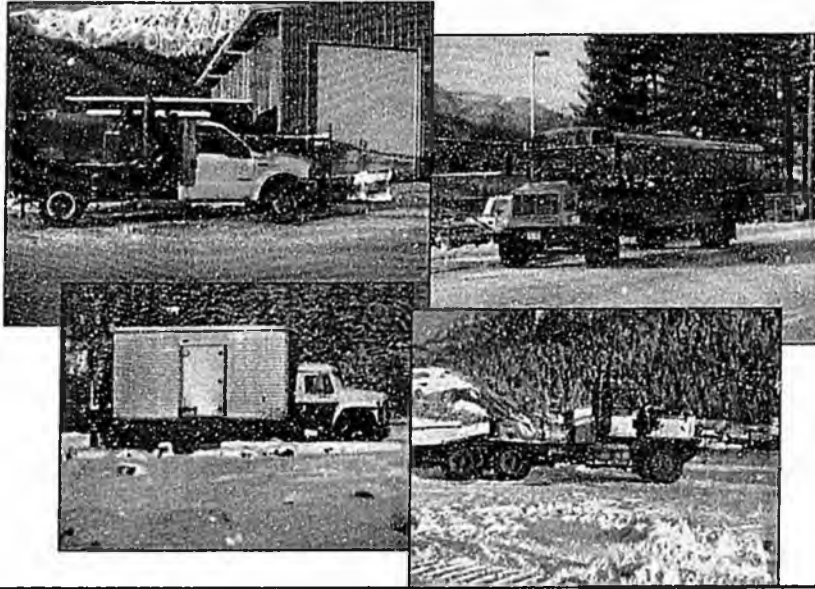
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History: Why is ultra-low sulfur diesel needed?

- New emission control equipment in model year 2007 diesel trucks will reduce air pollution.
- Sulfur is a contaminant found in diesel that can cause damage to these new emission controls.
- Use of ultra-low sulfur diesel is needed for correct operation of the new emission controls.
- Operators of 2007 heavy-duty diesel trucks must use ultra-low sulfur diesel or risk engine damage, loss of warranty, and federal penalties.

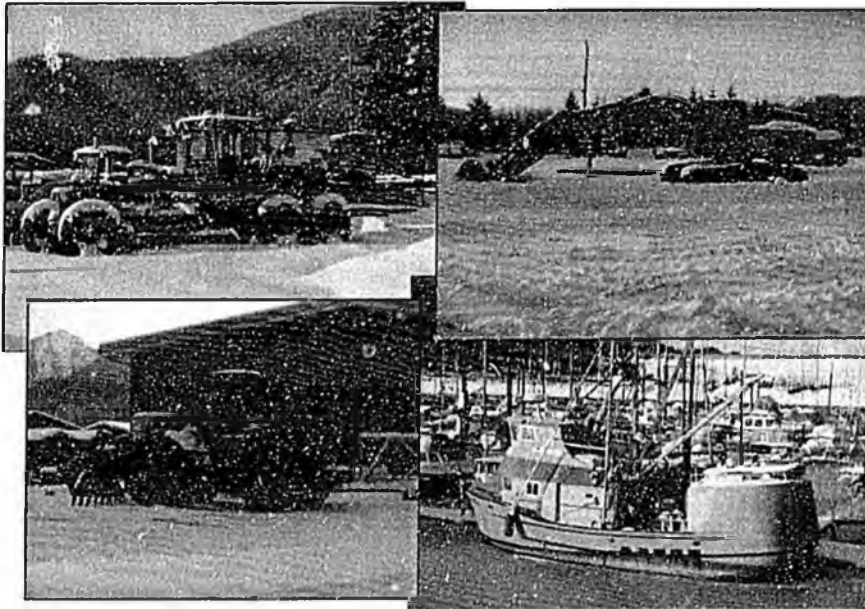
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Types of Vehicles Covered by the Rule



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Types of Vehicles/Equipment NOT Covered by the Rule:



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Options

- National Plan

- Buy the 2007 or later diesel truck :
 - Buy the fuel for that truck
 - Buy the fuel for all the diesel vehicles
 - Buy the fuel for all diesel uses in the community

- Other options?

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Pros and Cons

- Air Quality
- Economic
- Distribution
- Truck Owner

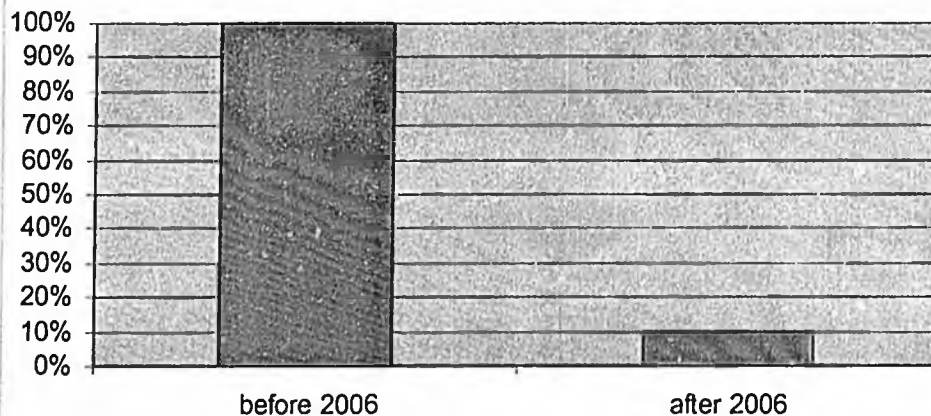
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Air Quality Impacts

- Using the new fuel will reduce air pollution from large trucks and buses.
- Air pollution may trigger asthma attacks, cause lung cancer, respiratory illness, or increased mortality.
- Air pollution can cause hazy skies.

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Percent Pollutant Reduction for Diesel Trucks and Buses



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Economic Impacts

- Ultra-low sulfur fuel may be \$0.10 per gallon more than the current cost of diesel.
- Costs to rural Alaska will likely be higher due to distribution challenges.
- Use of ultra-low sulfur diesel for uses such as home heating or power generation may increase costs to a community.

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Distribution Impacts

- Transportation of fuel to rural Alaska poses unique challenges.
- May be difficult to find ultra-low sulfur diesel meeting arctic grade fuel requirements.
- Dual tank systems for separating ultra-low sulfur diesel from other fuels may be expensive.

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Truck Owner Impacts

- May be difficult to find ultra-low sulfur diesel meeting arctic grade fuel requirements.
- Operators of 2007 heavy-duty diesel trucks must use ultra-low sulfur diesel or risk engine damage, loss of warranty, and federal penalties.
- Use of ultra-low sulfur diesel in 2006 and older vehicles is not expected to cause problems.

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Questions?

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

To Provide Comments or Get More Information Contact:

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