3/4/03

OVERVIEW:

LOW SULPHUR DIESEL FUEL

TALKING POINTS

- The Environmental Protection Agency (EPA) recently established a rule, effective in 2006, to reduce air pollution and related health and air quality impacts from large trucks and buses.
- Last session the House Community and Regional Affairs Committee introduced a Resolution to address Alaska's concerns with the effective date of this new federal rule. It asks EPA and the Department of Environmental Conservation to give Alaska maximum flexibility in implementing the new rule. Unfortunately, the Resolution died in Senate Finance during the final hours of the session.
- In 2006, diesel trucks and buses must use diesel fuel containing 15 parts per million (or less) sulfur.
- Model year 2007 diesel trucks will require new emissions control equipment specifically designed to use only this type of fuel.
- This means most road diesel fuel used in Alaska in the future will, by rule, be ultra low sulfur diesel.
- The financial and logistical consequence to rural Alaskans is significant with this change of diesel fuel types.
- An increase Of 50 cents per gallon is expected.
- A greater fuel requirement is necessary with a decrease in fuel efficiency or fewer BTU's generated.
- The effects extend to the Alaska trucking industry, whereby freight transport costs will rise.
- Electrical companies testified last year that varying grades of diesel fuel would become increasingly difficult to obtain for existing systems.
- Fuel transportation, delivery and storage systems in rural Alaska are generally capable of handling no more than one discrete diesel fuel type.
- Barges will need retrofitting and tanks in fuel farms cleaned.
- The cost associated with this retrofit is not financially feasible when only 5% of the diesel refined in Alaska is used on the road.
- Production of ultra low sulfur diesel fuel is not likely in Alaska. Any ultra low sulfur diesel fuel used in Alaska will, by necessity, be imported from lower 48 refineries.
- While the federal rule is designed to address environmental health and air quality issues in urban and populated areas, it has severe economic implications in rural Alaska.

Low Sulfur Diesel Fuel Rule

Name	Title	Organization	Telephone
1. Tom Chapple	Dir. Air & Water Qtly.	DEC	465-5128
Ron King		DEC	465-5128
2. Steve Cleary		AKPIRG	278-3661
3. Frank Dillon	Executive Vice President	Alaska Truckers Assoc.	276-1149
4. Marie Becker	51 Village Coop's	Alaska Village Electrical Coop	561-7972
5. TC Wilson	Environmental Liason	ARECA	561-6193
6. Vern Rausseher observe		Tlingit-Haida Regional Electric	789-3196
7. Shawn Tarter Shawn	Vice President	Yukon Fuel	777-5515 529-0715 cell
8. Bill Boycott		Williams Alaska	488-0056
9. Al Ewing	Chief of Staff	Denali Commission	271-2372
Kathy Prentki	Energy Specialist	Denali Commission	271-2372
Yuri Morgan	Legislative Liaison	Denali Commission	271-2372
10. Chris Mello	Program Manager	Alaska Energy Authority	269-4649

3/4/03

Ultra Low sulfur Diesel Fuel

Tom Chapple - Dec. Recommends that transition be postponed.
Ron King - Dec

Denali Commission - Low can provide assistance to transition.

- 15¢ per gallon

Edmonton is only one producing Arctic grade fuel.

→ fed rule only requires motor vehicle.
Pisblem w/generators:
1) fuel available will only be ULSD fuel
2) non converted engines not being able to handle new fuel.
3) Cost of fuel - efficiency less.
4) Cleaning of storage tanks.

+ Grants to do pilot project - AVEC - Marie Becker

Manufactures concerns 31,000

Marine
Railroad
Heating Oil
5% Highway

Alaska State Legislature

House Committee on Community and Regional Affairs

Representative Carl Morgan, Chair
State Capitol Building, Room 408
Juneau, AK 99801
907-465-3882

AGENDA
State Capitol 124
8:00 am – 10:00 am

- **Call to Order**
  Today's date is March 4, 2003
  The time is _____ (8 am)

- **Overview**

➢ **Alaska Ultra-Low Sulfur Diesel Fuel Transition**

- **Other Business**

Next Meeting – Thursday, March 6th
HCR 5 Legis. Task Force On Design Of State Seal

- **Adjourn**

Low Sulfur Diesel Fuel Rule

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SITE: **ANCHORAGE LIO** *COMMITTEE:* HCRA *DATE:* 3-4-2003	*SUBJECT OF MEETING:* Overview: Low Sulfur Diesel Fuel *UPDATE #:*

P R I N T *YOUR NAME*	*ADDRESS (MAILING & ZIP)*	*REPRESENTING*	*DO YOU WANT TO TESTIFY? Y or N*
Frank Dillon		AK Trucking Assoc	Y
Email address:			
Shaen Tarter		Yukon Fuel	Y
Email address:			
Yuri Morgan		Denali Commission	Y
Email address:			
Al Ewing		Denali Commission	Y
Email address:			
Kathi Prentki		Denali Commission	Y
Email address:			
Steve Cleary		AKPIRG	Y
T. C. Wilson		ARECA	Y

Marie Becker		ARECA	Y

House Community & Regional Affairs Committee

New Diesel Fuel Regulations
February 6, 2003

Tom Chapple & Ron King

Alaska Department of Environmental Conservation
410 Willoughby Avenue, Suite 303
Juneau, AK 99801
907-465-5100
ron_king@dec.state.ak.us

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Presentation Overview

- Current Status: Urban Alaska
- History of Rule
- Pros and Cons
- Options
- Current Status
- Questions and Answers
- Closing Remarks

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

History: Types of Diesel Fuel

- Home Heating
- Power Generation
- Marine Vessels
- On-Road (i.e. cars, trucks, buses)
- Stationary Sources
- Non-Road (i.e., farm tractors, road graders, front end loaders, etc.)

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

History: The EPA Rule

- Preponderance of urban health studies find particulates, particularly particulates from diesel exhaust are health threats.

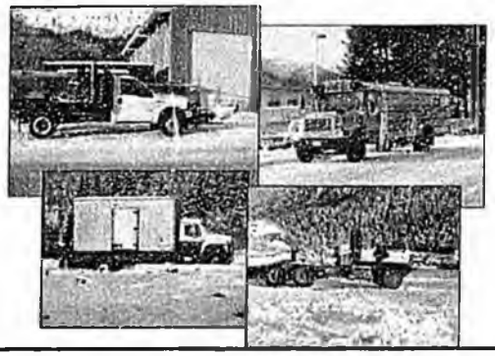
- In 2000, EPA established a rule to reduce air pollution from large trucks and buses starting in 2007.

- New emission control equipment is required for model year 2007 diesel trucks will reduce emissions by over 90%.

- In 2006, diesel trucks and buses must start using diesel that has 15 parts per million (ppm) or less sulfur.

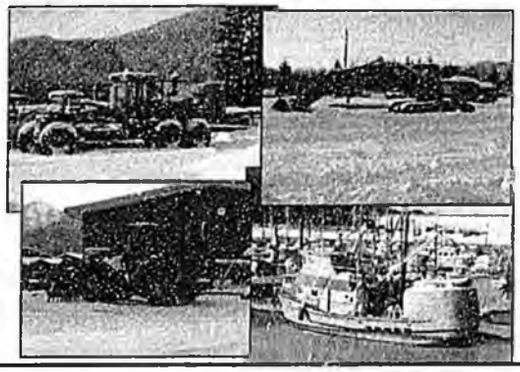
Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Types of Vehicles Covered by the Rule



Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Types of Vehicles/Equipment NOT Covered by the Rule:



at this time – when?

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Pros and Cons

- Air Quality
- Economic
- Distribution
- Truck Owner

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

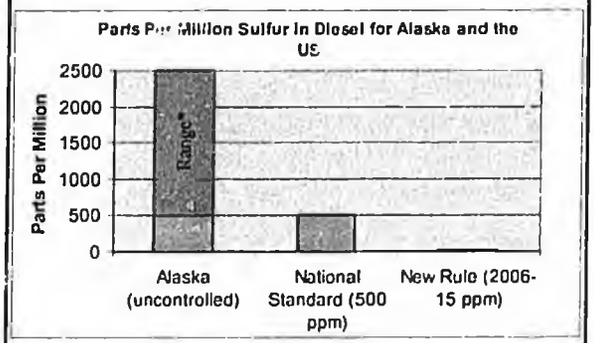
Air Quality Impacts

· 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.

· Estimated health benefits nationally is $70 Billion.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan



* Based on Anecdotal Evidence

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Economic Impacts

· Ultra-low sulfur fuel may be $0.10 per gallon or 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.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Distribution Impacts

· Transportation of fuel to rural Alaska different than other parts of US and challenging.

· May be difficult to find ultra-low sulfur diesel meeting arctic grade fuel requirements.

· Duel tank systems for separating ultra-low sulfur diesel from other fuels may be expensive.

- EPA asked how to implement.
- Arctic spec fuel
- -60 fuel w/ #2 gel.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

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.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Roadway Alaska: National plan begins September 2006

Options for Rural Alaska

· 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?

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Current Status for Rural Alaska?

· The department has recommended the implementation of the national plan for the contiguous highway system and major communities on the marine highway system.

· The department requested additional time to address communities off the contiguous highway system.

· The department must recommend to EPA by June 13, 2003 an approach for the remaining communities.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Balance?

· The department desires to balance energy costs with health costs.

· The department is seeking funds to identify potential health benefits and economic impacts.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Information Contact:

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Children's Exposures to Diesel Exhaust on School Buses

EHHI Publications

DOWNLOAD REPORT

PDF: Part 1

PDF: Part 2

PDF: Part 3

PDF: Summary

EHHI ISSUES

ASTHMA AND CHILDREN

PRESSURE TREATED WOOD

PESTICIDES

SCHOOL ENVIRONMENTS

TOBACCO SMOKE

INTRODUCTION

In the United States nearly 600,000 school buses transport 24 million students to school daily. Collectively, U.S. children spend 3 billion hours on school buses each year. Connecticut children annually spend more than 50 million hours on school buses.

More than 99% of U.S. school buses are powered by diesel fuel. Diesel exhaust is comprised of very fine particles of carbon and a mixture of toxic gases. Federal agencies have classified diesel exhaust as a probable human carcinogen. Benzene, an important component of the fuel and exhaust, is designated to be a known human carcinogen. Components of diesel exhaust are genotoxic, mutagenic, and can produce symptoms of allergy, including inflammation and irritation of airways. There is no known safe level of exposure to diesel exhaust for children, especially those with respiratory illness.

This study concludes that the laws intended to control air pollution in the U.S. and Connecticut must be strengthened to protect the health of children in several important respects. First, fixed monitoring facilities do not capture the variability in air pollution experienced by children. Second, air quality indoors and within vehicles is not regulated by EPA or the State of Connecticut, while Americans spend on ave rage between 80-90% of their time indoors. Third, tougher diesel regulations adopted by EPA last year are insufficient to protect health. Under the new provisions, they will be phased in between 2006-2010. This delay means that children may be exposed to increasing levels of diesel exhaust for nearly a decade, as truck and bus traffic are likely to continue their steady rate of increase. Fo u rth, Connecticut is already beyond compliance with federal air quality standards for ozone, which may exacerbate respiratory illnesses. Given the limited monitoring facilities and extended ave raging periods allowed by current law, state "compliance" with federal standards offers little assurance of sufficient health protection. Fifth, routine emissions testing for school buses is not required by federal law, and school buses are specifically exempted from testing in Connecticut. Sixth, Connecticut adopted idling regulations, limiting idling time to 3 minutes, however, few know of the restriction, and it is neither monitored nor enforced.

Download Report: PDF: Part 1, Part 2, Part 3, Summary and Recommendations

FOOTNOTES AND REFERENCES

1. Diesel Buses: Each day, nearly 600,000 school buses transport 24 million students to schools in the U.S. Within Connecticut, nearly 387,000 children ride 6,100 school buses, and 99% are powered by diesel fuel.

2. Children's Time on Buses: The time spent on buses by individual students varies between 20 minutes and several hours per day. For one child, a half-hour ride to school, and a half-hour ride home each day amounts to 180 hours per school year—90 full 24-hour-days over 12 years of school. Annually, U.S. children spend 3 billion hours on school buses. Connecticut children spend 50 million hours on buses each year.

3. Background Particulates: Connecticut background fine particulate matter levels (PM2.5) are near or above national standards, when averaged over 24 hours. Children's exposure to diesel exhaust from school buses constitutes an additional exposure beyond background levels of particulates re p o rted from current monitoring efforts.

4. Background Ozone: Connecticut is not in compliance with current federal ozone standards. In 2001, portions of the state exceeded the 8-hour limit on 26 days, and the 1-hour limit was e xceeded on 9 days. Ozone is known to exacerbate asthma, and is normally highest in the afternoon, when childre n's exposure to diesel particulates from school bus rides is also likely to be high. NOx p recursors to ozone have increased over the past 10 years. In 2001, nearly 109 million people lived in 272 counties where federal ozone limits were exceeded.

5. Carcinogenicity of Diesel Exhaust: Diesel exhaust is classified as a probable human carcinogen by many governmental authorities, including the International Agency for Research on Cancer (WHO), the U.S. National Toxicology Program, the U.S. Environmental Protection Agency, and as a known carcinogen by the State of California. The California South Coast Air Quality Management District recently estimated that nearly 71% of the cancer risk from air pollutants in the area is associated with diesel emissions. Diesel exhaust includes benzene, 1,3-butadiene, and soot, all classified as known human carcinogens. Nearly 33 studies have explored the association between diesel exhaust exposure and bladder cancer. A recent meta analysis of this literature found increased risk between 18-76%. These findings are based primarily upon studies of truck drivers, railroad workers, bus drivers and shipyard workers.

6. Diesel Exhaust Contains 40 Hazardous Air Pollutants: In addition, diesel exhaust contains both carbon particulates and 40 chemicals that are classified as "hazardous air pollutants" under the Clean Air Act.

7. Particulates and Respiratory Diseases: Exposure to particulates has been associated with: increased mortality among those with cardiopulmonary diseases; exacerbation of symptoms for asthma, bronchitis, and pneumonia; decreased lung function; and retarded lung development. It has also been correlated with increased hospital admissions and emergency room visits for respiratory illnesses.

8. Children's Susceptibility: Children may be especially susceptible to adverse respiratory effects following exposure to fine-diameter particulate matter (PM2.5) emitted from diesel engines. Nearly 94% of diesel particulates have diameters less than 2.5 micrometers (um).4 The average diameter of diesel particulates is 0.2 micrometers. Smaller particles are able to penetrate children's narrower airways reaching deeply within the lung, where they are more likely to be

retained. Higher rates of respiration among child ren may lead to their higher exposure, when measured per unit of their body weight.

9. No Known Safe Exposure to Diesel Exhaus: There is no known safe exposure to diesel exhaust for children, especially those with asthma or other chronic respiratory disease. There is no single standard for acceptable cancer risk from diesel exhaust in the U.S.

10. Asthma Prevalence: Nationally, 4.8 million children have asthma. More than 44,500 Connecticut school children have the disease.

11. Asthma Costs: Asthma costs an average of $500 per child per year for medications, physician care, and hospital treatment. Annual direct medical costs are estimated to be nearly $22 million for Connecticut school students alone. This estimate does not account for other costs that often include school absenteeism, lost parental work while caring for ill children, psychological effects, and abnormal social development.

12. Children's Exposure to Particulates on Buses: Children were exposed to airborne particulate concentrations in tested buses that wo re sometimes 5-15 times higher than background levels of PM2

13. Variability Within Buses: Particulate and black carbon levels vary within individual buses over time. The most important influences on variability include: bus idling behavior, queuing practices, bus ventilation via windows, and outdoor concentrations on bus routes. Particulate and carbon concentrations did not vary by sampling location within diesel buses, e.g., front vs. rear. Engine model, age of engine, number of miles since last overhaul, maintenance cycles, location of bus engine (front, next to driver, or rear), elevation change, passenger load, and climate may all influence levels of interior pollutants and children's exposure.

14. Exhaust From Other Traffic: The intensity and type of traffic along bus routes significantly affects air quality on buses. Buses following diesel-powered vehicles, including other buses, have increased levels of carbon and particulate concentrations within passenger compartments. Particulate levels rose rapidly within the passenger cabin when buses pulled behind other diesel vehicles in traffic. No buses tested had air filtration equipment capable of removing the fine particles detected in the buses.

15. Idling Buses: Idling buses tested had higher concentrations of particulates and carbon than moving buses. Higher concentrations occurred when idling buses had open windows when compared with buses with closed windows. There is a current Connecticut Department of Environmental Protection (DEP) regulation, DEP 22a-174-18 (a)(5), that limits idling time to 3 minutes, yet it is neither monitored nor enforced.

16. Queued Idling Buses: Queued idling buses had the highest levels of particulates and black carbon measured. Idling buses tend to accumulate diesel exhaust which may be retained during the ride, depending upon bus ventilation rates. Particulate and carbon concentrations rise rapidly once idling begins.

17. Length of Bus Route: The length of bus routes affects the magnitude of children's exposure to air pollutants in the interior compartment. Time in transit between home and school spent by Connecticut students varied between 20-180 minutes per day in the towns sampled. The longest routes may occur in the rural parts of the state, especially in large regional school districts.

18. Lower Emissions From Natural Gas Buses: Natural gas buses studied emitted 60-98% less carbon than diesel-powered buses.

19. Findings Are Likely to Underestimate Exposure: Exposures to carbon and particulates found in this study were measured in environments with exceptionally low traffic and few other sources of pollution. Most children are exposed to additional pollution from traffic and other residential, commercial and industrial activities. These findings therefore are likely to underestimate levels of fine particulates and carbon found in more urban areas and routes with higher traffic intensity.

20. Additional Sources of Particulate Exposure Threaten Children: Residential use of tobacco products, wood stoves, candles, kerosene heaters, and poorly ventilated cooking stoves are for many children additional sources of exposure to carbon-based particulates and organic gases that result from combustion. Federal and state monitoring efforts fail to account for these exposures despite the fact that most people spend more than 80% of their time indoors. Most epidemiological studies that associate PM10 levels with adverse respiratory health effects consider particles measured by outdoor stationary monitoring facilities, neglecting indoor air exposures.

21. School Buses Are Exempt From Emissions Testing: School buses are currently exempt from routine emissions testing in Connecti[illegible].5 There is no federal requirement that all state governments monitor school bus emissions, although some states require testing.

22. Federal Particulate Standards Exceeded: EPA estimates that in 2000, 11 million U.S. children lived in areas that exceeded one or more federal air quality standard. Nearly 3.5 million children lived in areas where the particulate standards were exceeded in 1998. Within Connecticut, bus exposures when combined with background outdoor particulate levels may elevate children's average daily exposure beyond the current federal 24-hour PM2.5 standard.

23. Absence of Passenger Cabin Air Quality Standards: Current law does not regulate air quality within buses.

24. Federal Monitoring vs. Personal Monitoring: Federal law and regulation permit the testing of air quality by means of fixed monitors. In Connecticut, 13 fixed monitors measure PM2.5. This sampling design fails to capture the local variability and severity of air pollution in the state. National standards permit averaging particulates over 24- hour periods. These practices ensure that shorter episodes of intense pollution—such as those experienced in bus rides—are neither recognized nor regulated by the state or federal government.

25. Tougher Federal Diesel Standards Delayed Until 2006: Tougher new diesel emissions standards will not be phased in until 2006. This delay poses respiratory health threats to Connecticut citizens, who now experience air pollution at levels above acceptable federal standards for ozone. Compliance with current standards does not ensure health protection. EPA estimated that the new standards would result in 8,300 fewer premature deaths, 17,600 fewer cases of childhood acute bronchitis, and 360,000 fewer asthma attacks. These estimates demonstrate the scale of respiratory health threat EPA believes exist under current conditions.

26. Federal Particulate Standards: The exposures identified in this study will not be affected by the tougher federal PM standards adopted in 1997 (which are different from the diesel standards described in 26 above), since monitoring to determine compliance with the PM standards is done outdoors.

27. Bus Parking Yards: Bus parking and maintenance facilities have the potential to create localized particulate air pollution that far exceeds ambient outdoor levels reported from State monitoring efforts. Pollution may routinely migrate to adjacent properties, as buses are left idling, or during periods of peak use--early mornings and afternoons. If vehicles are parked near schools, both outdoor and indoor school air quality may be diminished.

28. Bus Drivers: Bus drivers' exposure to motor vehicle and diesel exhaust is significantly higher than children's, due to longer periods of time spent on buses.

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info@ehhi.org

The New York Times
nytimes.com

September 4, 2002

EPA: Diesel Exhaust Can Cause Cancer

By THE ASSOCIATED PRESS

Filed at 3:29 a.m. ET

WASHINGTON (AP) -- Inhaling diesel exhausts from large trucks and other sources over time can cause cancer in humans, an Environmental Protection Agency report concludes after a decade of study.

The EPA finding, released Tuesday, is expected to buttress the government's push to reduce truck tailpipe emissions by requiring cleaner-burning engines and diesel fuel with ultra-low sulfur content.

While acknowledging uncertainties about the long-term health effects of exposure to diesel exhausts, the EPA report said studies involving both animal tests and occupational exposure suggest strong evidence of a cancer risk to humans.

"It is reasonable to presume that the hazard extends to environmental exposure levels" as well, the report said. "The potential human health effects of diesel exhausts is persuasive, even though assumptions and uncertainties are involved."

The report mirrors conclusions made previously in documents from various world health agencies and studies in California and is particularly significant because the EPA is the federal agency that regulates diesel emissions under the Clean Air Act.

Some environmentalists have raised concerns recently that the Bush administration might try to back away from a Clinton-era regulation that would establish tougher requirements on emissions from large trucks and a separate rule that virtually would eliminate sulfur from diesel fuel.

EPA Administrator Christie Whitman repeatedly has promised to go ahead with the tougher truck and diesel rules. Last month, with White House approval, the EPA rebuffed attempts by some diesel engine manufacturers to postpone the requirements, approving now penalties against manufacturers who fail to meet an October deadline for making cleaner-burning truck engines.

The engine rule does not affect emissions from trucks already on the road, although the separate regulation cutting the amount of sulfur in diesel fuel is expected to produce pollution reductions.

The EPA's 651-page diesel health assessment did not attempt to estimate the probability of an individual getting cancer, given certain exposure to diesel exhaust. Such a risk assessment is commonly made by the EPA when gauging pollution health concerns.

But in this case, the report said, "the exposure-response data are considered too uncertain" to produce a confident quantitative estimate of cancer risk to an individual.

Nevertheless, said the report, the ``totality of evidence from human, animal and other supporting studies'' suggests that diesel exhaust ``is likely to be carcinogenic to humans by inhalation, and that this hazard applies to environmental exposure.''

The report reiterated that environmental exposure to diesel exhausts poses short-term health problems and in the long term has been shown to be a ``chronic respiratory hazard to humans'' contributing to increased asthma and other respiratory problems. In some urban areas diesel exhausts account for as much as a quarter of the airborne microscopic soot, the report said.

Environmentalists welcomed the study as clear evidence that pollution needs to be curtailed not only from large trucks but also from off-road diesel-powered vehicles. EPA spokeswoman Steffanie Bell said the agency expects to publish a rule early next year dealing with those diesel exhaust sources, which include farm tractors and construction equipment.

Emily Figdor of the U.S. Public Interest Research Group, a private environmental organization, said: ``To reduce the public's exposure to harmful diesel emissions, the Bush administration should ... fully implement clean air standards for diesel trucks and buses and should pass equivalent standards for diesel construction and farm equipment.''

Allen Schaeffer, executive director of the industry group Diesel Technology Forum, said the EPA's report ``focused on the past,'' whereas ``the future is clean diesel. Diesel trucks and buses built today are more than eight times cleaner than just a dozen years ago.''

The report acknowledged that its findings were based on emissions levels in the mid-1990s, but said the results continued to be valid because the slow turnover of truck engines has kept many of these vehicles on the road.

^------

On the Net: Environmental Protection Agency site: http://www.epa.gov

② Suggest (for discussion) introducing resolution to give more time.

Alaska State Legislature

House Committee on Community and Regional Affairs

Representative Carl Morgan, Chair
State Capitol Building, Room 408
Juneau, AK 99801
907-465-3882

AGENDA
State Capitol 124
8:00 am – 10:00 am

- **Call to Order**
  Today's date is March 4, 2003
  The time is _____ (8 am)

- **Overview**

➢ **Alaska Ultra-Low Sulfur Diesel Fuel Transition**

- **Other Business**

Next Meeting – Thursday, March 6th
HCR 5 Legis. Task Force On Design Of State Seal

- **Adjourn**

Alaska

Air Non-Point and Mobile Sources

Department of Environmental Conservation
Division of Air and Water Quality

AWQ Home

ANPMS Home

ATAS Home

Regional Haze

Ultra Low Sulfur Diesel

Particulate Matter

Air Toxics

Carbon Monoxide

General / Transportation Conformity

Emission Inventories

Indoor Air Quality

Contacts

Ultra Low Sulfur Diesel

Background

- **Diesel exhaust has pollutants that may increase asthma and other respiratory problems.**
- **Bits of soot called particulate matter and nitrogen oxide gases threaten our health when we exhaust.**

The U.S. Environmental Protection Agency passed a new rule requiring a cleaner diesel fuel to be s 2006 for use in large diesel trucks and buses.

The EPA Rule

- "Clean diesel," or ultra low sulfur diesel, allows new equipment on model year 2007 truck clean the exhaust.
- The new equipment needs very low-sulfur diesel fuel to work.
- Using the new fuel in 2007 trucks will reduce emissions of nitrogen oxides and particulate
- Older diesel vehicles using this fuel will also experience a small but significant reduction i

What does this mean for the consumer?

- Older vehicles will run on the "clean diesel."
- Model Year 2007 vehicles can fail if run on the current higher sulfur diesel fuel.

What about Alaska?

- The EPA asked Alaskans to find a way to bring in the new fuel in a way that makes sense plan could differ from the National Plan the EPA had for the contiguous states.
- The EPA required a transition plan to this cleaner diesel by April 1, 2002.
- The State of Alaska submitted a plan (Press release) to EPA that recommends conversio Alaska in the same time frame as the rest of the United States.
- For "rural" Alaska, the state has until June 2003 to review the federal rule's positive and ne rural Alaska and Tribes. See the Alaska Transition Plan.

How did the transition plan come about?

- Three meetings to discuss the new EPA sulfur diesel rule occurred from April to July of 20
- Participants identified a number of data needs, offered options, and comments.
- Participants tended to represent interests along the road system of Alaska.

- The ADEC was unable to obtain sufficient comments from rural and Tribal interests in the

How does ADEC plan to get the word out to the villages?

- Tribes and rural Alaskan communities will face many challenges transitioning to clean die
- Challenges include fuel availability, misfueling tanks, equipment problems, and price incre affect home heating.
- In the Fall of 2001, the ADEC began a concerted effort to reach rural and tribal Alaskans.
- The effort included a tour of several hub-communities in northern and western Aiaska, incl Bethel, Kotzebue, Dillingham, Nome, Unalaska, and Kodiak.
- ADEC will continue with visits and revisiting to some communities.

ADEC will continue meeting through the Spring of 2002, and winter of 2002 and 2003.

Contacts

If you have any questions, please contact Clint Farr at 907-465-5127, email Clint_Farr@d or Rachel Cunningham at 907-269-7698, Rachel_Cunningham@dec.state.ak.us, for more

Meeting and Information Archives
The following link is to background information, options and comments:

Past meetings and background information

Page last updated: March 1, 2003

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Alaska Public Interest Research Group
PO Box 101093 ♦ Anchorage, Alaska 99510-1093 ♦ Ph: (907) 278-3661 ♦ Fax: (907) 278-9300 ♦ email: akpirg@akpirg.org

MEMO TO: House Committee on Community and Regional Affairs

SUBJECT: ALASKA'S COMPLIANCE WITH THE CLEAN AIR ACT

The Alaska Public Interest Research Group (AkPIRG) has been working to protect the health of Alaskans by bringing Alaska into compliance with the Clean Air Act. Alaska and Hawaii were granted the ability to seek exemptions from the Clean Air Act. While Hawaii chose to protect its citizens by following the health mandates of the Clean Air Act, Alaska sought exemptions to avoid compliance. Alaska burns the dirtiest diesel on the continent. This should end and Alaskans should enjoy the protections of the Clean Air Act.

1. The Lower 48 states and Canada have experienced no significant price increases.

The state claims Alaska's petroleum industry cannot afford to switch to low sulfur fuel to protect people's health along with the rest of the nation. But have they even tried to make it work, or are they spending too much effort proving it can't? Prices in the lower 48 have not risen in the dramatic manner that industry predicted. In fact, the price difference between low sulfur diesel and unregulated diesel is negligible, with the cleaner fuel often costing less. (CARB) This will only increase with the increasing demand for cleaner fuel, which also decreases health costs and engine maintenance costs. The EPA predicts a cost/benefit of $70 billion annually when the plan is fully implemented. (ADEC/EPA) We want Alaska to have a part in that savings. Canada as well has switched to low sulfur diesel and plans to follow the USA in 2006 to ultra-low sulfur diesel (15 ppm), with no exemptions for their northern climates. The Canadians have seen "little or no change in pricing." (Shell Canada)

2. Rural villages can avoid added infrastructure costs by using only one grade of diesel fuel.

The state also argues that small towns will have difficulty separating grades of diesel and will have to spend millions to install tanks in order to avoid contamination. Diesel engines produced after 2006 will require ultra-low sulfur diesel or they will not function. An adequate supply will have to be delivered wherever new diesel trucks and equipment will be used. In Canadian towns with both vehicular and heat / power generation, they have opted to burn one fuel instead of adding the extra expense of separate storage facilities. (Shell, Canada; Environment Canada) Imperial Oil of Canada has determined that it is more cost effective to handle only the highest grade in remote markets. They will sell the "higher quality" (low sulfur) product at the lower price rather than invest in the infrastructure to carry two different grades.

3. Arctic grade supply issues can be addressed by expanding the market or encouraging local production through tax incentives.

Adequate supply of diesel fuel that meets the pour point conditions of the arctic environment has been seen as an obstacle to lowering the sulfur content of Alaska's diesel. Alaskan refiners cite enormous capital costs for a relatively small Alaska market. Yet, if the market were expanded to include off-road diesel, increasing it by nearly 20 times, industry may see that the capital costs, and the health benefits to Alaskans, would be worth it. Supply could also come from Edmonton, where three refineries produce low sulfur diesel with arctic specifications currently and will switch to ultra-low in 2006. This fuel can be transported by pipeline to Vancouver and the barged to Alaska.

Abstract
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Diesel Exposure in Rural Alaska

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Project Period: October 1, 2002 to September 30, 2005

Project Cost: $1,179,209.00

Project Summary: This project will determine whether the use of diesel generators in rural Alaska is creating an increase in air pollution sufficient to affect human health. Alaska diesel fuel contains variable but high levels of sulfur. It produces particulates and volatile organic compounds when used for power generation or home heating. Arctic areas are subject to severe climatic inversions, which prevent air mixing and create severe air pollution conditions. Ambient air quality in villages has never been assessed and there is concern that using high sulfur diesel for community power generation may be causing respiratory health effects. Children in rural Alaska have been found to have a disproportionate burden of respiratory illness.

Expected Approach: Air quality will be monitored using standard EPA methods for particulates and BTEX in four locations in an Alaskan village using diesel generators for a total of 120 continuous days during the late fall to early spring. In addition, children 5-8 years of age who live in the village will be invited to participate. They will be asked to give urine specimens periodically during this period. Their homes will be monitored for indoor particulates and BTEX on the same day. Urine specimens will be used to assess biomarkers of exposure.

Expected Results: This project should give an in-depth account of the extent of high sulfur diesel particulate matter and volatile organic compounds in ambient and indoor air in one village in rural Alaska. If air pollution in a remote area is found to exceed national standards as we expect it may, this study would elucidate the monitoring needs for remote communities. It should also give us a good indication whether biomarkers in children might be suitable for surveying air quality in remote areas. Monitoring children with urinary biomarkers of exposure might allow exposures to be related to health outcomes.

Keywords: diesel particulate matter, remote locations, children, biomarkers of exposure, volatile organic compounds.