

Assessment of Health Risks From Use of Diesel Fuel in Rural Alaska

FY2004 Request: \$768,300
Reference No: 38513

AP/AL: Appropriation

Project Type: Health and Safety

Category: Natural Resources

Location: Statewide

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House District: Statewide (HD 1-40)

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Estimated Project Dates: 07/01/2003 - 06/30/2006

Brief Summary and Statement of Need:

Rural Alaska communities are facing a major decision about diesel fuel use. By 2007, they must decide to either incur the costs of building a separate and new fuel tank infrastructure for handling a new cleaner diesel fuel for trucks and buses or convert their entire community fuel use for electrical power, heating and vehicles to the cleaner diesel fuel. Either case will incur significant costs for the community, individuals and perhaps the state. This decision can not be made without knowing the health risks and health costs of continuing to use the existing grade diesel fuel for power and heat.

Funding:	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	Total
Fed Rcpts	\$768,300						\$768,300
Total:	\$768,300	\$0	\$0	\$0	\$0	\$0	\$768,300

<input type="checkbox"/> State Match Required	<input checked="" type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	0
Totals:	0	0

Additional Information / Prior Funding History:

None.

Project Description/Justification:

Background: Diesel power generation is very expensive in rural Alaska, but provides the primary source of electrical power and heating needs. A new federal rule for trucks and buses may force a fuel conversion in rural hubs and villages to the cleaner, but more expensive fuel for all equipment that uses diesel fuel.

Forcing ultra low sulfur diesel into rural Alaska would change the current fuel distribution system. These possible changes, such as dedicated holds on marine barges and new community storage tanks, will cost money. Further, ultra low sulfur diesel will be more expensive. A total conversion to ultra low sulfur diesel could significantly impact cash-short residents to keep the lights on and the home heated. Many small villages do not have a diesel truck and may be greatly impacted for little benefit. Most community leaders have already expressed concern about the potential fuel costs increases, while some leaders have also expressed concern about health consequences from using the existing grade fuel. Currently there is no information on diesel-related pollution in Alaskan villages.

The Proposed Health Assessment: Diesel engines emit large amounts of oxides of nitrogen (NOx) and particulate matter (PM), both of which contribute to serious public health problems in the nation. Exposure is widespread, particularly in urban areas near major roadways. Diesel exhaust or diesel particulate matter (soot) is likely to cause cancer in humans. Other health effects include aggravation of respiratory and cardiovascular disease, aggravation of existing asthma, acute respiratory symptoms, and chronic bronchitis and decreased lung function. Children who regularly use school buses carry some of the greatest health risks from diesel pollution.

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National studies have shown significant health consequences for people routinely exposed to motor vehicle exhaust from diesel fueled vehicles. Rural communities depend upon diesel fuel for power and heat and to a minor extent for vehicle use. This project will acquire rural Alaska specific health information to determine if the unique reliance upon diesel fuel for power and heat is creating health risks unique to rural Alaskans that should be mitigated by use of the cleaner diesel fuel.

Nationally, the costs of health impacts outweighed the cost increases of the new fuel. However, those analogies are not useable in rural Alaska since trucks and buses are such a small percentage of the pollution from diesel fuel combustion in rural locations. To be useful for community leaders, this projects needs to be completed in the next 2-3 years.

The health assessment will have three distinct field projects:

- 1) Emissions testing of typical sized electrical power generators using existing grade fuel and the new clean fuel. Testing will examine traditional pollutants such as nitrogen oxides, sulfur oxides and particulate matter (soot). Additional chemical analyses will also examine cancer-causing agents in the exhaust.
- 2) Ambient air quality monitoring in at least two typical rural communities. The monitoring may be seasonal in nature. It will measure similar pollutants as those in the engine emissions testing. Meteorological and weather conditions will also be recorded. This field work will be coupled with a community inventory of combustion sources that use diesel fuel.
- 3) Health specialist will perform epidemiological monitoring of selected individuals in the chosen rural communities to measure and track any characteristic biomarkers indicative of diesel combustion pollutants that may be traceable through blood, hair or other tissues.

The results of these three project elements will be used to assess the health risks through normal scientific risk assessment methods to determine what if any additional health risks are borne by rural Alaskans from the use of diesel fuel.