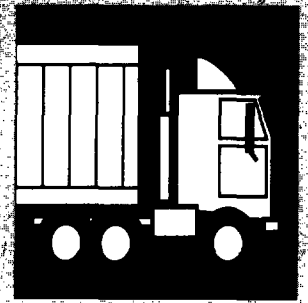


Alternative FUELS IN TRUCKING



Vol. 1, Number 1

Winter 1992

This legislation established a landmark federal mandate and incentive program for the use of alternative fuels by light and heavy-duty vehicles...

FLEET VEHICLES WILL MOVE ALTERNATIVE FUELS FROM RESEARCH TO REALITY

by Allen Schaeffer

The nation's thousands of light and heavy duty fleet vehicles will be the foundation for the future of clean alternative fuels, according to last year's passage of amendments to the Clean Air Act. This legislation established a landmark federal mandate and incentive program for the use of alternative fuels by light and heavy-duty fleet vehicles in 22 of the nation's most polluted areas.

Provisions on alternative fuels were hammered out during over six-weeks of intense conference negotiations last fall

on both the House and Senate sides which culminated in a fuel-neutral mandate based on emissions reductions potential of various fuels.

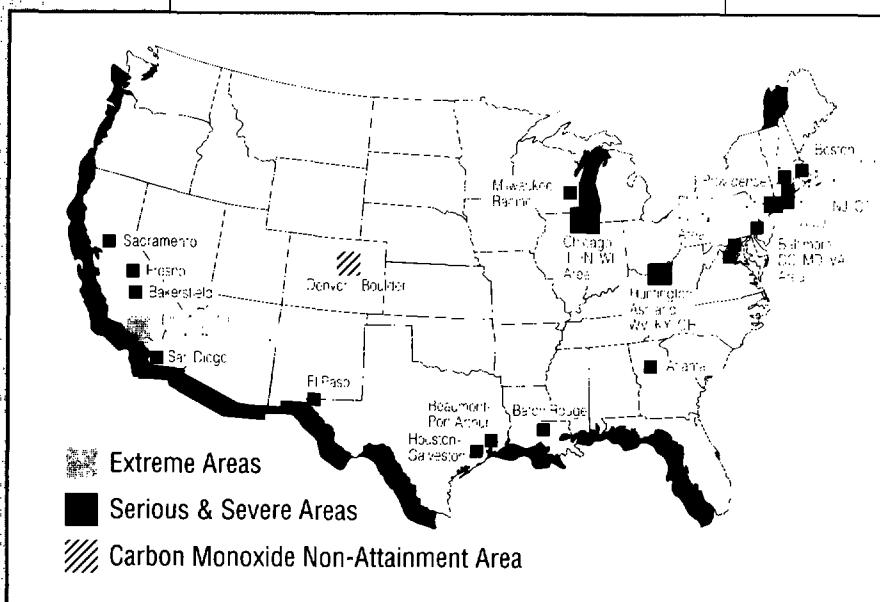
As a result, beginning in 1998, centrally-fueled fleets of 10 or more vehicles which operate in any of the specified non-attainment areas must begin using clean alternative fuels and vehicles when purchasing new or replacement vehicles. The cities and areas covered by the mandate include the following 21 Ozone Non-Attainment Areas, and 1 carbon monoxide non-attainment area. (See map).

Fuel Choices

The intent of the act was to provide fuel consumers a wide array of choices of various clean alternative fuels, recognizing the various capabilities and limitations of the different fleets and specific vehicle applications. Therefore, clean fuel vehicles are defined on their emissions-reducing capabilities modeled closely after the California Low-Emission Vehicle (LEV) program.

According to the act, clean alternative fuels are methanol, ethanol or other alcohols including blends of 85 percent or more alcohols combined with gasoline, reformulated gasoline, diesel, natural gas, liquefied petroleum gas, hydrogen or electricity.

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Project Profile

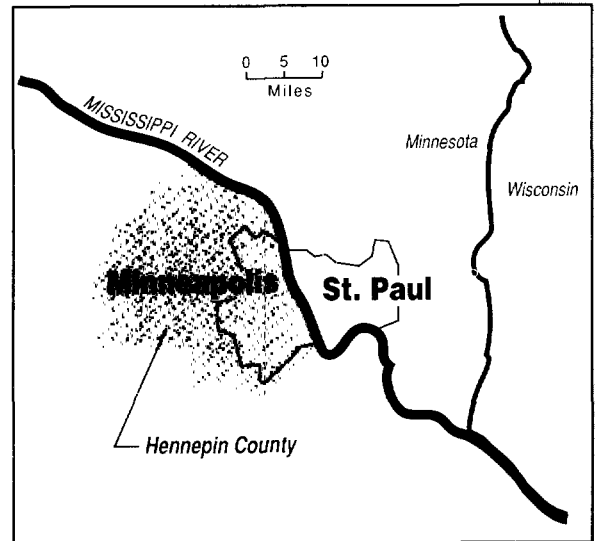
HENNEPIN COUNTY ETHANOL DEMONSTRATION PROJECT

By Barbara Sutey

Hennepin County, MN is the County government for the Minneapolis, Minnesota metropolitan area. Hennepin county is the largest unit of local government in Minnesota, representing more than one million citizens or about one fourth of all the residents in the state. Its budget exceeds \$1 billion, covering health and social services, criminal justice, solid waste management, libraries and highway programs. It is governed by a seven member elected Board of Commissioners.

The county highway system consists of 570 miles of road and streets including 140 bridges. Being located in the upper midwest, the road system requires not only the normal surface and structural

maintenance, but also considerable ice and snow control operations. To accomplish all the road maintenance activities the County has a fleet of 540 vehicles and equipment. Of this equipment, 30 tandem axle dump trucks are the mainstay of the maintenance program. These class 8 trucks haul asphalt to paving sites, rock chips to seal coating projects, move materials to various work sites or county facilities, remove demolition debris from reconstruction sites, clear trees, brush and other waste from road sides or haul any other materials needed in the road and bridge maintenance program. In the winter, a 12 foot front plow, a 10 foot underbody scraper and a tailgate sander are mounted to these dump trucks to plow the snow



and spread salt and sand to keep roads driveable. It is these trucks that will participate in the demonstration project on ethanol as an alternative fuel for heavy truck use.

Hennepin county volunteered for this demonstration project because it has a strong commitment to supporting alternative fuel development. The driving force behind this commitment is Commissioner John Derus, Chairman of the Board of commissioners. Commissioner Derus has been on the Board for 16 years, and during this time he has made transportation issues, in general, and alternative fuel in particular, his areas of expertise. His leadership on alternative fuels, specifically the development and use of ethanol, has made Hennepin county a guiding force in Minnesota in this arena. Since 1983 the County has used ethanol enriched gasoline in its vehicles running on unleaded gas. Since that time County vehicles have driven 25 million miles using 2 million gallons of gasohol. Beyond this, Commissioner Derus has been a leader in encouraging and persuading other governmental units to join the gasohol program. Participating in the development of ethanol technology in the heavy truck industry is a natural extension of this long term commitment.

Hennepin County believes that this research is important to the economic and environmental health of the midwest and

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Joy Miller, Editor

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The aim of **Alternative Fuels in Trucking** is to keep fleet owners and operators, equipment suppliers, government officials and other interested parties informed of important developments which impact the use of alternative fuels in heavy-duty trucks. Suggestions and comments are welcome.



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Fleet vehicles — from page 1

Phase in set to begin by 1998...maybe earlier

Light duty car and truck fleets (those up to 8,500lbs. gross vehicle weight rating, GVWR) must begin phasing in alternative fuel vehicles at the rate of 30 percent in model year 1998, 50 percent in 1999, and 70 percent in the year 2000. Heavy-duty trucks, 8,500-26,000 lbs. GVWR, must begin phasing in alternative fueled vehicles at the rate of 50 percent in each model year 1998-2000 and thereafter. Trucks over 26,000 lbs. GVWR are not included in the mandatory program, but EPA may allow those who wish to purchase and use clean fuel heavy-duty vehicles the opportunity to gain credits and also be exempt from certain transportation control measures.

Incentives and Credits to encourage broader, earlier participation

Fleets purchasing or converting more vehicles than required or using cleaner vehicles than required will gain marketable emissions credits which can be sold or traded among other fleets in the same

non-attainment area. On October 3, 1991 EPA announced the proposed regulations for implementing this program, which will apparently rely heavily on the incorporation of the clean fuel vehicle programs in each State air quality implementation plan (SIP). EPA is also considering allowing credits obtained under the fleet program to be traded to stationary sources in some areas. The rulemaking is set to be finalized by early 1992.

Editor's Note: The writer is Assistant Director of Energy and Manager of Environment Affairs for the American Trucking Associations.

Engine Profile

D.D.C. 6V-92TA

In formal ceremonies in Detroit on August 6, Detroit Diesel Corporation presented the world's first heavy-duty engine to achieve emission certification for an alternative fuel.

The D.D.C. 6V-92TA is engineered to operate on neat methanol (M-100) and an 85% methanol/15% gasoline blend (M-85). It is certified to meet the 1991 U.S. Environmental Protection Agency regulations and the more stringent 1991 California Air Resources Board regulations for heavy-duty transit bus engines. The engine also meets the 1993 Federal emissions standards. The results of this emission certification are shown in Table 1.

Development of the DDC methanol engine began over ten years ago. The technology involves autoignition of the methanol, rather than spark or glow plug ignition.

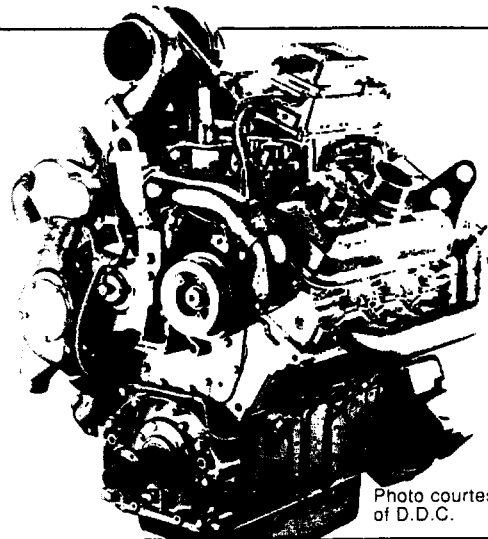


Photo courtesy of D.D.C.

"[This engine] is just the beginning of our alternative fueled engine development."

— D.D.C. Sr. V.P. David Merriam

Table 1

6V-92TA Emission Certification Results (g/bhp-hr)

Horsepower	Fuel	NOx	Hydrocarbons	CO	Particulate Emissions
277	M-100	2.3	0.4	4.8	0.06
253	M-100	2.3	0.5	7.8	0.06
253	M-85	3.0	0.8	12.0	0.06

Table Courtesy of Detroit Diesel Corporation

HENNEPIN — from page 2

the whole nation. It is important that cleaner burning fuels be found to solve our air pollution problems, and that those fuels reduce our dependency on foreign energy sources. To accomplish these goals while stimulating demand for agricultural products and generating potential market for alternative fuel technologies make the project doubly beneficial from the County's perspective.

Participating in this demonstration project will give the County the opportunity to make another contribution to furthering alternative fuel technologies. The County also believes that the government sector

of the heavy truck market is often overlooked during research and development efforts. Public Works trucks are subjected to unique stresses and demands. This demonstration project will allow the assessment of these factors in engine performance and hopefully lead to products suited to the road maintenance environment. Finally, participation in this project gives the County the opportunity to support and encourage development of effective and economical products for the trucking industry as a whole.

Editor's Note: The author is an Administrative Services Manager with the Hennepin County Bureau of Public Service.

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DID YOU KNOW?

That the word alcohol is derived from the Arabic, "kuhl"? It originally was used to mean a very fine powder, but gradually came to connote essence. Later the term was applied to wine spirits, which were referred to as "alcool vini," and eventually simply "alcohol."

(Source: Encyclopedia Britannica, 1990)

