



ACQUISITION AND
TECHNOLOGY

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

AUG 11 2000

U.S. Environmental Protection Agency
Attention Docket No. A-99-06
1200 Pennsylvania Ave, NW
Washington, D.C. 20460

Re: Control of Emissions of Air Pollution from New Motor Vehicles: Heavy Duty Engine and Vehicle Standards; Highway Diesel Fuel Sulfur Control Requirements; Proposed Rules, 65 Fed. Red. 35430, June 2, 2000

Dear Sir or Madam:

Enclosed are comments prepared by the Department of Defense (DoD) in response to the Federal Register Notice referenced above. We support EPA's efforts to reduce emissions from heavy-duty diesel engines, however we have serious concerns with how some aspects of the rulemaking could affect the ability of the Nation's Armed Forces to carry out their national security mission, both within the United States and where ever in the world they are called upon to serve.

Our most fundamental concern is that our military tactical vehicles must be able to operate reliably whenever and wherever in the world they might be needed, and the fuel requirements must be consistent with the operational requirements of a military force in combat conditions. This means that our military tactical vehicles must be able to operate reliably on fuel that is readily available worldwide. Moreover, it means that all combat forces – including all combat track vehicles, tactical wheeled vehicles, fixed wing aircraft, helicopters, ground support equipment, generators, power plants, and construction, amphibious and material handling equipment and vehicles – must be able to operate effectively and reliably on a single type of fuel. Use of a single fuel affords critically important logistical advantages, and it is a significant combat multiplier.

Since 1988, DoD has designated JP-8 as the Single Fuel for the Battlefield. NATO has adopted this policy as well, affording greatly needed interoperability. Use of JP-8 is critical to military operational readiness. It allows worldwide consistency in distribution and procurement. It removes the need to segregate fuels by grade or season, which under the conditions of a combat force operating in a hostile environment would significantly weaken the ability of the military to fulfill its national security mission, and under all circumstances a need to segregate fuels by grade or season would significantly degrade the military's readiness to perform its national security mission. Using a single fuel provides inter-Service and NATO interchangeability and enhances international operability.

Environmental Security



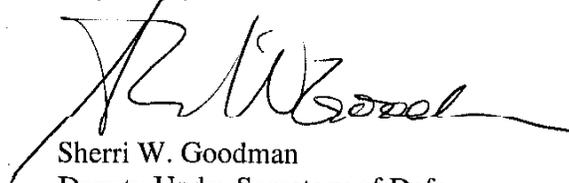
Defending Our Future

EPA's proposed engine standards assume use of high efficiency catalytic exhaust emission control devices that are intolerant to sulfur. Because our tactical wheeled vehicles must be able to operate on the high sulfur JP-8 immediately when deployed, they cannot contain engines with pollution control technology that is intolerant to sulfur, and they cannot have used a fuel prior to deployment that will result in unreliable service when JP-8 is used after deployment. Therefore, we request that EPA should use the existing national security exemption procedures to exempt DoD's tactical wheeled vehicles from the proposed engine standards. Moreover, we request that EPA renew the determination made in 1995 that JP-8 is not covered by the definition of "diesel fuel" and that its use in military tactical wheeled vehicles is permitted. We commit to work with EPA to satisfy any information needs deemed necessary to adequately support these two requests.

In addition, the attached DoD comments address three other areas of concern that relate to the potential impact of the proposed rule on mission readiness. These concerns have already been noted and discussed as a result of the Advanced Notice of Proposed Rulemaking and the interagency review process, but DoD remains concerned. The three additional areas of concern are (1) lubricity; (2) the potential impact on the availability and quality of military specialty fuels; and (3) impacts on the distribution system

Please feel free to contact my office if you have any questions. My point of contact is Ms. Maureen Sullivan, (703) 604-0519.

Very truly yours,



Sherri W. Goodman
Deputy Under Secretary of Defense
(Environmental Security)

Enclosures:
As Stated

cc:
DASA(ESOH)
DASN(E&S)
SAF/MIQ
DLA/CAAE
DESC

**Department of Defense (DoD) Comments
to the Environmental Protection Agency (EPA) on
the Notice of Proposed Rulemaking (NPRM) for
Proposed Heavy-Duty Engine and Vehicle Standards
and Highway Diesel Fuel Sulfur Control Requirements
and Request for Comment
(65 Federal Register 35430, June 2, 2000)**

August 14, 2000

The EPA proposed rule would regulate heavy-duty vehicles and fuel as a single system. The new emission standards will take effect for applicable 2007 model vehicles and require new sulfur limits (from 500 to 15 parts per million) for on-highway diesel fuel to be sold, beginning June 1, 2006. The Department of Defense (DoD) final comments address five areas of concern regarding the impact of the proposed rule on national security—specifically the ability of the military to train, deploy, and conduct operations. Many of these concerns have already been noted and discussed as a result of the Advanced Notice of Proposed Rulemaking, and the Interagency review process. The five areas are (1) Lubricity concerns; (2) Potential impact on the availability and quality of specialty fuels; (3) Distribution system impacts; (4) Requirement for a National Security exemption for engine standards; and (5) Use of JP-8 fuel in diesel-equipped military vehicles in the United States. Each of these five areas is addressed in more detail below, with recommendations.

1. Lubricity:

Comment: DoD is concerned that the voluntary approach for the maintenance of fuel lubricity has shortcomings from several perspectives.

Discussion: EPA acknowledges that the typical process used to remove sulfur from diesel fuel (hydrotreating) can impact lubricity, depending on the severity of the treatment process and characteristics of the crude oil. To address this problem EPA is proposing a voluntary approach that would encourage (but not require) fuel producers and distributors to monitor and provide fuel with adequate lubricity to protect diesel engine fuel systems. The EPA is essentially, requesting suppliers to incur, voluntarily, the additional costs of monitoring end-user data and, depending on findings, formulating and adding a lubricity enhancer to the required ultra-low sulfur fuel. Because there is no tangible benefit from compliance and an opportunity for lowering costs through non-compliance, it is rational to assume that a significant number of suppliers might disregard voluntary guidelines. Although the proposed rule anticipates the industry will adequately address this issue, DoD's experience has been to the contrary. In fact, as recently as the June 26 – 29, 2000 ASTM D-2 Committee meeting on Petroleum Products and Lubricants, the U.S. standards development community is still grappling with this issue with no resolution in sight.

The relationship between lubricity and sensitive refining processes and technology is already clear. For example, DoD has already experienced lubricity problems with the current diesel fuel

in the Midwest and Northwestern portion of the United States, especially during the winter season, when refineries are “turned around” to produce more diesel fuel and heating oil. As a result, we have seven military bases requiring diesel fuel to be supplied with lubricity additive during the winter months. The proposed rule anticipates an increased use of lubricity additives over the amounts used today. Although the rule estimates an average cost of 0.2 cents per gallon, the DoD experience has been significantly higher, from one to five cents per gallon.

One of the reasons why DoD has not experienced widespread lubricity problems is because some of our Army installations with deploying units in the U.S. have converted to JP-8, which contains a corrosion inhibitor/lubricity enhancer additive that provides some lubricity protection. The U.S. Marine Corps is poised to do the same thing for all its units.

Absent a required standard, the military users will face an added burden to ensure highway diesel fuel used in military vehicles provides sufficient lubricity. Since DoD relies on the commercial market to supply highway diesel to military customers, with over a million barrels consumed in 1999, the proposed further reduction in diesel sulfur would increase the risk and scope of lubricity problems. Due to harsher operating conditions, engines used in DoD vehicles (especially tactical vehicles) are more vulnerable to lubricity problems than the same engines operated in commercial vehicles. This will also adversely affect off-highway diesel vehicles, since DoD uses highway diesel fuel in off-road applications at many U.S. military installations.

It is also important to note that Europe has already implemented a requirement for lubricity for its automotive diesel industry standard (EN 590) in response to current European legislation to reduce automotive diesel sulfur limits to 50 parts per million by 2005. However, due to the very lengthy process within ASTM and concerns on whether a lubricity requirement will be in place before 2006, it is important for EPA to stress the importance of having the appropriate performance requirements in the specification to protect the customer’s engines/vehicles.

Without a uniform requirement for performance and approved additives applicable to diesel fuels, the proposed 15 parts per million-sulfur limit will exacerbate this problem. The proposed voluntary approach will not guarantee the needed consistency for all customers, including DoD. Using the quantity of on-highway diesel fuel consumed by DoD in the US in 1999, an industry imposed standard will not only eliminate an expected increase in maintenance costs as a result of fuel lubricity problems; it would also reduce added costs to the taxpayer by approximately \$2.3 million per year.

Recommendation: DoD recommends that EPA encourage the industry to develop standards by imposing a deadline for industry-wide implementation in the final rule.

2. Potential Impact on the Availability and Quality of Specialty Fuels:

Comment: DoD is concerned about the potential impact of the proposed rule on the availability and quality of military fuels, especially the aviation fuels JP-5 and JP-8.

Discussion: As stated in the preamble to the proposed rule, DoD’s primary concern is a potential reduction of refining capacity generally, and the number of refineries that produce

military fuels. The impact results from changing the already difficult economics of refining by limiting the slate of fuels that refiners can economically produce. Some military requirements, already barely cost-effective to produce, are marginalized out of the market. For example, the shipboard safety flash point requirement for military JP-5 fuel is already difficult to obtain in sufficient supply. This proposed rule might force some refiners to stop manufacturing this unique fuel, further reducing supply availability and impacting readiness. Another concern is that increased hydroprocessing severity and other refinery process modifications necessary to meet the proposed sulfur standard will impact chemical/physical characteristics in the current specifications. We base this argument on experience suggesting past environmentally driven changes to fuels such as gasoline and diesel fuels also affect the quality of jet fuel. For example, DoD (and industry) has been experiencing an increase in jet fuel thermal stability problems, especially on the West Coast. These problems vary from types of crude used, severity of refinery processing, to blending components used to make finished products. As a result, DoD is seeing an increasing decline in jet fuel stability.

There is also a concern that refiners currently blending more than 10 percent light cycle oil (LCO) into their highway diesel fuel might shift some LCO into off-highway distillate fuels. This would adversely affect the quality of off-highway fuels used by the military, like our Naval Distillate fuel (F-76). We have already experienced quality problems with LCO component streams that were not adequately hydrotreated, causing a highly unstable finished product. Storage stability is an important issue for DoD. Since F-76 is often stored for extended periods (longer than six months), unstable LCO used to manufacture F-76 could compromise mission readiness.

Recommendation: DoD recommends that EPA work with Industry, DoD and Department of Energy to assess the impact(s) of these changes, and develop solution(s) to ensure the needed refining capacity for National Security.

3. Distribution System Impacts:

Comment: DoD is concerned that the multi-product commercial pipeline system will be challenged to the point that it will be unable to accommodate the transportation of military fuels.

Discussion: DoD relies on the use of pipeline shipments as the most cost effective and viable means of transporting its fuels in the U.S. Pipeline shipments represented approximately 39 percent of worldwide DoD bulk fuels (51.1 million barrels) in FY 1999 (October 1, 1998 – September 30, 1999) shipped. Use of pipelines is environmentally beneficial as well as economical and reliable, and shipments are expected to increase. An ultra low sulfur grade of highway diesel fuel requires separate batching to prevent mixture with other grades and other fuels. It would reduce the flexibility of the distribution system, especially during the transition period between the 500 and 15 parts per million sulfur diesel fuels. This may particularly be a concern with specialty fuels or segregated shipments of fuel through pipelines that require separate tankage such as DoD fuels. Since DoD fuels (i.e., F-76, JP-5, and JP-8) are not fungible fuels, this rule may limit DoD's ability to transport the required critical volumes of these specialty products, to meet operational readiness requirements, through an already capacity-strained system.

If there is a transition period, DoD will have three diesel fuels to contend with: the new 15 and current 500 parts per million sulfur fuels, and off-highway diesel fuels. This will place an added burden on DoD in terms of additional infrastructure (separate tankage and fuel dispensing systems) required.

Recommendation: DoD recommends that EPA evaluate the potential impact of the transition period for reducing sulfur in diesel fuel to 15 parts per million on commercial pipeline distribution systems. EPA should also work with the appropriate regulatory authorities to ensure open pipeline access to all users is maintained despite any transition.

4. Need for National Security Exemption for Tactical Heavy-Duty Diesel Engines:

Comment: The Department of Defense (DoD) will need to make use of the existing National Security Exemption procedures to exempt tactical heavy-duty diesel vehicles from engine standards that do not allow use of JP-8, or other diesel fuel used outside of the U.S., because of sulfur-intolerant emissions control technology.

Discussion: The proposed rule establishes new emission standards that would begin to take effect in 2007 and would apply to heavy-duty highway engines and vehicles. The proposed standards are based on the use of high efficiency catalytic exhaust emission control devices or comparably effective advanced technologies. Because these devices are damaged by sulfur, EPA is also proposing to reduce the level of sulfur in highway diesel fuel to a level of 15 parts per million from the current 500 parts per million.

DoD has several categories of tactical wheeled vehicles we believe would fit within the rule's definition of heavy-duty diesel engines and vehicles and would therefore be subject to the new engine emission standards and restricted to the use of low-sulfur diesel fuel. Both of these restrictions conflict with the military mission assigned to these tactical vehicles.

Since about 1988 DoD has designated JP-8 (with JP-5 as an alternative) as the Single Fuel for the Battlefield for both aviation and ground support operations. NATO has adopted this policy for interoperability reasons. As a result, DoD requires that all combat track vehicles, tactical wheeled vehicles, fixed wing aircraft and helicopters, ground support equipment, generators, power plants, and construction, amphibious and material handling equipment and vehicles be able to operate effectively and efficiently on JP-8 fuel. JP-8 is a kerosene-based fuel that is essentially commercial Jet A-1 aviation fuel with additives to make it battlefield-equipment ready. As an aviation fuel it meets the existing commercial fuel standards, which can have up to 3,000 parts per million sulfur. Because tactical wheeled vehicles must be able to operate on JP-8 when deployed, they cannot contain engines with pollution control technology that is intolerant to sulfur.

Use of JP-8 as the Single Fuel for the Battlefield is critical to military operational readiness. Use of a single fuel by all combat forces is a significant combat multiplier and affords important logistical advantages. JP-8 is the fuel of choice at home and abroad for logistical, maintenance and operational reasons. It allows worldwide consistency in distribution and procurement. It

removes the need to segregate fuels by grade or season. It provides Inter-Service and NATO interchangeability and enhances international operability. Finally, because JP-8 is, overall, a cleaner fuel than diesel it reduces maintenance costs, improves fuel economy, and lowers overall system costs. JP-8 was selected because it is a high-quality aviation fuel and therefore available in almost any location around the world.

The Clean Air Act has long recognized that military performance requirements may be inconsistent with highway engine emission standards and has allowed EPA to exempt such military vehicles from new engine emission standards when necessary. Section 203 (b)(1) of the Act, authorizes the Administrator of EPA to “exempt any new motor vehicle or new motor engine from subsection (a) upon such terms and conditions as he may find necessary for the purpose of research, investigations, studies, demonstrations or training or reasons of national security.”

EPA’s regulations for the control of pollution from Motor Vehicles and Motor Vehicle Engines defines “motor vehicles” to exclude military combat vehicles. 40 CFR 85.1703 provides in pertinent part that:

(a) For the purpose of determining the applicability of section 216(2) [definition of motor vehicle] a vehicle which is self-propelled and capable of transporting a person or persons or any material or any permanently or temporarily affixed apparatus shall be deemed a motor vehicle, unless any one or more of the criteria set forth below are met, in which case the vehicle shall be deemed not a motor vehicle and excluded from the operation of the Act:

- (1) The vehicle cannot exceed a maximum speed of 25 miles per hour over level, paved surfaces; or
- (2) The vehicle lacks features customarily associated with safe and practical street or highway use, such features including, but not being limited to, a reverse gear (except in the case of motorcycles) a differential, or safety features required by state and/or federal law; or
- (3) The vehicle exhibits features which render its use on a street or highway unsafe, impractical, or highly unlikely, such features including, but not being limited to tracked road contact means, an inordinate size, or features ordinarily associated with military combat or tactical vehicles such as armor and/or weaponry.

While the regulations automatically exempt vehicles with tracks, armor or weaponry, DoD had a further need for either limited or complete exemptions of some vehicles that, while not clearly fitting within the above description, were tactical in that they were deployed for use in military operations and for military performance reasons could not meet the highway emission standards. In 1988 the Army and EPA developed Guidelines for National Security Exemptions to process exemptions for the military tactical vehicle fleet. DoD requests that EPA make use of those Guidelines to exempt tactical wheeled vehicles from the new engine emission standards unless or until availability of low-sulfur aviation fuel allows reassessment of the need for the exemption. DoD will work closely with EPA to determine the information necessary to support the exemption request.

Recommendation: DoD recommends that EPA approve use of the existing National Security Exemption agreement and the Army-EPA Guidelines to exempt tactical heavy-duty diesel vehicles from the 2007 engine standards unless or until availability of low-sulfur aviation fuel allows for reassessment of the need for the exemption.

5. Use of JP-8 in diesel-equipped military vehicles:

Comment: EPA should continue its determination that JP-8 does not meet the definition of diesel fuel under EPA's regulations and that operational readiness, logistical considerations and cost considerations warrant allowing use of JP-8 in military tactical motor vehicles.

Discussion: In 1995 EPA determined that use of JP-8 in military vehicles was not a violation of the then-existing fuel regulations. In the preamble to the heavy-duty diesel proposed rule EPA states that the technical basis for EPA's decision on this matter may be affected by the prospect of military vehicles equipped with the highly sulfur sensitive technology expected to be used on vehicles and engines designed to meet the standards for 2007 and beyond. EPA asked for comment on how best to deal with the situation, including comment on the extent to which national security exemptions pursued under 40 CFR 85.1708 may affect resolution of the issue.

As discussed in the comment above, DoD believes it must make use of the exemption allowed in 40 CFR 85.1708 to exempt tactical wheeled vehicles that would otherwise have to meet the 2007 emission standards. Application of the exemption would solve the problem of the heavy-duty tactical vehicles being able to use the single battlefield fuel JP-8 when deployed overseas. To more fully support the directive that JP-8 be the single battlefield fuel, DoD directed that rapid deployment land forces convert to use of JP-8 at their U.S. home bases. The changeover of vehicles using diesel to use of JP-8 is time-consuming and costly. JP-8 is a much cleaner burning fuel and, when it is used in an engine that previously burned diesel, clogged filters and other maintenance problems result. To avoid those problems, rapid deployment units in the Army and the Marine Corps have converted or are in the process of converting to use of JP-5/JP-8 in the U.S., thus allowing quick response to operational needs.

40 CFR 80.2 defines diesel fuel as, "any fuel sold in any State and suitable for use in diesel motor vehicle, and diesel motor vehicle engines, and which is commonly or commercially known or sold as diesel fuel." When this issue first arose in 1995 EPA reviewed its definition of diesel fuel and determined that JP-8 does not qualify as diesel fuel on the basis of its physical characteristics and current pattern of use. While JP-8 may be suitable for use in diesel vehicles, it was EPA's understanding, "that apart from its use in military vehicles, JP-8 is used exclusively in aircraft engines. EPA does not believe that this limited use in military diesel engines only, primarily for tactical and national defense reasons, is sufficient to conclude that JP-8 is commonly and commercially known or sold as a diesel fuel." See letter from Mary Smith, Director Field Operations and Support Division, to Ms. Sherri Goodman, Deputy Under Secretary of Defense (Environmental Security), dated May 1, 1995. In addition EPA noted that JP-8 is a military specification fuel produced in small quantities and the DoD exhibits extremely high quality control on the distribution of the product. DoD believes that determination is still accurate today and that JP-8 should not be regulated as a motor vehicle diesel fuel.

Recommendation: DoD recommends that EPA continue its determination that JP-5/JP-8 does not meet the regulatory definition of diesel fuel and that JP-5/JP-8 can be used in military tactical motor vehicles in the United States without violating the diesel fuel rule.