

not heating oil, this proposal requires some means of distinguishing fuel used for the two purposes. This is similar to the situation faced in 1993 in the case of highway diesel fuel. The solution in 1993 for highway diesel fuel was to dye the non-highway distillate. As discussed below, a similar approach is proposed today to identify and distinguish heating oil from NRLM.

This proposal would control the sulfur level of NRLM diesel fuel to 500 ppm in 2007, the same level currently applicable to highway diesel fuel, and the same level as up to 20 percent of the highway diesel fuel pool from June 1, 2006, through December 31, 2009. Under the current provisions of the highway diesel rule, this 500 ppm nonroad diesel fuel would have to be dyed red at the refinery gate and distributed separately from 500 ppm highway diesel fuel.

Continuing to implement this dye provision would allow for simple enforcement of both the proposed NRLM standard and the more stringent highway standards during this timeframe. Clear, undyed diesel fuel would have to meet the 80/20 ratio of 15 ppm and 500 ppm applicable to highway fuel, and diesel fuel (dyed red) would have to meet the 500 ppm standard applicable to NRLM. Continuing the current dye provisions would therefore ensure that the intended benefits of both programs were achieved. However, maintaining this dye distinction would also require segregation of a new grade of diesel fuel, 500 ppm NRLM, throughout the entire distribution system. The costs of requiring segregation of two otherwise identical fuels throughout the entire distribution system could be quite substantial.²³⁶

In order to avoid adding unnecessary cost to the fuel distribution system, we are proposing that the current requirement that non-highway distillate fuels be dyed at the refinery gate be made voluntary effective June 1, 2006.²³⁷ However, in its place we are proposing an alternate means for refiners to differentiate their highway diesel fuel from NRLM diesel fuel (see IV.B.3 below). Where it is feasible and cost effective to continue to dye and

segregate their nonroad fuel, we propose that refiners and importers may continue this option.

Since 500 ppm highway and NRLM diesel fuel would physically be the same, without some means of differentiating highway diesel fuel from NRLM diesel fuel, it would be impossible to maintain the benefits and program integrity of the 2006 highway diesel fuel program. Pre-2007 model year highway vehicles are free to continue using 500 ppm fuel until 2010 as long as it is available. However, if a refiner produced all 500 ppm fuel, designating it as nonroad fuel, that refiner would have no obligation to produce any 15 ppm highway diesel fuel. Without an effective way of limiting the use in the highway market of 500 ppm diesel fuel produced as NRLM fuel (provided currently by the refinery gate dye requirement), much more 500 ppm fuel could, and likely would find its way into the highway market than would otherwise happen under the current highway program, displacing 15 ppm that would have otherwise been produced. This likely series of events would circumvent the 80/20 intent of the highway rule and sacrifice some of the resulting PM and SO₃ emission benefits of that program. Perhaps more importantly, if this occurred to any significant degree, it could also undermine the integrity of the highway program by failing to ensure adequate availability of 15 ppm fuel nationwide for the vehicles that need it.

2. Proposed Fuel Program Design and Structure

a. Program Beginning June 1, 2007

To avoid the costs associated with segregating 500 ppm NRLM diesel fuel from 500 ppm highway fuel, we propose that the existing requirement that NRLM diesel fuel be dyed leaving the refinery would be made voluntary. We propose that this change could occur as early as June 1, 2006. In its place we propose that a baseline volume percentage of non-highway diesel fuel would be established and enforced for each refinery and importer. The baseline percentage would be based on a historical average for a refinery or importer. The baseline percentage of non-highway diesel fuel would then be used to identify the amount of 500 ppm diesel fuel produced by that refinery or importer that is subject to the NRLM requirements and the amount of 500 ppm fuel is subject to the highway requirements. As detailed below, in conjunction with a marker to prevent the use of heating oil in nonroad

equipment, the baseline percentage would effectively protect the benefits and integrity of the highway program, ensure that the benefits of the first step of NRLM diesel fuel to 500 ppm sulfur would be obtained, and would enable the efficient, fungible distribution of like grades of fuel. A discussion of this proposal follows, beginning with the introduction of a fuel marker for heating oil.

i. Use of A Marker to Differentiate Heating Oil From NRLM

If all NRLM diesel fuel were required to meet the 500 ppm standard beginning June 1, 2007, then heating oil and NRLM diesel fuel could be differentiated merely on the basis of their sulfur levels. However, this proposal would allow the limited production of high-sulfur NRLM fuel by small refiners, and by other refiners through the use of credits between 2007 and 2010 (see section IV.B.2.b). To ensure that the only high sulfur diesel fuel used in nonroad, locomotive, and marine diesel engines is high sulfur NRLM and not heating oil, it would be necessary for parties in the distribution system, and for EPA, to be able to distinguish heating oil from high-sulfur NRLM diesel fuel. One way of ensuring that these fuels remain segregated in the distribution system would be to require that either a dye or a marker be added to heating oil to distinguish it from NRLM diesel fuel during the period of 2007 through 2010.²³⁸ There is no differentiation today between fuel used for NRLM uses and heating oil. Both are typically produced to the same sulfur specification today, and both are required to have the same red dye added prior to distribution and sale.²³⁹ As a result, the dye or marker would have to be different from the current red dye requirement.

There are a number of types of dyes and markers. Visible dyes are most common, are inexpensive, and are easily detected. Invisible markers are beginning to see more use in branded fuels and are somewhat more expensive than visible markers. Such markers are detected either by the addition of a chemical reagent or by their fluorescence when subjected to near-infrared or ultraviolet light. Some chemical-based detection methods are suitable for use in the field. Others must

²³⁶ Under the highway program the potential exists to add a third grade of diesel fuel in an estimated 40% of the country, and we projected one-time tankage and distribution system costs of \$1.05 billion to accomplish this. Using similar assumptions, to add a second 500 ppm grade nationwide would cost in excess of \$2 billion. This assumes that the capability exists to add such new tankage.

²³⁷ The IRS requirements concerning dyeing of non-highway fuel prior to sale to consumers are not changed by this rulemaking.

²³⁸ A marker is an additive which is phosphorescent or has some other property which allows it to be easily detected, though not necessarily visible to the naked eye. A dye is intended to be visibly identified by the naked eye.

²³⁹ There may be some exceptions where a refiner produces a unique grade of distillate fuel solely for heating oil purposes.