

Proposed Emergency Regulatory Amendment Delaying the January 1, 2005 Implementation Date for the Diesel Fuel Lubricity Standard

November 24, 2004

California Environmental Protection Agency



Air Resources Board

Overview

- ✦ **Background**
- ✦ **Issues**
- ✦ **Proposal**
- ✦ **Impacts**
- ✦ **Recommendation**

Background

Diesel Fuel Lubricity

- ✦ Ability of diesel fuel to provide surface contact lubrication
- ✦ Required to protect fuel pumps and injection systems from excessive wear
- ✦ Dependent on presence of trace components that provide surface-active molecules
- ✦ Hydrotreating to reduce sulfur levels also reduces components that provide lubricity

Diesel Fuel Lubricity Standard

- ✦ In 2003, the Board approved a lubricity standard to assure adequate diesel fuel lubricity as 15 ppm sulfur implementation date approaches

ARB Diesel Fuel Lubricity Standard

- ✦ **Maximum wear scar diameter of 520 microns based on High Frequency Reciprocating Rig (HFRR) test**
- ✦ **January 1, 2005 implementation date**
- ✦ **Provision to sunset standard if Division of Weights and Measures (DMS) enforces a standard at least as stringent**

ASTM Diesel Fuel Lubricity Standard

- ✦ Identical to ARB standard
- ✦ Effective date January 1, 2005
- ✦ ASTM currently balloting to modify effective date to 1/1/06

California Diesel Fuel Lubricity

- ✦ **Lubricity recognized as concern with ARB 1988 approval of diesel fuel sulfur and aromatic hydrocarbon statewide standards**

1993 Governor's Diesel Fuel Task Force

- ✦ **1994 recommendation:**
 - minimum lubricity level of 3000 grams scuffing load per Scuffing Load Ball-on-Cylinder Lubricity Evaluator (SLBOCLE) test

California Voluntary Standard

- ✦ Since 1993, refiners have voluntarily maintained a minimum lubricity level
 - 3100 grams scuffing load based on SLBOCLE test

Current California Lubricity Additive Use

- ✦ **11 of 15 California refineries producing CARB diesel use lubricity additives to some degree**
 - Existing additization rates are 30 to 200 ppm
 - Expected additization rates to increase by 25 to 50 ppm to meet January 1, 2005 ARB standard

Future California Lubricity Additive Use

- ✦ 2006 15 ppm sulfur standard will likely require a significant increase in additization rates

United States Lubricity Additive Use

- ✦ **Less hydrotreating required for EPA diesel compared to CARB diesel**
- ✦ **Lubricity additive use not as prevalent**
- ✦ **ASTM lubricity standard may require estimated 30 - 40 % of current production to be additized**
- ✦ **With 2006 15 ppm sulfur standard all fuel may require additization**

Other Standards

- ✦ **Both Europe and Canada have a more stringent lubricity standard than ARB standard**
 - **Maximum WSD of 460 microns**

Issues

Jet Fuel Contamination Concern with Lubricity Additive in Pipeline

- ✦ Diesel fuel has historically been additized at the refinery then shipped through the common carrier pipeline
- ✦ Two instances of jet fuel contamination in California in last 10 years
- ✦ No change in pipeline policy was expected until 2006

Recent Increased Level of Concern Led to Pipeline Additive Ban

- ✦ **Joint Subcommittee E / Subcommittee J
Task Force met 10/22/04**
 - Expected increase in additive use due to implementation of ARB and ASTM lubricity standards brought issue to forefront
 - Studies presented on possible effects of contamination on jet fuel
 - Increased level of concern regarding possible lubricity additive contamination in jet fuel

Change in Kinder Morgan Pipeline Policy

- ✦ **Kinder Morgan notification to shippers on pipeline on 10/26/04:**
 - No additized diesel permitted in pipeline
 - Effective immediately

Disruption of California Diesel Fuel Supply Imminent

- ✦ Refiners, pipeline operators, and state agencies held teleconferences to discuss impacts and options
- ✦ Nearly 50% of diesel supply impacted
- ✦ Terminal additization not available
- ✦ Work arounds not feasible:
 - Trucking: limited by driver and truck availability
 - Splash blending at terminals: safety concerns

Interim Pipeline Protocol

- ✦ Interim pipeline protocol worked out between Kinder Morgan, refiners, and government agencies

Interim Pipeline Protocol

- ✦ **Temporary protocol to allow time for installation of additization injection equipment at the terminals**
 - **Lubricity additization rates will remain at historical levels until terminal additization can be implemented**
 - **Kinder Morgan will coordinate shipments to assure that jet fuel will not immediately follow lubricity additized diesel fuel**

Kinder Morgan Requested a Delay to January 1, 2005 Implementation Date

- ✦ **Implementation of 520 micron maximum WSD standard is expected to increase additization levels**
- ✦ **Increased risk of downstream contamination**
- ✦ **Terminal additization will not be installed and operational for most terminals by the 1/1/05 effective date**

Contamination Issue a National Concern

- ✦ **Some Pipeline Operators Outside California Banning Lubricity Additives**
- ✦ **Terminal additization not available in majority of locations**

Possible Delay of National Lubricity Standard

- ✦ **Twenty-one states have adopted newest version of ASTM D 975 as of 10/18/04**
 - North Carolina is first to issue letter suspending enforcement of standard until 10/1/05
 - California DMS will extend enforcement discretion if requested by letter of application
- ✦ **Delay of ASTM effective date to 1/1/06 currently being balloted**

Proposal

Requirement for Adopting Emergency Amendment

- ✦ Agency authorized to amend a regulation on emergency basis upon finding that:
 - Amendment is necessary for the immediate preservation of the public health and safety or general welfare

Emergency Amendment Limitation

- ✦ Amendment adopted on an emergency basis remains in effect no more than 120 days

Proposal: Delay Implementation for 120 Days

- ✦ Delay all 2005 phase-in dates for lubricity standard until May 1, 2005
- ✦ Some form of terminal additization projected to be in place by that date
- ✦ Delay does not apply to vehicular diesel fuel represented as having a sulfur content not exceeding 15 ppm

Rationale for Proposal

- ✦ **Delay necessary to avoid disruption of supplies if refiners are unable to ship fuel additized to meet lubricity standard through pipeline**

Potential Impacts of Proposal

- ✦ **Impact on production of diesel fuel**
 - No adverse impact
- ✦ **Environmental impact**
 - No increase in emissions since historic lubricity levels will be maintained
- ✦ **Economic impact**
 - No adverse economic impacts

Recommendation

✦ Staff recommends that:

- Finding of emergency be made based on disruption of diesel supplies if lubricity standard is implemented before terminal additization is in place
- Implementation dates of the diesel fuel lubricity standard, with the exception of 15 ppm sulfur diesel, be delayed until May 1, 2005