

**U. S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration**



**American Petroleum Institute
2008 Pipeline Conference and Cybernetics Symposium
April 8, 2008**

www.phmsa.dot.gov



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



Hazmat Safety

Overview

Ethanol and Biofuels

- **Why a PHMSA involvement?**
- **What are the Challenges?**
- **What Have We Done?**
- **What are our Future Actions?**



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



Hazmat Safety

Background--Why a PHMSA Involvement?

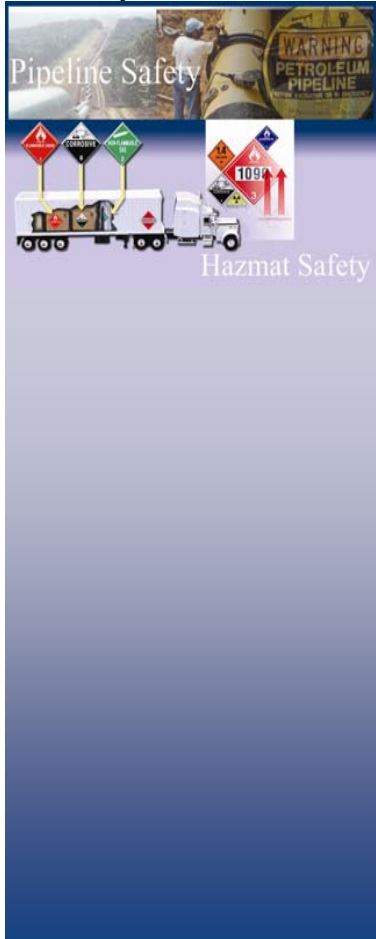
- **Energy Independence and Security Act of 2007:**
 - Accelerates the 2005 Renewable Fuel Standard (RFS) to require use of 36 billion gallons of biofuel by 2022.
 - Department of Energy, in consultation with the Department of Transportation, to study feasibility of transporting ethanol via dedicated pipelines.
- **20-in-10 Plan:**
 - President Bush outlined a proposal to reduce gasoline consumption by 20 percent in 10 years.
 - Plan would require 35 billion gallons of renewable and alternative fuels by 2017.
- **Energy Policy Act of 2005:**
 - Mandated 7.5 billion gallons of biofuels by 2012.



Background--Why a PHMSA Involvement?

U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



- **PHMSA Strategic Plan (2007-2011)**

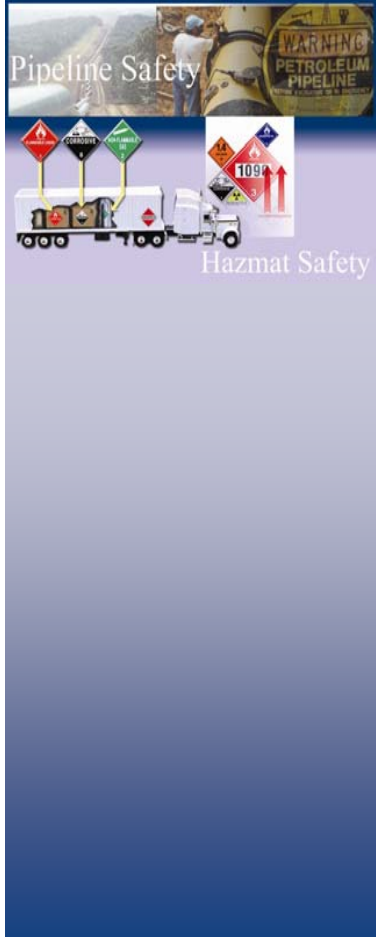
“Safe and efficient transportation of alternative fuels”

- Understand and manage the risks associated with transportation of hazardous liquids.
- Promote the development of suitable infrastructure and packaging; standards for the transportation of alternative fuels.
- Prepare communities to accept new transportation and facilities associated with these new products.
- Work with other federal agencies and stakeholders and use an enterprise approach to guide the assessment of risks posed by the transportation of alternative fuels in different transportation modes.
- Identify and lead any necessary cooperative research projects concerning technical requirements.
- Facilitate the sponsorship of such research and develop best practices and consensus standards for addressing risks and managing technical issues.



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



Goals and Objectives

Address infrastructure challenges and address challenges to the safe transportation of ethanol and biofuels through the following:

- **Policy Development/Setting Safety Standards**
- **Research & Development/Studies**
- **Stakeholder Coordination/Communication & Outreach**



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



Hazmat Safety

What are PHMSA's Challenges with Biofuels?

- Identify and quantify any safety and reliability threats to liquid pipelines.
- Address emergency response issues unique to biofuels and ethanol.
- Remove or manage these threats through a risk-based, data-driven integrity management approach.
- Address adequacy of operating procedures, set minimum standards and modify them as needed.
- Work with multiple industry and government stakeholders to address any safety, environment, and equipment impacts due to ethanol transportation.

PHMSA Actions—What Have We Done?



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



Policy Development/Setting Standards

- **Ethanol Federal Register Notice (August 2007)**
 - biofuel pipelines regulatory jurisdiction
 - requested technical papers and R&D proposals
 - activities with emergency responders
 - comments were generally supportive
- **Ethanol Pipelines Roadmap Workshop (October 2007)**
 - collaboratively craft an R&D strategy that addresses remaining technical barriers.
- **International Best Practices (Ongoing)**
 - obtain information on the Brazilian experience with ethanol
 - working to formalize/foster a closer working relationship to share knowledge on ethanol pipeline and transportation issues.
- **Biomass Research and Development Board (Ongoing)**
 - participating on many panels and boards to coordinate Federal strategy.



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



PHMSA Actions—What Have We Done?

Policy Development/Setting Standards

- **Changes/updates to hazard communications (January 2008)**
 - HM-218D Final Rule--United Nations (UN) identification number and proper shipping name for ethanol-gasoline blended fuels.
- **Emergency Response Guide (Summer 2008)**
 - updates guidance for initial response to incidents involving ethanol-gasoline mixtures and information on pipeline markers.
- **Hazmat Safety Alert (June 2006)**
 - provided emergency responders with guidance on appropriate procedures for responding to incidents involving fuel mixtures composed of ethanol.



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



PHMSA Actions—What Have We Done?

Research and Development/Studies

- **Pipeline R&D Forum (Feb. 2007)**
 - Subject matter experts identify some ethanol challenges
- **R&D Solicitation (July 2007; Awards in Feb. 2008)**
 - Ethanol effects on new and existing pipelines
 - Five new projects recommended for award
 - Solutions in 1-3 years
- **Pipeline Industry JIP on Ethanol Blends (Ongoing)**
 - Identifies QA/QC impacts & investigates pipe retrofiting options
 - Solutions by Summer 2008
- **Foam & Retardant Research for Ethanol (Ongoing)**
 - Response equipment performance with blends and pure ethanol



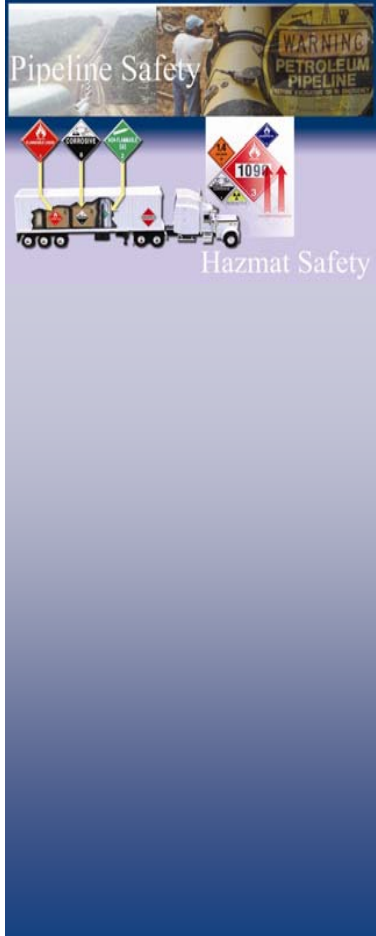
U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

PHMSA Actions—What Have We Done?

Research and Development/Studies

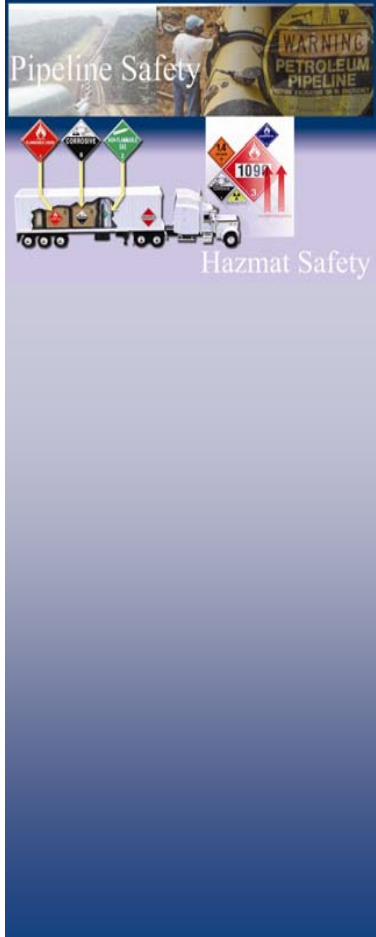
- Identify which blends can be moved in existing systems with little to no modification to the system
- Identify which blends can be moved in existing systems with appreciable modifications
- Identify which blends cannot be practically moved in existing systems but could be moved in specially designed new transmission or short-haul distribution systems





U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



PHMSA Actions—What Have We Done?

Stakeholder Communication/Outreach

- **Pipeline Industry**
 - American Petroleum Institute; Association of Oil Pipe Lines; American Society of Mechanical Engineers and Pipeline Research Council International, etc...
- **Emergency Response Organizations**
 - U.S. Fire Service; National Association of State Fire Marshals; International Association of Fire Chiefs; Independent Liquid Terminal Association; and the Ethanol Emergency Response Committee, etc...
- **Federal Agencies & Others**
 - Other DOT Modes (FRA, FMSCA, RITA, etc...)
 - DOE, USDA & EPA
 - Brazil – Agency National do Petroleo & Petrobras
 - Renewable Fuels Assoc.; Nat'l Comm'n on Energy Policy

What are Future Actions for PHMSA?



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



- **Assist in developing any required technology improvements to address threats**
- **Set/Develop safety and consensus standards**
 - Ethanol Pipeline Notification Policy
 - Workshop to remove/categorize regulatory barriers
- **Work with Emergency Response Community**
 - Revise emergency response plans & measures
 - Assess ethanol blend physical properties (flammability/toxicity)
 - Investigate response equipment effectiveness with ethanol/ethanol blends
 - Absorption booms and foam retardants
- **Expand Stakeholder Outreach**
 - National Commission on Energy Policy
 - DOE Biomass 2008
- **May 2008 Pipeline R&D Solicitation to address remaining technical gaps**
 - Based on a recent Industry/Government roadmapping session
 - Other Alt. Fuels: *Biodiesel, Biogas, Hydrogen*



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration



Hazmat Safety

Questions/Comments

Contact Information

David Kunz
Chief Counsel
PHMSA
(202) 366-4400
david.kunz@dot.gov