ULSD
Ultra-Low Sulfur Diesel
15 ppm

Why ULSD ?

- December 21, 2000 Clinton Administration announced new EPA Regulations

- EPA requires 2007 trucks to
  - Drop in nitrogen oxide emissions by 50%
  - Reduce particulate matter (soot) by 90%

- 97% reduction in sulfur content in diesel from 500 ppm to 15 ppm

Truck Manufacturers

- Any MY2007 on-road diesel vehicle(truck or car) will need ULSD
- Manufacturers forecast a $7 to $10 M price increase for 2007 Class 8 trucks
- Volvo set a $7,500 technology surcharge for 2007 trucks
- Freightliner has been building trucks at maximum capacity since early 2005
- US Fleet (Class 8) grew 7.7% in past year (thru Aug 06)
- 2006 YTD Truck sales through July up over 14.4%
- **First 2007 ULSD Truck on January 1, 2007**

ULSD - Supply Driven

- Only needed for new 2007 MY trucks and beyond
  - Catalyzed Diesel Particulate Filters in the after exhaust system
- Fleet conversion 3 - 5% in year one with a 5 - 8% increase each year thereafter
  - Estimated to be only 25% by 2010
- Real demand for 15 ppm diesel at the retail level will be small

Distillate Particulate Filter

80-20 Rule (Refiners/Importers only)

- At least 80% of the total US Refining production and imports of Highway Diesel Fuel (on-road use) has to be 15 ppm each year starting in June 2006
- No more than 20% of the US Refining production and imports of Highway Diesel Fuel (on-road use) will be 500 ppm each year starting in June 2006
- 80-20 rule does **not** apply to anyone down stream of the refinery/import and does not apply to Marketers

Strategic Use of 500ppm On-Road

- Refiners expected to use the 20% strategically
  - Pipeline or Terminal Constraints
  - Refinery Plans & Emergencies
  - Sell credits

3 New Grades Effective June 2006

- **15 ppm ULSD On-road diesel (MV 15)**
  - Can be dyed at the rack for Off-road use
- 500 ppm LSD on-road diesel (MV 500)
  - Can be dyed at the rack for Off-road use
- **500 ppm LSD Off-road Diesel (NRLM 500)**
  - Will be dyed at the rack – Non-Taxed
  - Can not be upgraded to 500 ppm On-Road
- >500 ppm HSD Off-Road /Heating Oil (NRLM HS)
- **15 ppm ULSK (15 ppm Kerosene)**
  - Can be dyed at the rack for Off-road use
- 400 ppm K-1 Kero
  - Will be dyed at rack or taxed

Ultra-Low Sulfur Diesel (15 PPM)

- Distribution
  - Starts at 8 ppm at refinery ends with EPA enforcement of 15 ppm maximum at retail

- Each registered entity taking custody of 15 ppm ULSD can downgrade as much as 20% of it to 500 ppm On-road diesel

- Terminals are receiving lower ppm than originally expected (single digits in most Colonial terminals). Pipelines making larger transmix cuts.

20% Downgrade Provision

- Refinery Designates 15 ppm - 100mb
- Pipeline Downgrades 20% - 80 mb
- Terminal Downgrades 20% - 64 mb

Then the Marketer and Wholesale Purchaser Consumer (WPC) have another 20% Downgrade Provision available to them

20% Downgrade Provision

- Everyone has to start tracking their downgrades on October 15, 2006
- Allows for no more than a 20% downgrade of 15 ppm to 500 ppm On-road within each 12 month compliance period by retail site or tank
- The first year compliance period goes from 10/15/06 thru 5/31/07
- No limit on re-designation of 15 ppm to 500 off-road or >500 ppm Off-road

Who has to track the 20% downgrade ?

- Retail outlets that market only 15 ppm On-road
- Retail outlets that market only 500 ppm On-road
- WPC (end-users) that inventory only 500 ppm On-road
- WPC (end-users) that inventory only 15 ppm On-road
- Distributors that handle either/or or both 500 ppm and 15 ppm

Who does not have to track their downgrade?

- If both 15 ppm and 500 ppm fuel are sold at the same retail outlet or dispensed at the a WPC location; the restriction doesn't apply at that outlet or location as long as 15 ppm fuel is available for sale or dispensing concurrently with 500 ppm fuel at commercial volumes

Terminals

- New Product Codes and messages on truck BOL
- Terminal automation systems change to inventory 2 products in one tank (500 on-road and 500 off-road)
- Lubricity and red dye systems installed as needed
- Considerable work to ensure segregated systems
- Few terminals will allow drain back facilities – CITGO terminals will not provide that capability
- Enhanced Quality Assurance Program

New Product Names on CITGO Documents

- MV Undyed 15 ppm sulfur #2 DF
- MV Undyed 500 ppm sulfur #2 DF
- NRLM Dyed 500 ppm High Sulfur #2 DF
- NRLM Dyed >500 ppm High Sulfur #2 DF

MV	Motor Vehicle
NRLM	Non-Road Locomotive and Marine

CITGO's Plan for Florida

- MV15 ppm in all terminals where we currently have on-road LSD except Tampa
- Tampa will have MV 500 ppm and NRLM >500
- For the first year we will continue to have >500 ppm in all the terminals we do today terminals

Trucking Issues

- Count on receiving very close to 15 ppm at the rack
- Trailers should be in dedicated service, have dedicated compartments or be thoroughly drained
- CITGO Terminals with ULSD will have a clean trailer prompt included in the driver's sequence
- Hoses must be properly drained
- Split loads will become a bigger liability. Transports equipped with a common manifold for multiple products will be a large risk for ULSD.
- To ensure product quality, CITGO strongly recommends using dedicated transports or dedicated compartments.

ULSD Distribution Concerns

ULSD Challenge:

7500 Gallons of 15 ppm ULSD Comtaminated with:	80 ppm Gasoline	500 ppm Diesel	2000 ppm Diesel	3000 ppm Jet	5000 ppm Heating Oil
7 Gallons or .1%	+ .1 ppm	+ .5 ppm	+ 2 ppm	+ 3 ppm	+ 5 ppm
35 Gallons or .5%	+ .3 ppm	+ 2.5 ppm	+ 9 ppm	+ 14 ppm	+ 24 ppm
70 Gallons or 1%	+ .6 ppm	+ 5 ppm	+ 19 ppm	+ 28 ppm	+ 47 ppm

Stress on Transports

- Increased pressure on your transportation department and common carriers from ethanol, transmix handling, and ULSD

- Reduced overall Capacity - Limited Drivers

- Coraluzzo, a large carrier in DE/MD/PA and NJ will dedicate transports that will only be used to deliver ULSD in “milk runs” rather than risk contaminating product. Split loads of gas and diesel will no longer be available.

EPA Requirements for Marketers

- Keep Diesel Product Transfer Documents (PTD) for 5 years starting June 1, 2006
- Pump Stand Labels starting June 1, 2006
  (Labels available from most suppliers)
- Account for 20% Downgrade Provision & retain records for 5 years – no reporting required
- Have a Product Quality Assurance Program

Product Quality Assurance Program

- Depends on your supply chain and the procedures and programs of those upstream

- Labs are working to make testing more practical (e.g. a 4 pack test kit that can be sent regular mail for an estimated $300 total cost)

EPA Enforcement Activities

- Retail inspections, sampling & testing
  - Will test 3 different ASTM Approved Methods
- Compliance test reproducibility issue – EPA issued a new Direct Final Rule (April 20, 2006) changing the enforcement tolerance from 2 ppm to 3 ppm thru 10/14/08
- Inspect Retail Pump Labels
- Review Product Transfer Documents for Downgrades or Contamination - Readily Available (would like last 3 on site)

Penalties

- Potential penalty of **$32,500 per violation**, per day, plus economic benefit or savings

- If settled informally and you are cooperative, most penalties will typically be much less

General Defenses to Presumptive Liability

- Prove Causation
- 5 years of Product transfer documents are in order
- Show documented training program for your employees and contractors (carriers)
- Show your quality assurance program is appropriate for your supply chain
- Show amended contract language with your common carrier addressing EPA regulation 40 CFR Part 80 Subpart I
- Show sample testing history – your own or from your supplier's quality assurance program
- Show written documentation of remedies of past contamination events

Develop a ULSD Compliance Manual

- Prescribe measures for protecting product integrity (write up what your thoughts are and actions t take)
- List procedures that are to be followed when contaminated fuel is found (or suspected)
  - Identify the cause
  - Corrective action they should take
  - Identify the nearest lab to analyze sulfur or where samples are to be mailed
- Document procedure to insure your retail pumps are correctly labeled, designate where labels are kept, responsibility for installing labels, etc.
- Identify contract amendments w/ carriers or education that may have taken place to explain the sensitivity of ULSD to the drivers
  - Did you issue a procedure? Video? Etc
- Recordkeeping procedures in-house, what are the exact records they'll keep and who is responsible, location of records, etc.
  - Detail how you will watch the 20% downgrade limitation of 15ppm MV to 500ppm MV.
- Document testing procedure/policy

Impact of Hydrotreating Distillates

- Lower fuel lubricity
- Higher cetane
- Lower fuel conductivity
- Improved thermal stability
- Lower density (noticeable impact to fuel economy is not expected- truck manufacturers expect 3% loss)
- Higher cloud point

Impact is dependent on each refinery's process

Diesel Fuel Lubricity

- ULSD prompted ASTM to add a Lubricity Specification 520 microns wear scar diameter HFRR (ASTM Standard D975)
- Lubricity is a measure of the capacity to reduce friction
- Lubricity requirements are dependent on base fuel
- Companies like CITGO will make sure that the fuel meets the OEM specifications for all base fuels

Winterized On-Road Diesel

- Currently improvements on CFPP to meet operating requirements are met with Kerosene and Additives
- In 2006 availability of 15 ppm ULSK (kerosene) is still in question
- Additives alone may have to be used to improve CFPP
- Additives alone are not expected to be enough in the coldest areas

Key Dates for On-Road

- **June 1, 2006** Start of 80-20 rule for Refiners/Importers
- **June 1, 2006** All retail pumps and end-user tanks must be labeled
- **September 1, 2006** Recommended target date for terminals converting to 15 ppm ULSD
- **October 15, 2006** Start date for tracking the 20% downgrade provision for first compliance period
- **June 1, 2010** All on-road diesel is 15ppm

ULSD Label

4.75" w x 4.75" h

KUX GRAPHIC & ARCHITECTURAL PRODUCTS
41065 Michigan Ave. • Canton, MI 48188
734-394-0363 • FAX 734-394-1046

CITGO - NEW DIESEL DECALS
ULTRA-LOW SULFUR

March 22, 2006

MV 500 Label

4.75" w x 4.75" h

KUX GRAPHIC & ARCHITECTURAL PRODUCTS
40065 Michigan Ave. • Canton, MI 48188
734-394-0363 • FAX 734-394-1846

CITGO - NEW DIESEL DECALS
LOW SULFUR

March 22, 2006

GASOLINES	DISTILLATES		
Unleaded	Ultralow Sulfur	Low Sulfur	High Sulfur
High grade	U		Diesel
Middle grade		No. 1 fuel oil	
Low grade		No. 2 fuel oil	
	U	Kerosine	

ALCOHOL-BASED FUELS	BIODIESEL
E85 Note: See 2.5.1 for specific labeling requirements	B2 Note: See 2.4.1 for specific labeling requirements

USED OIL	OBSERVATION OR MONITORING WELL	VAPOR RECOVERY

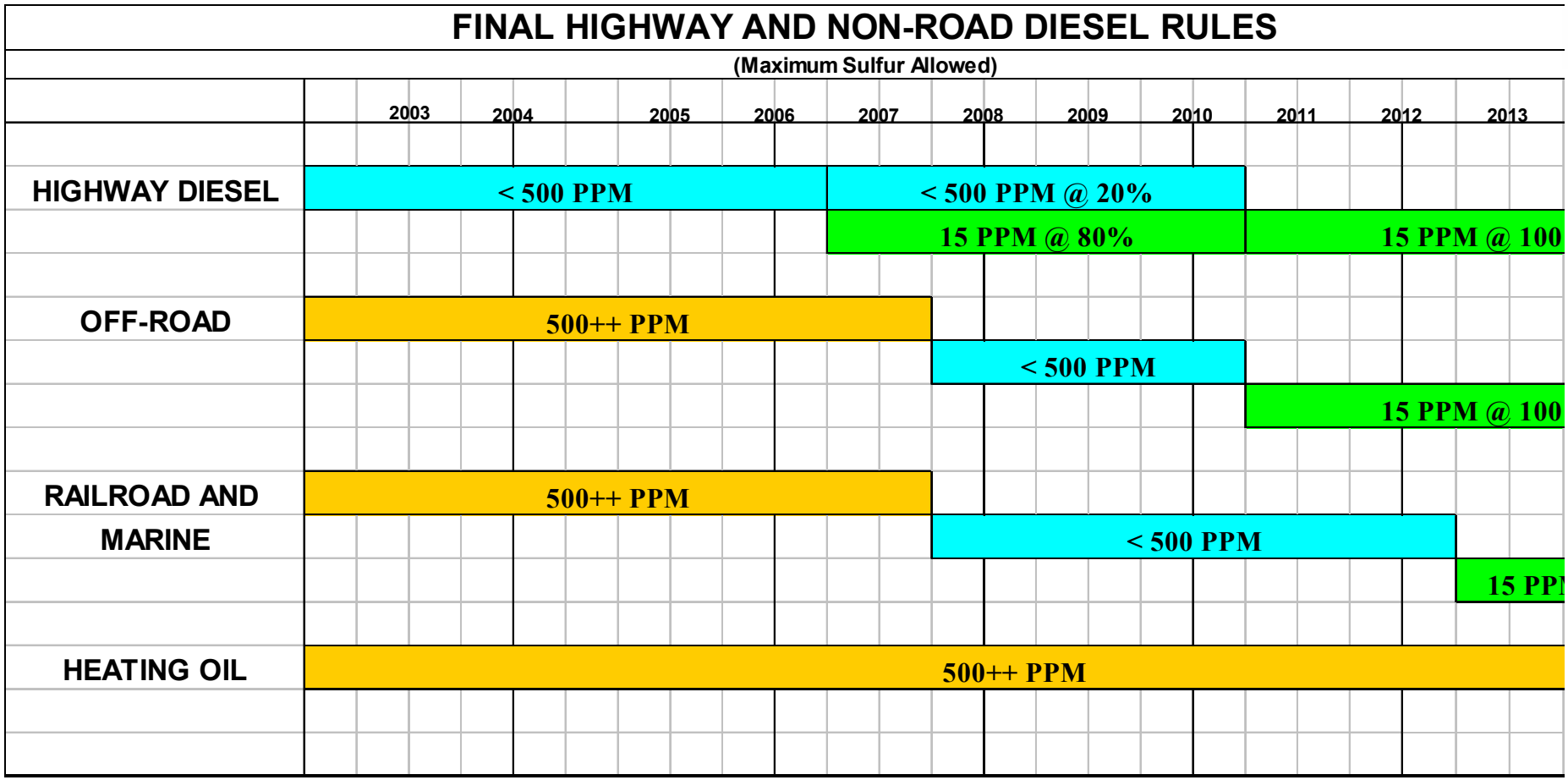
6 Key Areas of Focus for Marketer

1) Supply and Demand Balance (align your supply chain)
2) Review your physical logistics systems and operating procedures to ensure product integrity (especially trucking)
3) Set up your record keeping procedures including keeping product transfer documents for 5 years
4) Plan on how to utilized the 20% downgrade provision to maintain the value of the products and to allow you to market the products you want
5) Develop a ULSD Compliance Manual to defend an EPA violation
6) Review your purchase and sales contract's pricing formulas

6 Key Areas of Focus for WPC

1) Label your Tanks
2) Align your supply chain –Discuss with your supplier
3) Review your physical logistics systems and operating procedures to ensure product integrity (especially trucking)
4) Set up your record keeping procedures including keeping product transfer documents for 5 years
5) Develop procedure to track the 20% any downgrade
6) Develop a ULSD Compliance Manual to ensure Product Quality

U.S. Regulatory – Diesel Timeline



Off-Road Diesel Availability after June 2007

- June 2006 to June 2007- Our current HSD can be used for Off-Road applications including Heating Oil
- In June 2007, our current HSD can only be used as Heating Oil (unless the refiner has HSD credits from June 2006 to May 2007)
- HSD Credits can not be used in the Northeast (essentially NC and north)
- Some terminals and systems may dye 15 ppm for off-road use (e.g. construction, quarries, railroads etc.)
- Some terminals and systems NRLM 500 ppm will be used as Heating Oil

EPA Stated Benefits from ULSD

- Reduce Nitrogen Oxide emissions by 2.6 million tons each year
- Reduce Emissions of soot by 110 tons each year
- Prevent 8,300 premature deaths
- Prevent 5,500 cases of Chronic Bronchitis and 17,600 cases of acute bronchitis in Children
- Avoid 360,000 asthma attacks and more than 386,000 cases of respiratory symptoms in asthmatic children annually
- Prevent 1.5 million lost work days
- Prevent 7,100 hospital admissions and 2,400 emergency Room visits for asthma every year

We need to claim these benefits as ours

For More Information…

New Q&A Link:

http://www.epa.gov/cleandiesel/comphelp.htm

Highway Rule:

http://www.epa.gov/otaq/diesel.htm

Nonroad Rule:

http://www.epa.gov/nonroad-diesel/2004fr.htm

The Compliance Help page of EPA's Clean Diesel website-

http://www.epa.gov/cleandiesel/comphelp.htm

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