



PTSA

Petroleum Transportation & Storage Association

EPA ULTRA LOW SULFUR ON-ROAD DIESEL FUEL REGULATIONS

A Compliance Guide for Petroleum Marketers

Updated Version with Most Recent EPA Regulatory Changes

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I. INTRODUCTION

New Challenges

The U.S. EPA's new ultra low sulfur diesel (ULSD) regulations will present many challenges to petroleum marketers over the next four years. The primary concern for all marketers will be supply. Due to the extreme cost of producing ULSD, a number of refiners are expected to reduce the amount of on-road diesel fuel they produce or exit the market altogether. As a result, some areas of the country may experience a shortage of 15-ppm ULSD on-road fuel. The good news is that few refineries are expected to end production of on-road diesel fuel due to the new desulfurization regulations. Supply will also be effected by provisions in the regulations that permit small refineries to apply for special status allowing them to delay production of 15-ppm ULSD on-road fuel for a number of years. Again, few refineries have opted to apply for the small refinery status option. Nevertheless, petroleum marketers in limited areas of the country may find it difficult to obtain 15-ppm ULSD on-road fuel once the program begins in June 2006.

Assuming that supply of 15-ppm ULSD on-road fuel is readily available, petroleum marketers still face the challenge of getting the fuel to market without exceeding the 15-ppm sulfur content limit. This could be a very difficult challenge because ULSD fuel will pick up sulfur contamination as it ravel downstream from leftover residues of higher sulfur fuels in transports and storage tanks. To reduce the impact of downstream contamination, refiners are expected to produce ULSD with a 7-ppm sulfur content. In addition, the EPA is allowing a brief transitional period where ULSD can test as high as 22-ppm and still be compliant and a two-year testing tolerance of 3-ppm that will allow ULSD to test as high as 18-ppm. Still, petroleum marketers will need to implement strict quality assurance procedures, including periodic testing and sampling, product segregation and cleaning operations to ensure ULSD is not thrown off-specification as it travels downstream to the ultimate consumer.

Finally, liability for off-specification fuel could be a major challenge for petroleum marketers. Under the ULSD regulations, all parties along the distribution chain are presumed liable for on-road diesel fuel that exceeds EPA sulfur limits. Consequently, each party must prove they did not cause the violation. This is achieved by producing compliant product transfer documents and demonstrating the existence of a comprehensive quality assurance program. It is easy to see that the presumptive liability of all parties along the distribution chain could lead to frequent finger pointing between suppliers, distributors, retailers and customers.

Compliance

Given these challenges, the regulatory compliance requirements under the ULSD regulations seem less onerous. Petroleum marketers must make certain that dispensers are labeled correctly and product transfer documents contain the new product descriptions required under the ULSD regulations. Product transfer documents must be kept for a longer period of time and driver and employee training on downstream fuel segregation procedures, though not required under the regulations, will be necessary to avoid liability.

The following information is designed to help petroleum marketers meet the challenges presented by the ULSD regulations while achieving full compliance with ULSD regulatory requirements.

II. OVERVIEW: NEW ULTRA LOW SULFUR DIESEL FUEL REGULATIONS

New Sulfur Limits for On-road Diesel Fuels

The U.S. Environmental Protection Agency's (EPA) ultra low sulfur diesel fuel (ULSD) regulations require refiners to drastically reduce the sulfur content in on-road diesel fuel. Under the ULSD regulations, 80% of all on-road diesel fuel produced by refiners must contain a sulfur content no greater than 15 parts per million (ppm) beginning June 1, 2006. The remaining 20% of on-road diesel (LSD) fuel must meet a 500-ppm or less sulfur content. These two on-road diesel fuels will coexist side by side until June 1, 2010, when **all** on-road diesel fuel produced by refiners must meet the 15-ppm sulfur standard. Jet fuel and heating oil will remain unchanged while the sulfur content of marine and locomotive diesel will not be lowered to 500-ppm sulfur content until June 1, 2007.

Off-Specification Diesel Fuel

Since fuels with widely varying levels of sulfur content are commonly shipped along with ULSD, the major challenge for petroleum marketers will be to keep ULSD and LSD within their regulatory maximum sulfur content limits as the fuels make its way to the ultimate consumer. Residue from higher sulfur fuels left in cargo tank vehicles, aboveground tanks at bulk plants and underground tanks at retail facilities can contaminate ULSD and LSD causing them to exceed maximum sulfur content limits. Once this happens, petroleum marketers may downgrade or redesignate the contaminated fuel to a higher sulfur fuel.

Downgrading Off-Specification Diesel Fuel

Under the regulations 15-ppm ULSD on-road fuel can be downgraded to 500-ppm LSD on-road fuel. However, the EPA limits the amount of 15-ppm ULSD that can be downgraded to 500-ppm LSD. Petroleum marketers above the retail level may only downgrade 20% of the total annual amount of 15-ppm ULSD on-road fuel they supply per year. The downgrade limit ensures that most of 15-ppm ULSD will be available for on-road use. Retailers and wholesale purchaser-consumers (WPC) who sell or dispense both 15-ppm ULSD on road fuel and 500-ppm LSD on-road fuel at the same location are exempt from the 20% downgrade limit. These retailers and WPCs may downgrade as much 15-ppm ULSD on-road fuel as they like so long as the fuel remains at the retail or WPC location. The same is true for retailers or WPCs that sell or dispense only 15-ppm ULSD on-road fuel.

Re-Designating Off-Specification Diesel Fuel

If a petroleum marketer chooses not to downgrade 15-ppm ULSD on-road fuel to 500-ppm LSD on-road fuel or is unable to do so because of the 20% volume limitation, the only alternative is to "re-designate" the fuel for non-road, locomotive or marine (NRLM) use. There is no limit to the amount of on-road fuel that may be re-designated as non-road diesel fuel under the ULSD regulations. However, there is a limited market for non-road fuels that will reduce re-designating opportunities. The best opportunity to re-designate on-road to non-road fuels will be in the Northeast where the demand for home heating oil is in wide use and high demand.

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Quality Assurance Programs

Due to the new ULSD regulations, all parties below the refinery must adopt quality assurance programs designed to prevent downstream sulfur contamination. Wholesale distributors must conduct periodic sampling and testing, driver training and develop transportation and storage logistics that will reduce the possibility of downstream contamination. Retailers and WPC on the other hand are not required to sample and test for sulfur content and can rely on

product transfer documents and delivery invoices to keep on-road ULSD and LSD within their respective sulfur limits.

Product Transfer Documents

The new ULSD fuel regulations require petroleum marketers to include new information on product transfer documents (PTDs) including bills of lading, shipping papers, etc. in order to prevent downstream contamination and to ensure the supply of on-road diesel fuel. The EPA will require specific wording that accurately describes the sulfur content of the fuel on product transfer documents. Product transfer documents are an integral part of defending against liability for off-specification ULSD or LSD and must be kept for at least five years under the new regulations.

Dispenser Label Requirements

Under the ULSD fuel regulations, an array of new labels accurately describing the sulfur content and intended use of the fuel must be posted on retail and wholesale purchaser-consumer dispensers. Correct use and placement of these labels is important in order to communicate to the consumer the type of fuel being dispensed. Diesel engines for model year 2007 and beyond are designed to operate solely on 15-ppm ULSD on-road fuel. Use of any other diesel fuel will cause temporary performance problems and could result in permanent engine damage. The dispenser labels will help prevent misfueling by consumers and protect retailers from liability for damaged engines.

Liability for Off-Specification Fuels

When sulfur content is found to exceed regulatory limits, the party with custody of the fuel **and** all parties upstream in the distribution system are presumed liable for the violation. Each party has the opportunity to establish a defense to the presumptive liability. Parties upstream of the retailer are required to produce compliant PTDs for the fuel, show evidence of a quality assurance program that includes periodic sampling and testing (regardless of whether or not the particular fuel in question was tested). Retailers and wholesale purchaser-consumers need only show a compliant PTD and assert that they did not cause the violation. Sampling and testing is not required by these parties.

Non-Road Diesel Fuel and Heating Oil Regulations

The EPA has also finalized regulations that reduce sulfur content in non-road diesel fuel to 500-ppm starting June 1, 2007. Further reductions will bring non-road diesel fuel sulfur content down to 15-ppm in 2010. In addition, the regulations require heating oil to contain markers in certain sections of the country. This compliance kit does not address the 2007 low sulfur regulatory requirements for non-road diesel fuel and heating oil. PTSA is drafting a separate compliance kit to address these issues.

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III. COMPLIANCE SCHEDULE FOR ULSD REGULATIONS

Q. When do the ULSD regulations go into effect?

ULSD Diesel Fuel Regulation Compliance Schedule -The EPA is phasing in the ULSD regulations over a four-year period beginning in 2006. During this period, at least 80% of the on-road diesel fuel refiners produce must be 15-ppm ULSD (some estimates predict 95% of all on road fuel will be 15-ppm ULSD). The remaining 20% on road diesel fuel will be 500-ppm. There

are different compliance dates for different parties along the petroleum distribution chain. The EPA has set the following compliance dates for the ULSD fuel regulations:

June 1, 2006

- Refiners must begin producing 15-ppm ULSD and 500-ppm LSD on-road diesel fuels at a minimum 80/20 ratio respectively.
- Retailers and wholesale purchaser consumers must post new labels on dispensers.
- Product transfer documents must include new language accurately reflecting sulfur content and authorized use of fuel.

June 1, 2006 to September 1, 2006

- All parties except retailers and wholesale purchasers-consumers may sell or dispense 22-ppm on-road diesel fuel as 15-ppm ULSD on-road diesel fuel.

September 1, 2006

- Terminal operators must make both 15-ppm ULSD on road fuel and 500-ppm LSD on road fuel available to downstream parties.

September 1, 2006 to October 15, 2006

- Retailers and wholesale purchaser-consumers may sell or dispense 22-ppm on-road diesel fuel as 15-ppm diesel fuel.

October 15, 2006

- All on-road diesel fuel dispensed at retail or wholesale purchaser-consumer locations must be either 15-ppm ULSD or 500-ppm LSD.
- 20% Downgrading limit (15-ppm ULSD on-road diesel fuel to 500-ppm LSD on-road fuel) begins.

October 15, 2006 to October 15, 2008

- A testing tolerance of 3-ppm for 15-ppm ULSD on-road diesel fuel will be allowed downstream of the refinery gate (this means 15-ppm ULSD on-road diesel fuel can test to 18-ppm and still be in compliance with EPA sulfur limits).

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October 15, 2008

- The testing tolerance for 15-ppm ULSD on-road diesel fuel downstream of the refinery gate is reduced to 2-ppm.

IV. PRODUCT TRANSFER DOCUMENTS FOR DIESEL FUEL

Q. What information do I need to put on my diesel fuel product transfer documents under the new ULSD regulations?

1. Current EPA Regulations for PTD Information - The EPA currently requires petroleum marketers to put basic information on product transfer documents accompanying the transfer of title or custody of diesel fuel or distillate product. These requirements include:

- the names and addresses of the transferor and transferee;
- the volume of diesel fuel or distillate which is being transferred;
- the location of the diesel fuel or distillate at the time of the transfer;
- the date of the transfer; and
- for transfers of motor vehicle non-road, locomotive or marine diesel fuel, the sulfur content standard the transferor represents the fuel to meet.

2. New EPA Regulations for PTD Information - Beginning June 1, 2006, the EPA will require additional information on PTDs anytime a person transfers custody or title of a motor vehicle, non-road, locomotive or marine diesel fuel (except transfers from a retail dispenser into the tank of a vehicle). Petroleum marketers **must select one** of two specific PTD descriptors allowed by the EPA for each type of diesel fuel. Include one or the other following descriptors on PTDs as applicable:

- **15-ppm Undyed Diesel Fuel** - Include **either** product descriptor on PTD:

“15-ppm sulfur (maximum) Undyed Ultra-Low Sulfur Diesel Fuel For use in all diesel vehicles and engines.”

Or

“15-ppm sulfur ULSD”

From June 1, 2006 through May 31, 2010, the product transfer document must also state whether the diesel fuel is **1D or 2D**.

Grade No. 1D comprises the class of volatile fuel oils from kerosene to the intermediate distillates. Fuels within this classification are applicable for use in high-speed engines in service involving frequent and relatively wide variations in loads and speeds. In cold weather conditions, No. 1D fuel allows the engine to start easily. In summary, for heavy-duty high-speed diesel vehicles operating in continued cold-weather conditions, No. 1D fuel provides better operation than the heavier No. 2D.

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Grade No. 2D includes the class of distillate oils of lower volatility. They are applicable for use in high-speed engines in service involving relatively high loads and speeds. This fuel is used more by truck fleets, due to its greater heat value per gallon, particularly in warm to moderate climates. Even though No. 1D fuel has better properties for cold weather operations, many still use No. 2D in the winter, using fuel heater/water separators to provide suitable starting, as well as fuel additive conditioners, which are added directly into the fuel tank.

- **15-ppm Dyed Diesel Fuel** - Include **either** product descriptor on PTD:

“15-ppm sulfur (maximum) Dyed Ultra-Low Sulfur Diesel Fuel. For use in all non-road diesel engines. Not for use in highway vehicles or engines except for tax-exempt use in accordance with section 4082 of the Internal Revenue Code.”

Or

“15-ppm sulfur dyed ULSD. Non-road or tax exempt use only”

- **500-ppm Undyed Diesel Fuel** - Include *either* product descriptor on PTD:

“500-ppm sulfur (maximum) Undyed Low Sulfur Diesel Fuel. For use in Model Year 2006 and older diesel highway vehicles and engines. Also for use in nonroad, locomotive, and marine diesel engines. Not for use in model year 2007 and newer highway vehicles or engines.”

Or

“500-ppm sulfur LSD. Not for use in 2007 and newer vehicles and engines.”

- **500-ppm Dyed Diesel Fuel** - Include either product descriptor on PTD:

“500 ppm sulfur (maximum) Dyed Low Sulfur Nonroad, Locomotive or Marine Diesel Fuel. Not for use in highway vehicles or engines except for use in Model Year 2006 and older highway diesel vehicles or engines for tax-exempt use in accordance with section 4082 of the Internal Revenue Code.”

Or

“500-ppm sulfur dyed LSD. Non-road or tax exempt use only. Not for use in 2007 and later vehicles”

WARNING! Product codes cannot be used on PTDs below the terminal rack!

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V. PRODUCT TRANSFER DOCUMENTS FOR DIESEL FUEL ADDITIVES

Q. What information do I need to put on my product transfer documents for diesel additives blended downstream of the refiner under the new ULSD regulations?

1. Current EPA Regulations for Diesel Fuel Additive PTDs. - Under current regulations, any time a party transfers custody or title of a diesel fuel additive downstream of the refiner, the PTD accompanying the additive must contain the following information:

- the name and address of the transferor and transferee;
- the date of transfer;
- the location at which the transfer took place; and
- the volume of additive transferred.

2. New EPA Regulations for Diesel Fuel Additive PTDs - Beginning 06/1/06 the EPA will require additional information on the diesel fuel additive PTD any time a party transfers custody or title of a diesel fuel additive. Petroleum marketers must include the following information on PTDs:

- **15-PPM Diesel Fuel Additive** - Beginning 6/1/06, PTDs for 15-PPM sulfur content diesel fuel additives PTDs must include the phrase:

“The sulfur content of this diesel fuel additive does not exceed 15 ppm.”

- **Greater than 15-PPM Diesel Fuel Additives** - Beginning 6/1/06 PTDs for diesel fuel additives greater than 15-PPM sulfur content, must include the following information:
 - (i) The additive's maximum sulfur concentration;
 - (ii) The maximum recommended concentration in volume percent for use of the additive in diesel fuel;
 - (iii) The contribution to the sulfur level of the fuel, in ppm, that would result if the additive is used at the maximum recommended concentration;
 - (iv) and the phrase;

“This diesel fuel additive may exceed the federal 15 ppm sulfur standard. Improper use of this additive may result in non-complying diesel fuel.”

- **Greater than 15-ppm Static Dissipater and/or Red Dye** - Beginning 06/1/06 PTDs for diesel fuel additives containing a static dissipater and/red dye with a sulfur content greater than 15-ppm the PTD must include:
 - (i) The additive's maximum sulfur concentration;
 - (ii) The maximum recommended concentration in volume percent for use of the additive in diesel fuel;
 - (iii) The contribution to the sulfur level of the fuel, in ppm, that would result if the additive is used at the maximum recommended concentration;
 - (iv) and one of the following phrases that most accurately describes the additive:

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“This diesel fuel contains a static dissipater additive having a sulfur content greater than 15-ppm”

or

“This diesel fuel contains red dye having a sulfur content greater than 15-ppm”

or

“This diesel fuel additive contains a static dissipater additive and red dye having a sulfur content greater than 15-ppm”

WARNING! Product codes cannot be used on PTDs below the terminal rack!

VI. PRODUCT TRANSFER DOCUMENTS FOR DIESEL FUEL DOWNGRADED BELOW THE RACK

Q. What information do I need to put on my product transfer documents for diesel fuel that is downgraded below the rack from 15-ppm to 500-ppm sulfur content or redesignated to a higher sulfur non-road fuel under the new ULSD regulations?

1. New EPA Regulations for Downgraded Fuel PTDs - Beginning 10/15/06, PTDs for downgraded or redesignated diesel fuel must meet the same information requirements as set forth under section "f. Product Transfer Documents for Diesel Fuel" above.

WARNING! Product codes cannot be used on PTDs below the terminal rack!

VII. RECORDKEEPING REQUIREMENTS

Q. What records do I have to keep under the new ULSD requirements and for how long?

1. New Record Keeping Requirements - The new ULSD diesel regulations require petroleum marketers to maintain the following records for a period of five years:

- Product transfer documents (bills of lading, invoices);
- Sample and test *results* conducted under a quality assurance program
- Sample and test *methods* documentation (name of the test ex: ASTM D-5453 and D-7039)

2. Importance of Keeping Records - It is extremely important that petroleum marketers keep the required records described above. These records are needed to claim a defense against liability for off-specification fuel. Remember that under the new ULSD regulations, all parties along the distribution chain are presumed liable for diesel fuel that does not meet the correct sulfur standard. Your records are the only way to prove that you did not cause the violation.

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VIII. DISPENSER LABELS

Q. What labeling requirements apply to retailers and wholesale purchaser-consumers of diesel fuel beginning June 1, 2006?

1. Dispenser Label Size and Format - Any retailer or wholesale purchaser-consumer (farmer, construction company, fleet operator, etc) who sells, dispenses, or offers for sale or dispensing, diesel fuel must affix conspicuous and legible labels, in block letters of no less than 24-point bold type, and printed in a color contrasting with the background to each dispenser.

2. Dispenser Label Placement- The new ULSD regulations require that the dispenser labels be placed on the vertical surface of each pump housing and on each side that has gallon and price meters. The labels must be on the upper two-thirds of the dispenser in a location where they are clearly visible.

3. Dispenser Label Information - Beginning 06/1/06 the following labels must be attached to retail dispensers:

- **500-ppm Low Sulfur Highway Diesel Fuel Dispensers**

**LOW-SULFUR HIGHWAY DIESEL FUEL
(500-ppm Sulfur Maximum)**

WARNING

Federal law prohibits use in model year 2007 and later highway vehicles and engines.

Its use may damage these vehicles and engines.

- **15-ppm Ultra Low Sulfur Diesel Fuel Dispensers** - The dispenser label must read:

ULTRA-LOW SULFUR HIGHWAY DIESEL FUEL (15-ppm Sulfur Maximum)

Required for use in all model year 2007 and later highway diesel vehicles and engines.

Recommended for use in all diesel vehicles and engines.

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- **Greater than 500-ppm Non-Highway Diesel Fuel Dispensers** -The dispenser label must read:

NON-HIGHWAY DIESEL FUEL (May Exceed 500-ppm Sulfur)

WARNING

Federal law prohibits use in highway vehicles or engines. Its use may damage these vehicles and engines.

Warning! These labels must appear on retail dispensers as well as on dispensers and/or tanks operated by wholesale purchaser-consumers such as farmers, construction companies and fleet operators!

NOTE: All dispensers must be labeled by June 1, 2006. However, according to the EPA, a retailer or WPC is ***not required*** to place a label for 15-ppm on-road diesel fuel on a dispenser until October 15, 2006. Instead, you can place a 500-ppm on-road diesel fuel label on a pump dispensing 15-ppm between June 1, 2006 and October 15, 2006. But remember, if a 15-ppm on-road diesel fuel label is posted before October 15, 2006, then the diesel fuel dispensed ***must be*** 15-ppm on road (plus the allowable sulfur tolerances). If the 15-ppm label is posted, and the diesel fuel does not meet the posted sulfur content specifications then the retailer or WPC is in

violation. Some retailers and WPC may choose to label 15-ppm dispensers with the 500-ppm on-road label during the 6/1/06 to 10/15/06 transition period to allow the fuel in the tank to turn over adequately to 15-ppm product. REMEMBER! all dispensers must be labeled by June 1, 2006.

IX. DOWNGRADING 15-PPM ULSD FUEL

Q. Under what conditions may highway diesel fuel subject to the 15-ppm sulfur standard be downgraded to on-road diesel fuel subject to the 500-ppm sulfur standard?

1. Downgrading Definition - EPA defines "downgrading" as the change in designation of 15-ppm ULSD fuel for on-road use to 500-ppm LSD on-road diesel fuel.

Warning! Only 15-ppm on-road diesel fuel may be downgraded. It must be downgraded to 500-ppm on-road diesel fuel. Everything else must be redesignated for non-road use

2. Downgrading Party - Only the party with custody or title to the 15-ppm ULSD on-road fuel may downgrade.

3. Downgrading 15-ppm ULSD Fuel - Beginning 10/15/06, 15-ppm ULSD fuel may be downgraded to 500-ppm on-road diesel fuel with certain limitations (*see below*). Downgrading occurs when the sulfur content of ULSD exceeds the 15-ppm regulatory limit.

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4. Downgrading Limitation - Beginning 10/15/06 parties downstream of the refinery (*see exceptions below*) **may not** downgrade more than 20 percent of the 15-ppm ULSD fuel (by volume) they have custody or title to during any calendar year.

Also, Beginning 10/15/06, a retailer or wholesale purchaser-consumer who sells or dispenses only 500-ppm on-road diesel, may downgrade 15-ppm ULSD to 500-ppm on-road diesel in a quantity no greater than 20 percent of the total volume of the highway diesel it sells or dispenses annually. The EPA established the downgrade limitation in order to ensure that there is sufficient supply of 15-ppm ULSD fuel for highway use.

Warning! The 20% downgrade limitation is calculated on a facility-by-facility basis! Calculate the limitation separately for each bulk plant location and each retail location!

Warning! Downgrading limits do not begin before October 15, 2006. Until this date downgrade without limitation is allowed!

5. Downgrading Without Limitations for Certain Retailers - Under the ULSD regulations there are several provisions that allow **certain** retailers and wholesale purchaser-consumers to downgrade 15-ppm ULSD on-road fuel in any volume they wish, without limitation;

- Between 6/1/06 and 10/15/06 there is no limitation on the amount of 15-ppm ULSD on-road fuel that may be downgraded to 500-ppm highway diesel fuel. Retailers and wholesale purchaser-consumers (as well as distributors below the terminal rack) may downgrade 15-ppm as needed.
- Beginning 10/15/06 retailers and wholesale purchaser-consumers who sell or dispense both 15-ppm ULSD on-road fuel and 500-ppm on-road diesel fuel at the same locations, throughout the calendar year, **are exempt** from the 20 percent downgrade volume limitation **at those locations** and may downgrade 15-ppm ULSD fuel without limitation.

- Beginning 10/15/06 retailers and wholesale purchaser-consumers who sell or dispense only 15-ppm ULSD fuel **are exempt** from the 20 percent downgrade volume limitation **at those locations** and may downgrade as needed.

Warning! The downgrade limit exemption applies only to retailers and wholesale purchaser-consumers!

6. Re-designation to Non-Road Fuels - Petroleum marketers who do not choose to downgrade 15-ppm ULSD highway to 500-ppm highway diesel fuel or unable to do so because of the 20% downgrade limitation, may instead **redesignate** the fuel to non-road, locomotive or marine diesel fuel and heating oil (some restrictions apply see *XIV Heating Oil* below). Redesignation to a non-road diesel fuel may be done as needed without volume limits.

7. Redesignation Limitations - While there are no regulatory limits on the volume of 15-ppm ULSD highway fuel that can be redesignated to a non-road fuel, the “market” for such fuels will be limited. In addition, tax and dye requirements will further limit re-designations. Finally, once the off-road diesel fuel rule goes into effect in June 2007, and heating oil marker requirements are required, re-designation of 15-ppm to heating oil will be largely limited to select areas in the Northeastern U.S. that are exempt from the marking requirements.

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X. QUALITY ASSURANCE

Q. What must I do to ensure that the diesel fuel in my custody remains within the applicable sulfur standard?

1. Downstream Quality Assurance - Under the ULSD regulations, parties in the distribution chain downstream of the refiner or importer are not required to test diesel fuel for sulfur content. However, in order to establish a defense to any violation, downstream parties must conduct a quality assurance program, including sampling and testing.

2. Distributor Quality Assurance Program - Petroleum marketers who distribute 15-ppm ULSD on-road fuel and 500-ppm on-road diesel fuel should take the following steps to ensure that sulfur content levels are not exceeded during transportation and storage to the end user:

- Allow time for multiple storage tank turnovers before the October 15, 2006 compliance date;
- Develop fuel sequencing strategies that minimize convergence of low sulfur and high sulfur fuels;
- Conduct a random sampling and testing program for on-road diesel fuel and maintain test results and sampling methods records for at least five years;
- Inspect PTDs carefully and reject improper fuel;
- Keep PTDs, shipping papers and bills of lading for on-road for all fuels for a minimum of five years;
- If possible, dedicate separate cargo tank vehicles and storage tanks for on-road and off-road distillates;
- If product segregation is not possible, make certain that residues from high sulfur fuel in trucks and storage tanks (including piping and hoses) are drained or flushed prior to filling with 15-ppm ULSD on-road diesel or 500-ppm on-road diesel.
 - Flat-bottomed cargo tank vehicles tanks are more susceptible to sulfur contamination. Draining at terminal rack prior to loading reduces sulfur contamination.

- Angled bottom tanks generally do not add enough sulfur contamination to through ULSD and LSD of spec.
- Flushing compartment with ULSD prior to loading effectively removes any sulfur contamination in both flat bottom and angle bottom cargo tank trucks.
- Use terminal drain tanks (when available) to purge residue prior to taking on 15-ppm and 500-ppm diesel;
- Change all fuel filters frequently to prevent sulfur residue contamination;
- Train driver in ULSD and LSD product handling with emphasis on PTD recognition and proper delivery techniques, including identification of ULSD and LSD retail tanks; and
- Develop written fuel handling techniques for bulk plants and cargo tank vehicles.

3. Retail Quality Assurance Program - Retail and wholesale purchaser-consumers are not required to sample and test ULSD and LSD and it is not recommended. Instead, a retail facility quality assurance program should include the following:

- Allow time for multiple storage tank turnovers before the October 15, 2006 compliance date;

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- Develop fuel sequencing strategies that minimize convergence of low sulfur and high sulfur fuels;
- Minimize inventory levels in USTs prior to receiving ULSD delivery to prevent stratification. Stratification of fuel with different levels of sulfur can occur in USTs if the drop volume is less than 60% of the tank capacity. Multiple drops promote better mixing and quicker tank conversion;
- UST manifold systems may take longer to turn over;
- Consider draining and cleaning tank prior to accepting ULSD;
- Train retail personnel on the importance of checking PTDs and ensuring proper drops;
- Develop written fuel handling policy designed to prevent retail contamination;
- Keep PTDs, shipping papers and bills of lading for all fuels for a minimum of five years; and
- Change fuel filters frequently during conversion process to avoid sulfur build-up.

XI. TESTING

Q. If I choose to sample and test for sulfur content, what are the testing requirements?

1. Testing ULSD and LSD for Sulfur Content - Under the new ULSD diesel regulations testing is not required for any party downstream of the refinery gate. However, petroleum marketers who distribute fuel to retail outlets as well as wholesale purchaser-consumers must conduct sampling and testing in order to raise a defense against a violation of the sulfur limits.

2. Testing Tolerance - Under the new regulations ULSD on-road diesel fuel is limited to a sulfur content of 15-ppm (based on a gallon measurement). However, the EPA will allow ULSD testing above the 15-ppm limit to be distributed and sold as ULSD under the following conditions”

- Between 6/1/06 and 10/15/06 ULSD on-road diesel may test as high as 22-ppm sulfur content and still remain in compliance with the 15-ppm sulfur standard. During this period ULSD on-road diesel testing as high as 22-ppm may be designated as 15-ppm ULSD on-road diesel fuel on PTDs and dispensers.

- Between 10/15/06 and 10/15/08 ULSD on-road diesel fuel may test as high as 18-ppm sulfur content. During this period ULSD on-road diesel testing as high as 18-ppm may be designated as 15-ppm ULSD on-road diesel fuel on PTDs and dispensers.
- After 10/15/08 on-road diesel fuel may test as high as 17-ppm sulfur content. During this period ULSD on-road diesel testing as high as 17-ppm may be designated as 15-ppm ULSD on-road diesel fuel on PTDs and dispensers.

3. Testing Frequency - First, remember that sulfur testing is not required for any party downstream of the refiner or importer. However, to raise a defense against liability for fuel exceeding established sulfur limits, periodic testing and sampling must occur above the retail level. The regulations do not provide how often sampling and testing must occur, though it is certain that testing every batch of ULSD or LSD is **not** required. Periodic testing should occur frequently enough to establish that contamination is not likely to have occurred while in the tester's custody and if it does, can be remedied quickly. To raise a defense against liability, sampling and testing of the diesel fuel found to be out of compliance is not required. It is sufficient that a periodic sampling and testing program is in place. Retailers are not required to sample and

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test for sulfur content to raise a defense to liability. Retailers may want to sample and test only to determine whether a tank has successfully turned over from high sulfur to low sulfur fuel.

4. Applicable Tests - Currently, there is no reliable field test to determine sulfur content in ULSD or diesel fuel. Sulfur testing must be conducted by an off-site laboratory. EPA recommends the following test methods as the most cost effective (\$75-\$100 per test) and accurate choice for below the terminal rack testing:

- **ASTM D5453:** Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence. (see www.astm.org).
- **ASTM D7039:** Sulfur in Gasoline, Diesel Fuel by Wavelength Dispersive X-ray Fluorescence. (see www.astm.org).

5. Sampling Protocol - EPA recommends using ASTM D-4057 Standard Practice for Manual Sampling of Petroleum and Petroleum Products as the basis for a sampling protocol for below the terminal rack testing. (see www.astm.org).

6. Testing Laboratories - The EPA is currently compiling a list of certified testing laboratories. Check with your fuel supplier to find a testing laboratory near you.

Warning! The EPA uses its own sulfur test method for enforcement purposes. When determining compliance with sulfur limits, only the EPA test results are considered.

Warning! Save all sampling and test results and methodology for at least five years!

XII. LIABILITY

Q. Who is liable for ULSD or LSD that is found to exceed allowable sulfur limits?

1. Joint and Several Liability - The EPA has adopted a joint and several liability approach for violations of allowable sulfur limits established for ULSD and LSD under the new regulations. In other words, anytime ULSD or LSD exceeds allowable sulfur limits, every party along the distribution chain that has had custody or title to the fuel is presumed to have caused the violation. It is up to each party to prove they did not cause the violation.

2. Defenses to Liability - In order for a party along the distribution chain to prove they did not cause the violation, the following must be shown:

- The violation was not caused by the party or the party's employee;
- PTDs in the party's possession account for all non-compliant fuel and/or additives and shows that the fuel was in compliance while under the party's custody;
- The party has in place a quality assurance program that includes periodic sampling and testing; and
- Upon learning of the non-compliant fuel, the party immediately removed it from commerce and took steps to prevent future violations.

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3. Special Rule for Retailers - Retailers (wholesale purchaser-consumers) need only demonstrate that they were not responsible for the violation and provide PTDs that account for all non-compliant fuel which show that the fuel was in compliance while under the party's custody.

XIII. MISFUELING

Q. What happens when a customer dispenses 500-ppm on-road LSD fuel into a model year 2007 engine designed to run on 15-ppm ULSD?

1. Misfueling Effects on Engines - Model year 2006 and older diesel engines can run on either 15-ppm ULSD or 500-ppm LSD without adverse effects. However, model year 2007 and newer diesel engines are designed to run solely on 15-ppm ULSD. An isolated misfueling incident will not cause lasting damage to a model year 2007 engine. Emissions will temporarily increase and engine performance reduced until the fuel tank is turned over with 15-ppm ULSD. Repeated misfueling of a 2007 model year diesel vehicle will cause permanent damage to the engine and emissions control systems.

2. Liability for Misfueling - Retailers are not liable for misfueling if dispensers are properly labeled and the retailer did not cause the violation. Distributors dropping non-compliant fuel would be liable for end-user misfueling if they caused the violation and anything other than 15-ppm was delivered to a 15-ppm retail tank. The end user is liable for misfueling from the wrong pump if all dispensers are properly labeled.

XIV. HEATING OIL

Q. Is heating oil effected by the on-road ULSD regulations?

1. Heating Oil - The on-road ULSD regulations do not apply to heating oil. Heating oil supply will be effected, however as petroleum marketers redesignate non-compliant on-road diesel fuel to heating oil in areas where permissible. The EPA's non-road diesel fuel regulations, which take effect on 6/1/07 will have a more direct impact on heating oil. Under these regulations, the sulfur content of non-road diesel fuel will be lowered to 15-ppm over a period of four years. The non-road regulations do not lower the sulfur content of heating oil, but they do require the addition of a

chemical marker to prevent heating oil from being diverted to the non-road market. The regulations exempt a large portion of the Northeastern United States from the chemical marker requirement, thus allowing downgrade and redesignation of lower sulfur diesel fuels. The areas exempted from the marker requirements include:

- Massachusetts, Maine, New Hampshire, Vermont, Rhode Island, Connecticut, Maryland, Virginia, Delaware, New Jersey, North Carolina, Washington, D.C. and portions of New York, Pennsylvania and West Virginia.

The non-road diesel fuel regulations will impose labeling and other recordkeeping requirements on heating oil dealers in the chemical marker exemption zone beginning in June of 2007. PTSA is preparing a separate compliance guidance for non-road diesel regulations that will address these issues in full.

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XV. DIESEL ADDITIVES, KEROSENE, BIO-DIESEL AND USED OIL BLENDING

Q. Some distributors blend additives into diesel fuel to improve performance, including bio-diesel kerosene in cold weather conditions and used oil. Can such blending continue under the ULSD diesel fuel program?

1. Bio-diesel - Bio-diesel has virtually no sulfur content. Bio-diesel temperature should be kept at a minimum of 10 degrees F above its cloud point when splash blending. Keep all product transfer documents for bio-diesel with the PTDs of the blended diesel fuel. For more information on bio-diesel, go to <http://www.biodiesel.org>.

2. Kerosene - Kerosene blended into 15-ppm ULSD on-road diesel fuel must meet the 15-ppm sulfur content standard. Furthermore, kerosene with a sulfur content greater than 15-ppm may not be blended with ULSD even if the resulting blend results in 15-ppm sulfur content or less.

3. Used Oil - Used oil blended into diesel fuel is generally not allowed.

4. Diesel Fuel Additives in General - Diesel fuel additives with a sulfur content greater than 15-ppm may be blended with ULSD on-road diesel so long as the resulting blend does not exceed the 15-ppm maximum sulfur content standard. Kerosene is not considered an "additive" by the EPA and must meet the 15-ppm maximum sulfur standard when blending with ULSD on-road diesel fuel.

5. Diesel Fuel Additives Sold to the Ultimate Consumer - All diesel fuel additives sold in containers for use by the ultimate consumer of diesel fuel, must have displayed on the additive container, in a legible and conspicuous manner, either of the following statements, as applicable:

- **"This diesel fuel additive complies with the federal low sulfur content requirements for use in diesel motor vehicles and non-road engines.";** or

For those additives sold in containers for use by the ultimate consumer, with a sulfur content in excess of 15 ppm the following statement:

- **"This diesel fuel additive does not comply with federal ultra-low sulfur content requirements for use in model year 2007 and newer diesel motor vehicles or model year 2011 and newer diesel non-road equipment engines."**

XVI. INFORMATION RESOURCES:

1. Information Resources - For additional information please see the following

- **General Compliance Information**

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1. U.S. EPA Diesel Fuel Web Site

<http://www.epa.gov/otaq/regs/fuels/diesel/diesel.htm>

2. U.S. EPA ULSD Question and Answer Document

<http://www.epa.gov/cleandiesel/420b05010.pdf>

- **Regulatory Language**

U.S. EPA ULSD Regulations

<http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1>

- **ULSD Sampling and Testing Methods**

ASTM International
100 Barr Harbor Drive, PO Box C700,
West Conshohocken, PA, 19428-2959

(610) 832-9585

<http://www.astm.org>

- **Biodiesel Blending**

National Biodiesel Board
3337a Emerald Lane
Jefferson City, MO 65110

(800) 841-5849

<http://www.biodiesel.org>