



**TCEQ REGULATORY GUIDANCE**

**Air Quality Division**

**RG-000 DRAFT**

**January 2012**

# **Questions & Answers regarding the Texas Low Emission Diesel Fuel (TxLED) Regulations**

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**Texas Commission on Environmental Quality • PO Box 13087 • Austin, Texas • 78711-3087**

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## **Compliance with Texas low emission diesel (TxLED) fuel standards**

### **How does a producer or importer comply with the TxLED fuel standards?**

Producers and importers can satisfy the TxLED fuel standards of [Title 30 Texas Administrative Code \(30 TAC\) §114.312](#) using any of the following five methods:

- Produce or import diesel fuel that has a maximum aromatic hydrocarbon content of 10% by volume and has a minimum cetane number of 48.
- Produce or import diesel fuel that complies with the California diesel fuel regulations under [Title 13 California Code of Regulations \(13 CCR\) §2282](#) in effect as of January 18, 2005, except for those regulations established for small refineries. Diesel fuel produced to comply with the “designated equivalent limits” specified in the California diesel regulations under [13 CCR §2282\(h\)\(1\)](#) would also be considered compliant with the TxLED fuel standards.
- Produce or import diesel fuel that complies with the specifications of a California Air Resources Board (CARB) certified alternative diesel formulation that was approved by CARB before January 18, 2005, to meet the California diesel regulations under [13 CCR §2282](#) in effect as of October 1, 2003. CARB certified alternative diesel formulations that were approved for compliance with California’s small refinery specifications for diesel fuel are not acceptable.
- Produce or import diesel fuel that complies with an alternative diesel formulation that has been approved by the TCEQ under [30 TAC §114.315\(c\) or \(d\)](#) as achieving comparable or better emission reductions.
- Produce diesel fuel under an alternative emission reduction plan (AERP) that has been approved by the TCEQ under [30 TAC §114.318](#) as a substitute fuel strategy that will achieve equivalent emission reductions.

For the purposes of this guidance document, the definition of “diesel fuel” as specified in [30 TAC §114.6](#) applies.

### **How do the TxLED fuel standards apply to biodiesel, biodiesel blends, and biodiesel blenders?**

The sale and supply of B100 biodiesel (100% biodiesel) is not regulated under the TxLED regulations because B100 biodiesel does not meet the definition of diesel fuel as defined under [30 TAC §114.6](#).

However, biodiesel does meet the definition for "additive" as specified in [30 TAC §114.6](#) when it is blended with diesel fuel, which results in biodiesel blends being subject to the

TxLED requirements for alternative diesel fuel formulations. Therefore, biodiesel blenders must comply with the following guidance for the sale, supply, or offer for sale of biodiesel blends for use in the 110 central and eastern Texas counties affected by the TxLED requirements.

### ***Biodiesel Blenders***

For the purposes of [30 TAC §§114.312 - 114.319](#), the blenders of biodiesel blends will not be considered as producers of diesel fuel subject to the TxLED regulations. Rather, biodiesel blenders will only be considered as part of the diesel distribution chain and, as such, are required to comply with the record keeping requirements specified in [30 TAC §114.316\(g\)](#).

### ***Biodiesel Blends***

Biodiesel blends will be considered compliant with the TxLED standards provided:

1. The diesel fuel used to make the biodiesel blend is compliant with the TxLED standards; and
2. The biodiesel used as the blendstock for the biodiesel blend meets the following Biodiesel Blendstock requirements.

### ***Biodiesel Blendstock***

The biodiesel blendstock used for making TxLED-compliant biodiesel blends for use in any of the TxLED affected counties must meet the following provisions:

1. The biodiesel blendstock must meet the requirements of the current active version of ASTM D6751 (*Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*); and
2. The biodiesel blendstock must contain no more than 15 parts per million (ppm) sulfur, as determined using the appropriate test methods and procedures specified in the current active version of ASTM D6751.

For the purposes of this guidance document, the definitions of “biodiesel” and “biodiesel blend” as specified in [34 TAC §3.443](#) apply.

### **Do the TxLED fuel standards apply to diesel fuel used for nonroad equipment, locomotives, and marine engines?**

Yes. All diesel fuel that is commonly or commercially known or represented as Grade No.1D or No.2D diesel fuel in accordance with the ASTM D975, *Standard Specification for Diesel Fuel Oils*, that is sold in or supplied into any of the 110 Texas counties affected by the TxLED regulations that may ultimately be used to power a diesel-fueled compression-ignition engine within those affected counties is required to meet the

TxLED fuel standards. In addition, all marine distillate fuels classified as DMX or DMA as specified by the International Standard ISO 8217 (*Specifications for Marine Fuels*), also known as marine gas oil (MGO), that may ultimately be used to power a diesel-fueled compression-ignition engine on a marine vessel in the eight-county Houston/Galveston/Brazoria (HGB) 1997 ozone nonattainment area of Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties are also required to meet the TxLED fuel standards.

There is no distinction in the TxLED regulations between Grades No. 1D or No. 2D diesel fuel used by on-highway motor vehicles and that used by nonroad equipment, locomotives, and marine engines.

The TxLED regulations do not contain a standard for sulfur in diesel. Therefore, producers and importers must comply with the federal sulfur standards applicable to the type and use of the diesel being produced or imported, i.e., 15 ppm sulfur maximum for diesel used by on-highway motor vehicles beginning June 1, 2010, 15 ppm sulfur maximum for diesel used by nonroad equipment beginning June 1, 2010, and for locomotives and marine engines beginning June 1, 2012.

**I own a facility located in the 110-county region that is subject to the Title V permitting program and I have diesel fuel storage tanks on site. Are the TxLED regulations in Chapter 114 an applicable requirement for Title V purposes?**

No. [30 TAC Chapter 114](#) relates to air pollution control from mobile sources, rather than stationary sources. Therefore, Chapter 114 is not an applicable requirement under the TCEQ's Title V program rules.

Diesel storage tanks located in specified counties may be subject to requirements in [30 TAC Chapter 115, Subchapter B, Division 1](#), for Storage of Volatile Organic Compounds that would be applicable requirements for Title V purposes. However, tanks storing TxLED are unlikely to be subject to the control requirements under this division because of the low volatile organic compounds (VOC) vapor pressure of the fuel. (Tanks storing materials with vapor pressure less than 1.5 pounds per square inch absolute (psia) are exempt from all but certain recordkeeping requirements; tanks storing materials with vapor pressures less than 1.0 psia are exempt from all requirements unless they are located in the HGB ozone nonattainment area.)

The counties in which diesel storage tank requirements apply are as follows: Aransas, Bexar, Calhoun, Brazoria, Chambers, Collin, Dallas, Denton, Ellis, El Paso, Fort Bend, Galveston, Gregg, Hardin, Harris, Jefferson, Johnson, Kaufman, Liberty, Matagorda, Montgomery, Nueces, Orange, Parker, Rockwall, San Patricio, Tarrant, Travis, Victoria, and Waller Counties.

## **Affected Parties**

### **Who is affected by this rule?**

Primarily, the TxLED regulations apply to the producers and importers of diesel fuel that intend to sell, offer for sale, supply, or offer for supply diesel fuel in any of the 110 counties covered by the rules. However, in some fashion all parties involved in the production, distribution, and use of diesel fuel in the 110 counties in the Eastern half of Texas are affected since [30 TAC §114.312\(a\)](#) states that no person shall sell, offer for sale, supply, or offer for supply, dispense, transfer, allow the transfer, place, store, or hold any diesel fuel in any stationary tank, reservoir, or other container in the affected 110 counties that may ultimately be used to power a diesel fueled compression-ignition engine in the affected counties unless the diesel fuel is compliant with the TxLED regulations.

### **Are consumers required to purchase and use TxLED when operating diesel engines in the affected counties?**

The ultimate consumer of diesel fuel in the affected 110 counties is not required to purchase or use TxLED. However, all diesel fuel suppliers in the affected counties are prohibited from selling diesel fuel for use as a fuel to power a diesel-fueled compression-ignition engine within the 110 affected counties that is not compliant with the TxLED regulations.

### **Who does the TCEQ consider to be a producer or importer?**

A producer is any person or company that manufactures diesel fuel either through the refining of petroleum or the combining of blend stocks to create the finished product that is represented as diesel fuel. This definition also applies to any person or company that blends an additive with non-compliant diesel fuel to create a finished product that may be represented as TxLED compliant diesel fuel or “further processes” a TxLED compliant diesel fuel by adding an additive to create a new finished product, e.g., an additive-based alternative diesel fuel formulation of TxLED.

An importer is any person or company that is responsible for the transport of diesel fuel into the affected 110 counties from outside the state.

### **Who would be considered a Wholesale Bulk Purchaser?**

A company or organization that purchases large volumes of diesel fuel for its own use and stores it at its own storage facility (e.g., purchasing quantities of 50,000+ gallons at a time).

## **Additives**

### **Do all additives have to be approved by the TCEQ before they can be added to diesel fuel in the affected counties?**

No. The only additives that must be approved by the TCEQ are those that are used to reduce emissions from the diesel fuel that is produced to comply with the TxLED regulations. Additives such as those used to increase lubricity or enhance cold flow characteristics are not required to be approved.

## **Alternative diesel formulations**

### **What is an alternative diesel formulation?**

An alternative diesel formulation is a diesel fuel that has been approved by the TCEQ to achieve emission reductions that are comparable to or better than those that would be accomplished by TxLED, but without meeting the fuel content specifications for aromatic hydrocarbons and cetane as specified in [30 TAC §114.312\(b\) and \(c\)](#). An alternative diesel formulation could be produced through changes in the chemical characteristics of the fuel or through the blending of fungible diesel with an additive.

Diesel fuel producers and importers may use a TCEQ approved alternative diesel formulation for compliance with the TxLED fuel content requirements as provided under [30 TAC §114.312\(f\)](#) of the TCEQ regulations.

### **How is an alternative diesel formulation different from an alternative emission reduction plan (AERP)?**

As explained earlier, an alternative diesel formulation must be a diesel fuel. An alternative emission reduction plan (AERP) is used by producers who want to use a substitute fuel strategy (or strategies) to reduce the same amount of emissions that would have been reduced if they were producing TxLED. The TxLED regulations under [30 TAC §114.318](#) specify the requirements that producers must meet to use an AERP for compliance with the TxLED fuel standards under [30 TAC §114.312](#).

### **How do I receive approval for my alternative diesel formulation?**

The process to obtain TCEQ approval of an alternative diesel formulation for TxLED has two tracks with one track specified in [30 TAC §114.315\(c\)](#) and the other specified in [30 TAC §114.315\(d\)](#). Both tracks may require the alternative diesel formulation to undergo emissions testing to be approved by the TCEQ, depending upon whether the formulation is based on the use of an additive or a refined change in fuel properties such as cetane

number, aromatic hydrocarbon content, American Petroleum Institute (API) gravity, distillation temperatures, etc.

Alternative diesel formulations that have been approved by the California Air Resources Board (CARB), except those approved to meet California diesel fuel specifications applicable to small refineries, are considered approved by the TCEQ without the need for further review and may be used by producers and importers for compliance with the TxLED fuel standards as provided under [30 TAC §114.312\(e\)](#).

### ***Approval under §114.315(c)***

Persons seeking approval for an alternative diesel formulation under [30 TAC §114.315\(c\)](#) must first submit an application to the TCEQ requesting approval of a proposed test protocol prior to conducting the required emissions testing. The application for the approval of a proposed test protocol should include the following documentation:

3. A cover letter to the TCEQ requesting approval of the proposed test protocol. The letter must identify the applicant and describe the composition of the proposed alternative diesel formulation to be tested. The letter can also include any other pertinent information about the proposed alternative diesel formulation, such as a copy of the United States Environmental Protection Agency (EPA) registration letter for the additive, if an additive blend is proposed, and a copy of the Material Safety Data Sheet (MSDS) for the additive.
4. Information regarding the identity of the emissions testing facility that the applicant plans to use to conduct the testing.
5. A test plan outlining the specific test procedures to be used to conduct testing. The plan must be consistent with the requirements specified under 30 TAC [§114.315\(c\)\(4\)](#).
6. Information regarding the diesel engine the applicant plans to use for the emissions testing that demonstrates the proposed engine is consistent with the requirements specified under [30 TAC §114.315\(c\)\(4\)\(A\)](#). This information should include data such as engine make, model number, model year, displacement, and horsepower rating.
7. Fuel analysis data from an independent testing facility that demonstrates that the candidate fuel to be used in the emissions testing conforms to the diesel fuel standards specified in ASTM D975, *Standard Specification for Diesel Fuel Oils*, except for lubricity, when tested as required under [30 TAC §114.315\(c\)\(2\)](#); and that the TxLED reference fuel to be used in the emissions testing complies with the fuel characteristics specified under [30 TAC §114.315\(c\)\(3\)](#).

At a minimum, the fuel analysis of the reference fuel must show the following characteristics as determined in accordance with the referenced test method specified in [30 TAC 114.315\(a\)](#):

- sulfur content – 15 parts per million maximum;
- total aromatic hydrocarbon content – 10% maximum, volume percent;
- polycyclic aromatic hydrocarbon content – 1.4%, maximum weight percent;
- nitrogen content – 10 parts per million, maximum;
- cetane number – 48, minimum;
- API gravity index – 33 to 39 API gravity degrees;
- viscosity at 40 degrees Celsius – 2.0 to 4.1 centistokes;
- flash point – 130 degrees Fahrenheit, minimum; and
- distillation:
  - initial boiling point – 340 to 420 degrees Fahrenheit;
  - 10% point – 400 to 490 degrees Fahrenheit;
  - 50% point – 470 to 560 degrees Fahrenheit;
  - 90% point – 550 to 610 degrees Fahrenheit; and
  - end point – 580 to 660 degrees Fahrenheit.

At a minimum, the fuel analysis of the candidate fuel must show that the base diesel conforms to the active version of the ASTM D975, *Standard Specification for Diesel Fuel Oils*, except for lubricity, and must identify the characteristics of sulfur content, total aromatic hydrocarbon content, polycyclic aromatic hydrocarbon, nitrogen content, cetane number, API gravity index, viscosity at 40 degrees Celsius, flash point, and distillation (in degrees Fahrenheit) as determined by the average of three tests conducted in accordance with the referenced test method specified in [30 TAC §114.315\(a\)](#).

8. If the proposed alternative diesel formulation includes the use of an additive, the applicant must also provide information regarding the identity, chemical composition, and concentration of each additive used in the formulation and the test method by which the presence and concentration of the additive may be determined.
9. Information that indicates that the emissions testing facility to be used to conduct the testing has reasonable quality assurance and quality control procedures in place to ensure the accuracy of the test results.

10. A notification of any outlier identification and exclusion procedures the applicant is proposing to use during the emissions testing, e.g., ASTM E178-02, *Standard Practice for Dealing With Outlying Observations*.

Upon TCEQ review and approval of the proposed test protocol, the applicant may conduct emissions testing in accordance with the approved test protocol. The applicant must provide at least seven days notice prior to commencement of the emissions testing so TCEQ may arrange for TCEQ staff or a contractor to observe the testing.

Please note that at the commencement of the emissions testing and throughout the duration of the testing, a TCEQ representative must be allowed to observe the proceedings. The TCEQ observer must have access to all areas where and when, in the observer's judgment, testing activities occur. This includes, but is not necessarily limited to, fuel storage areas, test cells, engine monitoring areas, and filter weighing areas. This also includes, but is not necessarily limited to, times when fuel transfer and mixing, engine operation, fuel testing, and equipment calibration, maintenance, and repair occur.

In addition, the TCEQ observer must be present whenever the candidate base fuels are treated with the additives specified in the approved test protocol. The applicant and the testing facility must arrange their schedules and activities so as to provide sufficient notice to enable the TCEQ's representative to observe all candidate fuel blending.

Upon completion of the emissions testing, the test results must be submitted in the form of a final emission testing report that is sent by the emissions testing facility to the TCEQ for determination of equivalency. The TCEQ will review the final emissions test report to determine, in accordance with [30 TAC §114.315\(c\)\(5\)](#), whether the NO<sub>x</sub> and PM emissions from using the alternative diesel formulation are equal to or less than the NO<sub>x</sub> and PM emissions produced when using the TxLED reference fuel. If the results of the emissions testing satisfy the requirements for approval under [30 TAC §114.315\(c\)\(5\)](#), the TCEQ may, after consultation with the EPA, issue an approval notification for the alternative diesel formulation.

### ***Approval under §114.315(d)***

Persons seeking approval for an alternative diesel formulation under [30 TAC §114.315\(d\)](#) must submit an application to the TCEQ requesting approval under the provisions of [30 TAC §114.315\(d\)\(3\)](#) or under the provisions of [30 TAC §114.315\(d\)\(4\)](#) and must provide all of the information required under [30 TAC §114.315\(d\)](#) as appropriate when applying.

An alternative diesel formulation for TxLED may be approved by the TCEQ under [30 TAC §114.315\(d\)\(3\)](#) using the Unified Model as described in the EPA staff discussion document, [\*Strategies and Issues in Correlating Diesel Fuel Properties with Emissions, Publication Number EPA420-P-01-001\*](#), published July 2001, to demonstrate that the applicable fuel properties of the alternative diesel formulation will reduce NO<sub>x</sub> emissions

by at least 5.5% from on-road diesel fuel for the year 2007, and at least 6.2% from non-road diesel. The applicant would be required to provide fuel analysis data documenting the fuel properties of the alternative diesel formulation used in the Unified Model. The Unified Model may not be used for additive based formulations.

**NOTE:** An Excel spreadsheet version of the Unified Model is included in the TxLED AERP Compliance Calculator that is available on the TCEQ's TxLED Web site at <http://www.tceq.texas.gov/airquality/mobilesource/cleandiesel.html>.

Under [30 TAC §114.315\(d\)\(4\)](#), diesel fuel additives and formulations that have been verified through EPA's ETV Program and EPA's Voluntary Diesel Retrofit Program to reduce NO<sub>x</sub> emissions by at least 5.78% when compared against a base diesel fuel with fuel properties within the ranges as described for nationwide average fuel in EPA's [\*Verification Protocol for Determination of Emissions Reductions Obtained by Use of Alternative or Reformulated Liquid Fuels, Fuel Additives, Fuel Emulsions, and Lubricants for Highway and Nonroad Use Diesel Engines and Light Duty Gasoline Engines and Vehicles \(Revision No. 03, September 2003\)\*](#) may be approved by the TCEQ as an alternative diesel formulation for TxLED without the need for further testing. The applicant would be required to provide a copy of the ETV verification report documenting the NO<sub>x</sub> emission reductions. The ETV verified alternative diesel formulation must also be included on the EPA Voluntary Diesel Retrofit Program's list of verified retrofit technologies at <http://epa.gov/cleandiesel/verification/verif-list.htm>.

Upon the TCEQ's decision to approve an alternative diesel formulation for TxLED through either of the approval tracks available under [30 TAC §114.315](#), the TCEQ will issue an approval notification certifying that the alternative diesel formulation may be used to satisfy the TxLED fuel standards specified under [30 TAC §114.312](#). As part of the approval notification, an identification number will also be assigned to the approved alternative diesel formulation that would be used for reporting as required under [30 TAC §114.316](#). The approval notification and approval letter will be posted on the TCEQ's TxLED Web site at <http://www.tceq.texas.gov/airquality/mobilesource/cleandiesel.html>.

### **How long does it take to go through the TCEQ alternative diesel formulation approval process?**

The TCEQ estimates that the entire process could take up to three months or more to complete depending upon the provision of the TxLED regulations under which the applicant is seeking approval. Under the approval provisions of [30 TAC §114.315\(c\)](#), the time line for this process is dependent upon the following stages:

1. The applicant submits the application for approval of the test protocol to the TCEQ.
2. TCEQ staff reviews the application and test protocol for compliance with [30 TAC §114.315\(c\)\(1\) – \(2\)](#) and if so, makes a recommendation for approval.

3. The TCEQ approves the test protocol and notifies the applicant that emissions testing in accordance with the approved test protocol may begin upon seven days notice. The seven day notice is required so that the TCEQ may schedule test observers.
4. The applicant conducts the emissions testing at the approved testing facility in accordance with the approved test protocol.
5. The approved emission testing facility compiles the test data into a comprehensive test report in accordance with [30 TAC §114.315\(c\)\(4\) – \(5\)](#) and submits the report to the TCEQ.
6. TCEQ staff reviews the report for technical merit and adherence to the approved test protocol. If the report is determined to be acceptable and the results of the emissions testing as indicated in the report satisfy the criteria for approval specified under [30 TAC §114.315\(c\)\(5\)](#), TCEQ staff makes a recommendation for approval of the alternative diesel formulation for TxLED.
7. The TCEQ requests the EPA’s consultation on the recommendation for approving the alternative diesel formulation.
8. Upon EPA’s concurrence, the TCEQ approves the alternative diesel formulation and issues an approval notification to the applicant. The approval notification is also posted to the TCEQ’s TxLED Web site at <http://www.tceq.texas.gov/airquality/mobilesource/cleandiesel.html>.

Under the approval provisions of [30 TAC §114.315\(d\)](#), the approval process may not take as long if the applicant is planning to use the Unified Model to demonstrate compliance or has already received EPA ETV verification of the alternative diesel formulation.

**If my CARB approved alternative diesel formulation (which is produced through the use of an additive) has a specification for sulfur that is less than 500 ppm, will the TCEQ accept it as TxLED when it is blended into high sulfur diesel fuel used for nonroad applications?**

Yes. The sulfur content of an alternative diesel formulation would have no impact on the ability of the formulation to reduce NO<sub>x</sub> emissions. Therefore, if the additive is approved by California or the TCEQ when blended with ultra-low sulfur diesel fuel (<15 ppm), the TCEQ will continue to accept it when it is blended with high sulfur diesel fuel (>500 ppm).

**If the untreated diesel fuel that was used as the candidate fuel in a TCEQ or CARB approved additive-based alternative diesel formulation had an aromatic hydrocarbon content of 29% by volume**

**when the formulation was tested for approval, is the additive allowed to be mixed with a diesel fuel that has an aromatic hydrocarbon content of 32% by volume?**

Any TCEQ- or CARB-approved additive-based alternative diesel formulation that used a candidate fuel with fuel properties that demonstrate a calculated reduction in NO<sub>x</sub> emissions of no greater than 3.0 percent in 2007 when using the Unified Model as described in the EPA staff discussion document, [Strategies and Issues in Correlating Diesel Fuel Properties with Emissions, Publication Number EPA420-P-01-001](#), published July 2001, may use any diesel fuel as defined under 30 TAC §114.6 as the base diesel fuel when blending the formulation.

**NOTE:** An Excel spreadsheet version of the Unified Model is included in the TxLED AERP Compliance Calculator that is available on the TCEQ's TxLED Web site at <http://www.tceq.texas.gov/airquality/mobilesource/cleandiesel.html>.

**Are the additive based alternative diesel formulations approved by the TCEQ or CARB for use with any ASTM D975 compliant Grade No. 1D or No. 2D diesel fuels also approved by the TCEQ for use with DMX or DMA classified marine diesel fuels?**

Yes. The TCEQ- or CARB-certified additive-based alternative diesel formulations that were approved for use with any ASTM D975 compliant Grade No. 1D or No. 2D diesel fuel may be used by producers and importers for treating DMX or DMA classified marine diesel fuels for compliance with the TxLED fuel standards. However, if the TCEQ- or CARB-certified additive-based alternative diesel formulation required the base diesel fuel to meet a designated specification, such as a minimum cetane number, then the DMX or DMA classified marine diesel fuel would also be required to meet the designated specification as well.

**If the fuel analysis shows that the total aromatic hydrocarbon content of the reference fuel that I planned to use in the emissions testing of my alternative diesel formulation fuel is calculated to be 10.43 percent by volume and the specification listed in the rules is 10 percent maximum by volume, is this fuel acceptable?**

Yes. The TCEQ will allow the results of fuel analysis to be rounded off to two significant figures, i.e., 10.43 may be rounded to 10 and therefore compliant with the specification. The procedure accepted by the TCEQ for rounding final results is as follows: If the first digit to be discarded is less than five, the last digit retained should not be changed; if greater than five or if it is a five followed by at least one digit other than zero, the last figure retained should be increased by one unit; if it is exactly five, followed only by zeros, the last digit retained should be rounded upward if it is an odd number, but no

adjustment if it is an even number. However, all intermediate calculations used to determine the final results must retain at least five significant figures, only the final number should be rounded off as described above. These procedures also apply to the final results of the emissions testing performed with the reference fuel and candidate fuel when certifying an alternative diesel formulation under [30 TAC §114.315\(c\)](#).

### **Who do I contact at the TCEQ about my questions regarding alternative diesel formulations?**

For questions regarding alternative diesel formulations and the approval processes, please contact:

Morris Brown, Air Quality Division  
(512) 239-1438  
[morris.brown@tceq.texas.gov](mailto:morris.brown@tceq.texas.gov)

## **Alternative Emission Reduction Plan (AERP)**

### **What is an alternative emission reduction plan and when is it necessary?**

An alternative emission reduction plan (AERP) is the documentation by which a diesel fuel producer demonstrates how a substitute fuel strategy (or strategies) will reduce the same amount of NO<sub>x</sub> emissions that otherwise would have been reduced if they were producing TxLED through compliance with [30 TAC §114.312](#). The TxLED regulations under [30 TAC §114.318](#) specify the requirements that diesel fuel producers must meet to use an AERP for compliance with the TxLED fuel standards under [30 TAC §114.312](#).

An AERP may be submitted by diesel fuel producers who intend to sell, offer for sale, supply, or offer for supply diesel fuel in the 10 counties covered under the TxLED rules and who do not intend to produce diesel fuel that would comply with the TxLED requirements under [30 TAC §114.312\(b\) and \(c\), \(e\), or \(f\)](#).

### **What type of AERPs may be submitted to the TCEQ for approval?**

The TxLED regulations under [30 TAC §114.318](#) specify the four types of AERPs that may be used by producers to demonstrate compliance with the TxLED fuel standards under [30 TAC §114.312](#). The four types of AERPs allowed under the TxLED regulations are listed as follows:

1. *The production of cleaner diesel.* To demonstrate compliance with the AERP provisions under [30 TAC §114.318\(b\)\(1\)](#) for the production of cleaner diesel, producers must use the Unified Model as described in EPA's July 2001 staff discussion document, [Strategies and Issues in Correlating Diesel Fuel Properties](#)

[with Emissions \(Report EPA420-P-01-001\)](#) to calculate whether the average fuel properties of all of the diesel fuel supplied by the producer to an affected area achieves the minimum NO<sub>x</sub> emission reductions specified under 30 TAC §114.318(b)(1)(A) and (B).

2. *The use of credits from early gasoline sulfur reductions.* To demonstrate compliance with the AERP provisions under [30 TAC §114.318\(b\)\(2\)](#) for claiming credits from early gasoline sulfur reductions, producers must use the calculations specified under [30 TAC §114.318\(b\)\(2\)](#) to calculate the total amount of noncompliant diesel off-set credits that can be used by the producer. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**
3. *The production of slightly cleaner diesel combined with the use of credits from early gasoline sulfur reductions.* To demonstrate compliance with the AERP provisions under [30 TAC §114.318\(b\)\(3\)](#) allowing credit for the production of slightly cleaner diesel while also claiming credits from early gasoline sulfur reductions, producers must use the calculations specified under [30 TAC §114.318\(b\)\(3\)](#) to calculate the total amount of noncompliant diesel off-set credits that can be used by the producer. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**
4. *The use of credits from the residual effects of early reformulated gasoline (RFG) sulfur reductions.* To demonstrate compliance with the AERP provisions under [30 TAC §114.318\(b\)\(4\)](#) for claiming credits from the residual effects of early RFG sulfur reductions, producers must use the calculations specified under [30 TAC §114.318\(b\)\(4\)](#) to calculate the total amount of noncompliant diesel off-set credits that can be used by the producer. **NOTE: All credits determined under this provision of the TxLED regulations expired December 31, 2008.**

## **What tools may be used to demonstrate compliance with the AERP requirements?**

The TCEQ has developed an Excel spreadsheet tool, known as the TxLED AERP Compliance Calculator, for producers to use to determine whether their proposed AERP will comply with requirements specified under [30 TAC §114.318\(b\)](#) to be approved by the TCEQ. The TxLED AERP Compliance Calculator contains all of the calculations specified under [30 TAC §114.318](#), including the Unified Model, and is available on the TCEQ's TxLED Web site at <http://www.tceq.texas.gov/airquality/mobilesource/cleandiesel.html>.

## **When do AERPs need to be submitted to the TCEQ?**

An AERP must be submitted and approved by the executive director prior to the use of that plan for compliance with the TxLED regulations. The TCEQ will determine whether

to approve or disapprove an AERP that is submitted by a diesel fuel producer in accordance with [30 TAC §114.318](#) within 45 days of submittal.

The TCEQ has developed an Alternative Emission Reduction Plan Submittal Form for producers to use to submit their proposed AERP to the TCEQ for approval. A copy of the Alternative Emission Reduction Plan Submittal Form is available on TCEQ's TxLED Web site at <http://www.tceq.texas.gov/airquality/mobilesource/cleandiesel.html>.

### **Does my AERP need approval from both the TCEQ and EPA?**

No. AERPs that comply with the requirements specified under [30 TAC §114.318](#) and are approved by the TCEQ do not need further approval from the EPA to be used for compliance with TxLED regulations.

### **What years are used to calculate AERP “equivalency”?**

Under the early gasoline sulfur reduction credit provisions of [30 TAC §114.318\(b\)\(2\)](#), noncompliant diesel off-set credits can only be generated from the gasoline supplied to specific attainment area counties in calendar years 2003, 2004, and 2005, and may only be used for AERP compliance in these same counties through December 31, 2010.

**NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**

Under the early gasoline sulfur reduction residual effects credit provisions of [30 TAC §114.318\(b\)\(4\)](#), noncompliant diesel off-set credits could only be generated from the reformulated gasoline supplied to the Dallas/Fort Worth (DFW) and Houston/Galveston/Brazoria (HGB) 1997 ozone nonattainment counties in calendar years 2004 and 2005, and would only be used for AERP compliance in these same counties through December 31, 2008. These noncompliant diesel off-set credits may only be used for AERP compliance in the areas in which they were generated, i.e., credits generated in the DFW area counties may not be used for AERP compliance in the HGB area counties and vice versa. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2008.**

### **Is AERP “equivalency” determined on a volumetric basis?**

Yes. The AERP provisions under [30 TAC §114.318](#) allow producers to offset barrels of noncompliant diesel fuel with credits generated from the barrels of gasoline sold in specific affected areas in 2003, 2004, and 2005 that had sulfur levels lower than required by federal regulation. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**

**What geographic boundaries are used in determining AERP “equivalency”? For example, do I show equivalency by county or by nonattainment area?**

Since emission reductions from TxLED have been calculated by area (rather than individual counties), the TCEQ will require AERPs to show equivalency for the follow areas as appropriate under [30 TAC §114.318\(b\)](#):

- HGB eight-county area: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties.
- DFW nine-county area: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties.
- Beaumont/Port Arthur three-county area: Hardin, Jefferson, and Orange Counties.
- The affected 90-county regional area: Anderson, Angelina, Aransas, Atascosa, Austin, Bastrop, Bee, Bell, Bexar, Bosque, Bowie, Brazos, Burlison, Caldwell, Calhoun, Camp, Cass, Cherokee, Colorado, Comal, Cooke, Coryell, De Witt, Delta, Falls, Fannin, Fayette, Franklin, Freestone, Goliad, Gonzales, Grayson, Gregg, Grimes, Guadalupe, Harrison, Hays, Henderson, Hill, Hood, Hopkins, Houston, Hunt, Jackson, Jasper, Karnes, Lamar, Lavaca, Lee, Leon, Limestone, Live Oak, Madison, Marion, Matagorda, McLennan, Milam, Morris, Nacogdoches, Navarro, Newton, Nueces, Panola, Polk, Rains, Red River, Refugio, Robertson, Rusk, Sabine, San Jacinto, San Patricio, San Augustine, Shelby, Smith, Somervell, Titus, Travis, Trinity, Tyler, Upshur, Van Zandt, Victoria, Walker, Washington, Wharton, Williamson, Wilson, Wise, and Wood Counties.

These boundaries are set to maintain the integrity of the Texas State Implementation Plan (SIP) that relies on the NO<sub>x</sub> emission reductions from TxLED to help reduce ozone formation in nonattainment areas and maintain compliance with the National Ambient Air Quality Standard for ozone.

**If I have surplus emissions reductions in one geographic area and a shortage in another, can I trade those reductions within my AERP to show equivalency?**

No. Surplus NO<sub>x</sub> emission reductions that may occur as a result of an AERP in one geographic area may not be credited to another geographic area (e.g., surplus NO<sub>x</sub> emission reductions occurring in the DFW or HGB 1997 nonattainment areas may not be applied towards shortages in the affected 90-county region or vice versa.)

**If I have surplus emissions reductions in one geographic area, can I offer/sell those reductions to other producers for use in their AERPs?**

No. Surplus emissions reductions that may occur as a result of a producer's AERP may not be credited for use with another producer's AERP.

**If my AERP involves a cleaner diesel or gasoline, may I determine those reductions on an annually averaged basis?**

Under [30 TAC §114.318\(b\)\(1\)](#), diesel fuel producers may use the average fuel properties of all the diesel fuel they supplied in any given year to a specific area as the inputs for the Unified Model to determine AERP compliance. However, under the early gasoline sulfur reduction credit provisions specified under [30 TAC §114.318\(b\)\(1\)](#), producers must use the actual number of barrels of gasoline sold in specific years to calculate diesel off-set credits for AERP compliance.

**Can a combination of cleaner diesel and gasoline AERP be acceptable?**

Yes. Under [30 TAC §114.318\(b\)\(3\)](#), producers may use an AERP strategy that takes credit for producing cleaner diesel while also using credits generated from early gasoline sulfur reduction. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**

**Are reductions at stationary sources acceptable as part of the AERP?**

No. The TxLED rules specify that an AERP must be composed of a substitute fuel strategy as specified under [30 TAC §114.318\(b\)](#).

**Can I purchase Emission Reduction Credits (ERCs) to satisfy my NO<sub>x</sub> reduction target?**

No. The TxLED rules specify that an AERP must be composed of a substitute fuel strategy as specified under [30 TAC §114.318\(b\)](#).

**Can I use the sulfur credits generated under the Averaging, Banking and Trading (ABT) provisions of the federal Tier 2 ultra low sulfur gasoline (ULSG) regulations to satisfy my NO<sub>x</sub> reduction target?**

No. Producers are not allowed to use the sulfur credits they are generating under the federal Tier 2 ULSG gasoline ABT program for meeting their compliance with TxLED regulations. However, the AERP provisions under [30 TAC §114.318\(b\)](#) allow producers to offset barrels of noncompliant diesel fuel with credits generated from the barrels of gasoline sold in the affected areas in 2003, 2004, and 2005 that had sulfur levels lower than required by federal regulation. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**

## **Am I allowed to include a force majeure or variance provision in the AERP that I submit?**

No. The TxLED regulations under [30 TAC §114.318](#) do not include provisions for force majeure or variance approvals. However, producers with alternative emission reduction plans may submit a written request to the executive director of the TCEQ for enforcement discretion if an unforeseeable event occurs that prevents their compliance with the TxLED regulations under their approved alternative emission reduction plan. The written request should include: (1) a description of the unforeseeable event that prompts the request; (2) an estimate of the volume, timing, quality, and destination of noncompliant material that will be distributed as a result; and (3) proposed measures to make-up those emissions reductions. The executive director will notify the producer if the enforcement discretion is granted.

## **How will the TCEQ ensure compliance?**

The TCEQ relies on the monitoring, record-keeping, and reporting requirements as the primary means of enforcement. Additionally, the TCEQ reserves the right to do random fuel analysis tests on final blends.

## **What are the monitoring, record-keeping, and reporting requirements for a producer with an approved AERP?**

Producers with approved AERPs are required to comply with the product transfer document labeling requirements specified in [30 TAC §114.316\(g\)](#) and the monitoring (sampling and testing) and quarterly reporting requirements specified in [30 TAC §114.316\(k\)](#).

## **How long is an AERP effective?**

An approved AERP using the cleaner diesel provisions under the [30 TAC §114.318\(b\)\(1\)](#) is considered to be effective as long as it continues to achieve equivalent emission reductions. However, approved AERPs using the early gasoline sulfur reduction credit provisions under [30 TAC §114.318\(b\)\(2\), \(3\), and \(4\)](#) are limited in scope and will all expire December 31, 2010. **NOTE: All credits determined under this provision of the TxLED regulations expired on December 31, 2010.**

## **Am I allowed to revise my AERP after it has been submitted?**

Yes. The TCEQ recognizes that AERPs may need to change with market conditions or for other reasons. However, any changes to AERPs must include the appropriate remodeling of emissions reductions to ensure that your NO<sub>x</sub> emission reduction target continues to be met. The revised AERP will require TCEQ approval.

## **Who do I contact at the TCEQ about my questions regarding AERPs?**

For questions regarding alternative emission reduction plans, please contact the following TCEQ staff:

### *Primary Contact:*

Morris Brown, Air Quality Division  
(512) 239-1438  
[morris.brown@tceq.texas.gov](mailto:morris.brown@tceq.texas.gov)

### *Legal Contact:*

John Minter, Legal Division  
(512) 239-6366  
[john.minter@tceq.texas.gov](mailto:john.minter@tceq.texas.gov)

## **Cetane Measurement**

### **Can I use a Cetane Index to determine compliance with the Cetane Number requirements of the TxLED rules?**

Yes, when appropriate. Whenever ASTM D613 (*Test Method for Cetane Number of Diesel Fuel Oil*) is not readily available to determine the cetane number as required in the TxLED rules for compliance with the low emission diesel standards specified under [30 TAC §114.312](#) and the monitoring, recordkeeping, and reporting requirements specified under [30 TAC §114.316](#), the cetane index as determined by ASTM D4737 (*Test Method for Calculated Cetane Index by Four Variable Equation*) may be used as an approximation. However, a cetane index is NOT appropriate to use when determining the cetane number as specified in [30 TAC §114.315\(c\) and \(d\)](#) for the fuels used in testing alternative diesel formulations for TxLED.

## **Commingling**

### **Does the TCEQ allow the commingling of TxLED and TxLED-compliant fuels in the distribution system?**

Yes. Volumes of diesel fuel identified on their product transfer documents (PTD) as TxLED, TxLED-compliant under an alternative emission reduction plan (AERP), or non-compliant diesel fuel that requires further processing, may be commingled in the same storage facility while in the distribution system. The operator of the storage facility will be required to label the PTD of the outgoing diesel fuel according to the volume of the specific fuel received. (For example, if 10,000 barrels of TxLED entered the storage tank,

then 10,000 barrels being transferred out of the storage tank should be labeled as TxLED).

The same volume of diesel fuel that is labeled as non-compliant diesel requiring further processing (i.e., fungible EPA diesel) that is commingled with compliant fuel in the same storage facility must also be labeled the same when transferred out of the storage tank or it must be further processed (i.e., injecting an approved additive into the fuel either as specified in accordance with an TCEQ approved additive-based alternative diesel formulation) and labeled accordingly as either TxLED or TxLED compliant under an TCEQ approved AERP.

**Can non-compliant fungible EPA diesel that is to be blended with an approved additive (e.g., ORYXE LED+6610, or Kern KOR-4c) be commingled with TxLED-compliant fuel? What portion of that total blended volume must be additized?**

Yes, see previous answer above. The volume to be additized is dependent on the volume of non-compliant diesel fuel that is being received and how it is being additized. If the non-compliant diesel fuel is being additized as it is going into the storage tank to be commingled with the TxLED or an amount of the additive is blended into the tank during storage to compensate for the volume of fungible EPA diesel, then no further additization is required. However, if the additive is blended into the fuel as it leaves the tank, then the same volume of the non-compliant diesel fuel that went into the storage tank will be required to be additized at the rate required under the approved alternative diesel formulation.

**Can I commingle non-compliant fungible EPA diesel that will not be supplied to the affected areas in the same storage tank with volumes of TxLED, TxLED-compliant under an alternative emission reduction plan, and non-compliant fungible EPA diesel that requires further processing, that will be supplied to the affected counties?**

Yes, see previous answers above. The volume of fungible EPA diesel exiting a commingled tank for distribution and use outside of the affected counties is not required to comply with TxLED regulations, including labeling requirements. However, the operator of the storage facility may only label the PTDs of the diesel fuel being supplied out of the commingled tank for use within the TxLED affected counties in accordance with the specific volumes of TxLED and TxLED-compliant under a TCEQ approved AERP that are received; any other volumes of diesel fuel from the commingled tank will be considered non-compliant diesel that needs to be further processed before it can be distributed for use within the TxLED affected counties.

## Enforcement

**At what point is a stationary tank, reservoir, or other storage container considered compliant with §114.312(a) if that receptacle contains non-compliant diesel but is being refueled only with TxLED or TxLED-compliant fuel under an alternative emission reduction plan?**

The storage receptacle would be considered compliant with [30 TAC §114.312\(a\)](#) when the volume as indicated on the PTDs of the received TxLED or TxLED-compliant fuel being transferred into the storage receptacle exceeds the volume of the storage receptacle.

**If the TCEQ samples/tests product at some point in the distribution system, how does the TCEQ know if the fuel is in compliance since although it may not meet TxLED specifications, it may be acceptable under the producer's alternative emission reduction plan?**

The primary check for compliance in the distribution system will be through the review of PTDs and the producer's testing/sampling records. Other compliance methods may also be used as deemed appropriate.

## Lubricity

**Did the TCEQ adopt the lubricity standard as specified in ASTM D975, *Standard Specification for Diesel Fuel Oils*?**

No. The TxLED regulations cite ASTM D975 for appropriate test methods, as a reference for specific definitions, and as the minimum specifications that a candidate fuel must meet when used to demonstrate equivalency as an alternative diesel formulation. The TxLED regulations do not contain a lubricity standard.

**NOTE:** The Texas Department of Agriculture, as directed by House Bill 2925, Acts of the 81st Texas Legislature, has adopted new minimum fuel quality standards in [4 TAC §5.7](#), effective January 26, 2010, specifying ASTM D975, *Standard Specification for Diesel Fuel Oils*, as the standard specification for all diesel motor fuels and renewable diesel fuels sold or supplied for use in Texas. The current active version of the ASTM D975 standard does include a minimum specification for lubricity.

## **Permits**

### **Will I need a permit for the diesel additive storage tanks that will be needed for the production of TxLED using a TCEQ-approved alternative diesel formulation or under an alternative emission reduction plan?**

This document does not attempt to address permit authorizations you may need to comply with the TxLED rules. Depending upon your strategy for compliance, various types of permits may be needed at the federal, state and local level. Please contact the TCEQ's Office of Permitting and Registration at (512) 239-2104 for further information regarding permit requirements.

## **Registration**

### **Who is required to register?**

Only those diesel producers and importers that sell or supply diesel fuel for use within the 110 Texas counties affected by the TxLED regulations are required to register with the TCEQ. New producers and importers are required to register with the TCEQ at least 30 days before they begin to sell or supply diesel fuel for use within any of the 110 counties affected by the TxLED regulations.

## **Recordkeeping**

### **Who is required to keep records?**

All parties in the distribution chain, including producers, importers, bulk terminals, pipeline operators, common carriers, wholesale bulk purchasers, and retail fuel dispensing outlets, that supply diesel fuel or biodiesel blended diesel fuel for use as a fuel within any of the 110 Texas counties affected by the TxLED regulations are required to maintain copies or records of the product transfer documents for a minimum of two years. These records must be made available upon request to the TCEQ, EPA, or to the local air pollution agency having jurisdiction in the area.

## **Sampling and Testing**

### **Who is required to sample and test diesel fuel for compliance with the TxLED regulations?**

Only producers and importers are required to sample and test to ensure that the diesel fuel they are producing or importing is compliant with the TxLED regulations. The other parties in the distribution chain, such as bulk terminals, pipeline operators, common carriers, wholesale bulk purchasers, and retail fuel dispensing outlets, are not required to sample or test. However, if a bulk terminal or other party in the distribution chain further processes a volume of diesel fuel, (i.e., adding an approved diesel fuel additive into the fuel as specified in accordance with an TCEQ approved alternative diesel formulation), then that party becomes the producer of that final blend and is required to sample and test accordingly. In addition, they would also be required to comply with all of the other requirements in the TxLED regulations that apply to producers, including the registration and reporting requirements.

### **Why is the frequency of testing so small (i.e., one test every 250,000 gallons)?**

The sampling rate of one test per 250,000 gallons is only required for testing diesel fuel that is being blended to produce TxLED as it being loaded to pipelines, tank ships, railway tank cars, and delivery truck tank trailers and would usually only apply when an additive is being used to produce TxLED. This sampling rate should reduce the occurrence of large volumes of non-compliant diesel fuel being produced as a result of malfunctions in the additive injection systems.

### **Do I have to pull a physical sample of the final blend when I produce TxLED at the terminal rack using an additive injection system?**

It depends upon the specification of the additive's approved alternative diesel formulation. If the additive was approved for use with fungible EPA diesel, with no other specific fuel property requirements (e.g., a minimum cetane number of 50), the producer is required to "sample" the operation of the additive injection system at a rate of once per 250,000 gallons of production to record the volume of additive being injected and the volume of diesel being additized, to ensure that the approved treat rate was being maintained. A volumetric additive reconciliation (VAR) report could be used as this type of "sample."

However, if the additive's approved alternative diesel formulation required the base fuel to meet a specific fuel property requirement that is more stringent than required for fungible EPA diesel (e.g., an aromatic hydrocarbon content of less than 25 percent per volume), the producer must obtain a physical sample of the final blend to test for the

appropriate fuel components of the base fuel and additive as listed in the additive's alternative diesel formulation approval notification issued by the TCEQ.