

## Engineering Guide #82:

# Ultra low sulfur diesel fuel permitting flexibility

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### Background:

Ultra-low sulfur diesel (ULSD) fuel is now required to be used in on-road and non-road internal combustion engines and is an available fuel option for other emissions units. ULSD by law cannot contain more than 0.0015% (15 ppm) sulfur, and is being produced by two Ohio refineries that supply the state of Ohio. These Ohio refineries reportedly do not produce a #2 diesel fuel other than ULSD. Firing ULSD in internal combustion engines and other emissions units will result in substantial reductions in combustion-related emissions of both sulfur dioxide and particulate emissions.

Ohio's sulfur dioxide regulations contain flexibility to either require liquid fuel sampling and analysis, or to maintain documentation of fuel sulfur content to demonstrate compliance with an applicable sulfur dioxide limitation (see OAC 3745-18-04). In addition, 40 CFR 80, Subpart I requires that producers of ULSD (refineries) sample, document, and report the sulfur content of ULSD. Further, all sale and transfer documents must indicate that the fuel sulfur content is no more than 15 ppm sulfur.

Given the inherent flexibility in Ohio's rules and that the production and distribution of ULSD is heavily regulated by U.S. EPA (see 40 CFR 80, Subpart I), are there available permitting options for emissions units firing ULSD to avoid or reduce fuel sulfur sampling and analysis requirements?

### Statement of Policy:

Permit requirements that a facility maintain records of fuel deliveries that certify that the fuel fired in an emissions unit is ULSD in accordance with 40 CFR 80, Subpart I are sufficient to demonstrate ongoing compliance with a sulfur dioxide (SO<sub>2</sub>) emissions limitation established pursuant to OAC 3745-31-05 or OAC 3745-18.

### Implementation:

For emissions units firing ULSD, fuel sampling may be on an "if required" basis (or other interval) for evaluating compliance, but requirements to sample either each delivery or a representative grab sample can be eliminated for emissions units when firing ULSD and the supplier identifies the fuel as ULSD on the purchase receipt or bill of lading. ULSD is required for reciprocating internal combustion engines subject to 40 CFR 63, Subpart ZZZZ (RICE MACT).

If a facility or regulated entity wished to utilize other fuels in addition to ULSD, the existing monitoring and recordkeeping should be retained for those fuels. This includes requirements for sampling and analysis of those other fuels (for example, #4 fuel oil or used oil). The new ULSD-specific permit terms may be incorporated into a permit while processing an installation, modification, or renewal permit at the request of the permittee as approved by the DO / LAA.

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## Suggested Permit Terms and Conditions:

### Additional Terms and Conditions:

- a) #2 diesel fuel burned in this emissions unit shall meet U.S. EPA's specifications for Ultra Low Sulfur Diesel (ULSD) found in 40 CFR 80.510(c).
- b) #2 diesel fuel delivered to the facility shall be stored only in dedicated vessels that are clearly identified for storage of #2 diesel fuel.

### Monitoring and Recordkeeping:

- a) For each day during which the permittee burns a fuel other than #2 diesel fuel or natural gas, the permittee shall maintain a record of the type, per cent sulfur content, and quantity of fuel burned in this emissions unit.
- b) The permittee shall maintain documents provided by the oil supplier for each shipment of #2 fuel oil to demonstrate compliance with the ULSD requirement. These documents must include the receipt or bill of lading that includes confirmation that the fuel meets the #2 diesel fuel ULSD standard.

### Emissions Testing:

- (1) Emissions limitation: 0.5 lb SO<sub>2</sub> / MMBtu

Applicable compliance method: For #2 diesel, compliance shall be demonstrated using documents required in [XX] above. Emissions of SO<sub>2</sub> from #2 diesel fuel shall be calculated in accordance with OAC 3745-18-04(F)(2) using the maximum fuel sulfur content of 15 ppm. For all other liquid fuels, compliance shall be demonstrated using analytical results required in [XX] above. Emissions of SO<sub>2</sub> from other liquid fuels shall be calculated in accordance with OAC 3745-18-04(F)(2). For natural gas, the emissions rate shall be 0.0 lb SO<sub>2</sub> / MMBTU pursuant to 3745-18-04(F)(4).

If required, the permittee shall perform sulfur content analysis of a fuel sample in accordance with 40 CFR 580 using the appropriate ASTM method(s).