

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: All Interested Persons **Date:** June 27, 2005

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Air Permits Division, Office of Permitting, Remediation and Registration

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Subject: Tank and Material Handling Authorization Options for Required Diesel Additives

Introduction: This memo is intended to clarify the authorization mechanism for diesel additive storage tanks and the handling of these materials at fuel terminals.

Discussion: Over the past few years, various state and federal regulations have been promulgated which result in certain types of chemical compounds being added to commercially available diesel fuels to minimize various emissions from mobile sources. Additives will include those needed for the low emission diesel strategies, as well as lubricity requirements. These strategies have been thoroughly analyzed and adopted through numerous regulations, and specific implementation deadlines included in those rules are now imminent. To ensure compliance with these requirements, certain approved additives are, or are about to be, blended with diesel at bulk fuel terminals, tank farms, and other similar sites throughout Texas.

In many cases, bulk fuel terminal operators are considering installing new, dedicated tanks and associated loading/unloading equipment which will be tied into loading racks to handle and mix these additives into diesel fuels. There is also a probability that a variety of additives may be used throughout industry to meet the specified emission reductions. At this time, many of these additive mixtures have not been reviewed and approved for use and the permit by rule (PBR) authorization mechanisms usually available for the storage, loading, and unloading of fuels and related materials (§§106.472, 473, 478) have not been updated and reviewed to specifically address these additives and related volatile organic compound (VOC) emissions.

As of the date of this memo, only one additive has been approved for use. A mixture by ORYXE is intended for use as a low emissions diesel additive and consists of 55% to 65% 2-ethylhexyl nitrate (EHN) and 35% to 45% toluene, with Effects Screening Levels (ESLs) of 1050 µg/m³ and 1880 µg/m³, respectively. Assuming a rural location, a new 24,000 gallon fixed roof tank, 22 foot vent release height, and a filling rate of 4 hours (9,000 gallons per truck load per hour), emissions (using standard calculation methods) have been estimated at approximately 23 lb VOC per hour and impacts would be acceptable at a distance of 500 to 750 meters from the new tank. These chemicals, restrictions and specifications are obviously not included in the tank PBRs §§106.472, 473, 478 and therefore another authorization would be needed. As other additives are approved, additional information on VOC emissions and impacts will need to be evaluated and considered depending on chemical constituents, throughput, tank size, controls, and location to property lines or receptors.

Action: Recognizing the imminent need for these additives, as well as the uncertainty of their constituents at this time, the Air Permits Division proposes the following authorization options:

- A. If a new tank and associated loading equipment and fugitive components are proposed:
 1. If a terminal proposes to install a pressurized tank or a tank where all emissions are vented to an incinerator, boiler, or flare, PBR §106.476 may be used. This PBR does not restrict material constituents to a specified list like PBRs §§106.472, 473, 478, but instead relies on capture/control specifications to minimize emissions and ensure protection of public health and welfare. Construction and operation may begin at any time after claiming this authorization, no registration is required.
 2. Since numerous additives are still under development and approval, the PBR for pilot plants (§106.124) may be used. Emissions from facilities (tanks, loading equipment, fugitive components, etc.) would be required to meet paragraph (5) which refers to §§106.261 and 106.262. Control of emissions is likely to be needed depending on chemical constituents, throughput, tank size and location. Construction and operation may begin at any time after claiming this authorization, no registration is required.
 3. A permit or permit amendment may be needed if the above PBRs cannot be met. Based on the initial assessment of ORYXE additive described above, special attention should be paid to best available control technology (BACT) requirements and impacts review guidelines during this review. This authorization requires an application, review, possible public notice, and may take 6 to 9 months.
- B. If an existing tank and associated loading equipment and fugitive components are to be used:
 1. New or increased emissions from the additives may be claimed under PBR §106.261 or 262 for any tank previously authorized by permit or PBR. Control of emissions is likely to be needed depending on chemical constituents, throughput, tank size and location. These PBRs require registration within a certain period of time after the change in service begins.
 2. If the tank was previously permitted, changes in constituents and emissions may be authorized under §116.116(e) changes to qualified facilities rules. This authorization requires an application, review and approval, sometimes before the change occurs.
 3. A permit or permit amendment may be needed if the above options cannot be met. Based on the initial assessment of ORYXE additive described above, special attention should be paid to best available control technology (BACT) requirements and impacts review guidelines during this review. This authorization requires an application, review, possible public notice, and may take 6 to 9 months.
- C. Once blended into the diesel fuel (at very small percentages), additives become part of the fuel mixture and additional storage, loading, or unloading into or from tanks, vessels, etc. are able to be authorized under PBRs §106.472(1) in the category of "diesel fuels" or under §106.473(4)(B) in the category "petroleum fuels, other motor vehicle fuels". Dispensing of these fuels into vehicles can be authorized by §106.412. Construction and operation may begin at any time after claiming this authorization, no registration is required.