

2007 Southeast Texas Stationary Gas-Fired Compressor Engine Survey Information Sheet

Background

In support of area source emissions inventory development the Texas Commission on Environmental Quality (TCEQ) is conducting a survey of stationary gas-fired compressor engines (compressor engines) in Southeast Texas. An area source is a collection of similar emission units that are small and numerous within a county or other geographical area and that do not meet the annual emissions inventory reporting requirements of 30 Texas Administrative Code (TAC) §101.10(a)(1-3). The TCEQ will use the submitted data to develop county-level emissions estimates. These estimates will be used to identify and analyze appropriate regulatory options, and meet federal emissions reporting requirements.

General Survey Instructions

Please provide the information requested in the survey for each compressor engine that has a maximum rated horsepower of 50 hp or above. Only include compressor engines in the survey that are located in one of the following counties: Angelina, Austin, Hardin, Houston, Jasper, Jefferson, Newton, Polk, Sabine, San Augustine, San Jacinto, Trinity, Tyler, and Walker. Compressor engines that were reported on the 2007 annual point source emissions inventory should not be reported on this survey.

The survey form entitled Southeast Texas Compressor Engine Survey.xls is available at the following internet address: <http://www.tceq.state.tx.us/implementation/air/industei/ASEI.html>. Please complete each field for each compressor engine as much as possible. Survey requests and any questions or concerns about the survey may be directed to Martha Maldonado at (512) 239-1999 or by e-mail at mmaldona@tceq.state.tx.us or the Emissions Inventory helpline at (512) 239-1773.

The TCEQ will respect the confidentiality of process data unless the Texas Attorney General's Office rules that the data are not protected by state law. Please clearly identify any information that you wish to be kept confidential.

Completed surveys are required to be submitted to the TCEQ no later than October 31, 2008. Please include additional data that will be useful to characterize emissions from these emission sources. The completed survey may be e-mailed to mmaldona@tceq.state.tx.us provided that a printed hardcopy, disc, or diskette is submitted to the agency. If you have difficulty downloading the survey from the TCEQ internet website, please contact staff as soon as possible and a survey will be sent to you via e-mail or postal mail.

Please mail completed surveys to:

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Definitions

Please use the following definitions for completing this survey:

2007 Annual Hours of Operation: If actual data for hours of operation are not available, approximations based on general knowledge and history of the compressor engine operation are acceptable.

2007 Production Rate: The amount of gas compressed in a given period in million standard cubic feet per year (MMscf/yr).

Average Operating Load Percentage: An average percentage of the amount of work or power needed for the engine to process the product.

$$\% \text{ Load factor} = \{(\text{Average Load} \times \text{Operating Hours}) \div (\text{Peak Load} \times \text{Potential Operating Hours})\} \times 100$$

Company Contact Name and Information: Name and telephone number for point of contact of the owner and/or operator of the business.

Company Name: Name of the business that owns or operates the compressor engine.

County: Name of the county where compressor engine(s) primarily resided during calendar year 2007.

Engine Burn Type: The air-to-fuel ratio of the compressor engine.

Rich burn engines operate near the stoichiometric air-to-fuel ratio (16:1) with exhaust excess oxygen levels less than 4 percent (typically closer to 1 percent).¹

Lean-burn engines may operate up to the lean flame extinction limit, with exhaust oxygen levels of 12 percent or greater. The air to fuel ratios of lean-burn engines range from 20:1 to 50:1 and are typically higher than 24:1. The exhaust excess oxygen levels of lean-burn engines are typically around 8 percent, ranging from 4 to 17 percent.¹

Engine Cycle: Natural gas-fired reciprocating engines are separated into three design classes: 2-cycle (stroke) lean-burn, 4-stroke lean-burn, and 4-stroke rich-burn. Two-stroke engines complete the power cycle in a single crankshaft revolution as compared to the two crankshaft revolutions required for 4-stroke engines.¹

Engine Make and Model: The engine make is the name of the manufacturer of the compressor. The engine model is usually found on the engine plate or a product invoice.

Maximum Design Capacity: (Horsepower): The maximum amount of horsepower which the engine is designed to operate.

NO_x: Nitrogen Oxides.

NO_x Emission Factor (g/hp-hr): The expected amount of grams of NO_x to be emitted from the compressor engine on horsepower basis per hour. If available, please provide the Measured NO_x Emission Factor and/or the Vendor NO_x Emission Factor.

¹Refer to Environmental Protection Agency's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42), with Supplements. Available at <<http://www.epa.gov/ttn/chief/ap42/index.html>>