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# UNDERSTANDING EMISSIONS

## Who regulates emissions in Texas?

The Railroad Commission of Texas (RRC) has primary regulatory jurisdiction over the oil and gas industry. Through its Oil and Gas Division, RRC regulates the exploration, production, and transportation of oil and natural gas in Texas. The Texas Commission on Environmental Quality (TCEQ) is the environmental agency for the state that facilitates all permitting requirements. Additionally, some facilities may be subject to regulations under the U.S. EPA.

## What is industry doing?

The oil and natural gas industry is focused on meeting and/or exceeding requirements of regulatory agencies like the RRC and the TCEQ. STEER member companies have voluntarily participated with the Alamo Area Council of Governments (AACOG) and TCEQ, sharing data on equipment used and other relevant information for the AACOG Eagle Ford Emissions Inventory Study, granted through the TCEQ. On the back of this fact sheet, you can learn more about what industry is specifically accomplishing through innovation and to reduce emissions.

## What are emissions?

Emissions are gases and particles released into the air by various sources. *(credit: www.epa.gov/airquality/emissns.html)*

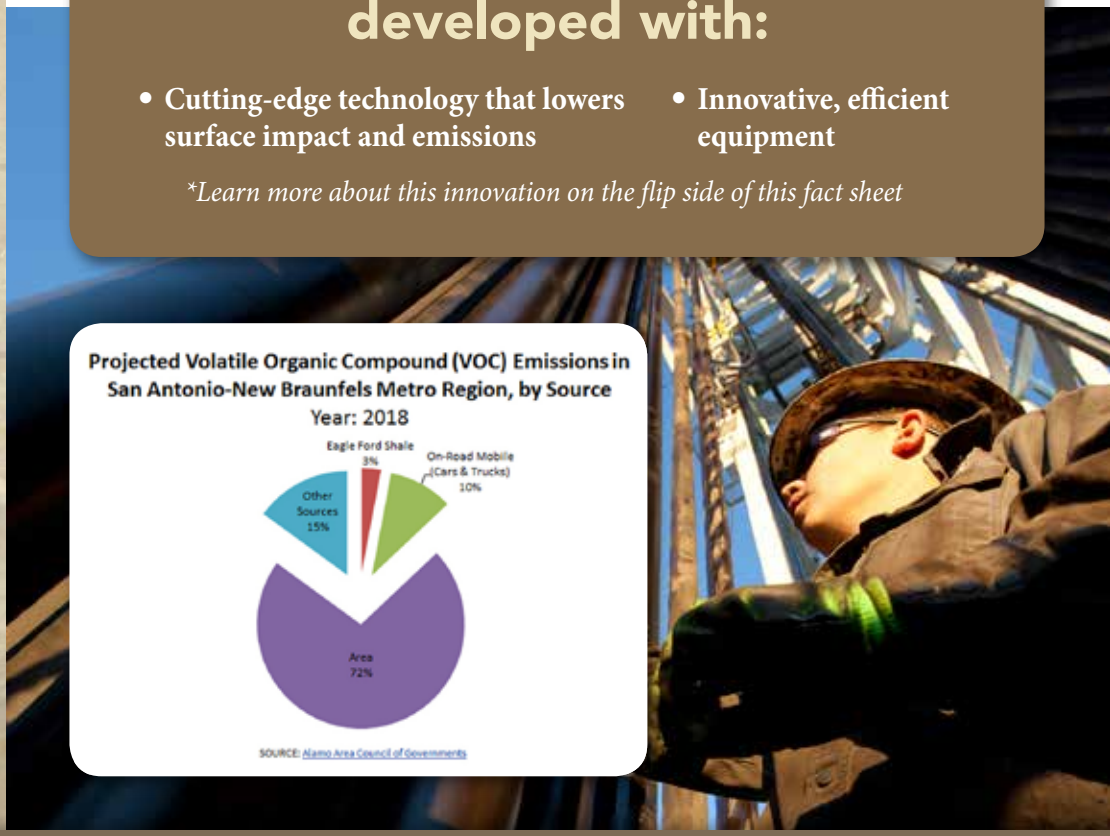
Types of emissions include water vapor from powerplants to nitrogen oxide from cars and off-road equipment. The amount of an emitted substance is typically related to changes in the nation's economy, industrial activity, technology improvements, traffic, and many other factors. Air pollution regulations and emission controls also have an effect on the amount of an emitted substance.

The United States Environmental Protection Agency (EPA) is mainly concerned with emissions which are or could be harmful to people, termed criteria pollutants. The criteria pollutants are carbon monoxide (CO), lead (Pb), nitrogen dioxide(NO2), ozone (O3), particulate matter (PM), and sulfur dioxide (SO2).

## The Eagle Ford Shale is being developed with:

- **Cutting-edge technology that lowers surface impact and emissions**
- **Innovative, efficient equipment**

**Learn more about this innovation on the flip side of this fact sheet*




**San Antonio Express-News**
http://www.expressnews.com/news/local/article/Even-more-natural-gas-being-flared-in-Eagle-Ford-5971450.php#/0

In raw numbers, the volume of flared gas continued to grow in 2014 as production skyrocketed in the Eagle Ford. But the newspaper's analysis also showed the overall rate of flaring dropped to nearly 6 percent of total production in the first seven months of 2014.

That's the lowest rate of flaring in the shale since the same seven-month period in 2011, when more than a tenth of the natural gas was lost to flaring in the Eagle Ford.

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# REDUCING EMISSIONS

## Advocates for Clean Air

Operators in the Eagle Ford are continually testing new technologies and implementing programs to lower emissions:

- Operators are committed to minimizing the number of days of flaring that may occur between bringing a well on line and installing infrastructure to transport gas to sales
- Practices such as reduced emissions completions and installing vapor recovery units avoid the unnecessary venting and flaring, and send more gas to the sales pipeline
- Industry began voluntary emissions monitoring across Eagle Ford operations using infrared cameras for detection of fugitive emissions
- Operators, along with contractors, continue to design, test and implement innovative technology and procedures to improve operations and reduce emissions, such as no-bleed pneumatic pumps, utilize more natural gas to power operations, and using more solar-power on production sites.

**The oil and natural gas industry continues to advocate for installation of efficient pipeline infrastructure, effectively reducing the need to flare gas and lower truck traffic.**

## Practices that reduce emissions:

### Reduced Emissions Completions (RECs) or "green completions"

The practice of capturing natural gas produced during well completions and well workovers following hydraulic fracturing. Portable equipment is brought on well pads to separate natural gas from produced liquids during the completion period. This practice decreases flaring times, reduces vented emissions, and puts more product in the sales line in the Eagle Ford region.

### Vapor Recovery Units (VRU)

A system composed of a scrubber, a compressor and a switch designed to recover vapors formed inside completely sealed crude oil or condensate tanks. When triggered, the VRU sucks the vapors through a scrubber, where trapped liquid is returned to the liquid pipeline system or to tanks, and recovered vapor is pumped into gas lines. This practice decreases flaring times and reduces vented emissions in the Eagle Ford region.

### Equipment Efficiencies

Companies and vendors have answered the call for better equipment by offering engines and compressors that run cleaner and more efficient. Companies like STEER members HOLT CAT and Aggreko are renting and selling equipment that run on natural gas to power operations and Tier 4 Final diesel engines. This allows the operator to switch to natural gas, a cleaner burning fuel. Companies are also conducting pilot programs to find an efficient process to clean up field gas to be used in to fuel operations.

### Compressed Natural Gas (CNG) Stations

All across South Texas, from Laredo to San Antonio, natural gas filling stations are being built for on-site fueling of fleet vehicles. Additionally, some companies compress natural gas to dispense into storage containers and relocate to drilling sites for on-site fueling of drilling rigs, lowering the amount of diesel used in operations.

**Status of Compliance with 8-Hour Ozone Standard, San Antonio-New Braunfels MSA, 2015**

| Monitor Site | 4th Highest Reading, ppb | | | Current* 3 Year Average | The 4th highest value in 2015 must be below this value to meet the value ppb standard† |
|---|---|---|---|---|---|
| | 2013 | 2014* | 2015* | | |
| Camp Bullis C58 | 83 | 72 | 60 | 71 | 73 |
| San Antonio NW C23 | 76 | 69 | 60 | 68 | 83 |
| Calaveras Lake C59 | 69 | 63 | 60 | 64 | 96 |

* 2015 as of 5/04/2015
* 2014 as of 10/31/2014
† If the three year average is to be in compliance with the 2008 standard, the 4th highest eight-hour average daily reading for each particular monitor must be less than shown value.

**IN 2013, TEXAS HAD 374,318 MILES OF PIPELINE INFRASTRUCTURE.**
Efficient *pipeline infrastructure* offers *clean air* advantages by *reducing* the need to flare gas.