Texas Commission on Environmental Quality
Air Permits Division

New Source Review (NSR) Emission Calculations

This information is maintained by the Chemical NSR Section and is subject to change. Last update was made **January 2008**. These emission calculations represent current NSR guidelines and are provided for informational purposes only. The emission calculations are subject to change based on TCEQ case by case evaluation. Please contact the appropriate Chemical NSR Section management if there are questions related to the emission calculations.

Vapor Oxidizers

The methods used to determine emissions from oxidizers are very similar to those in the flare examples, but the emission factors used are different. Because the calculation methods are the same as those used in the flare examples, they will not be duplicated here. (Flare Calculations)

Hourly emissions are based on the maximum expected hourly emission rate during routine operations (does not include startups, shutdowns, or upsets), while the annual emissions are based on the annual operating rate. The preferred methods and emission factors for each type of air contaminant are described in the following paragraphs.

VOC. Calculate the emissions based on the waste gas to the oxidizer and the control efficiency (if a large amount of assist fuel is used, the EPA AP-42 natural gas boiler VOC emission factor may be used to determine VOC due to the incomplete combustion of natural gas). The exhaust molar flow rate and the maximum ppmv and VOC molecular weight should be used if BACT review is based on the outlet concentration.

SO_2. Assume 100 percent of the sulfur present in the waste and assist gas is oxidized to SO_2.

Halogens. Assume 100 percent conversion to corresponding acid. If more than a small fraction of halogen is expected in the waste gas being treated, a vendor estimate should be used to determine fraction of acid and gas (HCl and Cl_2, for example).

Products of Combustion. CO, NO_x, and particulate emissions should be determined based on vendor estimates if the information is available. The NO_x emissions are generally expected to be less than 0.10 lb/MMBtu (0.06 lb/MMBtu if firing rate greater than 40 MMBtu/hr), and CO exhaust concentrations are generally less than 100 ppmv. The applicant will need to provide the calculation basis for any NO_x emission expected as a result of nitrogen found in the VOC being combusted.

Particulate Matter. Particulate emissions are expected to be similar to those from gas fired boilers, and the appropriate factor from AP-42 may be used to estimate emissions.