

Understanding Your Emission Factor

The amount of emissions coming off of crude oil storage tanks is being reported using one of two methods:

DEFAULT EMISSION FACTOR – A state's regulatory authority will set a default emission factor (EF) to be used to report tank emissions. These EF's are significantly higher than the actual EF and are in the units of lbs/bbl. The EF is multiplied by the annual oil production to determine the annual emissions in lbs. Put another way, if a facility produces more than 400 barrels of oil per year, the facility is above a regulatory threshold of 2 tons per year (TPY). Over 2 TPY, compliance requirements kick in.

Default EF = 13.7 lbs/bbl

Annual Oil Production = 400 bbl

$13.7 \text{ lbs/bbl} \times 400 = 5,480 \text{ lbs (2.78 tons)}$

SITE SPECIFIC EMISSION FACTOR - Regulations allow for determination and use of an EF unique to the tank facility. This is called a Site Specific Emission Factor (SSEF). The typical determination method is analysis of a pressurized oil sample and calculation using a software package such as ProMax. SSEF is almost always lower than the default EF.

Regulations allow alternative methods for SSEF.

The VaporLok SSEF - Our method includes laboratory analysis of the tank vapor, use of a meter to measure the emission flow from the tank, and gauging to determine oil production for the measurement period. The percent emissions reduction is then calculated using the stated data. This method is also used for production water tanks and salt water disposal facilities.

Here is where the VaporLok program comes into play for oil and gas producers:

VaporLok technicians determine the facility's annual emissions using the measurement method. They have yet to measure a site where the true, actual emissions are in excess of what is being reported. The VaporLok method provides a more accurate picture of what is happening at the facility. The facility owner is provided a report which states the methods and results used to determine the actual emissions. In many cases this actual number shows that the facility is below the regulatory reporting and/or control thresholds. If this is the case, then little or no further action is typically required.

The VaporLok Solution includes 3 elements: 1) The installation of a VaporLok membrane, 2) Installation of a Downcomer, and 3) A precise measurement protocol. The VaporLok membrane is a patented, flexible, floating cover which is installed in the tank. The VaporLok Solution will reduce the emissions up to 65%. In many cases, the Vaporlok membrane will reduce the emissions below the regulatory threshold. After the VaporLok installation, the site will again be measured to determine the new resulting lower emissions.