

ORGANIC LIQUIDS (INCLUDING CRUDE OIL) STORAGE APPLICATIONS

This guidance is intended to help applicants prepare applications and certifications with a reduced amount of effort, yielding clearer and more accurate applications. We hope to steer new applicants around some common mistakes, allowing them to prepare applications which are complete on their first try.

The process involves preparation of facility descriptions, emissions estimates, and completion of some administrative forms. Two passes through the process may be required, doing first estimates based on worst-case assumptions, the re-calculating emissions and adjusting assumptions if any level of significance is exceeded. The pollutants of concern are volatile organic compounds (VOC) and hazardous air pollutants (HAPs), primarily benzene, toluene, ethyl benzene, xylene, and n-hexane.

Administrative Forms

The first thing to do is acquire a copy of the forms....

- A. Log onto the DEQ web page: www.deq.state.ok.us
- B. Go to the “Air Quality” page
- C. Select “Forms”
- D. Select “Minor Source Permit Application Guide.”

If you download the MS Word copies of this document, it may be filled in on computer and stored for later needs.

In general, organic liquids storage units will involve tanks and fugitive components (valves, flanges, pumps, etc.). Ordinarily, there will not be any significant fuel-burning equipment. The permit application includes a form where blanks may be filled in for tanks. For other units, information as listed here may be attached to the application. Example formats are provided in this document.

On the “General Facility Information” Form 100-884, please do not mark both construction and operating permits as this makes your application self-contradictory. Construction permits and operating permits are applied for separately.

Additionally, the “SIC Code” means “Standard Industrial Classification Code.” This is 4612 for crude oil transmission.

The “Landowner Notification Affidavit” must be completed and signed for all applications, but it is commonly overlooked, resulting in delays in processing applications and issuing permits.

Minor source applications are all listed as “Tier I” on the “General Facility Information” Form 100-884.

Fees

Most minor source operating permits will require a \$500 fee. The construction permit fee depends on the emissions *being added*. For example, adding emissions of 30 TPY to a facility with current permitted emissions of 50 TPY means the construction permit application fee is \$1,000. In a reverse situation (adding 50 TPY to a facility with 30 TPY permitted emissions), the construction permit fee would be \$1,500. Numerous other situations are addressed in the minor source permits rule, OAC 252:100-7, but these situations are not as common.

Preparing Emissions Estimates

1. EPA software, TANKS4.0, is used for estimating emissions of volatile organic compounds from storage tanks.

- A. Prepare a directory on your computer hard drive to receive the program, and where it will be installed later, for example, “C:\tanks.”
- B. Log onto EPA’s “Technology Transfer Network,” www.epa.gov/ttn.
- C. Select “CHIEF” (Clearinghouse for Inventories and Emissions Factors).
- D. Select “Software and Tools.”
- E. Select TANKS.
- F. TANKS4.0 can be downloaded.
- G. Install the program following instructions as provided by the program.

For storage tanks containing lube oil (either new or used) or glycols, you generally will not need to prepare emissions estimates for those tanks unless these liquids are stored in tanks larger than 19,813 gallons.

2. For liquids with significant “flash” emissions such as pipeline condensate, a spreadsheet may be obtained from AQD which calculates flash emissions based on the Vazquez-Beggs correlation. If flash emissions from tanks exceed 50 TPY, however, a process simulator must be used instead of V-B.

3. For a transmission facility, VOC leakage from valves, flanges, etc., is normally negligible. For processing plants, fugitive VOC emissions are based on EPA's 1995 *Protocol for Equipment Leak Emission Estimates* (EPA-453/R-95-017) and an estimated number of components. This reference may also be obtained from www.epa.gov/ttn; factors are listed following in an example calculation.

EXAMPLES:

Here are some examples of how emissions from various units can be shown:

A. Tanks

Source ID Number	1210	1303
Construction Date	1985 (reconstructed 1993)	pre-1970
Roof Design	Internal Floating	Fixed
Contents	Crude Oil	Crude Oil
Vapor Pressure (RVP)	5	5
Height (ft)	16	16.5
Diameter (ft)	22	16
Capacity (gallons)	42,000	16,800
Capacity (barrels)	1,000	400
Throughput (gal/yr)	21,000,000	21,000,000
Turnovers	500	1,250
VOC Emissions (TPY)	0.66	5.91

When you are uncertain of the annual throughput, please estimate high (10 or more turnovers per year).

The vapor pressure should be less than 11 psia.. If a value which is higher than 11 psia is listed, the storage tank rules (OAC252:100-37 Part 3) require that a pressure vessel be used, so please do not list a high vapor pressure liquid in an atmospheric pressure tank.

B. Fugitive VOC Leakage

Equipment	Number	Emission Factor (lb/hr/source)	VOC Emission	
			lb/hr	TPY
Lt Liquid Valves	40	0.0055	0.22	0.96
Flanges	75	0.0002	0.02	0.07
Pump Seals	3	0.0286	0.09	0.38
Total			0.33	1.41

The formats here are not rigid. Different formats may be used, but whatever is used should be clear enough that permit engineers can readily discern emission rates.