

Oil and Gas Exploration & Production Condensate Tanks

An Overview of Air Quality Regulations

The oil and gas extraction industry plays an important role in the energy supply of the United States. Petroleum and natural gas supply 65% of the energy consumed in the United States, and domestic producers supply approximately 40% of the petroleum and 90% of the natural gas (EPA Sector Notebook, October 2000). According to the Colorado Oil and Gas Conservation Commission, Colorado has approximately 31,610 active wells located in two-thirds of Colorado's counties.

This fact sheet provides an overview of the air quality requirements affecting oil and gas exploration and production (E&P) condensate tanks, tank batteries, engines, dehydrators and the wells serviced by these tanks and tank batteries in Colorado. The Air Pollution Control Division (APCD) at the Colorado Department of Public Health and Environment (CDPHE) administers and enforces these requirements. For more information on air quality requirements for oil and gas E&P operations, or for information on non-E&P or other oil and gas operations, contact the APCD at 303-692-3100 or visit the APCD oil and gas sector web page at <http://www.cdphe.state.co.us/ap/oilgas.html>.

➤ **Air Pollutant Emission Notices (APENs)**

Definition of Condensate:

For the purposes of this rule, condensate is a hydrocarbon liquid with an API gravity greater than or equal to 40 API at 60° F.

Under Colorado air quality regulations, owners or operators of all E&P condensate tanks (or multiple tanks manifolded together to create a tank battery) with condensate production greater than or equal to 730 barrels per year must report air emissions for the tank or tank battery to the APCD through the submission of an Air Pollutant Emission Notice (APEN).

Emissions for tanks installed prior to December 30, 2002 should have been reported to the APCD in 2003. Emissions for tanks installed or modified after this date must be reported to the APCD within 30 days after the first production report is submitted to the Colorado Oil and Gas Conservation Commission, but not more than 90 days following the first day of production.

The APEN form for E&P tanks is available through the APCD and downloadable at <http://www.cdphe.state.co.us/ap/downpermitforms/APENcontank.pdf>.

The APEN requests information on the location and ownership of the site and detailed information on site-specific process equipment and any air pollution control measures. When an air permit is required, the APCD uses the information provided on the APEN to prepare the air permit.

➤ **Air Permits**

Condensate tanks and tank batteries with a capacity less than 40,000 gallons that were in existence prior to December 30, 2002 *and have not since been modified* are exempt from air permitting requirements. All other condensate tanks and tank batteries with a condensate production greater than or equal to 730 barrels per year must obtain an air permit.

Has the Tank Battery Been Modified?

Modifications include but are not limited to adding or replacing a tank at the site, piping a new well into the tank, or significant changes to the tank or associated equipment. Modifications typically do not include removing a well from a tank battery, re-frac or re-completion of an existing well, and addition of a control device.

E&P condensate tanks that require an air permit may be issued a *General Permit* or an *Individual Permit*. The General Permit is designed to streamline the permitting process when the following conditions are met:

- 1) The E&P condensate tank or tank battery has a design capacity less than or equal to 10,000 barrels per tank;
- 2) Combined actual emissions of VOCs from all tank batteries that are co-owned or operated and co-located at a common well pad do not exceed 39

- tons per year of VOC; 8 tons per year of an individual hazardous air pollutant (HAP) or 20 tons per year for the total of all HAPs; and
- 3) The tank or tank battery is located at minor or synthetic minor facility and is not subject to major source (Title V) or other federal (i.e., MACT, NSPS) air requirements.

When the General Permit is not applicable or does not meet the unique needs of a facility, an Individual Permit is issued through the traditional construction permit process. The General Permit is available for review through the APCD and downloadable at <http://www.cdphe.state.co.us/ap/down/o&ggp01.pdf>.

Operators may choose either the General Permit or an Individual Permit on the APEN form as long as the General Permit eligibility requirements are met.

➤ **Applicable Fees**

APEN Filing Fee: A filing fee of \$119.96 is required for each submission of up to five tank battery APENs.

Annual Emission Fee: All sources required to file APENs must pay annual air emission fees. The APCD bills each source subject to an APEN an annual fee of \$13.54 per ton of criteria pollutants emitted and \$90.34 per ton of non-criteria (hazardous air pollutants) emitted. Invoices are mailed in March through June of each year. Fees are subject to change by the legislature on an annual basis.

Permitting Fee: For General Permits, the APCD assesses a permitting fee of \$250.00. For Individual Permits, the fee is based on the amount of time it takes the APCD to process the application. The current processing fee is \$59.98 per hour. Fees are subject to change.

➤ **Emission Estimates**

Owners or operators of E&P condensate tanks must estimate annual emissions of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) when submitting APENs or demonstrating compliance with permit conditions. The APCD has established the state-approved emission factors shown in Table 1.

These emission factors are applicable where the calculated actual uncontrolled VOC emissions are less than 80 tons per year. If uncontrolled VOC emissions from an E&P tank battery, as calculated using the

State emission factors, are greater than or equal to 80 tons per year, emission estimates must be based on site-specific sampling and analysis.

Table 1 State Emission Factors for E&P Condensate Tanks (lb/bbl)			
Facility County	VOC	Benzene	n-Hexane
Adams, Arapahoe, Boulder, Broomfield, Crowley, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, Logan, Morgan, Philips, Pueblo, Sedgwick, Washington, Weld, Yuma	13.7	0.024	0.210
Garfield, Mesa, Rio Blanco, Moffat	10.0	0.048	0.140
Cheyenne, Kiowa, Kit Carson, Lincoln	3.0	0.004	0.070
Remainder of Colorado	11.8	0.034	0.185

➤ **New Requirements for Colorado's 8-Hour Ozone Area**

In March 2004, the Denver-metro area entered into an Early Action Compact (EAC) with the US Environmental Protection Agency designed to lower ozone levels and avoid the classification of the Denver-metro area as a high pollution area. On March 4, 2007, in response to higher than expected growth in the Oil and Gas sector the Colorado Air Quality Control Commission passed amendments to Colorado Regulation No. 7 that increases control requirements for tanks in the EAC. As part of the EAC, oil and gas E&P condensate tanks or tank batteries that 1) share a common owner or operator, 2) are located in Colorado's 8-Hour Ozone Area, 3) exceed APEN reporting thresholds (i.e., 730 barrels of condensate per year), and 4) cumulatively result in actual

8-Hour Ozone EAC Area Includes:

All of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties, and parts of Larimer and Weld counties.

A map of the 8-Hour Ozone Area is available on the APCD oil and gas sector web page at: www.cdphe.state.co.us/ap/tankdocuments.html

uncontrolled VOC emissions greater than or equal to 30 tons per year, are subject to more rigorous VOC control and recordkeeping requirements than other similar condensate tanks in Colorado.

The EAC requirements for oil and gas E&P condensate tanks are provided in Colorado Regulation 7, Section XII. Regulation 7 is available through the APCD and downloadable at <http://www.cdphe.state.co.us/regulations/airregs/100109agccemissionsofvolatileorganic.pdf>. The emission control, recordkeeping, and reporting requirements provided in Regulation 7, Section XII are summarized below.

➤ **8-Hour Ozone Area VOC Control Requirements**

Owners or operators of EAC-affected tanks or tank batteries must use air pollution control equipment to reduce VOC emissions from these units. Owners or operators must meet *overall* VOC emission reductions for all of their affected tanks, and are not necessarily required to install control equipment on each and every unit. The required VOC reductions vary with the calendar year as follows:

Ozone Season (May 1 – September 30)

VOC emissions must be reduced by 75% from uncontrolled actual VOC emissions *on a weekly basis*.

Non-Ozone Season (January 1 – April 30, October 1 – December 31)

VOC emissions must be reduced by 47.5 % from January 1 – April 30, 2007; 60% from October 1-December 31, 2007 and 70% reduction for non-ozone season thereafter from uncontrolled actual emissions, calculated as an average of the emission reduction achieved during the seven months covered by the two periods.

➤ **8-Hour Ozone Area Recordkeeping Requirements**

Owners or operators of EAC-affected tanks or tank batteries must demonstrate compliance with the required VOC emission reductions by maintaining a spreadsheet of operation, control equipment, and emission information. This compliance spreadsheet must include, but is not limited to:

- A list of affected condensate tanks,
- Production at each tank,
- Emission factors used for each tank,
- The location and efficiency of emission controls,
- Records of weekly control device inspections;
- AIRS ID number shall be marked on all condensate storage tanks that require an APEN;
- During the ozone-season, weekly *controlled* and *uncontrolled* VOC emissions, and
- Date, time, and duration of *scheduled* and *unscheduled* air pollution control shutdowns.

The APCD has developed an Excel spreadsheet template to assist owners and operators of E&P tanks in meeting the EAC recordkeeping requirements. This spreadsheet is available through the APCD and downloadable at <http://www.cdphe.state.co.us/ap/tankrecords.html>. In many cases, the APCD can provide owners and operators with an electronic version of the compliance spreadsheet pre-populated with the EAC-affected tanks for which APENs have been submitted.

➤ **8-Hour Ozone Area Reporting Requirements**

Owners or operators of EAC-affected tanks or tank batteries must submit semi-annual compliance reports to the APCD by April 30 and November 30 of each year. The annual report includes the information maintained on the compliance spreadsheet, along with a statement of whether the required emission reductions were achieved during the preceding year, and a statement by the owner or operator regarding whether the required emission reductions were achieved on a daily basis during the preceding ozone season. If the required reductions were not achieved the report must state why not, and must identify steps being taken to ensure subsequent compliance.

Beginning in 2007, on or before April 30 of each year, the owner or operator shall submit a list identifying by name and AIRS ID each condensate storage tank that is being controlled. On the 30th of each month during the ozone season and on November 30th and February 28th the owner or operator shall submit a list identifying any condensate tank for which the control status has changed since the last submission.

Beginning in June 2007, the owner or operator of any condensate tank that has a control device shall submit a monthly report on or before the 30th of each month notifying the Division of any instances where the control device was not functioning properly.

Air Inspections and Enforcement

➤ State-wide Reg. 7 Revisions

Owners and Operators of condensate tanks, natural gas fired reciprocating internal combustion engines (RICE) and glycol natural gas dehydrators in the state of Colorado are subject to the following emission control requirements.

- Beginning May 1, 2008 condensate tanks with emissions of 20 tons per year of VOC or more must control emissions by 95%.
- Beginning May 1, 2008 glycol dehydrators with VOC emissions of 15 tons per year or more must control emissions by 90%.
- Owners and operators of RICE must comply with emissions as outlined in the table below.

Max. HP	Construction or Relocation Date	Emission Standards in G/hp-hr		
		NOx	CO	VOC
100<HP<500	1/1/08	2.0	4.0	1.0
	1/1/11	1.0	2.0	0.7
500<HP	1/1/07	2.0	4.0	1.0
	1/1/10	1.0	2.0	0.7

➤ Air Inspections and Enforcement

The APCD enforcement staff conducts routine inspections of E&P condensate tanks to ensure that reported emissions controls such as flares are in place and operational. The APCD also reviews annual VOC emission reports to ensure compliance with the EAC requirements. When a permit violation or noncompliance issue leads to enforcement proceedings, corrective action is required and fines up to \$15,000 per day can be assessed.

➤ Questions?



The APCD Small Business Assistance Program (SBAP) is available to help answer questions on air quality requirements for oil and gas E&P condensate tanks and tank batteries. Contact the SBAP at 303-692-3175 or 303-692-3148 or visit the SBAP web page at: www.cdphe.state.co.us/ap/sbap.asp