



Small Business Assistance Program

Colorado Department of Public Health and Environment
<http://www.cdphe.state.co.us/ap/sbap.asp>

A Guide to Air Regulations for: Gasoline and Diesel Fuel Dispensing Stations

Fuel dispensing stations emit substances that are regulated as air pollutants by the Colorado Department of Public Health and Environment, Air Pollution Control Division (Division). This document provides an overview of the air pollution reporting and permitting requirements for gasoline and diesel fuel dispensing stations with underground storage tanks.

➤ AREAS OF CONCERN

Air emission reporting and permitting requirements vary depending on where a source is located. To determine your air requirements, first identify your business area:

- ❑ **Denver 1-Hour Ozone Attainment/Maintenance Area:** Includes all of Denver, Broomfield, Jefferson, Douglas, and Boulder County (excluding Rocky Mountain National Park) and the western portions of Adams and Arapahoe Counties.
- ❑ **All Other Areas of Colorado**

➤ ENVIRONMENTAL CONCERNS

Volatile Organic Compounds (VOCs)

Volatile Organic Compounds contained in gasoline vapor, with sunlight acting as a catalyst, readily combine with oxides of nitrogen to form ozone. Ozone is a regulated pollutant in Colorado. At ground level, ozone is a major ingredient of smog, aggravates heart and respiratory illnesses, and may contribute to the development of various diseases including bronchitis and emphysema.

Hazardous Air Pollutants (HAPs)

Some of the chemicals contained in fuel are classified as HAPs. These chemicals can have detrimental effects on humans and the environment. HAPs in gasoline vapor include, but are not limited to, benzene, methyl tert butyl ether (MTBE¹), hexane, toluene, 2,2,4-trimethyl pentane,

and xylene. These substances have been known to cause headaches, dizziness, difficulty breathing, and an increased risk of cancer and birth defects. Highly concentrated vapor can be emitted when fuel is transferred from tank trucks to underground storage tanks at service stations. It can also be emitted directly into your breathing zone when you refuel your vehicle. The most immediate concern has been benzene because it is a known human carcinogen and is persistent in the atmosphere.

At one time lead was added to gasoline as an anti-knock agent to increase the octane of the fuel. Lead was then found to be a developmental toxicant in humans and regulations were adopted to restrict its use. Most fuels now consist of more highly branched and aromatic compounds that may include a higher benzene content.

¹*Note: The blending MTBE is prohibited in Colorado after April 30, 2002 (Colorado Revised Statutes 25-7-139).*

➤ **REPORTING REQUIREMENTS:**

Air Pollutant Emission Notice (APEN) and Emission Permits (or Construction Permits)

Most operators of gasoline and diesel fuel dispensing stations in Colorado are required to submit an APEN to the Air Pollution Control Division. An APEN is a form used to report a facility's air emissions. The APEN form, titled *Fuel Dispensing Stations-, Air Pollutant Emission Notice (APEN) – and –Application for Construction Permit*, is downloadable at www.cdphe.state.co.us/ap/downloadforms.asp.

✓ **An APEN must be filed under the following conditions:**

- ❖ **In the Denver 1-Hour Ozone Attainment/Maintenance Area:** Gasoline and diesel service stations located in the Denver 1-Hour Ozone Attainment/Maintenance Area (described above) must file an APEN if uncontrolled actual VOC emissions equals or exceeds two tons per year. In addition, these stations must obtain an air permit if VOC emissions equals or exceeds five tons per year.

The air permit will include requirements that approved fittings for a vapor recovery system to be installed on all gasoline storage tanks. The operator must ensure that the tanks are only filled with fuel from a certified delivery truck equipped with an approved vapor recovery system and that the system is properly connected during the entire filling operation. The air permit defines the type of air pollution control measures that will be used, the kinds and amounts of materials used by the facility and any other operating limits that may apply. Fuel dispensing facilities are normally required to maintain records of gasoline dispensed from each tank and maintain vapor recovery equipment/fittings to minimize air emissions.

Exemption: Diesel storage tanks with an annual throughput of less than four hundred thousand gallons are exempt from APEN requirements unless other federal standards

(such as 40 CFR 60, Subpart Kb for storage tanks with design capacities above 75 m³ or approximately 20,000 gallons) apply. (Regulation 3, Section II.E.3.fff.(i)).

- ❖ **All Other Areas of Colorado:** Gasoline and diesel fuel dispensing stations located in all other areas of Colorado must file an APEN if uncontrolled actual VOCs emissions equal or exceed two tons per year. However, these stations are exempt from air permit requirements (Regulation No. 3, Part III.D).

Exemption: Diesel storage tanks with an annual throughput of less than four hundred thousand gallons are exempt from APEN requirements unless other federal standards (such as 40 CFR 60, Subpart Kb for storage tanks with design capacities above 75 m³ or approximately 20,000 gallons) apply. (Regulation 3, Section II.E.3.fff.(i)).

✓ **APEN Calculations**

Operators of gasoline and diesel fuel dispensing stations may calculate annual emissions on the APEN form (see Attachment A) or the Division can calculate this information based on fuel throughput (gallons/year) provided by the source on the APEN. Please contact the Small Business Assistance Program or someone in the Air Pollution Control Division if you have questions.

Hazardous Air Pollutant (**HAP**) emissions must be reported on a **Non-Criteria Reportable Air Pollutant Emission Notice Addendum Form** if they exceed any of the reporting levels specified in Regulation No. 3. Contact the Division at (303) 692-3150 for a list of HAPs and reporting thresholds.

✓ **When to File a Revised APEN**

A Revised APEN must be filed with the Division anytime there is a **significant change** in emissions or a modification in equipment or controls.

- A significant change for **VOC** is an increase of one ton per year over the amount previously reported on an APEN or five percent, whichever is greater (Regulation No. 3, Part A.II.C.2 and .3).
- A significant change for **HAPs** is five tons per year over the amount previously reported, or 50 percent, whichever is less.

A Revised APEN must be filed whenever a permit emission limit is exceeded.

An APEN must be filed (renewed) every five years (or sooner if any of the above situations trigger an APEN revision).

✓ **APEN and Permit Fees**

APEN Filing Fee: A \$119.96 filing fee is required for each APEN submitted, including APENs submitted for administrative changes (e.g., changes in ownership, change in location).

Annual Emission Fee: State law requires all sources which are required to file Air Pollutant Emission Notice to pay an annual fee. The fee is based on the total annual emissions as reported on the most current Air Pollutant Emission Notice the Division has on file. Invoices for these fees will be mailed in May or June of each year. Current annual fees are \$13.54 for each ton of criteria pollutants emitted and \$90.34 for each ton of hazardous air pollutants emitted. These fees are subject to change by the legislature on a yearly basis. The Inventory and Support Unit at the Air Pollution Control Division administers annual emission.

Permit Processing Fee: In addition to the APEN filing fee and annual fee, the Division is required by law to recover the costs of operating the permitting program by charging applicants a processing fee. This fee is based on the amount of time it takes the Division to process the application according to an hourly rate and including costs such as publication of public notice. Effective July 1, 2001, processing fees are \$59.98 per hour.

Please contact the Station Sources Program at (303) 692-3150 or visit the APCD website at: www.cdphe.state.co.us/ap/aphom.asp for current information or questions.

➤ POLLUTION CONTROLS

Stage I Vapor Recovery refers to the process of reclaiming vapor that, in the past, was released into the air when loading fuel into transport vehicles (tankers) at terminals and the unloading of the fuel at the service station. The cargo tank retrieves the vapors displaced during product unloading and transports the vapors through a vapor recovery system (equipment installed to control the release of vapors) or back to the loading terminal (closed loop vapor balance system). A vapor balance system is approved in Colorado if its design and operation are in accordance with provisions in Colorado Regulation No. 7 Section VI.B.

Stage I control applies gasoline stations in the Denver Metro Attainment Maintenance Area. Stage I controls are normally not required in Attainment areas in Colorado outside of the Denver Metro area; however, terminals, bulk stations, and service stations equipped to use Stage I controls are encouraged to use them state-wide to control emissions of volatile organic compounds and hazardous air pollutants. **In areas where vapor recovery equipment is required, the equipment must be utilized at all times.** Failure to properly operate the equipment can result in violations being issued to both the transporter and the owner of the service station or gasoline terminal.

The responsibility for complying with Stage I requirements falls on both the transporter and the recipient of the gasoline. Transporters of gasoline must have their equipment pressure and vacuum tested annually (Regulation No. 7, Section VI.D) to ensure that there are no leaks in the lines or other parts of the tank. This includes hoses, piping, and connections. In addition, the deliverer must ensure that the equipment is properly connected when transferring gasoline from the transport tank to the storage tank. The recipient of the gasoline (usually a service station) must also ensure that the proper equipment has been installed and is in working order. Regularly scheduled inspections and maintenance will help you to stay in compliance with the control requirements and avoid costly and time-consuming enforcement actions.

➤ **HOUSEKEEPING**

Gasoline must not be intentionally spilled, discarded in sewers, stored in open containers, or disposed of in any other manner that would result in evaporation (Regulation No. 7, Section V.B.). If a spill does occur, it should be cleaned up immediately. Spill reporting and clean up procedures must be conducted in accordance with applicable Colorado Regulations.

➤ **RECORD KEEPING**

Annual records of gasoline and diesel throughput (gallons per year) must be maintained by the owner/operator and made available to the Division for inspection upon request. A copy of the most recent Air Pollutant Emission Notice (APEN) and Permit (if required) should be maintained by the owner/operator. Records must be maintained by the owner/operator for at least two years.

➤ **SMALL BUSINESS ASSISTANCE PROGRAM**

The Small Business Assistance Program (SBAP) is available to answer questions you may have regarding environmental issues at your facility. The SBAP can help you understand the regulations, help you determine what your company has to do to be in compliance, help you file required forms, help you complete the APEN process (if required), help you calculate your emissions, or provide information by presenting a workshop for your company or for your industry. Our services are always free and confidential.

**Small Business Assistance Program
Colorado Department of Public Health and Environment**

Home Page: www.cdphe.state.co.us/ap/sbap.asp

Program Contacts:

Joni Canterbury – (303) 692-3175

Margo Griffin – (303) 692-3148



Colorado Department
of Public Health
and Environment

ATTACHMENT A

Calculating Emissions from Underground Storage Tanks

Operators of gasoline and diesel fuel dispensing stations with underground storage tanks may calculate and list emissions of volatile organic compounds (VOCs) on the APEN form or they may request the Division to perform these calculations while processing the permit. To calculate your own emissions, use the following steps:

1. Determine the *actual* throughput (in gallons of fuel per year) for each tank. The actual throughput is the quantity of fuel actually dispensed for the previous calendar year.
2. Determine the *requested* throughput (in gallons of fuel per year) for each tank. The requested throughput will become your permit limit. This number should allow room for your business to grow over the next five years.
3. Determine the type of vapor or emission control at your facility. Examples of emission controls include Stage I Vapor Recovery, Stage II Vapor Recovery, Submerged Pipe Fill, and Splash Fill. Emission factors for various types of fuel and emission controls are provided in Table 1.

Calculate your actual and requested annual VOC emissions by selecting the appropriate emission factor(s) from Table 1 and using the equation in Table 2.

| Table 1 | |
|---|--|
| Emission Factors | |
| Fuel Type and Emission Control | Emission Factor¹ (pounds of VOC per gallon throughput) |
| Gasoline with Stage I Vapor Recovery | 0.013 |
| Gasoline with Stage II Vapor Recovery | 0.0031 |
| Gasoline without Stage I | |
| - With Submerged Pipe Fill | 0.02 |
| - With Splash Fill | 0.0242 |
| Diesel | |
| - With Stage I, Stage II, or Submerged Pipe | 0.000029 |
| - With Splash Fill | 0.000045 |

¹ These emission factors are commonly used to calculate VOC emissions for fuel dispensing stations. The Division reserves the right to use alternate emission factors or methodologies to calculate VOC emissions as warranted by site-specific conditions or other available data.

| Table 2 |
|--|
| Equation for Calculating VOC Emissions |
| $VOC \text{ Emissions} \left(\frac{\text{pounds}}{\text{year}} \right) = \text{Throughput} \left(\frac{\text{gallons}}{\text{year}} \right) \times \text{Emission Factor From Table 1}$ <p>To convert “pounds per year” to “tons per year,” simply divide “pounds per year” by 2000.</p> |

Example Calculation: A service station in Denver has two underground storage tanks with Stage I Vapor Recovery. The first tank, containing gasoline, has an actual throughput of 374,400 gallons per year and a requested throughput of 395,000 gallons per year. The second tank, containing diesel², has an actual throughput of 12,000 gallons per year and a requested throughput of 15,000 gallons per year. Calculate the facility's total VOC emissions in *tons per year* based on the actual and requested throughputs.

VOC Emissions Based on Actual Throughput:

Tank 1 - Gasoline

VOC Emissions = 374,400 (gallons/year) X 0.013 (pounds/gallon) = 4,867 pounds/year

Convert to tons VOC per year: 4,867 (pounds/year) / 2000 (pounds/ton) = 2.43 tons/year

Tank 2 - Diesel

VOC Emissions = 12,000 (gallons/year) X 0.000029 (pounds/gallon) = 0.348 pounds/year

Convert to tons VOC per year: 0.348 (pounds/year) / 2000 (pounds/ton) = 0.00017 tons/year

Total VOC Emissions

2.43 tons/year + 0.00017 tons/year = 2.43 tons/year

VOC Emissions Based on Requested Throughput:

Tank 1 - Gasoline

VOC Emissions = 395,000 (gallons/year) X 0.013 (pounds/gallon) = 5,135 pounds/year

Convert to tons VOC per year: 5,135 (pounds/year) / 2000 (pounds/ton) = 2.57 tons/year

Tank 2 - Diesel

VOC Emissions = 15,000 (gallons/year) X 0.000029 (pounds/gallon) = 0.43 pounds/year

Convert to tons VOC per year: 0.43 (pounds/year) / 2000 (pounds/ton) = 0.00022 tons/year

Total VOC Emissions

2.57 tons/year + 0.00022 tons/year = 2.57 tons/year

² Regulation Number 3 provides some exemptions from air emission reporting and permitting requirements for tanks containing diesel and other fuels. Contact the Division or the Small Business Assistance Program to determine if any exemptions apply to your business.