

# STAGE I VAPOR RECOVERY

It used to be that when gasoline was delivered into your underground tank, gasoline vapors from the tank were discharged through the tank vent pipe into the atmosphere. Nowadays a technique known as Stage I vapor recovery is used at many facilities to capture these vapors. With Stage I vapor recovery, liquid gasoline flows through one hose from the truck to the underground tank, while at the same time, vapors from the tank flow upward through another hose to the tank truck. Liquid gasoline in the truck and the gasoline vapors in the underground tank are essentially trading places. When the tank truck takes on another load of fuel, the vapors in the truck are transferred to the fuel-storage facility. Keeping these vapors out of the atmosphere cuts down on air pollution.

One of your responsibilities as an operator of a gasoline UST in Maine is to maintain a log of the total amount of gasoline you dispense each month (see an example of a log form on page 2). The amount of gasoline that you dispense determines the vapor-recovery measures that you need to use at your facility. This log must be kept at the facility, and you will need to show it to the person who does your annual inspection.

**In Maine, Stage I vapor recovery must be used if the total amount of all grades of gasoline dispensed is greater than 10,000 gallons in any one month. Most retail fueling stations in Maine meet this throughput level and have had Stage I vapor recovery installed for many years.**

In January 2008, the U.S. Environmental Protection Agency adopted Stage I vapor-recovery requirements for gasoline distribution facilities. Maine DEP is in the process of reviewing and modifying its rules to be consistent with the federal rules. Maine's Stage I requirements are the same or stricter than the new federal rules, except for stations with throughputs of over 100,000 gallons per month. If your facility has a throughput of more than 100,000 gallons per month, you will need to meet both federal and state requirements. If your facility has a throughput of 100,000 gallons or less per month, complying with the Maine requirements meets the federal requirements.

By January 10, 2011, facilities in Maine with gasoline throughputs greater than 100,000 gallons per month will be required to have hardware in place (e.g., pressure/vacuum vent caps, swivel fill and vapor adaptors, tightly sealed fill caps) to meet new federal performance requirements. In addition, testing will need to be conducted to demonstrate that the new federal performance requirements are being met and that very few vapors are escaping from the storage system.

With Stage I vapor recovery, liquid gasoline flows through one hose from the truck to the underground tank, while at the same time, vapors from the tank flow upward through another hose to the tank truck.

A summary of the January 2008 federal regulations concerning Stage I vapor recovery is available online at: [www.epa.gov/ttn/atw/area/gdfb.pdf](http://www.epa.gov/ttn/atw/area/gdfb.pdf).

**If you have questions about Stage 1 vapor recovery,  
call the DEP's Air Bureau at  
207-287-2437**

One of your responsibilities as an operator of a gasoline UST in Maine is to maintain a log of the total amount of gasoline you dispense each month

MONTHLY GASOLINE THROUGHPUT LOG							
Facility: _____				Registration Number: _____			
Location: _____							
Gallons Pumped From Each Tank							
20 _____	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Monthly Total
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
<b>Annual Total</b>							

Department of Environmental Protection Regulation 118 "Gasoline Service Station Vapor Control", administered by the Bureau of Air Quality Control, requires all gasoline dispensing facilities to keep records of the amount of gasoline that is dispensed each month. These records must be available for inspection and copies provided to Department staff upon request.

To calculate the monthly volume of gasoline dispensed at the Station, fill in the **Gallons Pumped** for each gasoline tank for the appropriate month. Add the monthly gallons pumped for all gasoline tanks at the station and write this sum in the **Monthly Total** box. At the end of the year, add the monthly totals and place this sum in the **Annual Total** box.

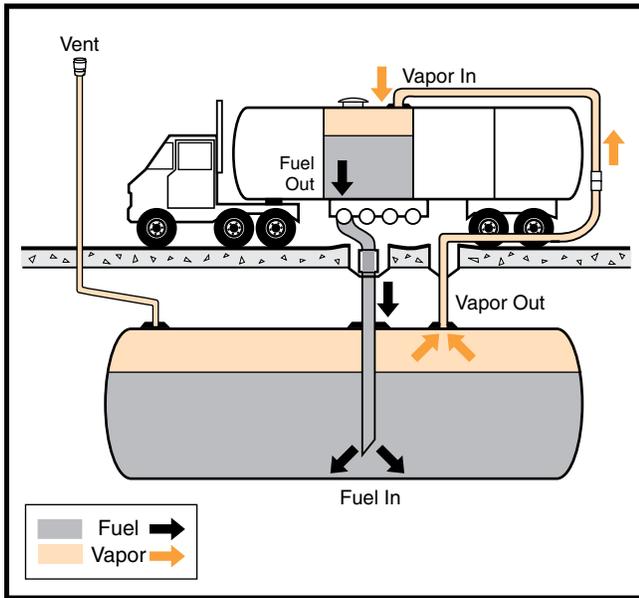
Do not include the volume of diesel fuel, K-1 or any fuel dispensed other than gasoline on this sheet.

Some vapor control is required at stations with an annual throughput greater than 100,000 gallons. See the regulation for details or contact DEP/Air Bureau office in Augusta, Bangor, Portland, or Presque Isle.

## STAGE I VAPOR RECOVERY OPTIONS

There are two types of vapor recovery systems. Which type do you have?

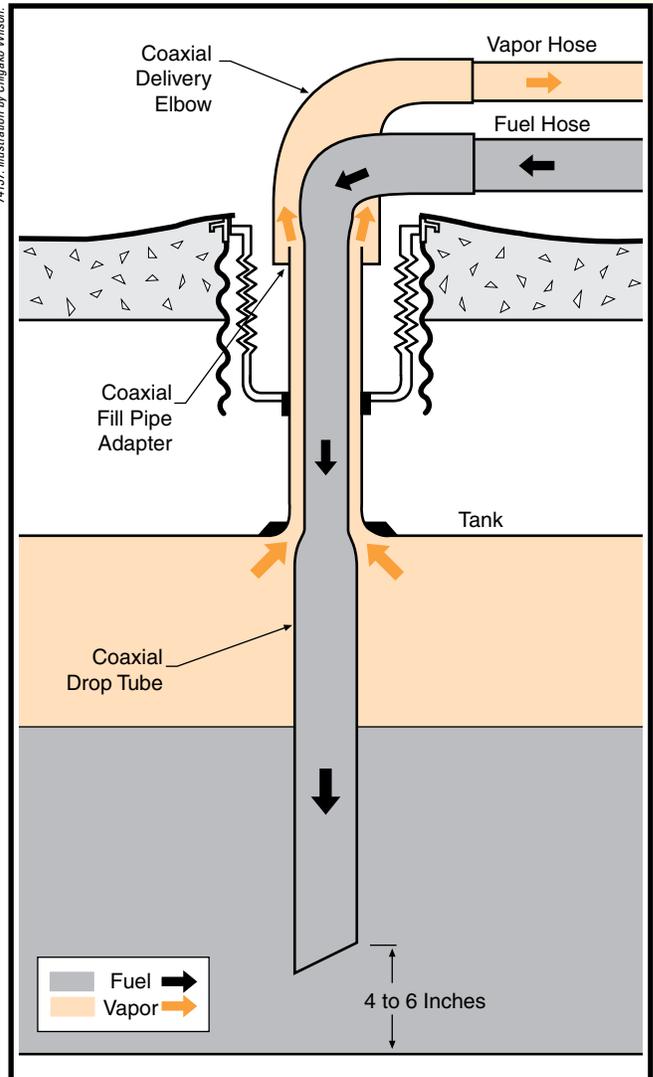
- **Two-Point/Manifolded Systems**, which have two separate connections to the underground tank, one for delivery of the product and the other for the transfer of vapors.



*With Stage I vapor recovery, vapors displaced from the storage tank during a delivery flow through the vapor piping and the vapor-recovery hose into the fuel-delivery truck. There should be no flow of air or vapor through the storage tank vent pipe.*

- **Coaxial Systems** have one tank opening that serves to transfer both fuel and vapors. This is usually accomplished by installing a 3-inch diameter drop tube inside the 4-inch fill pipe, creating a gap between the drop tube and the fill pipe through which vapors can pass.

*Coaxial Stage I vapor recovery uses a drop tube with a narrow top section to create a vapor pathway between the drop tube and the fill pipe. A special coaxial delivery elbow must be used to complete the fuel and vapor pathways to the fuel-delivery truck.*



There are two types of vapor recovery systems. Which type do you have?