

Federal and State Vapor Balance Requirements for Gasoline Dispensing Facilities

Up to 15 gallons of gasoline vapors can be lost when a gasoline storage tank is filled. These vapors lead to the formation of ground level ozone, which triggers a variety of respiratory health problems. To lessen the public health impacts, the Michigan Departments of Agriculture and Rural Development (DARD) and Environmental Quality (DEQ) require vapor balance systems at gasoline stations in certain counties and metropolitan areas and submerged filling at gasoline stations statewide. On January 10, 2008, the U.S. Environmental Protection Agency (U.S. EPA) enacted stringent requirements to minimize the release of gasoline vapors during the filling of storage tanks at gasoline dispensing facilities (GDFs). A GDF is any stationary facility dispensing gasoline into a fuel tank of a motor vehicle, motor vehicle engine, non-road vehicle, or non-road engine, including a non-road vehicle or non road engine used solely for competition. This includes all retail gasoline stations and many fleet vehicle refueling centers; facilities that dispense gasoline into on- and off-road, street, or highway motor vehicles, lawn equipment, boats, test engines, landscaping equipment, generators, pumps and other gasoline-fueled engines and equipment.

Vapor balance equipment minimizes the release of gasoline vapors when underground storage tanks are filled at GDFs through a combination of pipes and hoses that collect displaced gasoline vapors from the tank and route them back in the tanker truck. The terminal recovers the gasoline when the tanker truck returns to reload. The storage tank submerged fill pipes must be no more than six inches from the bottom of the tank to reduce vapor generation from splashing when the tank is filled.

State Requirements

All Michigan GDFs must have submerged fill pipes installed in their storage tanks. Vapor balance is required if one of the following three criteria are met:

1. Gasoline storage tanks at GDFs with an annual throughput of 120,000 gallons of gasoline or more in the counties of Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne.
2. Gasoline storage tanks placed into operation before 7/1/79 at GDFs with an annual gasoline throughput of 250,000 gallons or more located in the metropolitan areas of Flint, Lansing, or Grand Rapids.
3. Gasoline storage tanks installed on or after 7/1/79 at GDFs located in the metropolitan areas of Detroit, Flint, Lansing, or Grand Rapids.

Federal Requirements

All GDFs, regardless of throughput are subject to the management practices. GDFs with a monthly gasoline throughput of 10,000 gallons or more are required to comply with the management and submerged filling requirements. All GDFs with a monthly throughput of 100,000 gallons or more must comply with the management and submerged filling requirements and use vapor balance systems when filling storage tanks. Tests to determine the cracking pressure and leak rate of the pressure/vacuum vent valves and the static pressure of the gasoline storage tanks must be conducted initially and every three years thereafter. These GDFs are also subject to federal notification, recordkeeping, and reporting requirements. GDFs subject to and complying with a DEQ and/or DARD vapor balance requirement before January 10, 2008, do not have to conduct the above testing.

Table 1 – Summary of State and Federal Gasoline Vapor Balance Requirements

	Applicability	Management Practices	Submerged Fill	Vapor Balance	Testing and Monitoring	Notifications	Recordkeeping and Reporting	Compliance Date for Vapor Balance
DEQ	GDFs located in the metropolitan areas of Detroit, Flint, Lansing, and Grand Rapids.	Not Applicable	GDF gasoline storage tanks must be equipped with submerged fill pipes located within six inches from the bottom of the storage tank.	Tanks > 2,000 gallon capacity installed before 7/1/1979 at a GDF with a throughput \geq 250,000 gallons annually. or Tanks > 2,000 gallon capacity installed on or after 7/1/1979.	Not Applicable	Not Applicable	Not Applicable	December 31, 1982 for tanks installed on or after 7/1/1979. Upon Installation for tanks constructed on or after 7/1/1979.
DARD	GDFs located in the counties of Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne.	Not Applicable	Not Applicable	GDFs with a throughput \geq 120,000 gallons annually.	Not Applicable	Not Applicable	Not Applicable	3/29/1985
U.S. EPA	All GDFs located nationwide.	All GDFs, regardless of monthly gasoline throughput.	GDFs with a monthly throughput \geq 10,000 gallons.	GDFs with a monthly throughput \geq 100,000 gallons.	GDFs with a monthly throughput \geq 100,000 gallons must conduct cracking pressure and leak rate tests of the pressure/vacuum vent valves and the static pressure tests of the storage tanks. If the GDF was complying with a MDA or DEQ vapor balance rule prior to 1/10/2008, then the above testing is not required.	GDFs with a monthly throughput \geq 10,000 gallons.	GDFs with a monthly throughput < 100,000 gallons must keep records of their throughput. GDFs \geq 100,000 gal of monthly gasoline throughput must test and report.	Existing GDFs <i>loading gasoline into motor vehicles</i> (started construction before 11/9/2006) must comply by January 10, 2011. Existing GDFs <i>only loading gasoline into tanks other than motor vehicles</i> (started construction before 11/9/2006) must comply by January 24, 2014. New GDFs (started construction on or after 11/9/2006) must comply upon startup.

Complying with Both the State and Federal Requirements

A GDF owner needs to review the state and federal requirements separately and comply with all of the requirements that apply. They may be subject to more than one agency's requirements. For example, if a GDF is located in Wayne County and its monthly throughput of gasoline is 90,000 gallons, it is not subject to the vapor balance requirement under the federal rule but could still be subject to the state vapor balance rules if its annual throughput of gasoline is 120,000 gallons or more or began operation on or after 7/1/79. Table 1 contains a snapshot of the different requirements found under each rule.

Tanker Truck Driver / Distributor Responsibilities

Drivers must use vapor balance equipment at all GDFs subject to the state rules and/or federal standard. Pressure/vacuum tests must be conducted annually on tanker trucks. Trucks operating in Marquette County or the lower half of the Lower Peninsula of Michigan must conduct annual pressure/vacuum tests and submit the result to the Michigan Department of Licensing and Regulatory Affairs (DLARA). The [DLARA's Storage Tanks program](#) will review the results and provide certification. All trucks operating outside this region, delivering gasoline to GDFs with a monthly throughput of 100,000 gallons or more must also conduct annual pressure/vacuum tests on the tankers and keep the most recent annual result on the truck and have the previous four years instantly available (e.g., via e-mail or facsimile).

For More Information

Please refer to the publication entitled, "Michigan Gasoline Station Owners & Tanker Truck Drivers: What You Should Know About Vapor Balance Systems, 2nd Edition" located on the DEQ Office of Environmental Assistance Web site at www.michigan.gov/environmentalassistance. Select "Clean Air Assistance" under "Related Links" and then select "Stage I Gasoline Vapor Balance" under "Compliance Assistance." Additional questions can be directed to the DEQ's Office of Environmental Assistance at 800-662-9278.

The Web site contains links to the above publication; the initial notification and notification of compliance form and instructions; the notification of performance testing form; acceptable testing methods; state rules; and the federal standard.

