Regulation Revisions to Vapor Emissions Control Requirements at Gas Stations in Delaware

For over 20 years, gasoline stations throughout Delaware have installed and operated vapor recovery equipment to capture gasoline vapors from a vehicle's fuel tank when refueling. This technology, known as Stage II vapor recovery, has significantly reduced volatile organic compound (VOC) emissions. VOCs contribute to summertime smog and also contain certain air toxics.

Beginning in 1998, new vehicles were equipped with on-board refueling vapor recovery (ORVR) canisters. For these vehicles, the vapors displaced during refueling are controlled through the vehicle's canister, not through the Stage II system. In May 2012, the US Environmental Protection Agency (EPA) issued a rule determining that ORVR technology was in widespread use, and as such, was largely making Stage II obsolete.

The Delaware Division of Air Quality (DAQ) has evaluated the shrinking benefit of Stage II as older vehicles are replaced with newer ORVR-equipped vehicles and determined that alternative requirements at gas stations would be more cost effective than retaining the requirement to install, operate and maintain Stage 2 systems. Therefore, DAQ has embarked on an effort to revise the vapor recovery regulations.

DAQ is revising Regulation 1124 (i.e., 7 DE Admin Code 1124) Section 36 - Stage II Vapor Recovery. A review committee, consisting of gas station owners and operators, petroleum marketers, tank testing companies, public interest groups, and DNREC staff from DAQ and the Tanks Management Section, was organized to discuss relevant issues and assess technologies that will protect air quality while limiting the burden on the regulated community. The committee met five times from August 2013 to June 2014.

DAQ established three goals for the regulatory revision and these goals were presented at the first review committee meeting:

(1) All gas stations should be well-controlled for gasoline vapor emissions,
(2) Provide flexibility to station owners in meeting the new requirements, and
(3) Not increase overall costs of control compared to current requirements.

Through the review committee process, DAQ established that the refueling side of a gas station is well controlled through the use of ORVR and Stage II technologies. However, the gasoline storage tank side of a gas station is <u>not</u> well controlled due to several factors:

(1) Gasoline vapors from a vehicle's fuel tank are venting to the vehicle's ORVR canister and not being returned to the storage tank,
(2) Without vapors returning to the storage tank, fresh air replaces the volume of gasoline dispensed from the storage tank,
(3) Fresh air promotes vapor growth in the headspace of the storage tank,

(4) Vapor growth increases tank pressure,
(5) Tank pressure above atmospheric pressure results in emissions from tanks that are not vapor tight, and may also result in venting through the pressure relief valve, and
(6) Tank tightness deteriorates over time between annual leak tests, and venting is uncontrolled at this time.

The DAQ is proposing, through this regulatory revision, to discontinue the Stage II vapor recovery requirements for new gas stations that meet requirements that minimize leaks and venting from their gasoline tanks. DAQ is also proposing to allow existing gas stations to decommission their Stage II systems if they meet the same requirements as proposed for new stations.

The new requirements meet the goals as established at the start of the review process.

(1) **All gas stations should be well controlled for gasoline vapor emissions** – The new requirements specify maintaining a vapor tight tank system, to be demonstrated through the use of a continuous pressure monitor. On a weekly basis, the monitor will alert the gas station owner if there is an unacceptable leak within the tank system. An unacceptable leak rate is defined as twice the allowable leak rate as assessed by the standard pressure decay test. Currently, a pressure decay test is performed once a year.

    In addition to controlling emissions from leaks in the tank system, the new requirements minimize the amount of venting through the pressure relief valve. If pressure approaches the cracking pressure of the relief valve for more than 5% of the time on a weekly basis the station owner must either contain the pressure through the use of a higher cracking point relief valve or install a pressure management system that would reduce the pressure below the cracking point of the relief valve.

(2) **Provide flexibility to station owners in meeting the new requirements** – The new requirements allow existing stations to choose to decommission their Stage II systems when reconstructing the station, when making upgrades to existing equipment, or at any other time they believe is appropriate. This allows stations to get the useful life out of their Stage II equipment before replacement with non-Stage II pumps. Also, stations that experience venting through the relief valve are given the latitude to employ the technology they believe is best for their operation.

(3) **Not increase overall costs of control compared to current requirements** – For new stations, the cost of a continuous pressure monitoring system is not only a fraction of the cost of the currently required Stage II vapor recovery system, it pays for itself since the annual pressure decay test is no longer necessary. For those stations that experience venting, pressure management systems are cost effective and significantly less expensive or comparable to installing and maintaining Stage II systems.

The proposed regulatory revisions can be found at:

http://www.dnrec.delaware.gov/Air/Pages/Regulations-and-SIPs-Under-Development.aspx

The proposed revision is also published in the August 2014 Delaware Register. A public hearing is scheduled for Thursday, August 28, 2014 at 6:00 p.m. in the Richardson & Robbins auditorium at the DNREC office at 89 Kings Highway, Dover, Delaware. The public comment period will remain open until at least September 13, 2014.

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