NESHAP 6C INSPECTIONS AT GASOLINE DISPENSING FACILITIES

I. Introduction

Compliance inspections have taken on an added responsibility: inspecting for NESHAP 6C requirements. The requirements vary depending on the size of the gasoline dispensing facility (GDF), which is based on the facility's throughput in gallons of gasoline per month

Small GDFs have a monthly throughput of less than 10,000 gallons; medium GDFs have a monthly throughput of 10,000 gallons or more, but less than 100,000 gallons; large GDFs have a monthly throughput of more than 100,000 gallons.[1] Only large GDFs must be equipped with a Stage 1 Vapor Recovery System (VRS). But you must ensure that all GDFs follow their specific NESHAP 6C requirements (see NESHAP Notification for Gasoline Dispensing Facilities, DNR form 542-0113).

Stage 1 VR is designed to capture gasoline vapors that emerge from inside a storage tank when a load of gasoline is delivered into the tank. During the filling process, the rising liquid displaces the vapors present in the upper portion (ullage) of the tank. These displaced vapors have to escape for product to transfer to the tank. If there is not a tight connection (tight fill) between the delivery hose and the fill port, some vapors flow out around the hose while additional vapors escape through the tank's vent pipe. The Stage I VRS is designed to capture the vapors that result from the gasoline transfer from the delivery truck to the storage tank and to direct them back to the delivery truck.

Above: A Dual Point vapor recovery system in use at a large GDF. Coupler on left returns vapors to the tanker and the coupler on the right transfers the fuel from the tanker to the tank. Photo courtesy of NJ.

[1] Throughput is calculated by adding the volume of gasoline loaded into or dispensed from all storage tanks at the GDF during the current day to the total volume of gasoline loaded into or dispensed from the GDF for the previous 364 days and then dividing the sum by 12.

II. What to Inspect During NESHAP 6C Compliance Inspections at **all GDFs**

A. Tank top access locations are vapor tight: probe cap, fill port cap, riser caps. If caps are not vapor tight, require the owner to replace caps with vapor tight caps.

B. Drop tube present. On small GDFs where gasoline is delivered via a tank wagon, a drop tube may not be present. NESHAP 6C does not require a drop tube on small GPFs. However, it is required whenever there is the potential for the accumulation of static electricity. Delivery to tanks greater than 1,000 gallons must be made through liquid and vapor tight fill (IFC 2205.2). Therefore, check to ensure there is a drop tube on all tanks with a capacity greater than 1000 gallons.

C. For medium size GDFs, check monthly throughput to ensure they are below 100,000 gallons per month.

III. What to Inspect During NESHAP 6C Compliance Inspections at **large GDFs**

A. Notification: ensure the large GDF has notified Air Quality by completing the compliance information form and submitting it to DNR's Air Quality Bureau (deadline is March 11, 2011).

B. New facilities (facilities constructed since November 9, 2006): Dual Point VRS (see photo above).

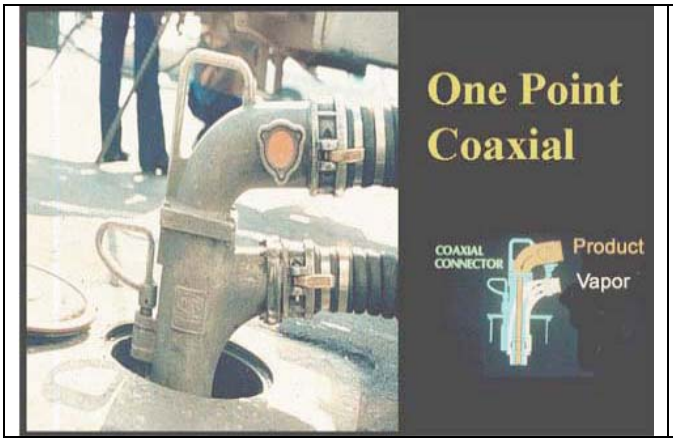
C. Existing facilities (facilities constructed before November 9, 2006): Dual Point or Single Point VRS. The deadline for existing facilities to install a Dual Point or Single Point VRS is January 10,2011. Large GDFs operating without a Dual Point or a Single Point VRS after these dates are in violation of NESHAP 6C.

IV. What to Inspect on a Single-point VR System

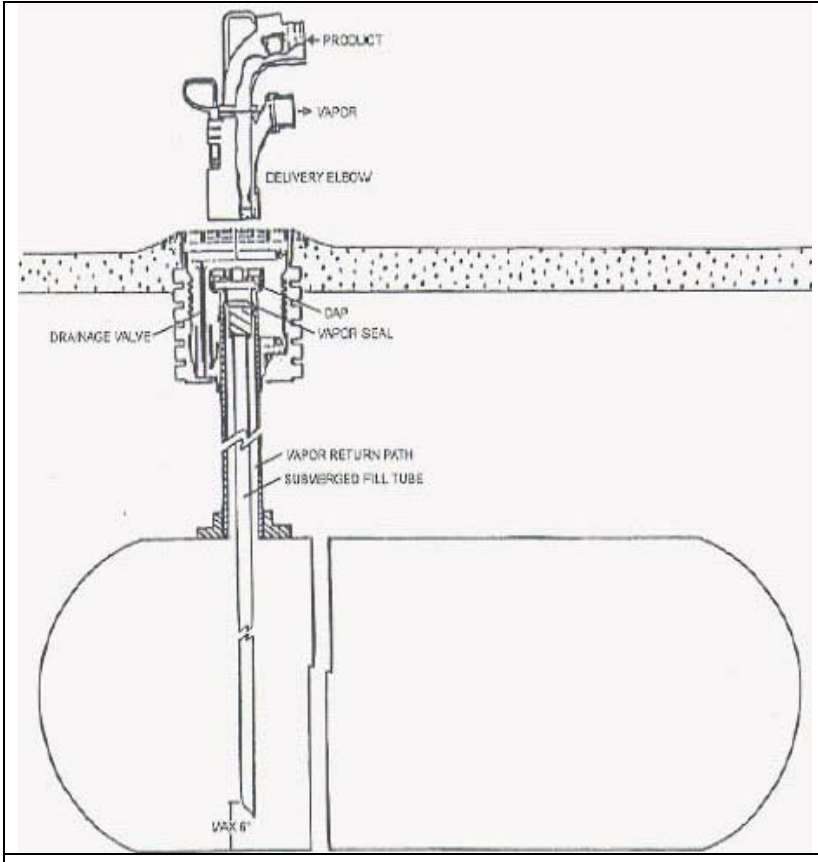
A. Single Point systems use a co-axial drop tube which consists of a "pipe within a pipe." There is a poppet valve (required) in the co-axial drop tube which is closed and prevents the escape of vapors from the storage tank when the toggle cap is opened. The product enters the tank through the center (inner) pipe and the tank vapors are returned to the tanker through the outer pipe. Since only one fill/vapor recovery port is present, this type of system is called a "Single Point" VRS. The delivery is through one fill unit which has two hoses connected to it. One hose transfers the fuel from the tanker truck to the tank; the second hose returns the displaced vapors to the truck's compartments.

B. Remove the fill port cover; the dry break valve (i.e. poppet valve) must be closed. Depress the valve; make sure it springs back when you release it. If it is locked in the open or closed position, it's a violation and must be repaired before taking deliveries.

C. Transporters may try to remove the coaxial drop tube to speed transfer, which is illegal. If you witness this tell the transporter to make the proper connection; notify the owner and the UST Section. If you discover the drop tube missing, it must be installed before the next delivery.



This photo shows a coaxial or Single Point VRS. Concentric tubing from the UST allows for recovery of vapors via one pipe as product is delivered via the other. Product is delivered and vapor recovered using the same elbow. Photo courtesy of NJ.

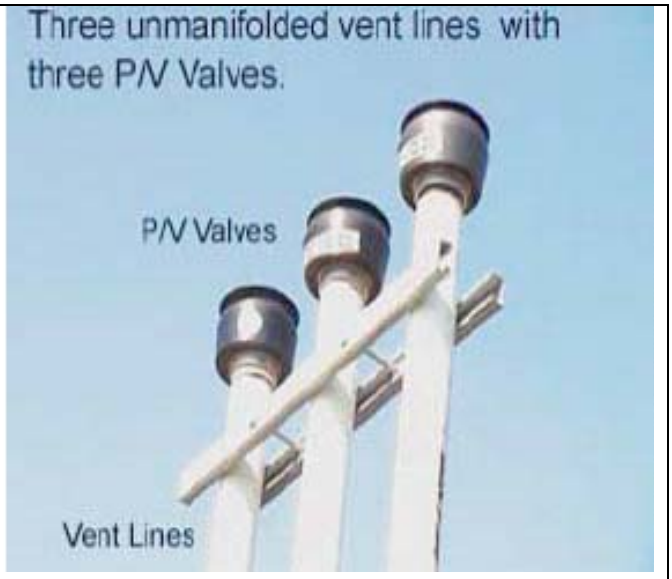


Product Fill Port
(drop tube)

Vapor Displacement
Space

Typical Stage I Coaxial or Single Point Vapor Recovery System

D. Pressure/Vacuum (PV) Valves. Tanks need to breathe due to product volume fluctuations due to temperature changes, barometric pressure changes, and variations in the vapor/liquid ratio during refueling. When the internal pressure exceeds the valve design setting, the valve opens to vent the excess pressure to the atmosphere. When the vacuum exceeds the design setting, the valve opens to allow air to flow into the tank and relieve the excess vacuum condition. The pressure specifications require a PV vent valve to crack at a positive pressure setting of 2.5 to 6.0 inches of water and a negative pressure setting of 6.0 to 10.0 inches of water. Pressure vacuum valve tests and static pressure tests are conducted initially upon installation and then every three years. Results must be made available to you.
E. Gasoline vent lines may be manifolded (see below). Non-gasoline tanks may not share a common vent manifold with gasoline tanks.
F. Make sure the initial testing (static pressure test and P/V vent valve) has been completed and the results are available.



These pressure/vacuum valves are installed on top of the vent pipes to minimize vapors released from the tank and into the atmosphere. Photos courtesy NJ.

V. What to Inspect on Dual Point VR Systems

A. A Dual Point VRS uses two separate tank ports for delivery and vapor recovery: the fill port and the vapor recovery port. The delivery coupling is attached to the drop tube and transfers fuel to the storage tank. The vapor recovery port is called a "Dry Break" (commonly painted orange) and it consists of a riser and a spring loaded poppet valve which is normally closed. During a fuel delivery, a vapor recovery device is attached to the dry break which automatically opens the poppet valve. The vapor return hose routes the vapors from the tank through the dry break and back to the tanker.

B. Remove dust cap and depress poppet valve, it should spring back to the closed position when released. If the poppet valve is locked open or closed, it must be repaired before the next product transfer.

C. Large GDFs may have multiple gasoline tanks with a manifolded VR system. Product can be transferred to all tanks with a manifolded VR system using just one VR hose connection.

D. If you should witness a delivery at a large GDF with a Dual Point system, make sure the delivery person is using the vapor recovery port. In order to make deliveries faster tank owners or transporters may have propped open the dry break. If you see this, stop the delivery until the transport operator hooks up to the dry break.

E. Make sure the initial testing (static pressure test and P/V vent valve) has been completed and the results are available.

	Location of Dual Point VRS components. Dry break has orange cap. Photo courtesy NJ.
	You may discover this at Stage 1 Dual Point VRS sites. In order to speed up delivery, operators force open the dry break. Obviously, it is illegal and very dangerous (vapors at ground level). If you see this, call it to the owner's attention. If you witness a transport operator doing this, tell them to stop and connect to the dry break. Also, inform DNR. Photo courtesy NJ.