



COMPLIANCE ASSISTANCE BULLETIN
June 2010

CLARIFICATION OF BULK PLANT LEAK INSPECTION REQUIREMENTS

District Rule 4621—*Gasoline Transfer Into Stationary Storage Containers, Delivery Vessels, and Bulk Plants*- applies to all gasoline storage tanks, including aviation gasoline tanks, greater than 250 gallons in capacity and transfer operations located at bulk plants that load less than 20,000 gallons of gasoline per day. The rule requires that all aboveground storage tanks, loading racks, and/or vapor control system piping and components be maintained free of vapor and liquid leaks. In addition to annual vapor recovery performance testing, the rule requires that bulk plant operators perform periodic leak self-inspections on any aboveground gasoline storage tanks, loading racks, and/or vapor control system piping and components to demonstrate compliance with this requirement.

Leak Inspection Requirements and Procedures

All aboveground gasoline storage tanks, loading racks, vapor piping and associated components, including pressure/vacuum (P/V) valves, must be inspected for vapor and liquid leaks at least once during every 6-month period. Loading racks must be inspected during product transfer.

Please be advised that periodic leak inspections must include loading racks connected to the vapor system even if the loading rack is not in use during the inspection period. An operator wishing to disconnect a loading rack from a vapor system may do so only after obtaining an Authority to Construct from the District authorizing the modification.

Please note that the District defines a “6-month period” as being one of two annual intervals - January 1 through June 30 or July 1 through December 31. At a minimum, operators must complete one leak inspection between January 1 and June 30 and another between July 1 and December 31. Additionally, any two consecutive leak inspections must be performed no less than four (4) and no more than eight (8) months apart.

Leak inspections must be performed according to US EPA Method 21 using a portable hydrocarbon detection instrument calibrated to a reference gas of **10,000 parts per million by volume (ppmv) methane**. A copy of Method 21 may be found at <http://www.epa.gov/ttn/emc/promgate/m-21.pdf>. The hydrocarbon detection instrument must be calibrated within 30 days prior to a leak inspection. Instrument calibration records must be maintained onsite and must indicate the methane concentration of the calibration gas in units of **ppmv**. **If an operator is able to obtain calibration gas cylinders that report methane concentration only in units of Lower Explosive Limit (LEL), the operator must indicate, on the calibration records, the concentration of the calibration gas in ppmv.**

(Continued on Reverse Side)

The LEL for methane is 50,000 ppmv. The following equation should be used to convert LEL for methane to ppmv:

$$\text{Cal. gas concentration (in ppmv)} = 50,000 \text{ ppmv} \times \% \text{LEL indicated for cylinder}$$

Example: if cylinder gas concentration is 20% LEL- $50,000 \text{ ppmv} \times 0.20 = 10,000 \text{ ppmv}$

Methane calibration gases shall be concentrated to 18-22% LEL (9000-11000 ppmv).

Sections 8.3.1 and 8.3.2 of Method 21 describe specific procedures for conducting leak inspections. Upon detection of a leak or leaking component (reading of 10,000 ppmv or greater), the operator must affix to the component a weatherproof, readily-visible tag with the date and time of leak detection and for gas leaks, the leak concentration in ppmv. All leaks must be repaired within seven (7) business days after the leak is discovered. If the component cannot be repaired within seven (7) business days, the operator must remove the leaking component from service until repaired. Upon returning the leaking component to service, the component must be verified to be leak-free in accordance with US EPA Method 21.

Following the detection and repair of any leak, the inspection frequency must be changed to quarterly (once every 3 months). The frequency may return to semi-annual after no leaks are found during five consecutive leak inspections.

Recordkeeping

Rule 4621 requires that bulk plant operators maintain the following records and retain them on the premises for a minimum of five (5) years:

- A record of all periodic inspections and repairs performed on any part of the storage tanks, loading racks, and vapor collection systems. The records must be maintained in chronological order showing the date of inspection, description and location of any equipment replaced, and a description of the problem which required repair. Attached is a suggested Bulk Plant Leak Inspection form which you may use for documenting the required inspections.
- A record of portable hydrocarbon detection calibrations. If an operator rents a portable hydrocarbon detection instrument to perform the required leak inspections, it is the operator's responsibility to obtain a copy of the instruments calibration documentation from the rental agency. The calibration record must indicate the concentration of methane in ppmv, not the LEL, used to perform the calibration.
- A record of **daily** gasoline throughput.

See the attached form for guidance on conducting the required leak inspections. Minor modifications have recently been made to existing forms. **Failure to conduct leak inspections in accordance with the requirements of Rule 4621 will result in enforcement action up to and including the issuance of a Notice of Violation.**

If you have any questions or comments regarding the requirements of Rule 4621 or the information contained in this bulletin, please contact Mr. Dillon Collins at (209) 557-6400 or by email at dillon.collins@valleyair.org.

San Joaquin Valley Air Pollution Control District
Bulk Plant Leak Inspection Form
 Semi-Annual¹ Quarterly²

Facility: _____ Address: _____ Inspection Date: _____

Inspections on active loading racks must be done during product transfer. Inactive loading racks must be inspected as part of the tank/vapor containment system. Please make note of inactive/unused loading racks in the Comment section below.

Directions: Tally each component inspected. Record any leaks in the right-hand portion of the table.

Liquid Leak is more than three (3) drops per minute

Vapor Leak is more than 10,000 parts per million by volume (ppmv) as methane

Pump	Loading Arm	Dry Break	Swing Joint	Pressure Relief Device	Hatch	Flange	Valve	Threaded Connection	Other	Leak #	Location	Concentration (drops/min or ppmv)	Repair Date
										1			
										2			
										3			
										4			
										5			
										6			

Check here if no leaks were detected Analyzer Brand: _____ S/N: _____ Calibration Gas: _____
 Excess liquid drainage³? Y / N Model: _____ Cal. Date: _____ Cal. Gas. Concentration (ppmv): _____

Inspection Results and Comments— describe any problem found and the repairs made, including repair date(s):

Name of Person Performing Inspection _____ Signature _____

¹ Self-inspections are required twice a year (a minimum of 4 months apart, but not more than eight months apart).
² Quarterly inspections are required any time a leak is found, after 5 consecutive quarterly inspections with no leaks, semi-annual inspections may be resumed
³ Excess liquid drainage = more than 10 mL of drainage at disconnect of transfer hoses (as determined by the average of three disconnects)

Instructions for Performing Bulk Plant Self-inspections

Leak detection shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane.

EPA Method 21

Instrument Specifications:

The VOC monitoring device shall meet the following specifications:

- Shall respond to VOCs
- Capable of measuring in the units specified in the leak definition (10,000 ppmv)
- Scale shall be readable to ± 250 ppmv
- Equipped with an electrically driven pump to ensure a constant sample flow rate
- Intrinsicly safe for Class 1, Division 1 conditions and/or Class 2, Division 1 conditions
- Response time of less than or equal to 30 sec

Calibration of Instrument:

- Performed in accordance with Method 21 or manufacturer's instruction **30 days** (or less) prior to its use.
- Operator shall record and maintain records of the calibration date of the hydrocarbon detector.

Inspection Procedure: (See Method 21, Sections 8.3.1 and 8.3.2 for details)

The probe inlet shall be placed **at the surface of the component interface** where a leakage could occur. If an increased meter reading is observed, slowly sample the interface until the maximum meter reading is obtained. Leave the probe at the maximum reading location for approximately two times the response time (60 sec or less).

For moving components, such as a rotating shaft, place the probe inlet within 1 cm of the interface. For pressure relief devices equipped with an enclosed extension, place the probe inlet at the center of the exhaust area.

Inspect all flanges, unions, threaded connections, access hatches, P/V vents, hose connections, dry break, swing joints, valves, or any other potential leak source.

Upon Detection of a Leak:

- Inspection frequency must be increased to quarterly. The frequency may return to semi-annual (one inspection per 6-month period) until 5 consecutive quarterly inspections are conducted without the detection of a leak.
- A weatherproof tag shall be affixed to the component stating the date and time of leak detection and leak concentration in ppmv
- The tag shall not be removed until the leak is repaired
- The leak shall be repaired within seven (7) *business* days. If a component cannot be repaired within 7 business days, it shall be removed from service.

Before returning a leaking component to service (and removing the tag) the component must be re-inspected using Method 21.