

Interpretation of Section 192.625(e)

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This responds to your memorandum of November 7, 1978, in which you ask for interpretations of four different situations as they relate to the requirements of 49 CFR 192.625(e), "Equipment for odorization must introduce the odorant without wide variation in the level of odorant."

These four situations are as follows:

(1) Given: A distribution operator having fairly constant seasonal flow rates at the point of odorization and possessing manufactured odorization equipment capable of measuring tank odorant levels at any time.

Question: Is it mandatory to measure the volume of odorant passed into the system over a reasonable period (say 1 or 2 months) and divide this volume by the amount gas passed during the same approximate time period in order to calculate an odorant injection rate such that each succeeding rate can be compared to determine "variation?"

Interpretation: Measuring the change in the odorant tank level and comparing the volume change with the corresponding gas sendout volume during similar time periods would be the most common method to determine the degree of variation in the level of odorant in the natural gas, but other available methods may be used including chemical analysis by use of titrators, or spectrography.

(2) Given: The same situation as (1) above.

Question: If item (1) is not mandatory is the following procedure acceptable? Taking periodic readings at various points on the gas system utilizing a properly functioning odorometer and these readings appear during succeeding time periods at an approximate gas concentration in air of 1/5 L.E.L.

Interpretation: The suggested procedure would not be acceptable because some means of determining the odorant injection rate for the gas delivered into the system is mandatory under the requirements of §192.625(e). Determining that the concentration of gas in air at the odorization level is equal to or less than 1/5 L.E.L. is required by §192.625(f).

Given: A distribution operation with wide fluctuations in gas flow (usually a small operator with a seasonal industrial load) having a buried tank without a volume level site gauge.

Question: If situation in item (1) is mandatory and experience tells us that this procedure will usually show "wide variation" (i.e., rate calculation is technically impractical or inadequate), what could be done by the operator to meet this requirement?

Interpretation: On odorizing equipment that is not equipped to measure the injection rate or the volume of odorant in the odorizer tanks, the tanks would at least have some means of indicating when they are full. An operator can determine the number of pounds of odorant required to fill the odorizer tanks and by reading the gas meter determine the quantity of gas used since the odorizer was last filled. From this, the pounds of odorant per million cubic feet of gas can be determined and compared with other periods. Filling of odorizers and reading of gas meters should be often enough to assure continuous odorization of gas delivered and should be done, in so far as is practicable, near the times when the system gas load characteristics are expected to change. These changes should be readily anticipated by operators having knowledge of the customer gas usage characteristics and at seasonal or other weather changes such as extreme cold weather.

(4) Given: All situations.

Question: (a) When the rate of odorant injection is measured, what variation would be allowed? In other words, if the malodorant manufacturer's suggested injection rate is, for example, 0.5#/MMCF, what range is acceptable (not "wide variation")?

Question: (b) If the odorometer procedure under item (2) above is allowed, what variation in succeeding readings would be allowed above or below 1/5 L.E.L.?

Interpretation: (a) The term "wide variation" relates to the odorant level necessary to assure leak detection. This level would depend upon the characteristics of the odorant being used. For instance tertiary-butyl-mercaptan (TBM) which is most commonly used, has a high impact on the olfactory system and with an excessively high injection rate will cause excess false leak complaints which causes the public to be less concerned when they do smell the odorant. Dimethyl sulphide has less impact on the olfactory senses but has a unique characteristic of reaching a plateau in its effect on the sense of smell. That is, although the addition of 3/4 to 1 pound per MMCF may provide adequate odorization an operator would not have an "over odorization" problem until the injection is increased to 4 or 5 pounds per MMCF.

Interpretation: (b) The procedure described under item (2) above is not acceptable for compliance with §192.625(e). Under the requirements of §192.625(f) any readings of gas in air at greater than 1/5 L.E.L. would not be acceptable. No limit is set on the variation of readings so long as the gas is detectable at a concentration equal to or less than 1/5 L.E.L.

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