

TESTING MANHOLE ATMOSPHERE

GENERAL

Notes Concerning This Addendum

This addendum is being issued to supplement information relative to the type of household and industrial gases used in Southern California and provides additional instructions for testing manhole atmosphere.

The following should be marked "See Addendum" and treated as indicated:

- Paragraph 2.01 - Replaced
- Paragraph 2.02 - Supplemented
- Paragraph 3.03 - Replaced
- Paragraph 3.05 - Replaced
- Paragraph 3.06 - Added
- Paragraph 3.07 - Added
- Paragraph 4.02 - Replaced
- Paragraph 6.01 - Supplemented
- Paragraph 7.02 - Supplemented

2. PRECAUTIONS

2.01 Lanterns, torches, lighted cigars, cigarettes, pipes or other types of open flames shall not be taken into or within 10 feet of an open manhole, even though tests indicate that the atmosphere is satisfactory. Only lighting and heating equipment approved for such use shall be used in a manhole or vault. When electrical switches are supplied on lighting or heating equipment, they shall not be operated in the manhole or

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vault due to possibility of arcing.

2.02 The last sentence of Paragraph 2.02 should read as follows:

Do not re-enter the manhole until it has been thoroughly ventilated and re-tested.

3. INITIAL TEST

3.03 When field experience indicates that a test for carbon monoxide should be made, the test may be made simultaneously with those made for other gases. Make certain that carbon monoxide ampoules are not out of date, and that all testing equipment is in good working condition. Do not let the end of the hose on a gas detector enter the water, if present, in the manhole.

3.05 Sail Ventilation: If, at the discretion of the workmen, the manhole is to be ventilated, a sail shall be used; except when a power blower is employed.

3.06 When working in deep or long-necked manholes the following precautions shall be observed in addition to initial tests specified in Paragraph 3.01.

(1) Where necessary use additional hose lengths to obtain a proper sample of air from the bottom portion of deep manholes.

(2) Additional tests for the presence of gas and for oxygen deficiency shall be made at frequent intervals during the day.

(3) Under certain conditions and at the discretion of Field Supervision, it may be desirable to seal all ducts entering the manhole with temporary plugs or approved sealing material, as a precautionary measure against gas entering the manhole. Any temporary seal so placed, should not be removed until work is completed.

3.07 In a few cases special tunnel entrances to manholes have been constructed and when working in these manholes the following special precautions shall be observed in addition to the initial tests specified in Paragraph 3.01.

- (1) Additional tests for the presence of gas and for oxygen deficiency shall be made at frequent intervals during the day.
- (2) All ducts entering the manhole shall be sealed permanently with plugs or approved sealing material and the seals shall not be removed except as necessary to perform the work.
- (3) A blower shall be used for ventilating during the entire period men are working in the manhole.

4. ADDITIONAL TESTS

4.02 If there has been no indication of the presence of gas on the initial test of the manhole, subsequent tests may be made by a second workman while the first man continues work in the manhole. If gas is detected, the employee shall leave the manhole immediately. Although the suction gas indicator is not considered an open flame and may be used less than 10 feet from the manhole opening, it must not be used in a manhole.

6. CABLE VAULTS

6.01 In some buildings tubes or pipes have been placed between the vault and some location outside the vault to facilitate testing the vault atmosphere.

When such tubes or pipes have been placed, specific instructions indicating the number of tubes and the locations where the tests can be made will be posted on the cable vault door.

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NOTE 1: The length of each tube or pipe will be indicated at the various test points. These tubes or pipes shall be considered as an extension of the sampling hose and treated in accordance with operating instructions found in the main section of this practice.

NOTE 2: At locations where there are no instructions on the vault door, the vault shall be tested in accordance with Paragraph 4.01 of the main section.

7. GASES FOUND IN MANHOLES

7.02 The following gases are supplied in Southern California throughout the year.

(a) Natural Gas

Natural gas is supplied in all parts of Southern California except as noted in (b) and (c)

(b) Butane Gas

This gas is used for fuel in the city of Moorpark.

NOTE: In extreme emergencies butane gas may be mixed with or substituted for natural gas, particularly in the San Diego and Long Beach Areas.

(c) Butane and Propane Gases

A mixture of Butane and Propane gases is supplied for fuel purposes on Santa Catalina Island.

(d) Butadiene Gas

This gas, now supplied by some chemical plants in this area is being transported by pipeline to synthetic rubber manufacturers. As this industry

develops, some of this gas may find its way into manholes located in the vicinity of pipelines or plants in which it is used. Butadiene gas is not considered to be toxic but it may cause some skin irritation upon long exposure to it. It is highly explosive.

(e) Manufactured Gas

There is no known regular supply of manufactured gas or mixtures of manufactured and natural gas in this area, however, these gases may be supplied by a few privately owned plants in very isolated rural communities.