

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G10.212.4
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TESTING MANHOLE ATMOSPHERE

HOT WIRE INDICATORS

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1. GENERAL

1.01 This section covers the testing of manholes and cable vaults for combustibles such as natural gas, propane, etc., and fumes from gasoline and other petroleum derivatives, using a gas (hot wire type) indicator.

1.02 This section has been revised to permit using a gas (hot wire type) indicator in a manhole.

1.03 Tests for carbon monoxide or hydrogen sulphide (using a Carbon Monoxide Detector or Carbon Monoxide Indicator) may be made simultaneously with tests made using a gas (hot wire type) indicator.

2. PRECAUTION

2.01 **Do not check the operation of a gas indicator by sampling the vapor from a container of gasoline.** Test an indicator to determine whether it is in satisfactory working condition, as covered in the G80 series of Practices.

3. TEST PROCEDURE—MANHOLES

3.01 The adjustment and operation of gas indicators in testing for combustible gases including gasoline vapor are covered in the G80 series of Practices. The instrument used should be checked and calibrated before each series of tests. ↙

3.02 Hold the instrument securely or place it on a firm support during testing to prevent the instrument from falling.

3.03 Tests should be made as covered in Section G10.212.1. Do not let the end of the hose enter water, if present, in the manhole.

3.04 Draw the atmosphere through the indicator, compressing the aspirator bulb about 5 times plus one squeeze for each 5 feet of hose. If the needle does not move beyond the graduated scale, keep aspirating until the highest reading is obtained. The needle will fluctuate slightly at each aspiration, indicating that the indicator is functioning properly.

3.05 The movement of the needle should be observed carefully from the first squeeze of the bulb until test is completed or, if there is a high concentration of gas, the needle may move to the right-hand end of the scale and remain there, or after moving rapidly to the right-hand end, it may return to some point on the scale, to zero or below.

3.06 Indicator readings should be interpreted as outlined below. The graduations on the scale are in per cent of the lower explosive limit.

<u>Scale Reading</u>	<u>Interpretation</u>
0 to .1 (Vapotester)	} Safe to enter. ←
0 to 10 (Explosimeter)	
Above .1 to 1.0 (Vapotester)	} Danger: Throw "ON-OFF" switch to "OFF" immediately and ventilate as covered in another section.
Above 10 to 100 (Explosimeter) or	
Needle moves to right-hand end of scale and then returns to some point on scale, zero or below.	

3.07 After the tests, the indicator should be turned off and if gas was detected in the test, the indicator should be purged with fresh air.

4. CABLE VAULTS

4.01 To test the atmosphere, proceed as follows: ←

- (1) Open the vault door, lay the free end of the hose on the floor and close the door as much as practicable without squeezing the hose.
- (2) Test the atmosphere by aspirating air from the vault. ↩

- 4.02 If gas is found in this test, withdraw the hose and close the door.
- 4.03 If no gas is found, make a second test for gas above the duct entrances.
- 4.04 If gas is found in either test, advise your supervisor immediately, who will arrange for ventilation and take any other steps necessary to prevent the ignition of the gas. Care should be exercised to ensure that the method of ventilating employed does not force gas from the vault into other parts of the building. The ducts in the office manhole should be examined to minimize entrance of gas through these ducts. ↵