BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

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AT&T Co Standard

TESTING MANHOLE ATMOSPHERE
DETECTION OF SULFUR HEXAFLUORIDE

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1. GENERAL

1.01 This section covers the additional tests that must be made of the atmosphere in manholes containing coaxial cables filled with sulfur hexafluoride (SF6) under pressure in place of nitrogen.

1.02 Sulfur hexafluoride is about five times as heavy as air and accordingly any leakage of gas from the cable will tend to accumulate in the manhole, resulting in a deficiency of oxygen.

1.03 **Warning Sign:** Manholes containing coaxial cables filled with SF6 are indicated by means of the B Gas Warning Sign described in another section. The sign is installed across the opening of the manholes containing coaxial cables charged with SF6. Make sure that the sign is in place on leaving the manhole. Coaxial cables containing SF6 are marked with warning tags stamped "COAX-SF6."

1.04 Before closing the manhole, make sure that all subsidiary ducts to subscriber's buildings are plugged in the manhole. These ducts must also be plugged in the subscriber's building.

2. SULFUR HEXAFLUORIDE

2.01 Sulfur hexafluoride (SF6) is a compound of sulfur and fluorine that is inert, non-toxic, odorless, tasteless and colorless at ordinary temperatures.

2.02 While SF6 is non-toxic at ordinary temperatures, a flame will convert SF6 into toxic gases. This is an additional reason why a flame, such as from an acetylene torch, must not be used in manholes.

3. TESTING ATMOSPHERE

3.01 Make the usual tests to detect the presence of combustible or toxic gases, as covered in other sections.

3.02 **If no combustible or toxic gas is detected,** proceed as follows:

(1) Make a test for oxygen deficiency at a point about one foot above the floor or water level, using the Suction Gas Indicator. Do not breathe the fumes from the indicator.

(2) If a deficiency of oxygen is found, ventilate the manhole continuously using a power blower. Test as often as necessary at a point away from the direct blast of the blower hose to ensure that the atmosphere is safe; the interval between tests should not exceed 2 hours.

3.03 **If combustible or toxic gas is present,** proceed as follows:

(1) Ventilate the manhole continuously using a power blower. Test as often as necessary at a point away from the direct blast of the blower hose to ensure that the atmosphere is free of combustible or toxic gases; the interval between tests should not exceed 2 hours.

3.04 **When a sheath opening is to be made in a cable filled with sulfur hexafluoride,** proceed as follows:

(1) Ventilate the manhole continuously using a power blower.

(2) Make the sheath opening.

(3) Test the atmosphere as often as necessary to ensure that the atmosphere is free of combustible or toxic gases and that it is not deficient in oxygen. The interval between tests should not exceed 2 hours. The tests should be made away from the direct blast of the blower hose.

(4) On completion of the work in the manhole, make an oxygen deficiency test in one manhole in each direction along the coaxial cable, also in the adjacent manhole of any branch conduit run. If oxygen deficiency is found in any of these tests, notify the supervisor so that other forces who may have occasion to work in the manholes can be alerted.

3.05 **When a major gas leak occurs** in the coaxial cable charged with SF6 (as indicated by contactor operation or other evidence of sheath damage) notify the supervisor so that other forces who may have occasion to work in the manholes can be alerted.

3.06 Before entering a manhole in the vicinity of the indicated leak location (in both the coaxial cable run and in the adjacent manhole of any connecting branch conduit run) the manhole should be tested for oxygen deficiency.

3.07 After the gas leak has been cleared, make oxygen deficiency tests in the manhole on each side of the leak, and in the adjacent manhole of any connecting branch conduit run. When this work has been completed, notify the supervisor and advise him whether oxygen deficiency is found in any of these tests.