ELECTRICAL PROTECTION OF BURIED PLANT

Purpose: The purpose of this addendum is to clarify references to gas tube arresters to bring these references into alignment with TE & CM Section 823, as well as to discuss protection practices for "crosstalk screened cable facilities."

Deletions:

1. Delete paragraph 2.23. Make a notation stating: "See Addendum No. 2."

2. Delete paragraph 3.12. Make a notation stating: "See Addendum No. 2."

Additions:

1. Add new paragraph 2.23 to read as follows:

2.23 Loading coils meeting REA specifications are designed to withstand substantial lightning surges without damage. Present designs will withstand current surges which approach the fusing current of 28-gauge wire. While this fusing current is less than that of 24-gauge cable, it is large enough that only a small percentage of surges reaching cables will cause loading coil damage. Therefore, gap protection of loading coils in buried plant is not normally required. In very severe lightning damage areas, protection for loading coils can be added at a later date if experience indicates the need. Where loading coil protection is necessary, standard or heavy duty gas tubes with a slowly rising dc breakdown voltage of approximately 350V should be used. It is recommended that these tubes be connected in a longitudinal nongrounded bypass configuration, as discussed in TE & CM 822.

2. Add new paragraph 3.12 to read as follows:

3.12 Gas Tube or Equivalent Arresters at Junctions with Facilities Serving Severely Exposed Stations - Terminal blocks equipped with standard or heavy duty gas tube arresters having dc breakdown voltages of 800 volts or greater and installed in suitable mountings and enclosures are recommended at junctions between buried wire or cable and facilities

serving stations that are severely exposed to lightning (such as fire towers and radio towers) regardless of the length or type of connecting facilities. Yellow coded (10 mil) carbon blocks may be used as an alternative to gas tubes. The wide gap spacing of the carbon blocks should reduce maintenance of these units to such an extent that they should be a very acceptable low cost substitute for the gas tubes.

3. Add new paragraph 3.136 to read as follows:

3.136 The recent increased use of pulse code modulation (PCM) carrier systems, with the resultant increased concern for near end cross talk (NEXT) has led to the development of a cable in which the pairs are divided into two bundles which are isolated from each other by a "screen" designed to reduce the crosstalk from one bundle to the other primarily by reducing the capacitance unbalance between pairs. Because this screen is within the core of the cable and adequate dielectric is not provided between the pairs and screen, the screen should not be treated as a shield where electrical protection is concerned. It is recommended that the screen not be connected to ground at any point and that it be made electrically discontinuous at pedestals.