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## SECTION XI

### SUPPLY LINES OR COMMUNICATION LINES CROSSING OVER RAILWAYS

#### 110. GENERAL

The following rules cover certain details for the construction of supply lines or communication lines crossing over railroads, excluding crossings over street railways. These rules are supplemental to the rules for lines in general, and to construction details of various classes of lines where alone, which general rules shall be followed in all respects except where clearly inapplicable to railroad crossing construction or where specifically modified herein.

Wherever a utility wishes to cross railroad tracks with any of its wires at a location other than a public thoroughfare, or a railroad wishes to cross beneath the wires of any utility at such a location, the consent of the utility whose facilities are being crossed must be obtained.

#### 111. POLES, TOWERS AND STRUCTURES

##### 111.1 Location

Poles or towers supporting crossing spans shall be located outside the railroad company's rights-of-way wherever practicable; shall be located as far as practicable from inflammable material or structures and shall be as nearly as practicable in line with the adjoining span on each side. The crossing span and the next adjoining spans shall be kept free from trees which might fall into the line.

In all cases the clearances from tracks to the nearest surface of poles, towers or structures shall conform to those specified in General Order No. 26-D. (See Appendix E)

##### 111.2 Height Adjacent to Crossing

The vertical difference of the conductor level between the crossing and adjacent poles, towers or structures shall, at all times, be less than that which would produce an uplift strain on the pin, insulator or tie, on the poles, towers, or structures adjacent to the crossing span, unless due precaution is taken to prevent the conductor from becoming detached from the crossarm.

### 111.3 Spliced or Stub-reinforced Poles

Spliced or stub-reinforced poles and pole top extensions shall not be used in crossings or conflicts where Grade "A" construction is required or where Grade "B" construction is required for Class C lines crossing railroads.

## 112. PINS AND CONDUCTOR FASTENINGS

### 112.1 Duplex Pin Construction

Duplex pin construction is not permitted at crossings over railroads.

## 113. CONDUCTORS

### 113.1 Prevention of Conductor Breakage and Burning of Supports

#### A. Splices and Taps

Splices shall not and taps should not be made in crossing spans where Grade "A" construction is required or where Grade "B" construction is required for Class C lines crossing railroads. Splices and taps should not be made in spans adjacent to such crossing spans if the crossing span is not dead ended. This rule is not intended to prohibit splices or taps on the free ends of conductors which are dead ended at the crossing span.

The provisions of this rule shall not apply to conductor splices which are made by any accepted standard method which has been proved by test before this Commission to develop practically the full strength of the conductor in which the splice is made.

#### B. Supply Conductor Supports

In installing insulators and conductors, precautions shall be taken to guard against the possibility of arcs or leakage current injuring conductors or burning any wood parts of the supporting structure which would render the conductors liable to fall. In cases where two or more circuits are carried on the same poles and steel pins with wood crossarms are used, the insulator pins of different circuits, if bonded, shall be bonded independently of each other in conformity with Rule 53.4-A3. The conductor used for bonding shall have a conductivity not less than No. 10 AWG copper wire.

### 113.2 Overhead Lightning Protection Wires

Overhead lightning protection wires or cables, if used, shall conform to the requirements of this Order as to grades of construction, material, size and strength, for conductors of the voltage of the circuit protected. See Rule 63.2 for the requirements for lightning protection wires where supported by towers.

### 113.3 Limitation of Span Length

The crossing span shall be made as short as is practicable. In no case shall the length of the crossing span be greater than the normal span of the line, and the length of the next adjoining span shall be no greater than one and one-half times the normal span. Spans of extraordinary length, made necessary by unusual conditions of topography, shall be considered as exceptions to the above rule.

### 113.4 Communication

For crossing spans, the size of conductors not supported on messengers shall be not less than No. 12 BWG galvanized steel or No. 10 AWG hard-drawn copper or copper covered steel, except that paired wire; of which each wire has an ultimate strength of not less than 170 pounds, may be used without supporting messenger in spans which do not exceed 100 feet in Heavy Loading Districts or 150 feet in Light Loading Districts.

### 113.5 Trolley Contact Wires

Unless electric railroad systems are protected by interlocking plant at grade crossings with interurban or other heavy or high speed railway systems, the trolley contact conductors shall be at the same elevation above their own tracks throughout the crossing and next adjoining spans and, in addition thereto, catenary construction shall be provided where crossing spans exceed 100 feet. (See Appendix G, Figs. 62 and 63.) This rule is not intended to apply where pantagraph collector or similar device is used.

## 114. INSULATORS FOR SUPPLY CONDUCTORS

Where grounded pins are used at crossings with ungrounded construction being used at other parts of the line, the insulators used on such grounded support shall have a rating of 25% greater than the flashover voltage values of the line insulators used on ungrounded

pins, except where these values exceed those specified in Table 12, Rule 55.3, by 50%. As an alternative, the conductors at their points of attachment, where suspension insulators are used, may be protected by arcing shields.

#### 115. SCREENS AND CRADLES

The use of screens or cradles for crossing protection is not approved under these rules.