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ORIGINAL

Decision No. 76970

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY for an order amending General Order No. 128, Rules for Construction of Underground Electric Supply and Communication Systems.	Application No. 51554 (Filed December 16, 1969)

OPINION AND ORDER

Southern California Edison Company (Edison), requests an order amending and revising certain portions of this Commission's General Order No. 128, "Rules for Construction of Underground Electric Supply and Communication Systems" pursuant to the order in Decision No. 73195 dated October 17, 1967 in Case No. 8208.

Subsequent to the filing of the application Southern California Edison Company, by letter dated January 13, 1970, has requested that minor errors in Exhibit C of the application, as filed, be corrected as set forth in the letter. Said letter is received herein and marked Exhibit 1.

Edison states that for the purpose of keeping the provisions, rules and standards of General Order No. 128 up-to-date, there is a present need to amend and revise certain portions of the general order including:

a. The addition of appropriate rules and appendices relating to subsurface equipment enclosures;

b. Revision of the rules relating to sealing of service laterals;

c. Addition of a list of appendices to the table of contents;

d. Addition of cross-reference to appropriate appendices in certain rules; and

e. Revisions necessary to make certain rules applicable to systems constructed prior to the effective date of General Order No. 128.

Through cooperative efforts of the major electric and communication utilities, the Commission staff and other interested parties, the proposed modifications have been developed in keeping with the purpose, scope and intent of the general order.

Because of the increasing practice of installing transformers and other equipment in subsurface enclosures, applicant recommends that revisions and additions be made to the general order to give specific recognition to the manner in which such installations are typically made. To accomplish that it is necessary to add, as a definition, proposed Rule 23.2.1; to supplement Rule 32 relating to manholes and handholes; to add appendices to reflect typical installations; and to make a conforming change in Rule 17.8. The suggested additions and revisions are attached to the application marked Exhibit A.

Rules 31.6 and 41.6 presently require that lateral ducts for services to buildings through which gas or water may enter buildings shall be plugged or sealed. Edison states sealing service laterals against the entry of gas is not necessary and there is no practical and effective means of doing so in most cases. Historically, service laterals of supply systems have been sealed only in those locations where water could drain into buildings. The utility states experience with this practice confirms that there is no significant risk of gas explosions in buildings attributable to gas entering buildings through service laterals. While there have been isolated cases of explosions of combustible gases in manholes and vaults, there are many possible sources of

gas in underground supply systems. The possibility of gas from buildings entering substructures through service laterals does not appreciably increase the hazard of working in substructures. Existing rules require that due care shall be taken to detect and disperse explosive gases before workmen enter a manhole.

The application states there is no practical and effective means of sealing supply service laterals to prevent gas flow. Service laterals are plugged to prevent appreciable quantities of water from entering buildings by the use of packing compound around service cables at the duct mouth. This method would not provide a permanent hermetic seal against gas. All supply cables expand and contract due to daily load cycles and have a tendency to move in and out of the substructure at the duct mouth. This expansion, contraction and movement eventually creates small spaces between the cables and the sealant. Although these small spaces do not usually allow appreciable quantities of water to enter the service lateral from the substructure, they would permit gas flow. A permanent gas seal would require some device or material which would remain permanently sealed to the duct mouth and to the service cables, and accommodate radial and some lateral movement of the cables. Because the potential sources of gas at any location are unpredictable, all service ducts would require such a seal rather than the relatively small percentage of ducts in locations where water could drain from substructures into buildings. Edison recommends that Rules 31.6 and 41.6 be revised by striking the words "gas or" in each rule. These suggested revisions are attached to the application marked Exhibit B.

The table of contents to the general order does not contain a list of appendices. Edison recommends that a list of appendices be added to the table of contents. It is also noted that there are several rules to which a cross-reference to Appendix D might appropriately be added. The utility recommends that a reference to Appendix D be added at the end of Rule 31.5D, at the end of the second paragraph of Rule 32.4, at the end of Rule 41.5C, at the end of Rule 42.3 and at the end of the second paragraph of Rule 42.4. Also recommended is a reference to Appendix C, Figure 2 be added at the end of the second paragraph of Rule 42.8. The suggested additions and revisions are attached to the application marked Exhibit C.

Certain portions of the general order should be made applicable to systems constructed prior to the effective use of the general order. To accomplish the intended results in an appropriate manner, it is necessary to amend Rules 12.3 and 17.2. Certain of the rules should be made applicable immediately but other rules, including Rules 32.7 and 35.4 relating to covers and Rule 35.3 relating to warning signs, should be made effective only after sufficient time has elapsed to permit systems to be altered or reconstructed in conformance with such rules. Specific recommendations for the revision of Rules 12.3 and 17.2 are attached to the application marked Exhibit D.

Edison states the proposed modifications set forth in Exhibits A, B, C, and D have been submitted to and reviewed by Pacific Gas and Electric Company, San Diego Gas & Electric Company, General Telephone Company of California, The Pacific Telephone and Telegraph Company, the Continental Telephone Company subsidiaries in California and the California Independent Telephone Association,

each of which has advised Edison that it concurs in and endorses such modifications to General Order No. 128. In addition, Edison states said modifications were submitted to and reviewed by the Department of Water and Power of the City of Los Angeles, Sacramento Municipal Utility District, the International Brotherhood of Electrical Workers and the Commission staff.

The Commission is of the opinion that the proposed modifications discussed in the application and specifically set forth in Exhibits A, B, C and D, thereto will establish uniform requirements which will promote adequate service and secure safety to persons engaged in the construction, maintenance, operation or use of underground electric supply and communication systems; that the modifications as proposed herein are in the public interest and should be adopted. No protests have been received by the Commission. A public hearing is not necessary.

IT IS ORDERED that:

General Order No. 128, "Rules for Construction of Underground Electric Supply and Communications Systems", attached to Decision No. 73195 as Exhibit B is modified, amended or added to as set forth below:

1. Table of contents of the general order is revised by adding the following at the end of the existing table:

Appendices

Appendix A - Summary of Dimensions, Clearance and Depth Requirements

Table I - Clearance and Depth Requirements for Supply and Communication Systems

Table II - Miscellaneous Dimensions and Clearance Requirements for Supply and Communication Systems

Appendix C - Clearance from Railroad Tracks

Fig. 1 - Typical Clearances for Aboveground Electrical Terminations Constructed Adjacent to Railroad Tracks

Fig. 2 - Typical Installation of Manhole Covers Adjacent to Railroad Tracks

Appendix D - Excerpts from Public Utilities Code

2. Table of Contents to Appendix B is amended by adding the following:

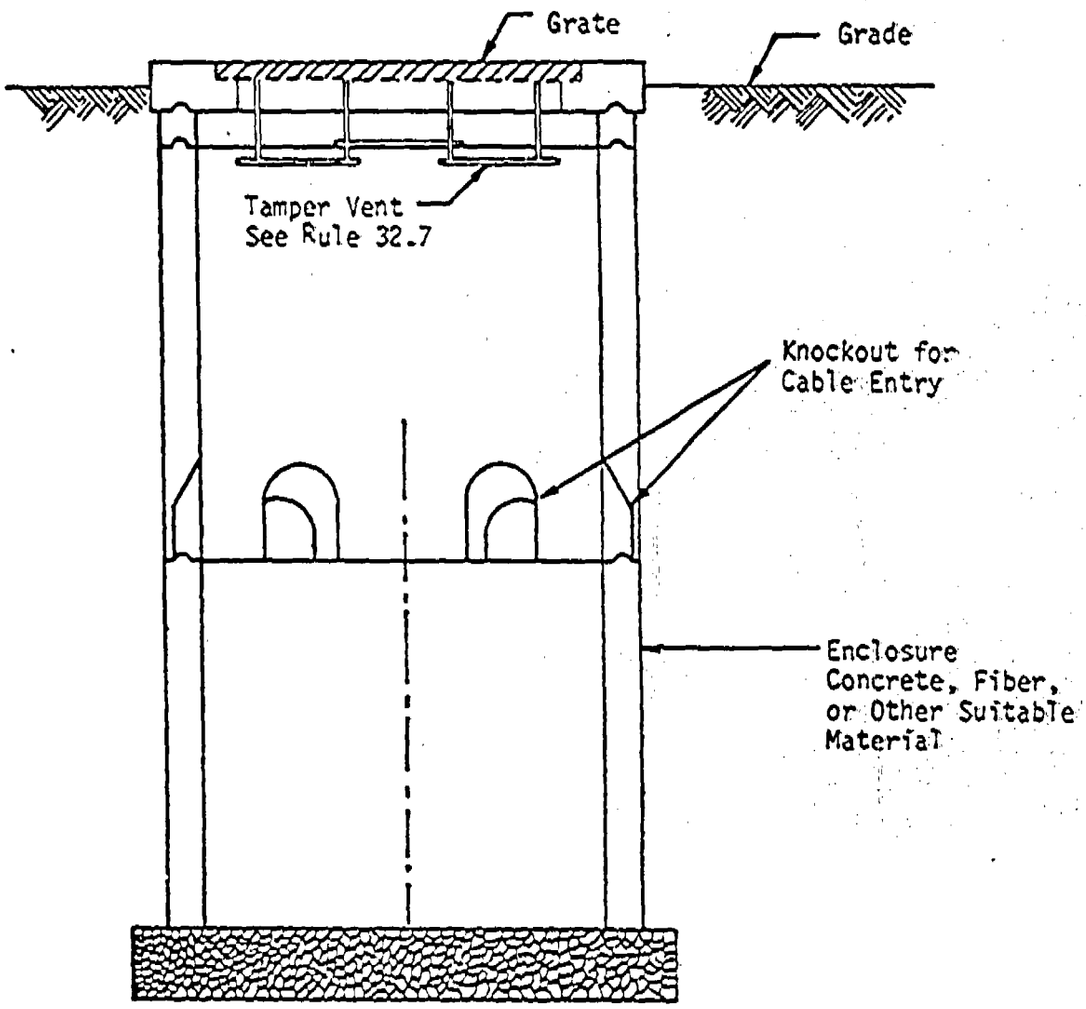
17 - Typical Subsurface Equipment Enclosure

18 - Typical Transformer Installation in Subsurface Equipment Enclosure

3. Fig17 is added to Appendix B of the General Order to appear as follows:

TYPICAL SUBSURFACE EQUIPMENT ENCLOSURE

(See Definition Rule 23.2.1
and Rule 32)



VIEW THROUGH CENTERLINE

FIGURE 17

4. Figure 18 is added to Appendix B of the General Order to appear as follows:

TYPICAL TRANSFORMER INSTALLATION
IN SUBSURFACE EQUIPMENT ENCLOSURE

(See Definition Rule 23.2.1 and Rule 32)

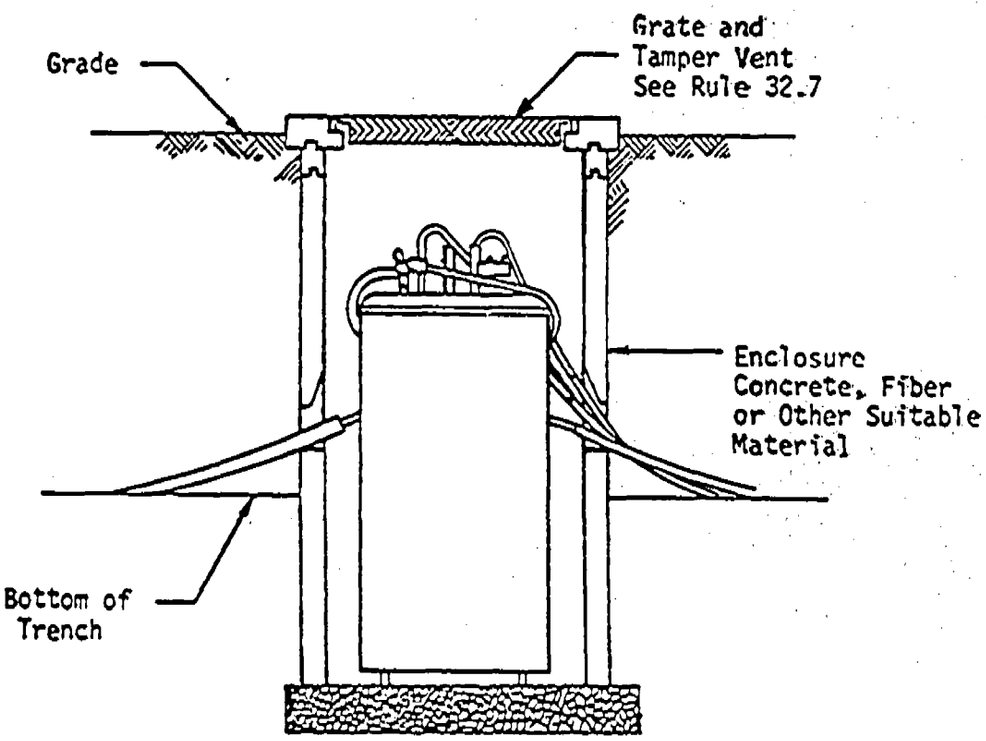


FIGURE 18

5. Rule 12.3 is revised to read as follows:

12.3 Systems Constructed Prior to These Rules

The requirements of these rules do not apply to systems or portions thereof constructed, reconstructed or replaced prior to the effective date of such rules, except as set forth below. In all other particulars, such systems or portions of systems shall conform to requirements in effect at the time of their construction or replacement.

A. The following rule was made applicable to all systems on December 12, 1967.

1. Rule 12.2

B. The following rules are applicable to all systems on the effective date of the order herein.

1. Rule 17.2
2. Rule 17.7, 1st paragraph
3. Rule 32.2
4. Rule 32.9
5. Rule 32.12
6. Rule 33.3A
7. Rule 34.1
8. Rule 34.3A
9. Rule 34.3B
10. Rule 34.3C
11. Rule 35.2
12. Rule 36.4
13. Rule 36.5A
14. Rule 36.5B
15. Rule 36.5C
16. Rule 36.5D(1)
17. Rule 36.5D(3)
18. Rule 42.10

C. The following rules are applicable to all systems one year from the effective date of the order herein.

1. Rule 32.7
2. Rule 32.11
3. Rule 35.3
4. Rule 35.4

6. Rule 17.2 is revised to read as follows:

17.2 Inspection

Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements of these rules. (See Rule 12.3.)

7. Rule 17.8 is revised to read as follows:

17.8 Identification of Manholes, Handholes and Subsurface Equipment Enclosures

Manholes, handholes and subsurface equipment enclosures shall be marked as to ownership to facilitate identification by persons authorized to work therein and by other persons performing work in their vicinity.

8. Rule 23.2.1 is added to read as follows:

23.2.1. SUBSURFACE EQUIPMENT ENCLOSURE means a chamber in a supply system, usually smaller than a manhole, with a removable top or cover, and affording access to transformers, cables or other equipment or apparatus. (See Appendix B, Figs. 17 and 18.)

9. Rule 31.5D is revised to read as follows:

31.5D Clearances from Railroad Tracks

Clearances of aboveground terminations and facilities adjacent to railroad tracks shall be in accordance with the provisions of General Orders Nos. 26-D and 118 of this Commission. (See Appendix C, Fig. 1, and Appendix D.)

10. Rule 31.6 is revised to read as follows:

31.6 Sealing Service Laterals

Lateral ducts for services to buildings, through which water may enter buildings, shall be plugged or sealed.

11. Rule 32 is revised to read as follows:

32 MANHOLES, HANDHOLES AND SUBSURFACE EQUIPMENT ENCLOSURES

The provisions of this rule relating to manholes shall also be applicable to vaults and trenches.

32.1 Definitions (See Rules 21.7, 22.4, 23.2.1, 23.5 and 23.6)

32.2 Maintenance and Inspection (See Rules 12.2 and 17.2)

32.3 Material and Strength

The materials, design and construction of manholes, handholes, subsurface equipment enclosures, and other underground boxes shall be such as to provide sufficient strength to sustain, with a suitable margin of safety, the loads which may reasonably be imposed on them. Manholes, handholes, and subsurface equipment enclosures in street areas which are subject to vehicular traffic shall be constructed to withstand H-20-44 highway loading as designated by the American Association of State Highway Officials. Floors of manholes shall meet the requirements of Public Utilities Code, Sec. 8054. (Also see Appendix B, Fig. 9, and Appendix D.)

32.4 Size and Shape

Manholes shall be constructed to provide sufficient working space so that the cables and equipment therein can be properly and safely installed, supported, operated and maintained.

Manholes shall not be constructed with smaller dimensions than those required by Public Utilities Code, Sec. 8051. (Also see Appendix B, Fig. 9, and Appendix D.)

Handholes and subsurface equipment enclosures shall be of sufficient size to house safely the required transformers, switches, cables, splices, connectors and associated apparatus. Such equipment shall be so arranged that it can be safely installed, operated and maintained. (See Appendix B, Fig. 17.)

32.5 Openings

No manhole access opening shall be less than 26 inches in diameter if circular in shape or 26 inches by 24 inches if rectangular in shape. Safe access shall be provided from the opening to the floor or other working surface. (See Appendix B, Fig. 9.)

32.6 Drainage

Where drainage of manholes is into sewers, suitable traps shall be provided to prevent entrance of sewer gas into manholes.

32.7 Covers

Manholes, handholes, and subsurface equipment enclosures while not being worked in, shall be securely closed by covers of sufficient strength to sustain such loads as may reasonably be imposed upon them and arrangements shall be such that a tool or appliance shall be required for their opening and cover removal. (Also see Rule 17.8, and Appendix B, Figs. 9 and 17.)

If the cover of a subsurface equipment enclosure is a grate a means shall be provided to prevent tampering with the equipment housed therein.

32.8 Location

Manhole, handhole and subsurface equipment enclosure, locations shall be such that the opening will provide safe access and, where practicable, shall be so located that future maintenance work will cause minimum interference with the normal flow of vehicular traffic.

In no case may the nearest edge of the opening at the surface be less than 3 feet from any rail of any railroad or streetcar tract. (Also see Rule 31.5D, Appendix B, Fig. 9, and Appendix C, Fig. 2.)

This rule does not apply where satisfactory proof is submitted to the Commission that it is impracticable or physically impossible to comply with this rule within the space or location so designated by proper authorities.

32.9 Ventilation

Manholes and subsurface equipment enclosures containing transformers shall be provided with means of ventilation adequate to prevent transformer temperatures in excess of those at which the transformer may be safely operated.

32.10 Foreign Pipes

Foreign pipes which create unusual hazard shall be excluded from passing through manholes if practicable; if not practicable, they shall be guarded. (Also see Rule 17.6 and Appendix B, Fig. 9.)

32.11 Incidental Wiring and Facilities

Incidental wiring and auxiliary facilities installed in manholes, vaults and subsurface equipment enclosures shall be suitable for the purpose intended. (See Appendix B, Fig. 9.)

32.12 Explosion Protection

Due care shall be taken to detect and disperse explosive and noxious gases before workmen enter a manhole.

12. Rule 41.5C is revised to read as follows:

41.5C Clearances from Railroad Tracks

Clearances of aboveground terminations and facilities adjacent to railroad tracks shall be in accordance with the provisions of General Orders Nos. 26-D and 118 of this Commission. (See Appendix C, Fig. 1, and Appendix D.)

13. Rule 41.6 is revised to read as follows:

41.6 Sealing Service Laterals

Lateral ducts for services to buildings, through which water may enter buildings, shall be plugged or sealed.

14. Rule 42.3 is revised to read as follows:

42.3 Materials and Strength

The materials, design and construction of manholes, handholes, and other underground boxes shall be such as to provide sufficient strength to sustain, with a suitable margin of safety, the loads which may reasonably be imposed on them. Manholes and handholes in street areas which are subject to vehicular traffic shall be constructed to withstand H-20-44 highway loading as designated by the American Association of State Highway Officials. Floors of manholes shall meet the requirements of Public Utilities Code, Sec. 8054. (Also see Appendix B, Fig. 9, and Appendix D.)

15. Rule 42.4 is revised to read as follows:

42.4 Size and Shape

Manholes shall be constructed to provide sufficient working space so that the cables and equipment therein can be properly and safely installed, supported, operated and maintained.

Manholes shall not be constructed with smaller dimensions than those required by Public Utilities Code, Sec. 8051. (Also see Appendix B, Fig. 9, and Appendix D.)

Handholes shall be of sufficient size to house safely the required cables, splices, connectors and associated apparatus. Cables shall be arranged so that they can be safely installed and maintained.

16. Rule 42.8 is revised to read as follows:

42.8 Location

Manhole locations shall be such that the opening will provide safe access and, where practicable, shall be so located that future maintenance work will cause minimum interference with the normal flow of vehicular traffic.

In no case may the nearest edge of the opening at the surface be less than 3 feet from any rail of any railroad or streetcar track. (Also see Rule 41.5C, Appendix B, Fig. 9, and Appendix C, Fig. 2.)

This rule does not apply where satisfactory proof is submitted to the Commission that it is impracticable or physically impossible to comply with this rule within the space or location so designated by proper authorities.

Decision No. 73195 except as modified herein shall remain in full force and effect.

IT IS FURTHER ORDERED that the Secretary shall cause a copy of this order to be served upon each electric and communication utility and cable television corporation subject to the jurisdiction of this Commission and, further, to cause a suitable number of copies to be made available for distribution to such other utilities and the general public as may request the same.

The effective date of this order shall be twenty days after the date hereof.

Dated at San Francisco, California, this 24th day of MARCH 1970.

William Symons, Jr.
President

Vernon L. Stingen
Commissioners

Commissioner A. W. Gatov, being necessarily absent, did not participate in the disposition of this proceeding.