

CA-38

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

SAFETY DIVISION
UTILITIES SAFETY BRANCH

RESOLUTION SU-6
May 22, 1990

R E S O L U T I O N

RESOLUTION SU-6, ORDER AUTHORIZING SACRAMENTO REGIONAL TRANSIT DISTRICT (SRTD) TO DEVIATE FROM RULE 37, TABLE 1 OF GENERAL ORDER NO. 95 (G.O.95) RELATING TO GROUND CLEARANCE OF TROLLEY CONTACT WIRES

SUMMARY

1. The staff of the Safety Division's Utilities Safety Branch requests authorization for a deviation to the G.O.95, Rule 37, Table 1, Case 3 requirement that trolley contact wires be a minimum of 19 feet above thoroughfares.
2. The request follows submittal of plans by SRTD to doubletrack a portion of its rail line under the Southern Pacific Railroad (SP) bridge at the 12th Street underpass where the maximum available clearance is 15'-1" from the pavement to the bridge. Operation of the new track will be on shared right of way with autos and light rail vehicles (LRV). The minimum height of the trolley contact wire will be 14'-5" above the pavement at the underpass. Adequate reduced clearance signing will be installed on 12th Street, Dos Rios Street and North B Street.

BACKGROUND

1. SRTD is operating a single track along 12th Street in exclusive LRV right of way where the requirement for minimum height of trolley contact wire is 14'-0". Contact wire nominal operating voltage is 750 volts DC. The second LRV track will be southbound in the left traffic lane of 12th Street where all four lanes are one-way southbound. Here 12th Street is a part of State Route 160.
2. SRTD plans include signs in accordance with U.S. Department of Transportation, Federal Highway Administration, Manual of Uniform Traffic Control Devices, and California Department of Transportation (Cal-Trans), Standard Plans. Illuminated reduced clearance signs, 36"x36" diamond shaped black on yellow, reading "14'-0", are proposed 700' and 1000' in advance of the bridge on 12th Street and on Dos Rios Street and North B Street, the nearest side streets ahead of the underpass.

3. In addition, Cal-Trans requires the post mounted reduced clearance sign at 1000' in advance on 12th Street to have a black on white 24"x18" sign reading "1000 FEET AHEAD LEFT LANE" and a 12" diameter yellow flasher head on the sign post at 5' and 13' above ground. The sign at 700' in advance will be on a steel mast arm on a steel pole mounted above the center of the left lane. Under the diamond 14'-0" reduced clearance sign will be a black on white 24"x18" sign reading "700 FEET AHEAD". The clearance under the mast arm mounted signs will be a minimum of 22'-0".

4. Cal-Trans also requires signs to be mounted on the north side of the SP bridge centered over the shared auto and LRV lane as follows: Black on white 120"x12" reading "AUTO-LRV" and black on yellow 120"x18" reading "VERTICAL CLEARANCE 14'-0".

DISCUSSION

1. It does not appear practicable to increase the 15'-1" clearance under the bridge. The greatest height above the pavement that can be obtained for the trolley contact wire is 14'-5" allowing for the insulating material and mounting hardware under the bridge.

2. The impaired clearance signs will read "14'-0", which provides a 5" margin below the actual 14'-5" height of the trolley contact wire.

3. All traffic entering 12th Street from side streets about one block ahead of the underpass appears to be adequately warned of the impaired clearance. The maximum allowable height of any motor vehicle in California is 13'-6". There is adequate distance to stop or change lanes should a driver have an overheight vehicle.

4. The Safety Division staff believes the precautions proposed by SRTD are adequate, and recommends the deviation to Rule 37, Table 1, Case 3 be authorized.

FINDINGS

1. We find that it is not practicable to increase the clearance at the 12th Street underpass.

2. We find that traffic on 12th Street and the side streets is adequately warned of the impaired clearance.

3. We find that the requested deviation to Rule 37, Table 1, Case 3 from 19 feet to 14 feet-5 inches is safe and reasonable.

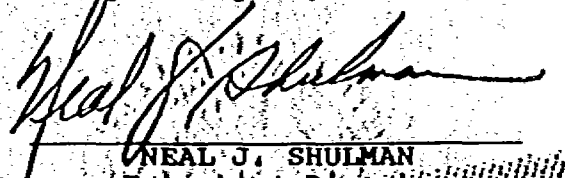
IT IS ORDERED that:

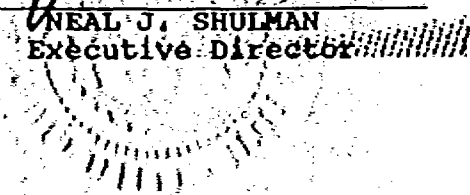
1. SRTD is authorized to deviate from Rule 37, Table 1, Case 3 of G.O.95 to install its trolley contact wire at the 12th Street underpass under SP's bridge with a clearance above pavement of 14'-5".
2. As a condition for this deviation, SRTD shall install and maintain impaired clearance signs on 12th Street 700' and 1000' ahead of the underpass, and on Dos Rios Street and North B Street where they enter 12th Street ahead of the underpass, all as described in this Resolution.
3. SRTD shall install and maintain reduced clearance signs on the north side of the SP bridge centered over the shared auto and LRV lane as described in this Resolution.
4. This Resolution is effective today.

I hereby certify that this Resolution was adopted by the Public Utilities Commission at its regular meeting on May 22, 1990. The following Commissioners approved it.

G. MITCHELL WILK
President
STANLEY W. HULETT
JOHN B. OHANIAN
PATRICIA M. ECKERT
Commissioners

Commissioner Frederick R. Duda,
being necessarily absent, did
not participate.


NEAL J. SHULMAN
Executive Director



State of California

11/21 CA-20
Public Utilities Commission
San Francisco

MEMORANDUM

Date : November 1, 1990
To : Distribution List
From : Russ Copeland

File No.:

Subject : Review of Resolution Modifying G.O. 95 Standards

The Safety Branch is providing a three page resolution and first page of the appendix for your review. If you care to see the 100+ page appendix, please call Rami Kahlon and we will provide you a copy.

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**SAFETY DIVISION
UTILITIES SAFETY BRANCH**

**RESOLUTION SU-6
November 21, 1990**

R E S O L U T I O N

**RESOLUTION SU-6, ORDER AUTHORIZING RULE CHANGES TO
GENERAL ORDER NO. 95 (G.O.95), RULES FOR OVERHEAD
ELECTRIC LINE CONSTRUCTION AND GENERAL ORDER NO. 128
(G.O.128), RULES FOR CONSTRUCTION OF UNDERGROUND
ELECTRIC SUPPLY AND COMMUNICATION SYSTEMS**

SUMMARY

1. The staff of the Safety Division's Utilities Safety Branch requests authorization for changes to G.O.95 and G.O.128 contained in the enclosed Appendix A.
2. The request follows the submittal of proposed changes by the General Orders 95/128 Rules Committee, which is composed of representatives from operators of electric and communication lines in California. The committee has obtained a consensus of investor owned utilities, utility districts, municipalities, California Cable Television Association and the associated labor unions concerning the changes.
3. The changes authorized are to rules concerning underground electric supply system maintenance, fiber optic cable, climbing space on poles, conductor clearances, and guy markers.

BACKGROUND

1. The changes are the result of informal proposals by the General Orders 95/128 Rules Committee. The committee represents operators of overhead and underground lines and the associated labor unions in California. It was formed by the line operators to review electric and communication line construction, maintenance methods and materials. All operators are invited to participate in ongoing workshops held in numerous locations each year to consider state-of-the-art methods and materials for the industry, along with changes in the General Orders.
2. Members of the Commission's Utilities Safety Branch staff attend meetings of the rules committee and its subcommittee to participate in its discussions and assist in its work.

Resolution SU-6
November 21, 1990

3. When a study group or subcommittee of the "Rules Committee" drafts a rule change proposal, the draft is sent to the whole committee for evaluation. The proposal may be modified to obtain a consensus of the committee; if consensus is not reached, the proposal is dropped.

4. After a final draft of proposed rule changes is approved in committee meetings, the draft is mailed with a ballot to all members so that those who may have missed any discussion sessions may review and vote on each change. Any dissenting vote requires that meetings be held to resolve the issues.

5. Safety is a primary concern when a rule change is proposed. As noted in the rationale for changes in Appendix A, safety to workers and the general public is considered.

DISCUSSION

1. The proposed rule changes are presented in the enclosed Appendix A. A list of the rules is contained in the Table of Contents of Appendix A.

2. To assist in analyzing the changes which are divided generically into eleven (11) items. Each is preceded with the rationale explaining the change, followed by the existing rule and the proposed rule changes (deletions struck out and additions underlined), and the final proposed rule marked by an asterisk (*).

The following sections of the General Orders are affected by the proposal:

General Order No. 128, Rules: 12.2-A, 22.4 (new section)

General Order No. 95, Rules: 20.3, 20.5, 20.8, 54.4-C4c, 54.6-C4, 54.4-A4, 54.8-B5, 56.4-A3, 56.9, 84.4-A6 (new section), 84.4-A5, 84.8-C5, 86.4-A3, 84.4-E, 84.8-C4, 81.3, 84.4-C1b, 84.4-D1, 84.4-D3, 84.7-A, 87.4-C3 and 86.9.

3. Except for the addition of Figures 54-8 and 84-1, where a pictorial representation is part of the rule, it has been taken from the appendix at the end of G.O.95 and moved into the text of the rule. This should lend clarity and aid in the interpretation of the rules.

4. The staff believes the changes provide for increased safety to workers and the general public; the changes incorporate state-of-the-art methods and materials and should provide for economical construction and maintenance. The Safety Division staff recommends authorization of the changes.

Resolution SU-6
November 21, 1990

FINDINGS

1. We find that the changes to G.O.95 and G.O.128 authorized in this Resolution are just and reasonable.

THEREFORE, IT IS ORDERED that:

1. The changes in text shown in Appendix A shall be made in G.O.95 and G.O.128.
2. All rules changed shall be marked "Revised November 21, 1990, by Resolution SU-6".
3. This Resolution is effective today.

I hereby certify that this Resolution was adopted by the Public Utilities Commission at its regular meeting on November 21, 1990. The following Commissioners approved it.

G. MITCHELL WILK
President
STANLEY W. HULETT
JOHN B. OHANIAN
PATRICIA M. ECKERT
Commissioners


NEAL J. SHULMAN
Executive Director

Commissioner Frederick R. Duda,
being necessarily absent, did
not participate.

APPENDIX A

PROPOSED RULE CHANGES

RULES FOR OVERHEAD AND UNDERGROUND ELECTRIC LINE CONSTRUCTION, GENERAL ORDERS NOS. 95 AND 128

STATE OF CALIFORNIA PUBLIC UTILITIES COMMISSION

- NOTE: (1) For each rule proposed to be changed, the appendix provides the following:
- (a) The rationale for the change.
 - (b) The existing rule and the proposed rule changes, with deletions struck out and additions underlined.
 - (c) The final proposed rule, marked by an asterisk (*).
- (2) The changes are divided generically into eleven (11) items.

APPENDIX A - TABLE OF CONTENTS

<u>Item</u>	<u>Description</u>	<u>Page</u>
1. (G.O.128)	Rules 12.2-A and 22.4 Maintenance	6
2. (G.O.95)	Rules 20.3, 20.5 and 20.8 Fiber Optic Cable	11-13
3. (G.O.95)	Rule 54.4-C4c, Conductors on Non-Climbable Poles	18
4. (G.O.95)	Rule 54.6-C4, Extent of Run	21-22
5. (G.O.95)	Rules 54.4-A4, 54.8-B5 and 56.4-A3 Clearances	29-31, 34, 37
6. (G.O.95)	Rule 56.9, Guy Marker (Guy Guard)	42
7. (G.O.95)	Rule 84.4-A6, Clearances	46
8. (G.O.95)	Rules 84.4-A5, 84.8-C5, 86.4-A3 Clearances	52-54, 57, 59
9. (G.O.95)	Rules 84.4-E and 84.8-C4 Clearances	64, 67
10. (G.O.95)	Rules 81.3, 84.4-C1b, 84.4-D1, 84.4-D3, 84.7-A and 87.4-C3 poles, towers, structures, climbing space, clearances, cables and messengers	72, 76 81-83 86, 91-92 97
11. (G.O.95)	Rules 86.9, Guy Marker (Guy Guard)	102

APPENDIX A

PROPOSED RULE CHANGES

RULES FOR OVERHEAD AND UNDERGROUND ELECTRIC
LINE CONSTRUCTION, GENERAL ORDERS NOS. 95 AND 128

STATE OF CALIFORNIA PUBLIC UTILITIES COMMISSION

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10. (G.O.95)	Rules 81.3, 84.4-C1b, 84.4-D1, 84.4-D3, 84.7-A and 87.4-C3 poles, towers, structures, climbing space, clearances, cables and messengers	72, 76 81-83 86, 91-92 97
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APPENDIX A

PROPOSED RULE CHANGES

RULES FOR OVERHEAD AND UNDERGROUND ELECTRIC
LINE CONSTRUCTION, GENERAL ORDERS NOS. 95 AND 128

STATE OF CALIFORNIA PUBLIC UTILITIES COMMISSION

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11. (G.O.95)	Rules 86.9, Guy Marker (Guy Guard)	102

ITEM 1

General Order 128

- Rule 12.2-A
- Rule 22.4

RATIONALE:

To clarify underground electric supply system requirements for a formal maintenance program.

Proposed Rule Change

"Maintenance"

Section I. GENERAL PROVISIONS

12. Applicability of Rules

12.2 Maintenance

Systems shall be maintained in such condition as to secure safety to workmen and the public in general. Systems and portions thereof constructed, reconstructed, or replaced on or after the effective date of these rules shall be kept in conformity with the requirements of these rules.

- A. ELECTRIC SUPPLY SYSTEM - An Auditable and consistent maintenance program, see Rule 22.4, shall be in place to minimize deterioration of underground equipment.

Proposed New Rule

"Definition of Maintenance Program"

Section II. DEFINITIONS OF TERMS AS USED IN THESE RULES

22.4 A MAINTENANCE PROGRAM means a written policy that shall include the following key elements:

- 1) Inspection intervals
- 2) Rejection criteria
- 3) Corrective actions

22.45	MANHOLE...	(No change)
22.46	PARKWAY...	(No change)
22.47	POLICE ...	(No change)
22.78	PRACTICABLE...	(No change)
22.49	PROTECTION...	(No change)
23.40	RANDOM...	(No change)
23.41	SERVICE(s)...	(No change)
23.12	SHIELDING...	(No change)
23.73	SIDEWALK...	(No change)
23.74/1	SUBSURFACE...	(No change)
23.75	SUPPLY...	(No change)
23.46	THOROUGHFARE...	(No change)
23.47	TRENCH...	(No change)
23.48	VAULT...	(No change)
23.79	VOLTAGE...	(No change)
24.40	WIRE...	(No change)
24.41	WORKING...	(No change)

Final Proposed Rule Change (*)

"Maintenance"

Section I. GENERAL PROVISIONS

12. Applicability of Rules

12.2 Maintenance

Systems shall be maintained in such condition as to secure safety to workmen and the public in general. Systems and portions thereof constructed, reconstructed, or replaced on or after the effective date of these rules shall be kept in conformity with the requirements of these rules.

- A. ELECTRIC SUPPLY SYSTEM - An Auditable and consistent maintenance program, see Rule 22.4, shall be in place to minimize deterioration of underground equipment.

Final Proposed New Rule (*)

"Definition of Maintenance Program"

Section II. DEFINITIONS OF TERMS AS USED IN THESE RULES

22.4 A MAINTENANCE PROGRAM means a written policy that shall include the following key elements:

- 1) Inspection intervals
- 2) Rejection criteria
- 3) Corrective actions

22.5	MANHOLE...	{No change}
22.6	PARKWAY...	{No change}
22.7	POLICE ...	{No change}
22.8	PRACTICABLE...	{No change}
22.9	PROTECTION...	{No change}
23.0	RANDOM...	{No change}
23.1	SERVICE(s)...	{No change}
23.2	SHIELDING...	{No change}
23.3	SIDEWALK...	{No change}
23.4	SUBSURFACE...	{No change}
23.5	SUPPLY...	{No change}
23.6	THOROUGHFARE...	{No change}
23.7	TRENCH...	{No change}
23.8	VAULT...	{No change}
23.9	VOLTAGE...	{No change}
24.0	WIRE...	{No change}
24.1	WORKING...	{No change}

ITEM 2

General Order No. 95

- . Rule 20.3
- . Rule 20.5
- . Rule 20.8

RATIONALE

Presently the General Order 95 language does not appropriately address the recently developed Fiber Optics technology. It was formulated to specifically define rules associated with the conductance of electric current. As such various terms as defined are not applicable to Fiber Optic application.

These proposed rule changes broaden the definition in such a manner that the general context of the General Order can now be applied to lines utilizing the new Fiber Optic technology.

PROPOSED G.O. 95 Rule

Rule 20.3 Page 24

1. Cable means a stranded conductor (single conductor cable) or
2. a combination of conductors insulated from one another (multiple-
3. conductor cable).
4. A. Fiber Optic Cable - Communication means a fiber optic cable
5. meeting the requirements for a communication circuit and located
6. at the communication level. Such cable shall have the same
7. clearance from supply facilities as required for a communication
8. messenger per Rule 87.4-C3.
9. B. Fiber Optic Cable - Supply means a fiber optic cable located at
10. the supply level.
11. 1. Cable passing vertically through the communication
12. level on a structure, shall be treated per Rules 54.6-D and
13. 84.6-D.
14. 2. Cable supported on a messenger that is effectively grounded
15. (Rule 57.8) throughout its length shall have the same
16. clearance from communication facilities as required for
17. a neutral conductor meeting Rule 33.1.
18. 3. Cable supported on or with other messengers or conductors
19. shall have the same clearances from facilities required
20. for such messengers or conductors meeting Rule 89.2.
21. C. Dielectric Fiber Optic Cable means a fiber optic cable
22. which contains no components capable of conducting electricity.
23. D. Non-Dielectric Fiber Optic Cable means a fiber optic cable
24. which contains components capable of conducting electricity.

FINAL PROPOSED G.O. 95 Rule (*)

Rule 20.3 Page 24

1. Cable means a stranded conductor (single conductor cable) or
2. a combination of conductors insulated from one another (multiple-
3. conductor cable).
4. A. Fiber Optic Cable - Communication means a fiber optic cable
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24. which contains components capable of conducting electricity.

EXISTING G.O. 95 RULE

Rule 20.5 Page 24

1. Circuit means a conductor or system of conductors located out-
2. side of buildings and through which an electric current is intended
3. to flow.

PROPOSED CHANGE TO RULE G.O. 95

(STRIKE OUT AND UNDERLINE)

Rule 20.5 Page 24

1. Circuit means a conductor or system of conductors located out-
2. side of buildings and through which an electric current ~~is intended~~
3. ~~to flow~~ flows or light is transmitted.

FINAL PROPOSED G.O. 95 RULE (*)

Rule 20.5 Page 24

1. Circuit means a conductor or system of conductors located out-
2. side of buildings and through which an electric current flows or light
3. is transmitted.

EXISTING G.O. 95 RULE

Rule 20.8 Page 26

1. Conductor means a wire, or combination of wires not insulated
2. from one another, suitable for carrying electric current.

PROPOSED CHANGE TO G.O. 95 RULE

(STRIKE OUT AND UNDERLINED)

Rule 20.8 Page 26

1. Conductor means a ~~wire, or combination of wires not insulated~~
2. ~~from one another,~~ material, suitable for: (1) carrying electric
3. current, usually in the form of a wire, cable or bus bar, or
4. (2) transmitting light in the case of fiber optics.

FINAL PROPOSED G.O. 95 Rule (*)

Rule 20.8 Page 26

1. Conductor means a material, suitable for: (1) carrying electric
2. current, usually in the form of a wire, cable or bus bar, or
3. (2) transmitting light in the case of fiber optics.

ITEM 3

General Order No. 95
Rule 54.4-C4c

RULE 54.4-C4c
CLEARANCE BETWEEN CONDUCTORS DEAD ENDED ON A POLE
IN VERTICAL CONFIGURATION

(c) CONDUCTORS OF MORE THAN 750 VOLTS SUPPORTED ON NON-CLIMBABLE POLES

RATIONALE

This rule was established in 1964 and placed certain restrictions where conductors of more than 750 volts are supported (dead ended) in vertical configuration on non-climbable poles in partial underground distribution at line terminations, angles, or corners.

The requirement of not allowing more than three conductors of a single circuit of 750-22,500 volts to be supported (dead ended) directly on the pole in vertical configuration without the use of crossarms should be changed to allow four conductors. This change will allow safe, cost effective conversion of three-phase three wire 12 KV. to three-phase four wire 21 KV. distribution circuits. Currently a fourth conductor can be attached to a pole in tangent construction, the restriction applies to dead end configuration only.

There are currently two alternatives to dead ending a fourth wire on a pole with three wires already dead ended at that location. One the installation of additional poles to permit the attachment of the fourth wire to the dead end pole in a tangent configuration and dead ending it a span away. The other is to underground the neutral conductor the entire length of the partial underground portion of the circuit. Both of these alternatives are costly and afford more exposure to workman and the public.

With todays state of the art aerial lifts, protective equipment and live line methods safety to the workman and to the public will not be lessened from the proposed design.

EXISTING G.O. 95 RULE

(Line by Line)

Rule 54.4-C4c (Page 113)

1. (c) Conductors of More Than 750 Volts Supported on Non-
2. climbable Poles: Where conductors of more than 750 volts are
3. supported in vertical configuration on non-climbable poles in
4. partial underground distribution at line terminations, angles, or
5. corners, the following requirements apply:
6. Not more than three conductors of a single circuit of 750-
7. 22,500 volts shall be supported directly on the pole in vertical
8. configuration without the use of crossarms. Branch circuits
9. may be taken from such construction without the use of cross-
10. arms provided that conductors are supported on not more
11. than three sides of the pole, there being four sides (see App.
12. G, Fig. 88);
13. The vertical separation between conductors shall be not less
14. than the pin spacings specified in Table 2, Case 15; and
15. The clearance of conductors from surface of pole shall be
16. not less than as specified in Rule 54.6-D2.

PROPOSED RULE CHANGE

Rule 54.4-C4c

1. (c) Conductors of More than 750 Volts Supported on Non-
2. climbable Poles: Where conductors of more than 750 volts are
3. supported in vertical configuration on non-climbable poles in
4. partial underground distribution at line terminations, angles, or
5. corners, the following requirements apply:
6. Not more than ~~five~~ four conductors of a single circuit of
7. 750-22,500 volts shall be supported directly on the pole in
8. vertical configuration without the use of crossarms. Branch
9. circuits may be taken from such construction without the use of
10. crossarms provided that conductors are supported on not more
11. than three sides of the pole, there being four sides.

[Figure 88-89 to be placed here]

12. The vertical separation ~~between~~ between conductors shall
13. ~~be~~ not be less than the pin spacings specified in Table
14. 2, Case 15; and
15. The clearance of conductors from surface of pole shall ~~be~~
16. not be less than as specified in Rule 54.4-D2.

Final PROPOSED RULE CHANGE (*)

Rule 54.4-C4c

(c) Conductors of More than 750 Volts Supported on Non-climbable Poles: Where conductors of more than 750 volts are supported in vertical configuration on non-climbable poles in partial underground distribution at line terminations, angles, or corners, the following requirements apply:

Not more than ~~four~~ four conductors of a single circuit of 750-22,500 volts shall be supported directly on the pole in vertical configuration without the use of crossarms. Branch circuits may be taken from such construction without the use of crossarms provided that conductors are supported on not more than three sides of the pole, there being four sides.

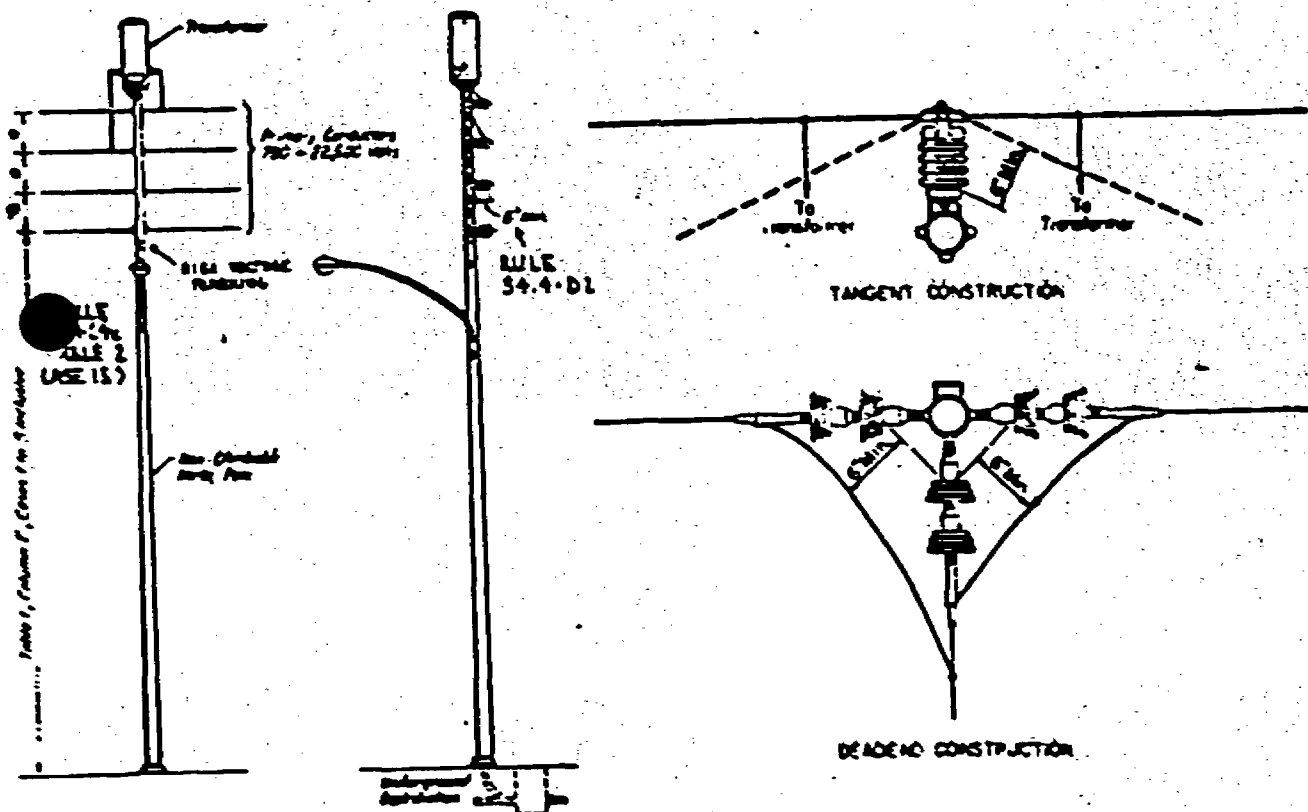


FIGURE 54-

The vertical separation ~~between~~ between conductors shall ~~not~~ not be less than the pin spacings specified in Table 2, Case 15; and

The clearance of conductors from surface of pole shall ~~not~~ not be less than as specified in Rule 54.4-D2.

ITEM 4
General Order No. 95
. Rule 54.6-C4

RATIONALE FOR CHANGE G.O. RULE 54.6-C4

It is virtually impossible to bend large conductors to bring out through holes cut into conduit as described in existing rule.

The method as it exists creates a problem when an arm is supported by a metal "v" brace or steel pins are used. The proposed method eliminates the majority of these problems without comprising safety.

CORRESPONDING RULE TO CHANGE

None

FORMAT FOR PROPOSED G.O. 95 RULE CHANGES

EXISTING Rule: 54.6-C4 Extent of Run

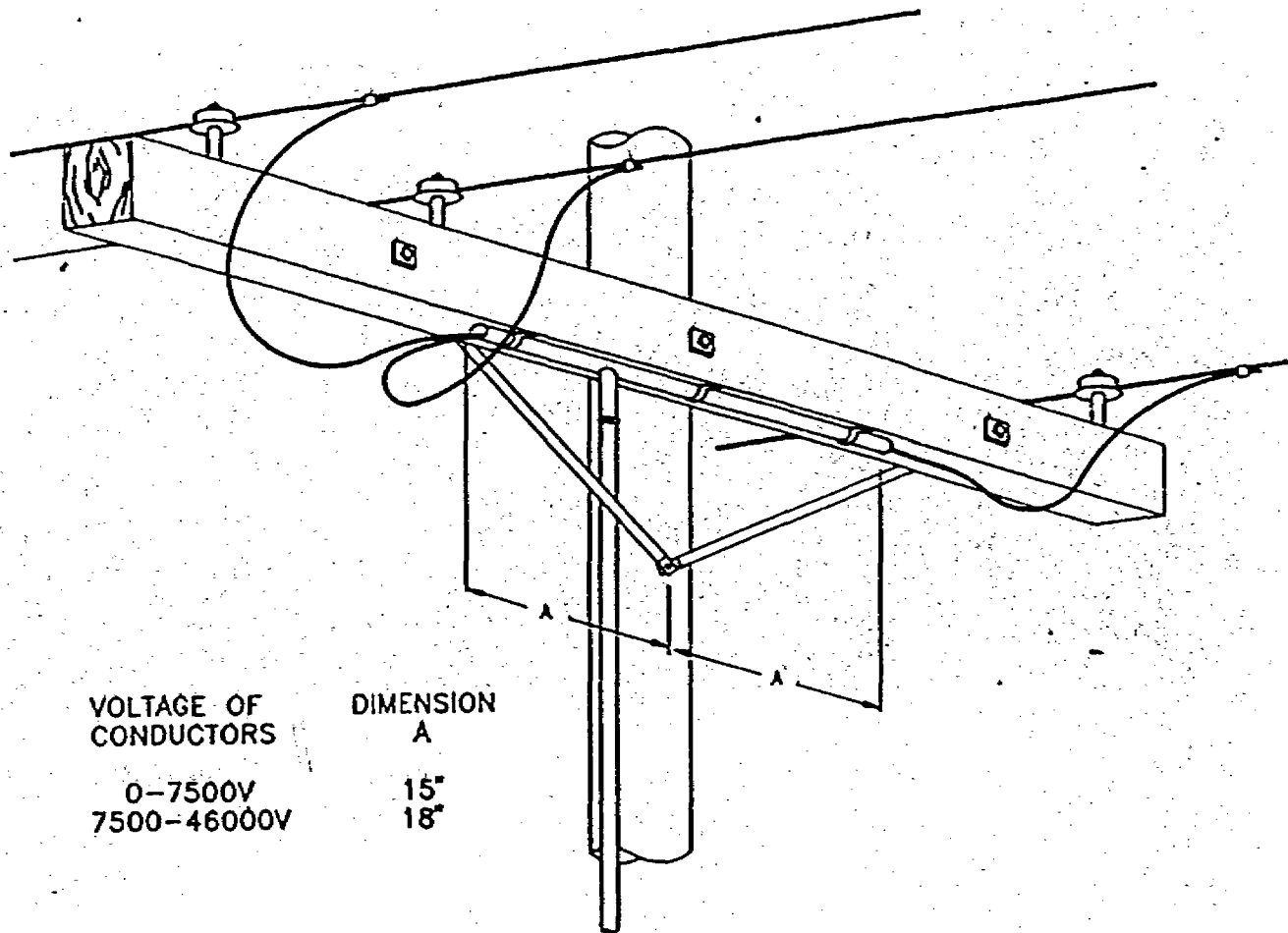
1. (4) Extent of Run: The wood moulding, fiber conduit, or plastic
2. pipe required for protection by this Rule 54.6-C shall ex-
3. tend on the bottom surface of the crossarm to within three
4. inches of the outer position of any conductor in the run and in
5. no case shall the covering be terminated at clearances from
6. the center line of pole less than specified for conductors in Ta-
7. ble 1, Case 8.

PROPOSED Rule 54.6-C4 Extent of Run

1. (4) Extent of Run: The Suitable Protective covering (see Rule
2. 22.2) required for protection by this Rule 54.6-C shall extend on
3. the bottom surface of the crossarm ~~to within three inches of the~~
4. ~~outer position of any conductor in the run and in~~ and in no case shall
5. the covering be terminated at clearances from the center line of
6. pole less than specified for conductors in Table 1, Case 8.

Final PROPOSED Rule 54.6-C4 Extent of Run (*)

1. (4) Extent of Run: The Suitable Protective covering (see Rule
2. 22.2) required for protection by this Rule 54.6-C shall extend on
3. the bottom surface of the crossarm and in no case shall the covering
4. be terminated at clearances from the center line of pole less than
5. specified for conductors in Table 1, Case 8.



VOLTAGE OF
CONDUCTORS

0-7500V
7500-46000V

DIMENSION
A

15"
18"

RULE 54.6-C4
EXTENT OF RUN
INFORMATION ONLY

ITEM 5

General Order No. 95

- Rule 54.4-A4
- Rule 54.8-B5
- Rule 56.4-A3

RATIONALE

RULES 54.4-A4, 54.8-B5 AND 56.4-A3

Supply Conductor, Service Drop and Guy Clearances
Over Swimming Pools

These proposed rule changes reformat the text to simplify obtaining (and clarification of) the vertical and radial clearances above swimming pools. A sketch and table (Fig. 54-8) have been added for clarification of the text.

The text of Rules 54.8-B5 and 56.4-A3 have been reformatted and moved to Rule 54.4-A4 to simplify obtaining all supply clearance requirements above swimming pools by requiring reference to only one rule.

EXISTING RULE

Rule 54.4 Clearances

A. ABOVE GROUND

(4) Above Swimming Pools: Crossings of conductors above swimming pools shall be avoided where practicable. Unprotected line conductors shall have radial clearances from the top edge of the swimming pool walls and vertical clearances above the highest water level of the pool surface not less than the clearances specified in Table 1, Case 3, Columns D, E and F.

NOTE: Added January 2, 1962 by resolution No. E-1109.

PROPOSED RULE CHANGE
(STRIKE OUT AND UNDERLINED)

Rule 54.4 Clearances

A. ABOVE GROUND

(4) Above Over Swimming Pools: (see Fig. 54-8) crossings of conductors above installations of conductors, service drops and guys over swimming pools shall be avoided where practicable. Unprotected line conductors shall have radial clearances from the top edge of the swimming pool walls and vertical clearances above the highest water level of the pool surface not less than the clearances specified in Table 1, Case 3, Columns D, E and F. Where line conductors, service drop conductors or guys are installed over swimming pools the following rules apply:

(a) Line Conductors: Where unprotected line conductors are installed over a swimming pool they shall have radial clearances from the top edge of the swimming pool walls and vertical clearances above the highest water level of the pool surface not less than the following:

- 1) 0-750 Volts ----- 20 feet
- 2) 750-22,500 Volts -- 25 feet
- 3) 22.5-300 kv. ----- 30 feet

(see Table 1, Case 3, Columns D, E and F)

(b) Service Drops 0-750 Volts: Where service drop conductors are installed over a swimming pool:

1) Phase conductors shall be suitably insulated (see Rule 20.8-G).

2) Vertical clearances above the highest water level of the pool surface and radial clearances from the top edge of the pool wall shall be:

- a) 16 feet for public and commercially operated pools.
- b) 12 feet for residential pools.

3) No service drop may be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 8 feet radially of the diving board or platform that is over the water surface of the pool.

4) No service drop may be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 3 feet radially of the diving board or platform that is not over the water surface of the pool.

(c) Ungrounded Portions of Guys:

1) Shall have radial clearances from the top edge of the swimming pool wall of not less than 18 feet.

Rule 54.4-A4 (cont.)

2) Shall have vertical clearances above the highest water level of the pool surface of not less than 18 feet.

3) Shall not be installed less than 18 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 8 feet radially of the diving board or platform that is over the water surface of the pool.

4) Shall not be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, such plane being the area is within 6 feet radially of the diving board or platform that is not over the water surface of the pool.

(d) Grounded Portions of Guys:

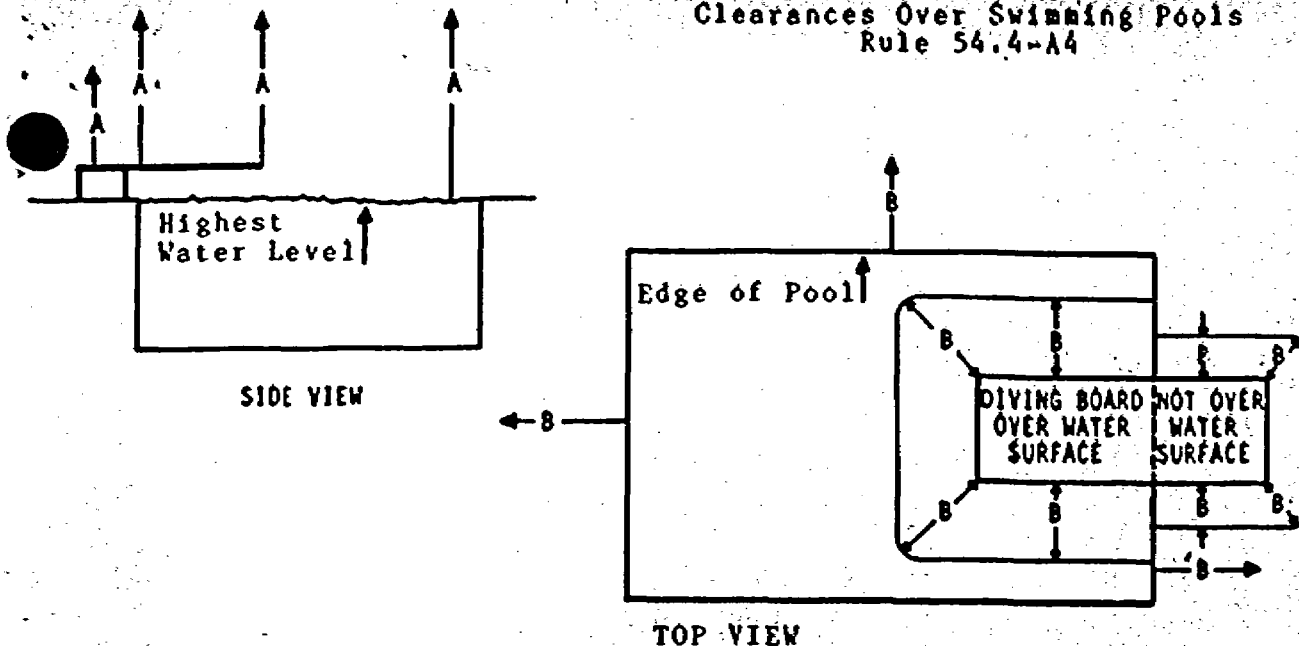
1) Shall have vertical clearances over the highest water level of the pool surface of not less than 16 feet.

2) Shall not be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 8 feet radially of the diving board or platform that is over the water surface of the pool.

3) Shall not be installed less than 8 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 3 feet radially of the diving board or platform that is not over the water surface of the pool.

NOTE: Added January 2, 1962 by Resolution E-1109.

Clearances Over Swimming Pools
Rule 54.4-A4



MINIMUM VERTICAL AND RADIAL CLEARANCES OVER SWIMMING POOLS	A MINIMUM VERTICAL	B MINIMUM RADIAL
UNPROTECTED LINE CONDUCTORS (Vertical Over Highest Water Level and Radial From Top Edge of Pool Walls)		
1. 0-750 Volts	20 Feet	20 Feet
2. 750-22,500 Volts	25 Feet	25 Feet
3. 22.5-300 kv.	30 Feet	30 Feet
SERVICE DROPS (Vertical Over Highest Water Level and Radial From Top Edge of Pool Walls)		
4. Pools Public and Commercial	16 Feet	16 Feet
5. Pools Residential	12 Feet	12 Feet
SERVICE DROPS (Over Diving Boards or Platforms)		
6. Portion of Board or Platform That is Over Water Surface	16 Feet	0 Feet
7. Portion of Board or Platform That is not Over Water Surface	12 Feet	3 Feet
GUYs (Ungrounded Portions)		
8. Over Highest Water Level and From Top Edge of Pool Walls	18 Feet	18 Feet
9. Over Diving Board or Platform The Portion that is Over the Water Surface	18 Feet	0 Feet
10. Over Diving Board or Platform The Portion that is not Over the Water Surface	12 Feet	6 Feet
GUYs (Grounded Portions)		
11. Over the Highest Water Level	16 Feet	-----
12. Over Diving Board or Platform The Portion that is Over the Water Surface	16 Feet	0 Feet
13. Over Diving Board or Platform The Portion that is not Over the Water Surface	6 feet	3 Feet

CLEARANCES OVER SWIMMING POOLS
Fig. 54-8

FINAL PROPOSED RULE CHANGE (*)

Rule 54.4 Clearances

A. ABOVE GROUND

(4) Over Swimming Pools: (see Fig. 54-8) Installations of conductors, service drops and guys over swimming pools shall be avoided where practicable. Where line conductors, service drop conductors or guys are installed over swimming pools the following rules apply:

(a) Line Conductors: Where unprotected line conductors are installed over a swimming pool they shall have radial clearances from the top edge of the swimming pool walls and vertical clearances above the highest water level of the pool surface not less than the following:

- 1) 0-750 Volts ----- 20 feet
- 2) 750-22,500 Volts -- 25 feet
- 3) 22.5-300 kv. ----- 30 feet

(see Table 1, Case 3, Columns D, E and F)

(b) Service Drops 0-750 Volts: Where service drop conductors are installed over a swimming pool:

- 1) Phase conductors shall be suitably insulated (see Rule 20.8-G).
- 2) Vertical clearances above the highest water level of the pool surface and radial clearances from the top edge of the pool wall shall be:
 - a) 16 feet for public and commercially operated pools.
 - b) 12 feet for residential pools.

3) No service drop may be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 8 feet radially of the diving board or platform that is over the water surface of the pool.

4) No service drop may be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 3 feet radially of the diving board or platform that is not over the water surface of the pool.

(c) Ungrounded Portions of Guys:

- 1) Shall have radial clearances from the top edge of the swimming pool wall of not less than 18 feet.
- 2) Shall have vertical clearances above the highest water level of the pool surface of not less than 18 feet.

Rule 54.4-A4 (cont.)

3) Shall not be installed less than 18 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 8 feet radially of the diving board or platform that is over the water surface of the pool.

4) Shall not be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 6 feet radially of the diving board or platform that is not over the water surface of the pool.

(d) Grounded Portions of Guys:

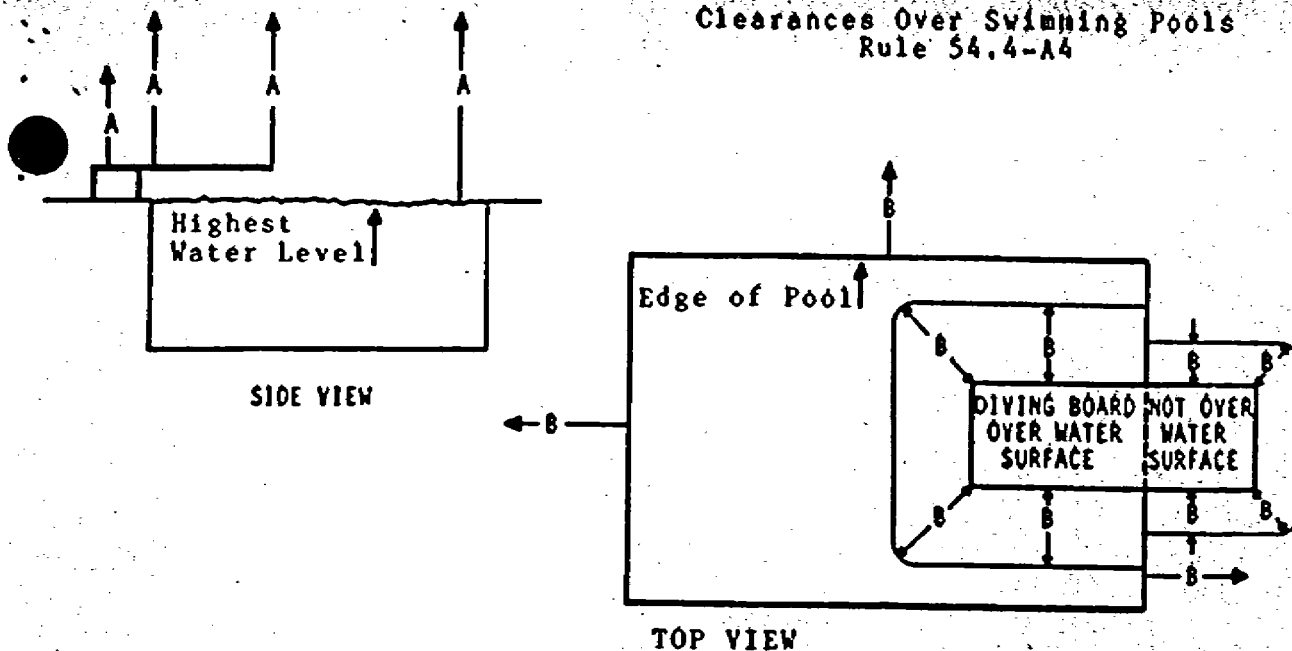
1) Shall have vertical clearances above the highest water level of the pool surface of not less than 16 feet.

2) Shall not be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 8 feet radially of the diving board or platform that is over the water surface of the pool.

3) Shall not be installed less than 8 feet vertically above the horizontal plane through a diving board or platform, such plane being the area within 3 feet radially of the diving board or platform that is not over the water surface of the pool.

NOTE: Added January 2, 1962 by Resolution E-1109.

Clearances Over Swimming Pools
Rule 54.4-A4



MINIMUM VERTICAL AND RADIAL CLEARANCES OVER SWIMMING POOLS	A MINIMUM VERTICAL	B MINIMUM RADIAL
UNPROTECTED LINE CONDUCTORS (Vertical Over Highest Water Level and Radial From Top Edge of Pool Walls)		
1. 0-750 Volts	20 Feet	20 Feet
2. 750-23,500 Volts	25 Feet	20 Feet
3. 23.5-300 kv.	30 Feet	30 Feet
SERVICE DROPS (Vertical Over Highest Water Level and Radial From Top Edge of Pool Walls)		
4. Pools Public and Commercial	16 Feet	16 Feet
5. Pools Residential	12 Feet	12 Feet
SERVICE DROPS (Over Diving Boards or Platforms)		
6. Portion of Board or Platform That is Over Water Surface	16 Feet	0 Feet
7. Portion of Board or Platform That is not Over Water Surface	12 Feet	3 Feet
GUTS (Ungrounded Portions)		
8. Over Highest Water Level and From Top Edge of Pool Walls	18 Feet	18 Feet
9. Over Diving Board or Platform The Portion that is Over the Water Surface	18 Feet	0 Feet
10. Over Diving Board or Platform The Portion that is not Over the Water Surface	12 Feet	6 Feet
GUTS (Grounded Portions)		
11. Over the Highest Water Level	16 Feet	-----
12. Over Diving Board or Platform The Portion that is Over the Water Surface	16 Feet	0 Feet
13. Over Diving Board or Platform The Portion that is not Over the Water Surface	8 feet	3 Feet

CLEARANCES OVER SWIMMING POOLS

Fig. 54-8

EXISTING RULE

Rule 54.8 Service Drops, 0-750 Volts

B. CLEARANCES ABOVE GROUND, BUILDINGS, ETC.

(5) **Above Swimming Pools:** Installations of service drops above public and private swimming pools shall be avoided where practicable. Where service drop conductors are installed above a swimming pool, the conductors shall have a radial clearance of not less than 20 feet from the top edge of the pool walls and shall have a vertical clearance of not less than 18 feet above the highest water level of the pool surface. Service drops having coverings of materials specially approved by the commission for installation above swimming pools may have vertical clearances above the pool and radial clearances from the top edge of the pool wall of not less than 16 feet for public and commercially operated pools and not less than 12 feet for residential pools.

No service drop may be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being within 8 feet radially of the diving board or platform and over the water surface of the pool.

No service drop may be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being the area within 3 feet radially of the diving board or platform and not over the water surface of the pool.

NOTE: Added January 2, 1962 by Resolution No. E-1109.

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PROPOSED RULE CHANGE
(STRIKE OUT AND UNDERLINED)

Rule 54.8 Service Drops, 0-750 Volts

B. CLEARANCES ABOVE GROUND, BUILDINGS, ETC.

(5) Above Over Swimming Pools (see Rule 54.4-A4 and Fig. 54-8)

~~Installations of service drops above public and private swimming pools shall be avoided where practicable. Where service drop conductors are installed above a swimming pool, the conductors shall have a radial clearance of not less than 20 feet from the top edge of the pool walls and shall have a vertical clearance of not less than 18 feet above the highest water level of the pool surface. Service drops having coverings of materials specially approved by the commission for installation above swimming pools may have vertical clearances above the pool and radial clearances from the top edge of the pool wall of not less than 16 feet for public and commercially operated pools and not less than 12 feet for residential pools.~~

~~No service drop may be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being within 8 feet radially of the diving board or platform and over the water surface of the pool.~~

~~No service drop may be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being the area within 3 feet radially of the diving board or platform and not over the water surface of the pool.~~

NOTE: Added January 2, 1962 by Resolution No. E-1109.

NOTE: PORTIONS OF THIS RULE HAVE BEEN REVISED AND MOVED TO RULE 54.4-A4

FINAL PROPOSED RULE CHANGE (*)

Rule 54.6 Service Drops, 0-750 Volts

B. CLEARANCES ABOVE GROUND, BUILDINGS, ETC.

(5) Over Swimming Pools (see Rule 54.4-A4 and Fig. 54-8)

NOTE: Added January 2, 1962 by Resolution No. E-1109.

EXISTING RULE

Rule 56.4 Clearances

A. ABOVE GROUND

(3) Above Swimming Pools:

(a) Ungrounded Portions of Guys shall have radial clearances from the top edge of the swimming pool wall and vertical clearances above the highest water level of the pool of not less than 18 feet.

No ungrounded portion of guys may be installed less than 18 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being within 8 feet radially of the diving board or platform and over the water surface of the pool.

No ungrounded portion of guys may be installed less than 12 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being the area within 6 feet radially of the diving board or platform and not over the water surface of the pool.

NOTE: Added January 2, 1962 by Resolution No. E-1109.

(b) Grounded Portions of Guys shall have vertical clearances above the highest water level of the pool of not less than 16 feet.

No grounded portion of guys may be installed less than 16 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being within 8 feet radially of the diving board or platform and over the water surface of the pool.

No grounded portion of guys may be installed less than 8 feet vertically above the horizontal plane through a diving board or platform, the area of such plane being the area within 3 feet radially of the diving board or platform and not over the water surface of the pool.

NOTE: Added January 2, 1962 by Resolution No. E-1109.

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PROPOSED RULE CHANGE
(STRIKE OUT AND UNDERLINED)

Rule 56.4 Clearances

A. ABOVE GROUND

(3) Above Over Swimming Pools (see Rule 54.4-A4 and Fig. 54-8)

~~(a)--Ungrounded-Portions-of-Guys-shall-have-radial-clearances-from-the-top-edge-of-the-swimming-pool-wall-and-vertical clearances-above-the-highest-water-level-of-the-pool-of-not-less than-10-feet.~~

~~No-ungrounded-portion-of-guys-may-be-installed-less-than-10 feet-vertically-above-the-horizontal-plane-through-a-diving board-or-platform,-the-area-of-such-plane-being-within-8-feet radially-of-the-diving-board-or-platform-and-over-the-water surface-of-the-pool.~~

~~No-ungrounded-portion-of-guys-may-be-installed-less-than-12 feet-vertically-above-the-horizontal-plane-through-a-diving-board or-platform,-the-area-of-such-plane-being-the-area-within 6-feet-radially-of-the-diving-board-or-platform-and-not-over-the water-surface-of-the-pool.~~

~~NOTE--added-January-27-1962-by-Resolution-No-E-1109.~~

~~(b)--Grounded-Portions-of-Guys-shall-have-vertical-clearances above-the-highest-water-level-of-the-pool-of-not-less-than-16-feet.~~

~~No-grounded-portion-of-guys-may-be-installed-less-than-16-feet vertically-above-the-horizontal-plane-through-a-diving-board-or platform,-the-area-of-such-plane-being-within-8-feet-radially-of the-diving-board-or-platform-and-over-the-water-surface-of-the pool.~~

~~No-grounded-portion-of-guys-may-be-installed-less-than-8-feet vertically-above-the-horizontal-plane-through-a-diving-board-or platform,-the-area-of-such-plane-being-the-area-within-3-feet radially-of-the-diving-board-or-platform-and-not-over-the-water surface-of-the-pool.~~

~~NOTE: Added January 2, 1962 by Resolution No. E-1109.~~

NOTE: PORTIONS OF THIS RULE HAVE BEEN REVISED AND MOVED TO RULE 54.4-A4

FINAL PROPOSED RULE CHANGE (*)

Rule 56.4 Clearances

A. ABOVE GROUND

(3) Over Swimming Pools (see Rule 54.4-A4 and Fig. 54-8)

NOTE: Added January 2, 1962 by Resolution No. E-1109.

ITEM 6

General Order No. 95

Rule 56.9

RATIONALE FOR CHANGE TO G.O. 95 RULE

RULE 56.9

- GUY MARKER (GUY GUARD)

This proposed rule change uses the term guy marker rather than guy guard to properly clarify it's purpose. The present title "Protection" and reference to "guard" in the rule has led to misinterpretations that the markers protect the public from hitting the marker or protect the guy in case of collision.

The 1987 National Electrical Safety Code (rule 282E page 296) has an equivalent section which is entitled "Guy Markers (Guy Guards). This title correctly identifies the intent of the rule. The parenthetical "Guy Guards" was left in place to show that this commonly used term actually refers to guy markers.

References to wood markers (guards) were removed since this type of marker is not commonly used in new plant construction. "Suitable material" provides for the use of materials developed in today's technology. Metal and plastic markers are the common types in use today.

The exception for 1 1/4 inch anchor rods was deleted.

EXISTING G.O. 95 RULE

RULE 56.9 (PAGE 160)

1. 56.9 PROTECTION

2. A substantial wood guard (preferably painted white), or metal guard,
3. or a plastic guard of suitable materials, not less than 8 feet in
4. length, shall be securely attached to each anchor guy which is exposed
5. to traffic. Such a guard will not be required where the anchor rod is 1
6. 1/4 inches or greater in diameter, has an overall length above ground
7. of not less than 8 feet and extends to a height of not less than 6 feet
8. vertically above ground.

RULE 66.7 (PAGE 191)

Rule 66.7 Protection (See Rule 56.9)

PROPOSED CHANGE TO G.O. 95 RULE

(STRIKE OUT AND UNDERLINE)

RULE 56.9 (PAGE 160)

1. 56.9 PROTECTION GUY MARKER (GUY GUARD)
2. A substantial wood/guard/~~preferably/painted/white/~~/~~or/~~~~metal/guard/~~
3. ~~of/a/plastic/guard/of/durable/materials/~~ marker of suitable
4. material, including but not limited to metal or plastic, not less than
5. 8 feet in length, shall be securely attached to each an anchor guy
6. which is exposed to traffic. ~~Such/a/guard/may/not/be/required/where/~~
7. ~~the/anchor/is/1/1/2/inches/or/greater/in/diameter/has/an/overall~~
~~length/above/ground/of/not/less/than/6/feet/and/extends/to/a/height~~
~~of/not/less/than/6/feet/vertically/above/ground/~~

RULE 66.7 (PAGE 191)

Rule 66.7 PROTECTION GUY MARKER (GUY GUARD) (See Rule 56.9)

FINAL PROPOSED G.O. 95 RULE (*)

RULE 56.9 (PAGE 160)

1. 56.9 GUY MARKER (GUY GUARD)
 2. A substantial marker of suitable material, including but not limited
 3. to metal or plastic, not less than 8 feet in length, shall be securely
 4. attached to an anchor guy exposed to traffic.
-

RULE 66.7 (PAGE 191)

Rule 66.7 GUY MARKER (GUY GUARD) (See Rule 56.9)

ITEM 7

General Order No. 95

. Rule 84.4-A6

RATIONALE
CLEARANCES
RULE 84.4-A6

This proposed new rule provides a clearer descriptive detail for communication conductor along or across thoroughfares, and reduces clearances to 16 feet when such conductors are not crossing over thoroughfares, or where they are located behind a curb, ditch or berm and protected from encroachment by vehicle traffic.

This 16 foot clearance for communication conductors along thoroughfares includes crossings over commercial, industrial or residential driveways and shall not be reduced because of temperature or wind loading as specified in Rule 43.

This clearance reduction, with its restriction against any allowance for sag, is equal to the present clearance specified for communication guys & service drops crossing commercial or industrial driveways.

This proposed new rule will add Note "aa" to Table 1, Case 3, Column B and add new number 12 to Note "aa" to reflect title and rule number as follows:

12. Communication Conductors Across and Along Public Thoroughfares...84.4-A6.

PROPOSED CHANGE TO G.O. 95 RULE
(UNDERLINE)

CLEARANCES

RULE 84.4-A6

1. (6) Across or Along Public Thoroughfares:
2. Communication conductor over or across public thoroughfares shall
3. have a clearance of 18 feet above ground (Table 1, Case 3, Column
4. B). A reduced clearance to 16 feet is permitted for the portions of
5. communication conductors where no part of the line overhangs any part
6. of the thoroughfare which is ordinarily traveled, or where the line
7. is behind an established curb, ditch or berm that serves to protect
8. such communication conductors from encroachment by vehicular
9. traffic.
10. NOTE: This 16 foot clearance shall not be reduced because of
11. temperature or wind loading as specified in Rule 43.

FINAL PROPOSED CHANGE TO G.O. 95 RULE (*)

CLEARANCES

RULE 84.4-A6

1. (6) Across or Along Public Thoroughfares:
2. Communication conductors over or across public thoroughfares shall
3. have a clearance of 18 feet above ground (Table 1, Case 3, Column
4. B). A reduced clearance to 16 feet is permitted for the portions of
5. communication conductors where no part of the line overhangs any part
6. of the thoroughfare which is ordinarily traveled, or where the line
7. is behind an established curb, ditch or berm that serves to protect
8. such communication conductors from encroachment by vehicular traffic.
9. NOTE: This 16 foot clearance shall not be reduced because of
10. temperature or wind loading as specified in Rule 43.

ITEM 8

General Order No. 95

- Rule 84.4-A5
- Rule 84.8-C5
- Rule 86.4-A3

RATIONALE

CLEARANCES

RULES 84.4-A5, 84.8-C5 AND 86.4-A3

These proposed rule changes reformat the text for communication conductors, service drops and guys to give clarification and descriptive detail to vertical, horizontal and radial measurements and include the addition of a sketch (Figure 84-1) which consists of a top and side view of a typical pool with a diving board.

Additionally, the proposed rule change eliminates reference to the material composition of communication service drops. Resolution No. E-1109 approved material for use in supply service drops in Rule 54.8-B5 and was not intended to be placed in the communication section (Section VIII).

The above changes are consistent with the National Electrical Safety Code, Rule 234-E, Fig. 234-2 and Table 234-3.

EXISTING G.O. 95 RULE
(LINE BY LINE)

CLEARANCES

RULE 84.4-A5 (Page 221)

1. (5) Above Swimming Pools: Crossings of communication line
2. conductors above swimming pools shall be avoided where practicable.
3. Line conductors shall have radial clearances from the top edge of the
4. pool wall and vertical clearances above the highest water level of
5. the pool of not less than 18 feet. Grounded metallic sheathed
6. cables, plastic-jacketed cables with an inner grounded metallic
7. sheath, and grounded messengers and grounded span wires which support
8. cable may have minimum radial and vertical clearances as hereinabove
9. stated of not less than 16 feet.
10. Service drops having coverings of materials specially approved by the
11. Commission for installation above swimming pools and used in line
12. cable construction may have minimum radial and vertical clearances as
13. hereinabove stated of not less than 14 feet.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

CLEARANCES

RULE 84.4-A6 (Page 221)

1. (5) ~~Apply~~ Over Swimming Pools (See Figure 84-1):
2. (a) Line conductors, cables, messengers and span wires: Crossings
3. of communication line conductors ~~apply~~ over swimming pools shall be
4. avoided where practicable. Line conductors shall have radial
5. clearances from the top edge of the pool wall and vertical clearances
6. above the highest water level of the pool of not less than 16 feet.
7. Grounded metallic sheathed cables, plastic-jacketed cables with an
8. inner grounded metallic sheath, and grounded messengers and grounded
9. span wires which support cable may have minimum radial and vertical
10. clearances as hereinabove stated of not less than 16 feet.
11. Service drops ~~may be covered by material specially approved by~~
12. the Commission for installed ~~above~~ above swimming pools and used
13. in line cable construction may have minimum radial and vertical
14. clearances as hereinabove stated of not less than 14 feet.
15. (b) Service Drops: Installation over swimming pools shall be
16. avoided where practicable. Service drops above swimming pools shall
17. have vertical clearances over the pool and radial clearances from the
18. edge of the pool wall of not less than 14 feet for public and
19. commercially operated pools and not less than 10 feet for residential
20. pools.

21. No service drop may be installed less than 14 feet vertically over
22. the horizontal plane through a diving board or platform, the area of
23. such plane being within 8 feet radially of the diving board or
24. platform and over the water surface of the pool.
25. No service drop may be installed less than 10 feet vertically over
26. the horizontal plane through a diving board or platform, the area of
27. such plane being the area within 3 feet radially of the diving board
28. or platform and not over the water surface of the pool.
29. (c) Communication Guys: Guys shall have vertical clearances above
30. the highest water level of the pool of not less than 16 feet.
31. No communication guy may be installed less than 16 feet vertically
32. over the horizontal plane through a diving board or platform, the
33. area of such plane being within 8 feet radially of the diving board
34. or platform and not over the water surface of the pool.
35. No communications guy may be installed less than 8 feet vertically
36. over the horizontal plane through a diving board or platform, the
37. area of such plane being the area within 3 feet radially of the
38. diving board or platform and not over the water surface of the pool.

FINAL PROPOSED G.O. 95 RULE (*)

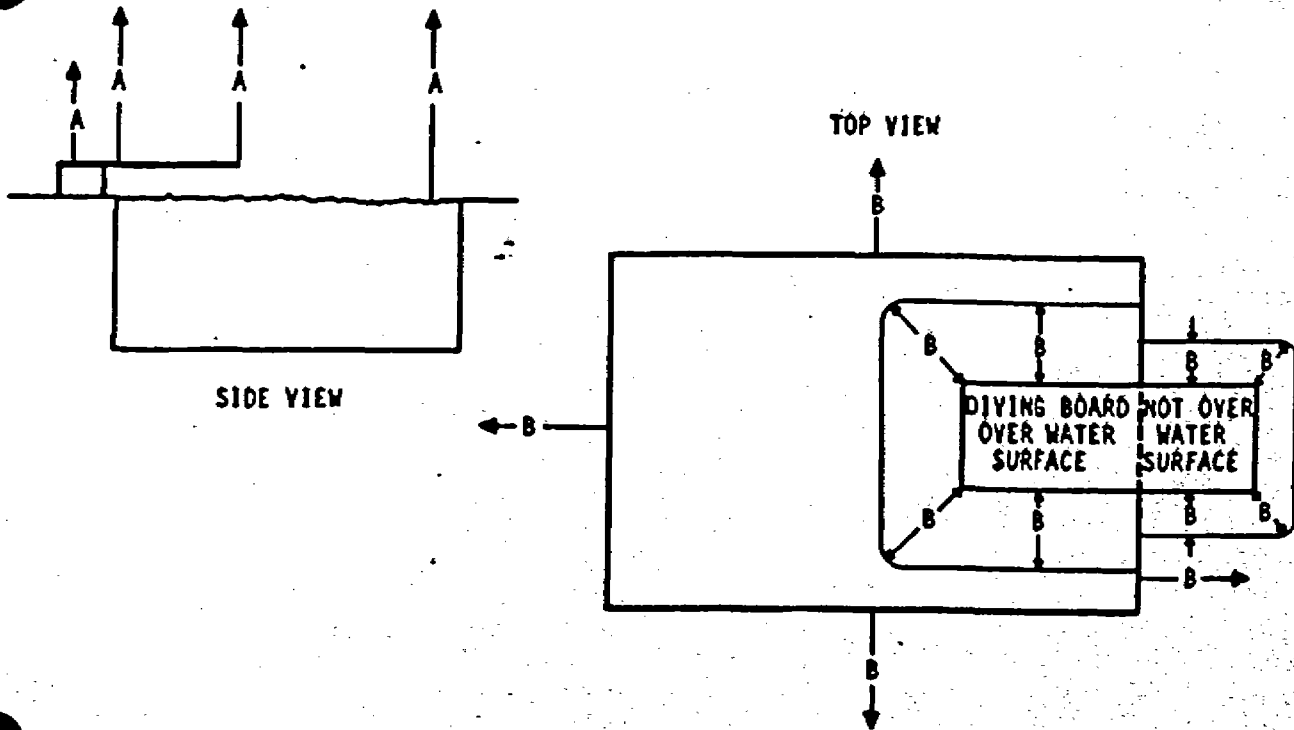
CLEARANCES

RULE 84.4-A5 (Page 221)

1. (5) Over Swimming Pools (See Figure 84-1):
2. (a) Line Conductors, Cables, Messengers and Span Wires: Crossings
3. of communication line conductors over swimming pools shall be avoided
4. where practicable. Line conductors shall have radial clearances from
5. the top edge of the pool wall and vertical clearances above the
6. highest water level of the pool of not less than 18 feet. Grounded
7. metallic sheathed cables, plastic-jacketed cables with an inner
8. grounded metallic sheath, and grounded messengers and grounded span
9. wires which support cable may have minimum radial and vertical
10. clearances as hereinabove stated of not less than 16 feet.
11. Service drops installed over swimming pools and used in line cable
12. construction may have minimum radial and vertical clearances as
13. hereinabove stated of not less than 14 feet.
14. (b) Service Drops: Installation over swimming pools shall be
15. avoided where practicable. Service drops above swimming pools shall
16. have vertical clearances over the pool and radial clearances from the
17. edge of the pool wall of not less than 14 feet for public and
18. commercially operated pools and not less than 10 feet for residential
19. pools.
20. No service drop may be installed less than 14 feet vertically over
21. the horizontal plane through a diving board or platform, the area of
22. such plane being within 8 feet radially of the diving board or
23. platform and over the water surface of the pool.

24. No service drop may be installed less than 10 feet vertically over
25. the horizontal plane through a diving board or platform, the area of
26. such plane being the area within 3 feet radially of the diving board
27. or platform and not over the water surface of the pool.
28. (c) Communication Guys: Guys shall have vertical clearances above
29. the highest water level of the pool of not less than 16 feet.
30. No communications guy may be installed less than 16 feet vertically
31. over the horizontal plane through a diving board or platform, the
32. area of such plane being within 8 feet radially of the diving board
33. or platform and not over the water surface of the pool.
34. No communications guy may be installed less than 8 feet vertically
35. over the horizontal plane through a diving board or platform, the
36. area of such plane being the area within 3 feet radially of the
37. diving board or platform and not over the water surface of the pool.

Requirements for Communication Lines



MINIMUM VERTICAL AND RADIAL CLEARANCES OVER SWIMMING POOLS	A MINIMUM VERTICAL	B MINIMUM RADIAL
LINE CONSTRUCTION OVER HIGHEST WATER LEVEL		
1. LINE UNGROUNDED	18 FEET	18 FEET
2. LINE GROUNDED	16 FEET	16 FEET
3. LINE SERVICE DROP	14 FEET	14 FEET
SERVICE DROPS OVER HIGHEST WATER LEVEL		
4. POOLS PUBLIC & COMMERCIAL	14 FEET	14 FEET
5. POOLS RESIDENTIAL	10 FEET	10 FEET
SERVICE DROPS OVER DIVING BOARDS OR PLATFORMS		
6. OVER WATER SURFACE	14 FEET	8 FEET
7. NOT OVER WATER SURFACE	8 FEET	3 FEET
COMMUNICATION GUY OVER DIVING BOARDS OR PLATFORMS		
8. OVER WATER SURFACE	16 FEET	8 FEET
9. NOT OVER WATER SURFACE	8 FEET	3 FEET

FIGURE 84-1
CLEARANCES OVER SWIMMING POOLS
RULE 84.4-A5

EXISTING G.O. 95 RULE
(LINE BY LINE)

SERVICE DROPS

RULE 84.8-C5 (Page 235)

1. (5) Above Swimming Pools: Service drop installations above
2. swimming pools shall be avoided where practicable. Where service
3. drop conductors are installed above a swimming pool, the conductors
4. shall have radial clearances from the top edge of the pool walls of
5. not less than 18 feet and shall have vertical clearances of not less
6. than 18 feet above the highest water level of the pool. Service
7. drops having coverings of materials specially approved by the
8. Commission for installation above swimming pools may have vertical
9. clearances above the pool and radial clearances from the top edge of
10. the pool wall of not less than 14 feet for public and commercially
11. operated pools and not less than 10 feet for residential pools.
12. No service drop may be installed less than 14 feet vertically above
13. the horizontal plane through a diving board or platform, the area of
14. such plane being within 8 feet radially of the diving board or
15. platform and over the water surface of the pool.
16. No service drop may be installed less than 10 feet vertically above
17. the horizontal plane through a diving board or platform, the area of
18. such plane being the area within 3 feet radially of the diving board
19. or platform and not over the water surface of the pool.

FINAL PROPOSED G.O. 95 RULE (*)

SERVICE DROPS

RULE 84.8-C5 (Page 235)

1. (5) Over Swimming Pools: (See Rule 84.4-A5b and Figure 84-1)

EXISTING G.O. 95 RULE
(LINE BY LINE)

CLEARANCES

RULE 86.4-A3 (Page 239)

1. (3) Above Swimming Pools: Guys shall have vertical clearances
2. above the highest water level of the pool of not less than 16 feet.
3. No communications guy may be installed less than 16 feet vertically
4. above the horizontal plane through a diving board or platform, the
5. area of such plane being within 8 feet radially of the diving board
6. or platform and not over the water surface of the pool.
7. No communications guy may be installed less than 8 feet vertically
8. above the horizontal plane through a diving board or platform, the
9. area of such plane being the area within 3 feet radially of the
10. diving board or platform and not over the water surface of the pool.

1. (3) Over Swimming Pools: (See Rule 84.4-A50 and Figure 84-1)

RULE 86.4-A3 (Page 239)

CLEARANCES

FINAL PROPOSED G.O. 85 RULE (*)

- 19/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 9/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 8/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 7/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 6/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 5/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 4/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
 - 3/1 ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~
2. ~~STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT/STRIKE OUT~~

1. (3) ~~Over Swimming Pools: (See Rule 84.4-A50 and Figure 84-1)~~

RULE 86.4-A3 (Page 239)

CLEARANCES

PROPOSED CHANGE TO G.O. 85 RULE
(STRIKE OUT AND UNDERLINE)

ITEM 9

General Order No. 95

- . Rule 84.4-E
- . Rule 84.8-C4

RATIONALE

RULES 84.4-E, AND 84.8-C4

CLEARANCES

These rule changes are proposed to clarify and simplify the language of the rules. Additionally the changes eliminate references to voltages and wattages which no longer apply in today's communications environment.

EXISTING G.O. 95 RULE
(LINE BY LINE)

CLEARANCES

RULE 84.4-E (Page 226)

1. E. ABOVE OR BESIDE BUILDINGS, BRIDGES AND OTHER SIMILAR STRUCTURES.
2. Conductors (including cables) shall be so arranged as to hamper and
3. endanger firemen and workmen as little as possible in the performance
4. of their duties. The basic clearances of conductors from buildings
5. are specified in Table 1, Cases 6 and 7. The requirements of Table
6. 1, Case 7, also apply at fire escapes, exits, windows, etc., at which
7. human contact may be expected.
8. Communication cables are not required to be any specified distance
9. from the sides of building, but they shall be installed so that they
10. do not interfere with the free use of fire escapes, exits, etc.
11. The vertical clearance of communication conductors (including
12. cables) above buildings as specified in Table 1, Case 6, may be
13. reduced to not less than 2 feet under the following conditions:
14. Over roofs of $3/8$ pitch (37 degrees from the horizontal) or greater.
15. Over roofs where the conductor does not overhang the building by
16. more than 6 feet.
17. See Rule 84.8-C4 for service drop clearance requirements.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

CLEARANCES

RULE 84.4-E (Page 226)

1. E. ABOVE OR BESIDE BUILDINGS, BRIDGES AND OTHER SIMILAR STRUCTURES.
2. Conductors ~~XXXXXX/XXXXXX/XXXXXX~~ should be ~~so~~ arranged so as
3. not to hamper ~~and~~ or endanger ~~XXXXXX~~ firefighters and ~~XXXXXX~~
4. workers ~~XXXXXX/XXXXXX/XXXXXX~~ in ~~the~~ performing of their
5. duties. The basic clearances of communication conductors from
6. buildings are specified in Table 1, Cases 6 and 7, Column B. The
7. requirements of Table 1, Case 7, Column B also apply to ~~the~~ fire
8. escapes, ~~XXXXXX/~~ windows, doors, ~~XXXXXX/~~ and other points of
9. entrance or exit where human contact might be expected. ~~XXXXXX/XXXXXX~~
10. ~~XXXXXX/XXXXXX/XXXXXX/XXXXXX/XXXXXX/XXXXXX/~~
11. Communication cables are not required to be any specified distance
12. from the sides of buildings, bridges and other similar structures,
13. but they shall be installed so that they do not interfere with the
14. free use of fire escapes, ~~XXXXXX/XXXXXX/~~ windows, doors and other
15. points at which entrance or exit might be expected.
16. The vertical clearance of communication conductors (including cables)
17. above buildings ~~is~~ specified in Table 1, Case 6, Column B may be
18. reduced to not less than 2 feet under either of the following
19. conditions/ ;
20. 1. Over roofs of 3/8 pitch (37 degrees from the horizontal) or
21. greater, or
22. 2. Over roofs where the conductor does not overhang the building by
23. more than 6 feet.
24. See Rule 84.8-C4 for service drop clearance requirements.

FINAL PROPOSED G.O. 95 RULE (*)

CLEARANCES

RULE 84.4-E (Page 226)

1. E. ABOVE OR BESIDE BUILDING, BRIDGES AND OTHER SIMILAR STRUCTURES.
2. Conductors should be arranged so as not to hamper or endanger
3. firefighters and workers in performing their duties. The basic
4. clearances of communication conductors from buildings are specified
5. in Table 1, Cases 6 and 7, Column B. The requirements of Table 1,
6. Case 7, Column B also apply at fire escapes, windows, doors, and
7. other points at which entrance or exit where human contact might be
8. expected.
9. Communication cables are not required to be any specified distance
10. from the sides of buildings, bridges and other similar structures,
11. but they shall be installed so that they do not interfere with the
12. free use of fire escapes, windows, doors and other points at which
13. entrance or exit might be expected.
14. The vertical clearance of communication conductors (including cables)
15. above buildings specified in Table 1, Case 6, Column B may be reduced
16. to not less than 2 feet under either of the following conditions;
17. 1. Over roofs of $3/8$ pitch (37 degrees from the horizontal) or
18. greater, or
19. 2. Over roofs where the conductors does not overhang the building by
20. more than 6 feet.
21. See Rule 84.8-C4 for service drop clearance requirements.

EXISTING G.O. 95 RULE
(LINE BY LINE)

SERVICE DROPS

RULE 84.8-C4 (Page 235)

1. (4) From Buildings and Structures: Service drops shall be so
2. arranged as to hamper and endanger firemen and workmen as little as
3. possible in the performance of their duties.
4. Service drops are not required to clear buildings any specified
5. horizontal distance but shall be so installed that they do not
6. interfere with the free use of fire escapes, exits, windows, doors
7. and other points at which ingress or egress might be expected.
8. Service drops of less than 160 volts and 50 watts are not required to
9. clear the roofs of buildings on the premises served any specified
10. vertical distance. The vertical clearance above buildings on
11. premises other than the one being served shall be not less than 8
12. feet, except that a reduction to not less than 2 feet is permitted
13. for service drops of less than 160 volts and 50 watts under the
14. following conditions.
15. Over roofs of $3/8$ pitch (37 degrees from horizontal) or greater;
16. Over roofs where the conductor does not overhang the building by more
17. than 6 feet.
18. Service drops of other communication lines (greater than 160 volts
19. and 50 watts) shall have vertical clearances above buildings as
20. specified for supply service drops in Table 10 (Rule 54.8-B4b).

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

SERVICE DROPS

RULE 84.8-C4 (Page 235)

1. (4) From Buildings and Structures: Service drops ~~shall~~ should be
2. ~~so~~ arranged so as ~~not~~ to hamper ~~and~~ or endanger ~~firefighters~~
3. ~~firefighters~~ and ~~workers~~ workers ~~in~~ in the
4. performing ~~of~~ their duties.
5. Service drops are not required to clear buildings any specified
6. horizontal distance but shall be so installed that they do not
7. interfere with the free use of fire escapes, windows, doors and other
8. points at which ~~the~~ entrance or ~~the~~ exit might be
9. expected.
10. Service drops ~~of~~ shall ~~not~~ be required
11. to clear the roofs of buildings on the premises served any specified
12. vertical distance. The vertical clearance above buildings on
13. premises other than the one being served shall ~~not~~ be ~~at~~ not less than
14. 8 feet, except that a reduction to not less than 2 feet is permitted
15. ~~if~~ if ~~the~~ under either
16. of the following conditions/:
17. 1. Over roofs of 3/8 pitch (37 degrees from horizontal) or
18. greater, or
19. 2. Over roofs where the service drop ~~does~~ does not overhang
20. the building by more than 6 feet.
21. ~~Service drops of other communication lines shall not be~~
22. ~~required to clear buildings on the premises served any specified~~
23. ~~vertical distance. The vertical clearance above buildings on~~

FINAL PROPOSED G.O. 95 RULE (*)

SERVICE DROPS

RULE 84.8-C4 (Page 235)

1. (4) From Buildings and Structures: Service drops should be
2. arranged so as not to hamper or endanger firefighters and workers in
3. performing their duties.
4. Service drops are not required to clear buildings any specified
5. horizontal distance but shall be so installed that they do not
6. interfere with the free use of fire escapes, windows, doors and other
7. points at which entrance or exit might be expected.
8. Service drops are not required to clear the roofs of buildings on the
9. premises served any specified vertical distance. The vertical
10. clearance above buildings on premises other than the one being served
11. shall not be less than 8 feet, except that a reduction to not less
12. than 2 feet is permitted under either of the following conditions;
13. 1. Over roofs of $3/8$ pitch (37 degrees from horizontal) or greater,
14. or
15. 2. Over roofs where the service drops does not overhang the building
16. by more than 6 feet.

ITEM 10

General Order No. 95

- . Rule 81.3
- . Rule 84.4-C1b
- . Rule 84.4-D1
- . Rule 84.4-D3
- . Rule 84.7-A
- . Rule 87.4-C3

RATIONALE

RULES 81.3, 84.4-C1b, 84.4-D1, 84.4-D3, 84.7-A & 87.4-03

Modern technology has made obsolete the use of toll circuitry on open wire conductors. These rule changes are proposed to clarify and simplify the language of the rules. Additionally the changes eliminate references to 160 volt, 50 watt lower voltage & power, plus the distinction between toll and exchange open wire conductors. These changed rules will refer to only communication or open wire conductors with one minimum horizontal distance instead of two.

The associated figures of Appendix G, Figures 34 & 86 have been moved into these subsections.

EXISTING G.O. 95 RULE
(LINE BY LINE)

POLES, TOWERS AND STRUCTURES

RULE 81.3 (PAGE 219)

1. 81.3 Material and Strength
2. Communication poles shall meet the material and strength requirements
3. specified in Section IV.
4. A. REPLACEMENT IN GRADE F CONSTRUCTION
5. Wood poles in Grade F construction shall be replaced or reinforced
6. before the safety factor has been reduced to less than one-half,
7. except that the circumference of sound solid wood within 18 inches
8. above and below the ground line on such poles before replacement or
9. reinforcement shall in no case be less than as follows:
10. Poles supporting 10 wires or less or open-wire local exchange
conductors.....9 inches
12. Poles supporting cable, interexchange conductors or more than
13. 10 wires or open-wire local exchange conductors...12 inches
14. Examples of replacement circumferences which meet these
15. requirements are given in Tables 26 and 27 of Appendix D.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

POLES, TOWERS AND STRUCTURES

RULE 81.3 (PAGE 219)

1. 81.3 Material and Strength

2. Communication poles shall meet the material and strength requirements
3. specified in Section IV.

4. A. REPLACEMENT OF WOOD POLES IN GRADE F CONSTRUCTION

5. Wood poles in Grade F construction shall be replaced or reinforced
6. before the safety factor has been reduced to less than one-half,
7. except that the circumference of sound solid wood within 18 inches
8. above and below the ground line on such poles before replacement or
9. reinforcement shall ~~not~~ ~~be~~ ~~less~~ ~~than~~ as follows:

10. Poles supporting 10 ~~wires~~ or less of open/wire ~~local~~
11. ~~exchange~~ conductors.....9 inches

12. Poles supporting cable, ~~local/exchange~~ ~~conductors~~ or more than
13. 10 ~~wires~~ of open/wire ~~local/exchange~~ conductors.....12
14. inches

15. Examples of replacement circumferences which meet these
16. requirements are given in Tables 26 and 27 of Appendix D.

FINAL PROPOSED G.O. 95 RULE (*)
POLES, TOWERS AND STRUCTURES

RULE 81.3 (PAGE 219)

1. 81.3 Material and Strength

2. Communication poles shall meet the material and strength requirements
3. specified in Section IV.

4. A. REPLACEMENT OF WOOD POLES IN GRADE F CONSTRUCTION

5. Wood poles in Grade F construction shall be replaced or reinforced
6. before the safety factor has been reduced to less than one-half,
7. except that the circumference of sound solid wood within 18 inches
8. above and below the ground line on such poles before replacement or
9. reinforcement shall not be less than as follows:

10. Poles supporting 10 or less open wire conductors.....9 inches

11. Poles supporting cable, or more than 10 open wire

12. conductors.....12 inches

13. Examples of replacement circumferences which meet these requirements

14. are given in Tables 26 and 27 of Appendix D.

EXISTING G.O. 95 RULE
(LINE BY LINE)

CLEARANCES

RULE 84.4-C1b (PAGE 222)

1. (b) On Brackets Attached to Crossarms: Line conductors supported on
2. brackets or extensions attached to crossarms shall be maintained at,
3. or outside of, the outer pin or dead-end positions on the crossarm
4. with a radial separation not less than the minimum pin spacing
5. specified in Table 2, Case 15 (3 inches) from any other line
6. conductors supported by the same crossarm, except that not more than
7. two conductors on the same side of pole on any crossarm may be
8. supported on brackets within the outer pin position and below
9. conductors normally supported on pins on the crossarm provided
10. that all conductors concerned do not carry more than 160 volts and
11. the power transmitted does not exceed 50 watts and the vertical
12. separation between conductors so supported on brackets and those
13. attached on pins or dead ends on crossarms not supporting the bracket
14. shall be not less than 12 inches. The vertical clearances specified
15. in Table 2, Cases 1 to 14 shall be provided between the conductor on
16. the bracket and the conductor level of any other conductors not
17. supported on the crossarm to which the bracket is attached.
18. This rule shall not be held to apply to clearances between conductors
19. of the same or similar circuits at points of transposition.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

CLEARANCES

RULE 64.4-C1b (PAGE 222)

1. (b) On Brackets Attached to Crossarms: The radial clearance for
2. communication & line conductors supported on brackets or extensions
3. attached to crossarms ~~shall be maintained~~ at, or outside of, the
4. outer pin or dead-end positions ~~or the crossarm/width/radial~~
5. ~~separation/should/less/than/the/minimum/pin/spacing~~ shall not be less
6. than 3 inches from any other communication line conductor supported
7. by the same crossarm as specified in Table 2, Case 16, Column C.
8. ~~(3/inches)/from/any/other/line/conductors/supported/by/the/same~~
9. ~~crossarm/except/that/a~~ Not more than two conductors on the same
10. side of the pole on any crossarm may be supported on brackets within
11. the outer pin position and below conductors normally supported on
12. pins. ~~or/the/crossarm/provided/that/all/conductors/connected/to~~
13. ~~any/entry/point/than/100/feet/and/the/over/vertical/lines/are/so~~
14. ~~exceed/50/feet/and/the/vertical/separation/between/conductors/so~~
15. ~~supported/on/brackets/and/there/attached/on/pins/or/dead/ends/or~~
16. ~~crossarms/so/spacing/the/bracket/should/less/than/12~~
17. inches/ There shall not be less than a 12 inch vertical separation
18. between communication conductors supported on brackets within the
19. outer pin positions on one crossarm and the communication conductors
20. on another crossarm. The vertical clearances specified in Table 2,
21. Cases 1 to 14, Column C shall be provided between the conductor on
22. the a bracket and the conductor level of any other conductors not

23. supported on the crossarm to which the bracket is attached.
24. This rule shall not ~~be/apply/~~ apply to clearances between
25. conductors of the same or similar circuits at points of
26. transposition.

FINAL PROPOSED G.O. 95 RULE (*)

CLEARANCES

RULE 84.4-C1b (PAGE 222)

1. (b) On Brackets Attached to Crossarms: The radial clearance for
2. communication line conductors supported on brackets or extensions
3. attached to crossarms at, or outside of, the outer pin or dead-end
4. positions shall not be less than 3 inches from any other
5. communication line conductor supported by the same crossarm as
6. specified in Table 2, Case 15, Column C. Not more than two
7. conductors on the same side of the pole on any crossarm may be
8. supported on brackets within the outer pin position and below
9. conductors normally supported on pins.
10. There shall not be less than a 12 inch vertical separation between
11. communication conductors supported on brackets within the outer pin
12. positions on one crossarm and the communication conductors on another
13. crossarm. The vertical clearances specified in Table 2, Cases 1 to
14. 14, Column C shall be provided between the conductor on a bracket and
15. the conductor level of any other conductors not supported on the
16. crossarm to which the bracket is attached.
17. **EXCEPTION:** This rule shall not apply to clearances between
18. conductors of the same or similar circuits at points of
19. transposition.

EXISTING G.O. 95 RULE
(LINE BY LINE)

CLEARANCES

RULE 84.4-D1 (PAGE 224)

1. (1) Conductors Supported on Crossarms: The 15 inch minimum.
2. clearance from center line of pole specified for communication
3. conductors supported on crossarms may be reduced under the following
4. conditions: For open wire toll and other open wire conductors not
5. used for exchange or local distribution, a clearance of not less than
6. 9 inches from center line of pole may be used;
7. For open wire exchange or local distribution conductors which were
8. originally installed as toll line conductors, a clearance of not less
9. than 9 inches may be used provided such exchange conductors do not
10. carry more than 160 volts and 50 watts and a clearance of not less
11. than 15 inches from center line of pole shall be obtained when
12. appreciable reconstruction of such line is undertaken;
13. For open wire local exchange and local distribution conductors in
14. rural districts, the conductor clearance from center line of pole may
15. be not less than 9 inches provided the voltage of such conductors is
16. not more than 160 volts, power transmitted does not exceed 50 watts,
17. the clearance of not less than 9 inches shall apply only to
18. conductors supported on a crossarm in the pole top position and no
19. conductors are supported below such crossarms except supply service
20. drops on clearance crossarms. This provision for lines in rural
21. districts is intended to permit the use of a related buck arm, in
22. which the climbing space shall conform to the requirements of Rule
23. 84.7-B;

24. Cables or messengers may be attached to opposite sides of pole and
25. Have clearances less than 15 inches from center line of pole where
26. placed 2 feet or more below the level of the lowest communication
27. conductors supported on crossarms;
28. Cables or messengers may have clearances less than 15 inches from
29. center line of pole where placed between crossarms or less than 2
30. feet below the level of the lowest communication conductor supported
31. on crossarms provided, for climbing space purposes, such cables are
32. placed on one side of pole only and any conductor (supported by a
33. crossarm and on the opposite side of pole) which is within 36 inches
34. vertically from the level of the cable or messenger is not less than
35. 24 inches (if an exchange conductor) or 18 inches (if a toll
36. conductor) horizontally from the vertical plane of such cable or
37. messenger (see App. G, Fig. 85).

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

RULE 84.4-D1 (PAGE 224)

1. (1) Conductors Supported on Crossarms: The 15-inch minimum
2. clearance from the center line of the pole specified for
3. communication conductors supported on crossarms may be reduced under
4. the following conditions:
5. For open/wire/cable/and/or/overhead/wire/line/crossarms/and/or/less/than/9
6. exchange/of/local/distribution/a/clearance/of/and/or/less/than/9
7. inches/over/center/line/of/pole/may/be/used
8. For open/wire/exchange/of/local/distribution/crossarms/which/were
9. originally/installed/as/cable/line/crossarms/a/clearance/of/and/or
10. less/than/9/inches/may/be/used/provided/such/exchange/crossarms/do
11. not/carry/voltage/and/or/wire/and/or/a/clearance/of/and/or
12. less/than/9/inches/over/center/line/of/pole/shall/be/obtained/when
13. appreciable/distribution/of/such/line/is/undertaken
14. For open/wire/local/exchange/and/local/distribution communication
15. conductors in/tape/distribution the crossarm clearance from
16. center line of pole shall not be may/be/and/or less than 9 inches.
17. provided/and/or/voltage/of/such/crossarms/is/and/or/voltage/and/or/over/and/or
18. open/transmission/and/or/and/or/excess/over/wire/and/or/line/clearance/of/and/or
19. less/than/9/inches/shall/apply/only/to/crossarms/supported/on/a
20. crossarm/in/and/or/pole/over/position/and/or/over/crossarms/are/supported
21. below/such/crossarms/except/apply/except/above/on/clearance
22. except/

23. This clearance shall apply only to communication conductors under
24. the following conditions:

- 25. 1. When supported on a crossarm in the pole top position, and
- 26. 2. When no conductors are supported below such crossarms except
27. supply service drops on clearance crossarms.

28. This provision is intended to permit
29. the use of a related buck arm, in which the climbing space shall
30. conform to the requirements of Rule 84.7-B.

31. To maintain climbing space, cables or messengers may have clearances
32. less than 15 inches from center line of pole under the following
33. conditions:
34. 1. When placed between crossarms, or

35. To maintain climbing space, cables or messengers may have clearances
36. less than 15 inches from center line of pole under the following
37. conditions:

- 38. 1. When placed between crossarms, or
- 39. 2. When placed less than 2 feet below the level of the lowest
40. communication conductor supported on crossarms.

41. These cables or
42. messengers are to be placed on one side of the pole only. Any conductor

43. Any conductor supported on a crossarm and on the opposite
44. side of the pole that is within 36 inches vertically of
45. the cable or messenger shall be at least 18 inches
46. horizontally from the vertical plane of such cable or
47. messenger (see Appendix B Fig. 84.2).

FINAL PROPOSED G.O. 95 RULE (*)

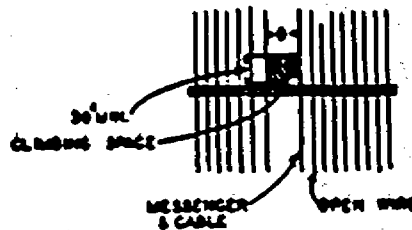
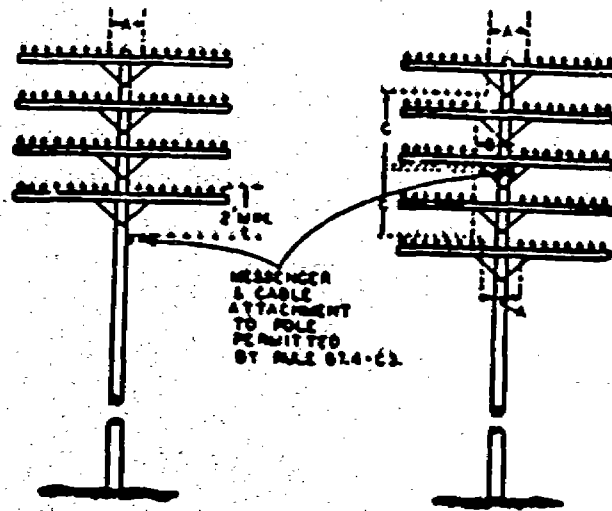
CLEARANCES

RULE 84.4-D1 (PAGE 224)

1. (1) Conductors Supported on Crossarms: The 16-inch minimum
2. clearance from the center line of the pole specified for
3. communication conductors supported on crossarms may be reduced under
4. the following condition:
5. For communication conductors the clearance from center line of pole
6. shall not be less than 9 inches.
7. This clearance shall apply only to communication conductors under
8. the following conditions:
9. 1. When supported on a crossarm in the pole top position, and
10. 2. When no conductors are supported below such crossarms except
11. supply service drops on clearance crossarms.
12. This provision is intended to permit the use of a related buck arm,
13. in which the climbing space shall conform to the requirements
14. of Rule 84.7-B.
15. To maintain climbing space, cables and messengers may have clearances
16. less than 15 inches from center line of pole under the following
17. conditions:
18. 1. When placed between crossarms, or
19. 2. When placed less than 2 feet below the level of the lowest
20. communication conductor supported on crossarms.
21. These cables or messengers are to be placed on one side of the pole
22. only. Any conductor on a crossarm on the opposite side of the pole

23. that is within 36 inches vertically of the cable or messenger shall
24. be at least 18 inches horizontally from the vertical plane of such
25. cable or messenger (see Fig. 84-2).

CLEARANCES OF COMMUNICATION
 CONDUCTORS AND CABLES
 RULES 64.4-D1 AND
 87.4-03



A=30" MIN OR 18" MIN.
 B=18" MIN.
 C=36" MIN

FIG. 64-2

EXISTING G.O. 96 RULE
(LINE BY LINE)

CLEARANCES

RULE 84.4-D3 (PAGE 225)

1. (3) Colinear, Conflicting or Crossing Lines (See Rule 32.3): Where
2. two communication lines are colinear or otherwise in conflict or
3. where a pole of one line is interset in another line at crossings,
4. the clearances of Rule 32.3 and Table 1, Case 8, Column B may be
5. modified as follows:
6. In applying any of the provisions of this Rule 84.4-D3 an
7. unobstructed climbing space on each pole concerned shall be
8. maintained with horizontal dimensions of not less than 30 inches
9. square for conductors carrying more than 160 volts and 50 watts, and
10. not less than 18 inches in width and 30 inches in depth for
11. conductors carrying lower voltage and power.
12. (a) Where Clearance Arms Are Used: Where clearance arms are used,
13. on poles which support only communication conductors, to support the
14. conductors of a colinear or conflicting communication line the
15. clearance of such conductors from the center line of pole shall be
16. not less than 15 inches for conductors carrying more than 160 volts
17. and 50 watts and shall be not less than 9 inches for conductors
18. carrying lower voltage and power.

PROPOSES CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

CLEARANCES

RULE 84.4-D3 (PAGE 225)

1. (3) Colinear, Conflicting or Crossing Lines (See Rule 32.3): Where
2. two communication lines are colinear or otherwise in conflict or
3. where a pole of one line is interset in another line at crossings,
4. the clearances of Rule 32.3 and Rule 37, Table 1, Case 8, Column B
5. may be modified as follows:
6. In applying any of the provisions of ~~any~~ Rule 84.4-D3 an
7. unobstructed climbing space on each pole concerned shall be
8. maintained with horizontal dimensions of ~~not less than 18 inches~~
9. ~~and not less than 18 inches wide and 30 inches deep.~~
10. ~~and not less than 18 inches wide and 30 inches deep.~~
11. ~~and not less than 18 inches wide and 30 inches deep.~~
12. (a) Where Clearance Arms Are Used: ~~Where clearance arms~~
13. ~~are used to support the conductors of a colinear or conflicting~~
14. ~~communication line on poles which support only communication~~
15. ~~conductors, the clearance of such conductors from the center line of~~
16. ~~pole shall not be less than 15 inches.~~
17. ~~Where clearance arms~~
18. ~~are used to support the conductors of a colinear or conflicting~~
19. ~~communication line on poles which support only communication~~
20. ~~conductors, the clearance of such conductors from the center line of~~
21. ~~pole shall not be less than 15 inches.~~
22. ~~Where clearance arms~~

FINAL PROPOSED G.O. 95 RULE (*)

CLEARANCES

RULE 84.4-D3 (PAGE 225)

1. (3) Colinear, Conflicting or Crossing Lines (See Rule 32.3): Where
2. two communication lines are colinear or otherwise in conflict or
3. where a pole of one line is interset in another line at crossings,
4. the clearances of Rule 32.3 and Rule 37, Table 1, Case 8, Column B
5. may be modified as follows:
6. In applying any of the provisions of Rule 84.4-D3 an unobstructed
7. climbing space on each pole concerned shall be maintained with
8. horizontal dimensions of not less than 18 inches wide and 30 inches
9. deep for communication conductors.
10. (a) Where Clearance Arms Are Used: Clearance arms are used to
11. support the conductors of a colinear or conflicting communication
12. line on poles which support only communication conductors, the
13. clearance of such conductors from the center line of pole shall not
14. be less than 15 inches.

EXISTING G.O. 95 RULE
(LINE BY LINE)

CLIMBING SPACE

RULE 84.7-A (PAGE 230)

1. A. WHERE LINE ARMS ONLY ARE INVOLVED (See App. G, Fig. 34)
2. The climbing space through the levels of conductors supported on line
3. arms only should be so located that the center line of pole is
4. approximately midway on the side of the climbing space parallel to
5. the crossarms. The horizontal dimensions of such climbing spaces,
6. with widths measured perpendicularly to the conductors, and with
7. depths measured from center line of pole and parallel to the
8. conductors, shall be not less than those specified in Rule 84.7-A1
8. and 84.7-A2, except at angles in lines in which cases the widths of
9. 18 and 30 inches may be reduced to not less than 16 1/2 and 27 1/2
10. inches respectively, provided the horizontal separation of pole-pin
11. conductors measured parallel to the crossarm shall be not less than
12. 18 and 30 inches respectively.
13. (1) On Poles Which Support Communication Conductors Only: The
14. climbing space for toll, trunk and other conductors not used for
15. local distribution shall be not less than 18 inches in width and not
16. less than 30 inches in depth.
17. The climbing space for exchange or local distribution conductors
18. shall be not less than 30 inches in depth and not less than 30 inches
19. in width, except that for conductors of 160 volts or less, which are
20. used for exchange or local distribution service but which were
21. originally used and placed as toll conductors of like voltage, the
22. climbing space shall be not less than 18 inches wide.

23. In rural districts, the climbing space for exchange or local
24. distribution circuits of 160 volts or less which are supported on
25. crossarms at the top positions of poles which support no other
26. crossarms shall be not less than 18 inches wide and not less than
27. 30 inches deep.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

CLIMBING SPACE

RULE 84.7-A (PAGE 230)

1. A. WHERE LINE ARMS ONLY ARE INVOLVED (See ~~APPENDIX A~~ Fig. 84-4)
2. The climbing space through the levels of conductors supported on line
3. arms only ~~shall~~ shall be ~~so~~ located so that the center line of
4. the pole is approximately midway on the side of the climbing space
5. and parallel to the crossarms. The horizontal dimensions of ~~such~~
6. the climbing spaces, with widths measured perpendicularly to the
7. conductors, and with depths measured from the center line of pole and
8. parallel to the conductors, shall ~~not~~ be ~~not~~ less than those
9. specified in Rule 84.7-A1 and 84.7-A2.
10. EXCEPTION: ~~At~~ At angles in lines ~~in which cases the~~ with widths
11. of 18 and 30 inches may be reduced to not less than 16 1/2 and 27 1/2
12. inches respectively, provided the horizontal separation of pole-pin
13. conductors measured parallel to the crossarm shall ~~not~~ be ~~not~~ less
14. than 18 and 30 inches respectively.
15. (1) On Poles Which Support Communication Conductors Only: The
16. climbing space for ~~such~~ communication conductors
17. shall ~~not~~ be ~~not~~ less than 18
18. inches wide and 30 inches deep. ~~Such~~ Such ~~shall~~ shall be ~~not~~ less than 18
19. inches wide and 30 inches deep.
20. The climbing space for ~~such~~ communication conductors
21. shall ~~not~~ be ~~not~~ less than 18 inches wide and 30 inches deep.
22. The climbing space for ~~such~~ communication conductors shall ~~not~~ be ~~not~~ less than
23. 18 inches wide and 30 inches deep.
1. ~~Such~~ Such ~~shall~~ shall be ~~not~~ less than 18 inches wide and 30 inches deep.

- 26. XH/PIIPII/EEEB/SHII/BB/HX/IEB/XH/IB/IEHBB/MIAB//IM/IAAI
- 26. PIIPII/MI/PIIPII/EEEB/IE/IEHBB/IE/IEHBB/MI/PIIPII/PIIPII/PIIPII
- 27. PIIPII/MI/PIIPII/EEEB/IE/IEHBB/IE/IEHBB/MI/PIIPII/PIIPII/PIIPII
- 28. XH/XB/PIIPII/MI/PIIPII/PIIPII/PIIPII/PIIPII/PIIPII/PIIPII/PIIPII
- 29. BB/HX/IEB/XH/IB/IEHBB/MIAB/SHII/HX/IEB/XH/IB/IEHBB/MIAB/EEEB/

FINAL PROPOSED G.O. 95 RULE (*)

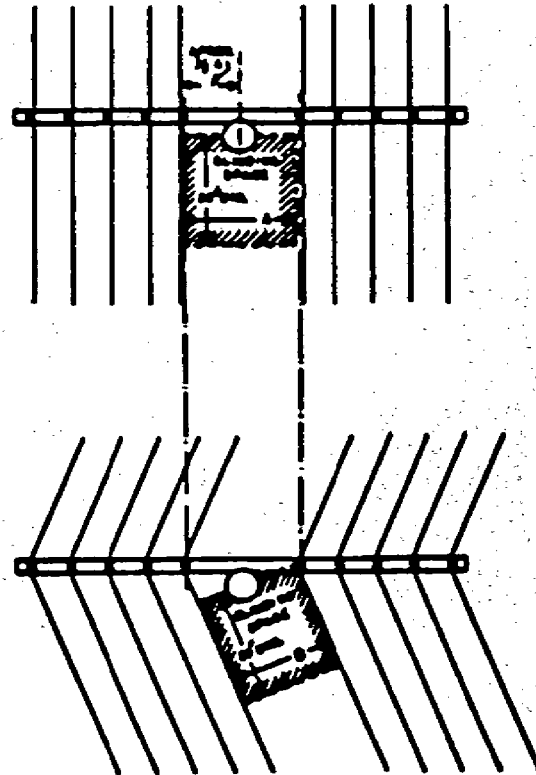
CLIMBING SPACE

RULE 84.7-A (PAGE 230)

1. A. WHERE LINE ARMS ONLY ARE INVOLVED (See Fig. 84-4)
2. The climbing space through the levels of conductors supported on line
3. arms only shall be located so that the center line of the pole is
4. approximately midway on the side of the climbing space and parallel
5. to the crossarms. The horizontal dimensions of the climbing spaces,
6. with widths measured perpendicularly to the conductors, and with
7. depths measured from the center line of the pole and parallel to the
8. conductors, shall not be less than those specified in Rule 84.7-A1
9. and 84.7-A2.
10. EXCEPTION: At angles in lines with widths of 18 and 30 inches may
11. be reduced to not less than 16 1/2 and 27 1/2 inches respectively,
12. provided the horizontal separation of pole-pin conductors measured
13. parallel to the crossarm shall not be less than 18 and 30 inches
14. respectively.
15. (1) On Poles Which Support Communication Conductors Only: The
16. climbing space for communication conductors shall not be less than 18
17. inches wide and 30 inches deep.

CLIMBING SPACE

COMMUNICATION CONDUCTORS ON LINEARMS
RULE 84.4-D5 AND
RULE 84.7-A



A = 30" MIN. OR 18" MIN.
B = 27 1/2" MIN. OR 16 1/2" MIN.

FIGURE 84-4

EXISTING G.O. 95 RULE
(LINE BY LINE)

CABLES AND MESSENGERS

RULE 87.4-G3 (PAGE 248)

1. (3) Attached to Poles: On poles which carry no supply conductors
2. and no crossarms, communication cables or messengers attached to the
3. sides of poles may be placed in any position within 3 feet of the top
4. of the pole provided metal-sheathed cables or messengers are
5. separated from open wire conductors in this section of the pole by a
6. vertical distance of not less than 12 inches.
7. On poles which carry no supply conductors (except supply service drop
8. clearance attachments), and which support communication conductors on
9. crossarms, messengers and cables may be attached to surface of pole
10. between crossarms or less than 2 feet below the conductors on the
11. lowest crossarms, provided such messengers or cables are placed on
12. one side of pole only and any conductor on the opposite side of the
13. pole, less than 36 inches vertically from such messenger and cable,
14. shall be not less than 24 inches (if an exchange conductor), or not
15. less than 18 inches (if a toll conductor) horizontally from such
16. messenger or cable (see App. G, Fig. 85).
17. On poles which carry no supply conductors (except supply service drop
18. clearance attachments), and which support communication conductors on
19. crossarms, messengers and cables may be attached directly to opposite
20. sides of pole provided such attachments are not less than 2 feet
21. below the lowest level of communication conductors supported on a

22. crossarm and provided that the vertical separation between such
23. messengers or cables and open wire conductors in the same
24. configuration shall be not less than 12 inches.
25. Cables or messengers where attached to the surface of poles which
26. support supply conductors, shall be not less than 6 feet vertically
27. below the level of supply conductors, except that this minimum
28. clearance of 6 feet may be reduced to not less than 4 feet below
29. supply conductors of 0-750 volts provided a guard arm is placed above
30. the messenger and cable (or self-supporting cable) in accordance with
31. the provision of Rule 87.7-B (see Rule 20.9-D for guard arm
32. definition). No cable or messenger, where attached to surface of
33. such a pole, shall be less than 2 feet below the lowest level of
34. communication conductors on crossarms unless a horizontal separation
35. of not less than 30 inches is maintained between the messenger of
36. cable and the communication conductors on the opposite side of pole.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

CABLES AND MESSENGERS

RULE 87.4-C3 (PAGE 248)

1. (3) Attached to Poles: On poles which carry no supply conductors
2. and no crossarms, communication cables or messengers may be attached
3. to the sides of poles ~~may be placed~~ in any position within 3 feet
4. of the top of the pole provided metal-sheathed cables or messengers
5. are separated from open wire conductors in this section of the pole
6. by a vertical distance of not less than 12 inches.
7. On poles ~~where~~ where communication conductors are supported
8. on crossarms and no supply conductors (except supply service drop
9. clearance attachments) are attached and ~~may be supported~~
10. ~~the provisions of Rule~~ apply the provisions of Rule
11. 84.4-D1 messengers and cables may be attached to ~~the~~
12. ~~the~~ between crossarms or poles and ~~the~~ between
13. crossarms provided such messengers or cables are placed on
14. the side of pole and may be supported on the opposite side of the
15. pole between poles and ~~the~~ between
16. cables between poles and ~~the~~ between ~~the~~ between
17. or poles between poles and ~~the~~ between ~~the~~ between
18. such messengers or cables are ~~to be~~ to be ~~to be~~ to be and Fig. 84-2.
19. ~~On poles where~~ where communication conductors are supported
20. on crossarms and no supply conductors (except supply service drop
21. clearance attachments) are attached and ~~may be supported~~
22. ~~the provisions of Rule~~ apply the provisions of Rule

23. ~~shall be~~ attached to the surface of poles which
24. support supply conductors, shall not be less than 6 feet
25. vertically below the level of supply conductors/. ~~Exception~~
26. ~~shall be~~ attached to the surface of such a pole//
27. less than 2 feet below the lowest level of communication conductors

28. Cables or messengers ~~shall be~~ attached to the surface of poles which
29. support supply conductors, shall not be less than 6 feet
30. vertically below the level of supply conductors/. ~~Exception~~
31. **EXCEPTION:** This minimum clearance of 6 feet may be reduced to
32. not less than 4 feet below supply conductors of 0-750 volts provided
33. a guard arm is placed above the messenger and cable (or self-
34. supporting cable) in accordance with the provision of Rule 87.7-B
35. (see Rule 20.9-D for guard arm definition). No cable or messenger/
36. shall be ~~shall be~~ attached to the surface of such a pole//
37. less than 2 feet below the lowest level of communication conductors
38. on crossarms unless a minimum horizontal separation of ~~not less~~
39. than 30 inches is maintained between the messenger or cable and the
40. communication conductors on the opposite side of pole.

FINAL PROPOSED G.O. 95 RULE (*)

CABLES AND MESSENGERS

RULE 87.4-C3 (PAGE 248)

1. (3) Attached to Poles: On poles which carry no supply conductors or
2. crossarms, communication cables or messengers may be attached to the
3. sides of poles in any position within 3 feet of the top of the pole
4. provided metal-sheathed cables or messengers are separated from open
5. wire conductors in this section of the pole by a vertical distance of
6. not less than 12 inches.
7. On poles where communication conductors are supported on crossarms
8. and no supply conductors (except supply service drop clearance
9. attachments) are attached, apply the provisions of Rule 84.4-D1 and
10. Fig. 84-2.
11. Cables or messengers where attached to the surface of poles which
12. support supply conductors, shall not be less than 6 feet vertically
13. below the level of supply conductors.
14. EXCEPTION: This minimum clearance of 6 feet may be reduced to not
15. less than 4 feet below supply conductors of 0-750 volts provided a
16. guard arm is placed above the messenger and cable (or self-supporting
17. cable) in accordance with the provision of Rule 87.7-B (see Rule
18. 20.9-D for guard arm definition). No cable or messenger, shall be
19. attached to the surface of such a pole less than 2 feet below the
20. lowest level of communication conductors on crossarms unless a
21. minimum horizontal separation of 30 inches is maintained between the
22. messenger or cable and the communication conductors on the opposite
23. side of pole.

ITEM 11

General Order No. 95

. Rule 86.9

RATIONALE FOR CHANGE TO G.O. 95 RULE

RULE 86.9 - GUY MARKER (GUY GUARD)

This proposed rule change uses the term guy marker rather than guy guard to properly clarify its purpose. The present title "Protection" and reference to "guard" in the rule has led to misinterpretations that the markers protect the public from hitting the marker or protect the guy in case of collision.

The 1987 National Electrical Safety Code (rule 282E page 296) has an equivalent section which is entitled "Guy Markers (Guy Guards). This title correctly identifies the intent of the rule. The parenthetical "Guy Guards" was left in place to show that this commonly used term actually refers to guy markers.

References to wood markers (guards) were removed since this type of marker is not commonly used in new plant construction. "Suitable material" provides for the use of materials developed in today's technology. Metal and plastic markers are the common types in use today.

The exception for 1 1/4 inch anchor rods was deleted.

EXISTING G.O. 95 RULE

RULE

86.9 (PAGE 247)

1. 86.9 PROTECTION
2. A substantial wood guard (preferably painted white), or metal guard,
3. or a plastic guard of suitable materials, not less than 8 feet in
4. length, shall be securely attached to each anchor guy which is exposed
5. to traffic. Such a guard will not be required where the anchor rod is 1
6. 1/4 inches or greater in diameter, has an overall length above ground
7. of not less than 8 feet and extends to a height of not less than 6 feet
8. vertically above ground.

PROPOSED CHANGE TO G.O. 95 RULE
(STRIKE OUT AND UNDERLINE)

RULE

86.9 (PAGE 247)

1. 86.9 PROTECTION GUY MARKER (GUY GUARD)
2. A substantial wood/guard/~~preferably/painted/white/~~/~~or/~~~~del/~~guard/
3. ~~or/a/plastic/guard/of/suitable/materials/~~ marker of suitable
4. material, including but not limited to metal or plastic, not less than
5. 8 feet in length, shall be securely attached to each an anchor guy
6. which is exposed to traffic. ~~Such/a/guard/~~~~will/not/be/required/where/~~
7. ~~the/anchor/is/1/1/4/inches/or/greater/in/diameter/has/an/overall~~
8. ~~length/above/ground/of/not/less/than/8/feet/and/extends/6/a/height~~
9. ~~of/not/less/than/6/feet/vertically/above/ground/~~

FINAL PROPOSED G.O. 95 RULE (*)

RULE

86.9 (PAGE 247)

1. 56.9 & 86.9 GUY MARKER (GUY GUARD)
2. A substantial marker of suitable material, including but not limited
3. to metal or plastic, not less than 8 feet in length, shall be securely
4. attached to an anchor guy exposed to traffic.