Decision **PROPOSED DECISION OF COMMISSIONER CHONG**
(Mailed 8/15/2008)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Establish Uniform Construction Standards for Pole-Top Antennas.	Rulemaking 07-12-001 (Filed December 6, 2007)

DECISION ADOPTING UNIFORM CONSTRUCTION STANDARDS FOR POLE-TOP ANTENNAS

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1. Summary

This Decision adopts the uncontested proposal to revise General Order (GO) 95 that was jointly submitted by Pacific Bell Telephone Company d/b/a AT&T – California, AT&T Mobility, California Cable & Telecommunications Association, the Commission's Consumer Protection and Safety Division, Crown Castle USA, ExteNet Systems, the International Brotherhood of Electric Workers (IBEW) 47, IBEW 1245, NewPath Networks, NextG Networks, PacifiCorp, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, Sprint-Nextel, Time Warner Cable, T-Mobile, Verizon California, Inc. d/b/a/ Verizon – California, and Verizon Wireless. The adopted revisions to GO 95 establish uniform construction standards for wireless antennas installed on utility poles above or between power lines operating at zero to 50,000 volts.[1] The purpose of the adopted revisions is to facilitate the expansion of California's wireless infrastructure in a way that protects the safety of workers and the public, minimizes costs and potential environmental impacts, and maintains the reliability of equipment and facilities attached to poles by electric utilities and telecommunications providers.

The safe expansion of California's wireless infrastructure provides significant public benefits. Consumers today are increasingly relying on wireless services—sometimes in lieu of wireline telephone service. Installation of pole-top wireless antennas will meet this growing demand; enhance reliability of service; provide services to areas that presently lack wireless (or, in some cases,

[1] Such wireless antenna installations are referred to herein as "pole-top antennas."

wireline) services; and promote the deployment of broadband services. Finally, expanding wireless infrastructure will strengthen the public safety network by enhancing the ability of public-safety agencies to receive the public's calls during emergencies and communicate critical safety information among first responders.

2. Background

General Order (GO) 95 governs the construction of overhead electric power lines (also referred to as "supply lines" and "supply conductors") and communications lines (also referred to as "communications conductors").

In Decision (D.) 07-02-030, the Commission amended GO 95 to include standards for wireless antennas installed on joint-use poles below supply lines.[2] Explicitly excluded from the scope of D.07-02-030 were "pole-top antennas," which are wireless antennas attached to utility poles at a point between or above supply lines.[3]

In July 2007, the GO 95/128 Rules Committee (Rules Committee)[4] filed Petition (P.) 07-07-020 to initiate a rulemaking proceeding for the purpose of amending GO 95 to include construction standards for pole-top antennas

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[2] "Joint-use poles" refers to poles that are occupied by circuits with different ownership or different types of circuits with the same ownership. For example, a joint-use pole could be occupied by electric wires owned by an electric utility, telecommunications circuits owned by a telephone company, and cable circuits owned by a cable service provider. (See GO 95, Rule 21.8.)

[3] D.07-02-030, pp. 9-10 and Appendix 1.

[4] The Rules Committee is comprised of California communications and supply professionals knowledgeable in the application of GO 95 and GO 128 who meet regularly to review, rewrite, and submit for adoption changes to GO 95 and GO 128.

installed on joint-use utility poles with supply lines operating at zero to 50,000 volts. Attached to the Petition were proposed revisions to GO 95.

Although the proposed revisions represented a "consensus" of the Rules Committee, the petition noted that the committee did not reach full and complete agreement on the rules pertaining to vertical clearances.

The Commission's Consumer Protection and Safety Division (CPSD) filed a response to the Petition in which CPSD expressed concerns about some of the proposed standards. CPSD was particularly concerned that the standards did not require sufficient insulation on antenna cables that pass by supply lines.

In response to the Petition, the Commission issued Order Instituting Rulemaking (OIR) 07-12-001 to consider the proposed revisions to GO 95 attached to the Petition as well as CPSD's response, and whether the proposed changes adequately address safety measures and system reliability for pole-top antenna installations.

Opening comments were filed on January 14, 2008, by ExteNet and NewPath (jointly), Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and the Wireless Parties. Reply comments were filed on February 15, 2008 by AT&T - California, the California Municipal Utility Association (CMUA), CPSD, PacifiCorp, PG&E, SCE, and SDG&E.

A Prehearing Conference (PHC) was held on March 5, 2008, and a Scoping Memo and Ruling of the Assigned Commissioner (Scoping Memo) was issued on March 21, 2008. The Scoping Memo limited the scope of the instant proceeding to the proposed revisions to GO 95 attached to the OIR. Antenna installations on towers (defined in GO 95, Rule 22.1-C) were excluded from the proceeding. The

Scoping Memo emphasized that any construction standards adopted in this proceeding must protect the safety of utility workers and the public.

The Scoping Memo identified two major disputes among the parties. One dispute concerned the minimum vertical clearances between pole-top antennas and supply lines. The electric utilities supported the vertical clearances proposed in the OIR, while parties representing various wireless interests believed the proposed vertical clearances could be reduced safely. The second dispute concerned the amount of insulation on antenna cables that pass by supply lines. To resolve these disputes, the Scoping Memo directed the parties to convene a series of technical conferences.

The parties held a two-day technical conference in San Francisco, a one-day technical conference in San Diego, and an additional one-day technical conference in San Francisco to discuss the proposed revisions to GO 95 appended to the OIR and to resolve disputes regarding the proposed revisions. The parties participating in the technical conferences were AT&T – California, AT&T Mobility, the California Cable & Telecommunications Association (CCTA), CMUA, City of Anaheim, CPSD, Crown Castle USA, ExteNet Systems, the International Brotherhood of Electrical Workers (IBEW) 47, IBEW 1245, the Northern California Power Agency, NewPath Networks, NextG Networks, PacifiCorp, PG&E, SDG&E, SCE, Sprint-Nextel, Time Warner Cable, T-Mobile, Verizon Wireless, and Verizon - California.

On May 16, 2008, SCE filed the Technical Conference Report (TCR) on behalf of the technical-conference participants that (1) describes the agreement on construction standards for pole-top antennas that was reached during the

technical conferences; and (2) provides text and diagrams for revising GO 95 to incorporate the construction standards.[5] Opening comments regarding the TCR were filed on May 27, 2008, by CCTA, the Joint Municipal Parties, PacifiCorp, PG&E, SCE, SDG&E, and the Wireless Parties.[6] Reply comments were filed on June 6, 2008, by AT&T California, PG&E, SCE, SDG&E, and the Wireless Parties.

3. Agreement Reached at the Technical Conferences

The technical-conference participants agreed that most of the proposed revisions to GO 95 were non-controversial and should be adopted. They also agreed to several editorial and minor technical changes to GO 95 that were not included in the OIR. The primary dispute concerned the vertical clearance between supply lines and antennas located above supply lines.

After careful review and much discussion during the technical conferences, the parties agreed that a 6-foot vertical clearance between antennas (including associated elements) and supply lines energized at 750 to 35,000 volts is an appropriate and safe minimum standard. The parties also agreed to keep the proposed vertical clearance of 10 feet for supply lines energized at 35,000 to 50,000 volts.

The other major dispute was CPSD's concern that antenna cables passing by supply lines have adequate insulation. After much discussion, CPSD agreed with the other technical-conference participants that the proposed revisions to GO 95 require adequate insulation.

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[5] See Submission of Pole-Top Antennas Workshop Report by Southern California Edison Company (U 338-E) on Behalf of Workshop Participants dated May 16, 2008.

[6] The parties that comprise the Joint Municipal Parties and the Wireless Parties are listed later in this Decision.

By the conclusion of the technical conferences, the participants were able to agree on a set of proposed revisions to GO 95. A copy of the TCR is contained in Appendix A of this Decision. The agreed-upon revisions to GO 95 are basic construction standards. As stated in existing Rule 13 of GO 95 (Scope of Rules), "These rules are not intended as complete construction specifications, but embody only the requirements which are most important from the standpoint of safety and service. Construction shall be according to accepted good practice for the given local conditions in all particulars not specified in the rules."

The TCR's proposed revisions to GO 95 are summarized below.

Rule 91.3-B (Stepping)

The TCR proposes to amend Rule 91.3-B to include an "exception" to clarify that steps are not required on a utility pole above the uppermost Class C electric supply circuit when an antenna is affixed above supply lines.

Rule 92.1-F(2) (Vertical Clearances)

The TCR proposes to delete outdated text from Rule 92.1-F(2) and to add a reference that notes the vertical clearances between antennas and supply or communication lines are in Rule 94.4 and Rule 38, Table 2, Case 21.

Rule 94 (Antennas)

The TCR proposes several revisions to Rule 94 (Antennas). First, the TCR proposes to amend Rule 94.3 (General Requirements) to differentiate "associated elements of the antenna" (e.g., associated cables, messengers) from "support elements" (e.g., arms, braces, brackets, hardware) and pole-top extensions and require that support elements and pole-top extensions satisfy the same strength and safety requirements contained in Section IV of GO 95.

Second, the TCR proposes to revise Rule 94.4 (Clearances) to specify the minimum horizontal and vertical clearances for antennas placed above, between,

or below communications and/or supply lines. The vertical clearances required by proposed Rule 94.4-C are contained in Rule 38, Table 2, Case 21.

Third, the TCR adds Rule 94.6 (Climbing Space) to clarify how the climbing space requirements in existing Rules 54.7 and 84.7 apply to pole-top antennas. Similarly, the TCR adds Rule 94.7 (Stepping) to note that steps for antenna installations must adhere to the requirements in Rule 91.3.

Fourth, the TCR adds Rule 94.8 (Risers and Vertical Runs). This proposed Rule requires, among other things, that risers and vertical runs be suitably covered, installed outside the climbing space, and be constructed and maintained in accordance with specified subsections in Rule 54.6-D.

Finally, the TCR proposes to replace four existing diagrams with one new diagram labeled Figure 94.1. The new diagram illustrates in one place all of the vertical and horizontal clearances mandated by the revised Rule 94.

Rule 38, Table 2, Case 21

The TCR proposes to add a new Case 21 to Rule 38, Table 2. Rule 38, Table 2 specifies minimum clearances of wires from other wires. The proposed Case 21 specifies the minimum vertical clearance above supply lines and communication lines and below pole-top antennas and associated elements. For supply lines operating in the range of 0 to 750 volts (column D) the minimum vertical clearance is 48 inches (4 feet). For supply lines in the range of 750 to 35,000 volts (columns E, F, and G) the minimum clearance is 72 inches (6 feet). For supply lines in the range of 35,000 to 50,000 volts (column H) the minimum clearance is 120 inches (10 feet). The proposed rules do not address pole-top antennas placed above supply lines operating at more than 50,000 volts. Case 21 was added to provide a single point of reference for determining minimum vertical clearances for pole-top antennas.

4. Comments of Parties on the Technical Conference Report

4.1. SCE

SCE supports the proposed revisions to GO 95 contained in the TCR. SCE believes the proposed construction standards for pole-top antennas will protect workers, the public, and the reliability of the electric supply system.

SCE emphasizes that the new rules are untested, individual antenna installations are not standard in nature, and supply lines have a variety of construction methods and arrangements. As a result, SCE anticipates it will need to develop and enforce internal standards as a supplement to the new rules to help ensure that all antenna installations are constructed and maintained in a safe manner and do not affect electric system reliability.

SCE recommends one correction to proposed Rule 92.1-F(2). As shown below, the correction consists of inserting the term "Rule 38" in the fourth line:

92.1 Vertical Clearances

F. Between Conductors, Cables, Messengers and Miscellaneous Equipment)

(2) Cable Terminals or Metal Boxes: On jointly used poles, all parts of metal communication cable terminals, metal boxes or similar equipment shall maintain vertical clearances from conductors not less than those specified in **Rule 38**, Table 2, Col. C, Cases 8 to 13 inclusive.

SCE also proposes several revisions to Rule 94.5 (Marking) that were not addressed in the OIR, Scoping Memo, technical conferences, or TCR. Currently, Appendix H of Rule 94.5 consists of the entire Settlement Agreement adopted by D.07-02-030. SCE recommends that the Commission amend Rule 94.5 to exclude parts of the Settlement Agreement (e.g., the recitals and the signature page) that, in SCE's opinion, are not useful for understanding or implementing GO 95.

4.2. CCTA and AT&T California

CCTA and AT&T California support the proposed revisions to GO 95. They agree the proposed rules will protect the safety of workers and the public, and ensure that pole-top antennas do not compromise the reliability of electric utility, telecommunications, and cable facilities attached to joint-use poles. They also agree that the proposed rules are neutral regarding (1) the type of wireless technology utilized, and (2) the nature of the entity installing pole-top antennas. They state that such neutrality will encourage the deployment of wireless infrastructure.

4.3. Joint Municipal Parties

CMUA, the Northern California Power Agency, and the City of Anaheim (collectively the "Joint Municipal Parties") assert that publicly owned utilities are not subject to the Commission's jurisdiction with respect to the subject matter of this proceeding. Due to jurisdictional concerns, the Joint Municipal Parties do not support or oppose the proposed revision to GO 95 contained in the TCR.

4.4. PacifiCorp, PG&E, and SDG&E

PacifiCorp, PG&E, and SDG&E support the proposed revisions to GO 95. They believe the proposed revisions will protect the safety of workers and the public, maintain the reliability of electric service, and facilitate the efficient expansion of California's wireless infrastructure. They also support SCE's proposed correction of Rule 92.1 and proposed revisions of Rule 94.5.

The most contentious issue resolved by the TCR is the vertical clearance between supply lines and pole-top antennas. PacifiCorp, PG&E, and SDG&E endorse the TCR's proposed 6-foot vertical clearance for supply lines in the range of 750 to 35,000 volts because it (1) allows electric utilities to work on supply lines using existing equipment and practices; (2) puts pole-top antennas

outside the work space of electrical workers; (3) minimizes the need to power down electric facilities and/or antenna installations in order to conduct maintenance, repairs, and construction activities; and (4) provides wireless workers with adequate space to access antennas. For the same reasons, they support proposed Rule 94.4-C, which prohibits the encroachment of antenna equipment and support elements into the 6-foot clearance zone.

To evaluate the safety of pole-top antennas, SDG&E installed a mock pole-top antenna using different vertical clearances (measured from the bottom of the antenna's support element) above supply lines. SDG&E's crew found that a 6-foot vertical clearance was acceptable and does not compromise safety and reliability, but that anything less than 6 feet would be unacceptable in terms of safety and reliability.[7]

PG&E and SDG&E intend to develop supplemental standards to ensure that each pole-top antenna is installed in a safe manner and does not compromise the reliability of the electrical system. PG&E observes that the proposed rules do not address many of the details for constructing antenna facilities, such as detailed design requirements, material specifications, worker qualifications, site safety, work procedures, scheduling and resources. Nor do the rules address patrol, inspection, and maintenance of installed antennas. In addition, emergency response procedures must be developed. PG&E concludes that pole owners and wireless companies will need to work cooperatively to develop such processes and work procedures to facilitate the initial antenna installations.

[7] SDG&E presented a video of the mock installation at the technical conferences.

PG&E also notes that taller poles resulting from pole-top antennas may cause local agencies or individuals to raise aesthetic concerns. PG&E believes these concerns can be reduced through careful siting of pole-top antennas.

SDG&E states that each proposed antenna installation will have to be assessed with respect to the unique characteristics of each site, including the local climate conditions, arrangement of supply lines and equipment already on the pole, space restrictions, pole condition, and proximity to potential hazards. Not every pole will qualify for a pole-top antenna due to these factors. As a result, SDG&E requests that the new rules be implemented nine months after the date of the decision to allow time to develop internal standards and to complete necessary training.

Finally, PG&E and SDG&E disagree with the Wireless Parties that the National Electric Safety Code (NESC) provides a useful benchmark for determining clearances in this proceeding. SDG&E asserts that because there are several fundamental differences between the NESC and GO 95, such as grounding requirements, it is inappropriate to compare isolated pieces of the two different regulatory and safety frameworks.

4.5. Wireless Parties

AT&T Mobility, Crown Castle USA Inc., NextG Networks of California Inc., T-Mobile, Sprint Nextel, Verizon Wireless, and ExteNet Systems LLC (collectively, the "Wireless Parties")[8] support the TCR. They believe the proposed revisions to GO 95 will facilitate increased deployment of wireless services in California while providing workers with safe access to joint-use poles.

[8] The Wireless Parties include wireless carriers and antenna systems suppliers.

The Wireless Parties represent that the vertical clearance between most supply circuits in California is 2 to 6 feet. They see this as convincing evidence that the TCR's proposed 6-foot vertical clearance between pole-top antennas and supply lines in the range of 750 to 35,000 volts is a safe and practicable standard. The Wireless Parties also cite the NESC, which is the electric safety code used by several other states. Although the NESC has not been adopted by California, the Wireless Parties believe it is a useful benchmark. The Wireless Parties state the NESC requires a vertical clearance of only 40 inches for most pole-top antennas, which shows the larger vertical clearances proposed in the TCR are reasonable.

The Wireless Parties express a concern that SCE's comments suggest that SCE would unilaterally impose clearances that exceed those in the proposed rule. The Wireless Parties, on the other hand, believe that a cooperative process involving all parties is required to further the goals of this rulemaking.

The Wireless Parties also oppose SCE's recommendation to delete from Rule 94.5, Appendix H, some parts of the Settlement Agreement adopted by D.07-02-030. The Wireless Parties prefer to keep all of the Settlement Agreement in Rule 94.5, as it provides context for understanding the rule. They further assert that SCE's proposal is outside the scope of this proceeding, since it was never identified as an issue in the OIR or the Scoping Memo.

5. Discussion

5.1. Adoption of the Technical Conference Report's Proposed Revisions to GO 95

The central issue in this proceeding is whether to adopt the proposed revisions to GO 95 contained in the TCR. There is no opposition to the proposed revisions. The technical purpose of the revisions is to establish basic construction standards for pole-top antennas. The larger public-policy purpose is to facilitate

the expansion of the State's wireless infrastructure in a manner that protects workers and the public.

The TCR is a joint recommendation by the active parties for resolving all issues in the Scoping Memo. Therefore, we will treat the TCR as a settlement agreement that is subject to Rule 12.1 of the Commission's Rules of Practice and Procedure. Rule 12.1 requires every adopted settlement to be reasonable in light of the whole record, consistent with the law, and in the public interest. For the reasons set forth below, we conclude that the TCR satisfies these criteria and should be adopted.

5.1.1. The Proposed Revisions Are Reasonable in Light of the Record

The record of this proceeding shows that the proposed rules contained in the TCR for constructing pole-top antennas are supported by parties representing the affected interests; will advance the Commission's goal of expanding the State's wireless infrastructure; will protect the safety of workers and the public; and allow pole-top antennas to be installed in a manner that is compatible with facilities attached to joint-use poles by electric utilities, telecommunications providers, and cable service providers. These factors together demonstrate the TCR is reasonable in light of the record.

5.1.1.1. The Proposed Revisions Are Supported by Affected Interests

In deciding whether a settlement agreement is reasonable in light of the record, the Commission considers the extent to which the settlement is supported by parties representing the affected interests. The TCR meets this objective because it is the result of a collaborative process involving the GO 95/128 Rules Committee, electric utilities, telecommunications providers, cable service providers, wireless carriers, distributed antenna systems (DAS)

providers, electrical workers, and CPSD. All the affected interests who filed comments on the TCR support the proposed revisions to GO 95 contained therein.[9]

5.1.1.2. The Proposed Revisions Will Facilitate the Expansion of the State's Wireless Infrastructure

One of the primary goals of this proceeding is to adopt standards for constructing pole-top antennas that facilitate the expansion of the State's wireless infrastructure. The TCR achieves this goal in several ways. First, the TCR enables the installation of wireless antennas on joint-use poles that would otherwise be inaccessible due to congestion from electric, telephone, and cable facilities.

Second, it is usually much cheaper to install wireless antennas on existing joint-use poles than to erect new poles devoted exclusively to antenna installations, particularly in dense urban areas. The use of existing utility poles also has fewer potential environmental impacts compared to erecting new poles.

Third, placing wireless antennas at the top of joint-use poles enables the antennas to take full advantage of the pole's height. The increased height improves the range and coverage of the wireless signal, which reduces the number of antennas needed to serve a given area. Reducing the number of antennas lowers the cost of expanding the wireless infrastructure and lessens the potential environmental impacts.

Finally, the TCR does not mandate any particular antenna technology or design, and does not limit who can install antennas. Thus, the TCR can accommodate future developments in wireless technology and market structure.

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[9] The Joint Municipal Parties take no position.

Such an approach is conducive to investment in the wireless infrastructure by current and future wireless carriers and DAS providers.

5.1.1.3. The Proposed Revisions Will Protect the Safety of Workers and the Public

The safety of workers and the public is of paramount importance. We will not adopt any construction standards for pole-top antennas unless we are confident the standards are safe.

To achieve this overriding objective, the proposed revisions to GO 95 were carefully reviewed by the GO 95/128 Rules Committee and the participants at the technical conferences. The reviewers included utility engineers, Commission staff, electrical workers, and other professionals knowledgeable about the structural characteristics of utility poles and the installation, maintenance, and repair of equipment attached to joint-use utility poles. These professionals agree that the proposed revisions to GO 95 are safe.[10]

SDG&E conducted an independent safety analysis by installing a mock pole-top antenna and found the proposed revisions to GO 95 provide a safe working environment. In addition, the Wireless Parties and others provided extensive information during the technical conferences that shows the proposed revisions to GO 95 will protect the safety of workers and the public. No one provided any information that the proposed revisions are unsafe.

Finally, placing pole-top antennas at least 6 feet above supply lines energized between 750 and 35,000 volts and 10 feet above supply lines energized between 35,000 and 50,000 volts protects worker safety by moving antennas outside the space where utility workers operate.

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[10] See, CCTA Comments, p. 3; SCE Comments, p. 10; and SDG&E Comments, p. 12.

5.1.1.4. The Proposed Revisions Are Compatible with Other Equipment and Facilities

The TCR's proposed construction standards are designed to allow pole-top antennas to be installed in way that is compatible with other equipment and facilities attached to joint-use poles, including supply lines, telephone wires, and cable wires. The proposed vertical clearances between pole-top antennas and supply lines are one manifestation of this effort. The fact that the TCR is supported by electric utilities, telephone companies, and cable service providers demonstrates that pole-top antennas will be compatible with other equipment and facilities.

5.1.2. The Proposed Revisions Are Consistent with the Law

As the Commission stated in D.07-02-030, the Public Utilities Code establishes that safety issues may be subject to Commission regulation. According to Pub. Util. Code § 451, "[e]very public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities … as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public." The Commission is obligated by § 2101 to see that such statutory provisions affecting public utilities are enforced and obeyed. § 761 directs the Commission to promulgate rules for utilities when safety so requires.

No party alleges that the TCR is contrary to any state or federal statute, or inconsistent with any Commission decision, general order, rule, or regulation. To the contrary, the technical-conference participants endeavored to ensure the proposed revisions to GO 95 in the TCR are consistent with the rest of GO 95 and comply with all applicable laws and regulations. For these reasons, and based on our own review of the TCR, we conclude that the TCR is consistent with the law.

5.1.3. The Proposed Revisions Are in the Public Interest

Wireless communications are an increasingly essential service to consumers. A growing number of households have dropped landline service altogether and rely exclusively on cell phones because of their convenience, flexibility, and mobility. A recent survey of the levels of subscription to wireless services indicates that 15.8% of American homes relied only on wireless service (and have cut the cord to their wireline service) during the second half of 2007.[11] As the Commission recognized in D.07-12-054, the number of California "landline telephones decreased by 2.39 million from end-of-year 2001 to June 2006, while the number of wireless subscribers in California increased by 13.34 million to 27.52 million."[12]

Moreover, wireless service offers a valuable and alternative means for individuals to access emergency services, particularly when outside the home. National statistics show significant use of the wireless network for emergency calls. According to the Federal Communications Commission's website, the number of 911 calls from wireless users nationally "has more than doubled since

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[11] Wireless *Substitution, Early Estimates from National Health Interview Survey July – December 2007*, Center for Disease Control (June 2008). Further, that same survey found that 13.1% of American homes communicated mostly on their wireless phones despite having a wireline phone.

[12] D.07-12-054, at 3, citing Local Telephone Competition: Status as of June 30, 2006, Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, January 2007, downloaded from http://fjallfoss.fcc.gov/edocs_public/attachmatch/DOC-270133A1.pdf, Tables 9 (CLEC Lines), 10 (ILEC lines), and 14 (wireless). This reflects a national trend in which the number of wired telephone lines have been dropping by 3% to 5%. See Federal Communications Commission Trends in Telephone Service at Table 7.4, rel. Feb. 9, 2007. Further, as of the end of 2006, approximately 77% of Americans are wireless subscribers. CTIA's Wireless Industry Indices: 1985 – 2006.

1995, to over 50 million a year," and "[p]ublic safety personnel estimate that about 30 percent of the millions of 911 calls they receive daily are placed from wireless phones, and that percentage is growing."[13] The percentage of 911 calls that are made over the wireless network is even larger in California; last year, wireless users made 11.6 million calls to 911—or 50% of the total 911 calls made in California.[14] Therefore, a robust and expanded wireless network strengthens our public safety network.

Because Californians increasingly rely exclusively on their wireless phones, local agencies and municipalities are developing emergency alert systems that provide alerts to individuals' wireless phones. Moreover, a strong wireless network further enhances the ability of public-safety agencies to receive the public's calls during emergencies; to coordinate the delivery of emergency services; and to communicate critical safety information among first responders.

Finally, a robust wireless network will further aid in the development and growth of California's economy. The TCR will facilitate the expansion of the State's wireless infrastructure by opening up new locations for wireless antennas. The new locations can be used to fill gaps in coverage, meet growing demand, and extend service to regions that presently lack service. The expanded wireless infrastructure may also be used to provide increasingly important broadband services. As we recognized in our decision establishing the California Advanced Services Fund, "[b]roadband deployment will be a key measure of success in our information economy and is crucial to future

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[13] See http://www.fcc.gov/cgb/consumerfacts/wireless911srvc.html.

[14] *See* http://www.documents.dgs.ca.gov/td/911/CALNENA%202008%20WirelessE911Deployments.ppt#286,5,Wireless Caller Background.

productivity growth of the State."[15] In that decision, the Commission recognized that wireless networks should be considered as one of the means for ensuring deployment of broadband throughout the state, particularly in unserved and underserved areas.[16]

The Commission has long supported the expansion of California's wireless infrastructure because of these significant public benefits. For the reasons described previously, the TCR will facilitate the expansion of the State's wireless infrastructure—and the vital public benefits it provides—which makes it in the public interest to adopt the TCR.

5.1.4. Adoption of the Proposed Revisions

For the preceding reasons, we conclude that the proposed revisions to GO 95 contained in the TCR are reasonable in light of the whole record, consistent with the law, and in the public interest. Therefore, we hereby adopt the revisions.

5.2. SCE's Additional Proposed Revisions to GO 95

SCE proposed two revisions to GO 95 that were not included in the OIR, the Scoping Memo, or the TCR. We address SCE's proposals below.

5.2.1. Correction of Rule 92.1-F(2)

SCE recommends one correction to Rule 92.1-F(2). The correction consists of adding "Rule 38" in the fourth line of the first paragraph:

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[15] D.07-12-054, at 4.

[16] D.07-12-054, at 34-35. The PEW/Internet Home Broadband Adoption Report 2008 states that one-third of all Americans have accessed broadband services over WiFi connections, away from home and work.

92.1 Vertical Clearances

F. Between Conductors, Cables, Messengers and Miscellaneous Equipment)

(2) Cable Terminals or Metal Boxes: On jointly used poles, all parts of metal communication cable terminals, metal boxes or similar equipment shall maintain vertical clearances from conductors not less than those specified in **Rule 38**, Table 2, Col. C, Cases 8 to 13 inclusive.

There is no opposition to the proposed correction. We will adopt the correction because it adds the cross-reference "Rule 38" that was clearly intended by the parties but inadvertently omitted. Failure to make the correction would cause Rule 92.1-F(2) to be incomplete and confusing.

5.2.2. Proposed Revisions to Rule 94.5

Rule 94.5, Appendix H (Marking) contains the entire Settlement Agreement adopted by the Commission in D.07-02-030. SCE recommends that the Commission amend Rule 94.5 to exclude the seemingly extraneous parts of the Settlement Agreement, such as the recitals and the signature page.

PacifiCorp, PG&E, and SDG&E support SCE's recommendation. The Wireless Parties oppose it.

We decline to adopt SCE's proposal at this time. We agree with the Wireless Parties that SCE's proposal is outside the scope of this proceeding because it was not mentioned in the OIR or the Scoping Memo. Moreover, because the entire Settlement Agreement was appended to GO 95 pursuant to Ordering Paragraph 3 of D.07-02-030, SCE's proposal to delete parts of the Settlement Agreement from GO 95 would, in effect, modify D.07-02-030. The Commission is required by Pub. Util. Code § 1708 to provide notice prior to modifying its decisions. The first time SCE raised this issue was in its comments on the TCR, which was too late to satisfy the notice requirements of § 1708.

If SCE wishes to pursue this matter further, SCE should have its proposed revisions to Rule 94.5 reviewed by the GO 95/128 Rules Committee and then file a petition to modify D.07-02-030 and GO 95.

5.3. Implementation of the Adopted Revisions to GO 95

5.3.1. Timeframe

PG&E, SCE, and SDG&E assert they will need to develop supplemental standards and procedures to (1) process and evaluate requests for pole-top antenna installations, (2) maintain and repair supply lines that share utility poles with pole-top antennas, and (3) perform emergency repairs and replacements of utility poles with antenna installations. SDG&E requests nine months (270 days) to implement supplemental standards and procedures. In their comments on the proposed decision, PacifiCorp, PG&E, and SCE support a 270-day implementation period. There is no opposition.

In D.07-02-030 the Commission provided 180 days to implement new construction standards for antennas installed below supply lines. The Commission noted that the new standards "will require utilities to change their company standards, communicate the changes to field personnel, and conduct varying degrees of training prior to full implementation of the rule."[17] The utilities identify similar needs with respect to the standards adopted by today's Decision, except that more time will be needed because, unlike the case of D.07-02-030, the utilities have little or no experience with pole-top antennas. We conclude that the utilities' unopposed request for 270 days to implement the adopted revisions to GO 95 is reasonable, and we herby grant it.

[17] D.07-02-030, at 23.

After the adopted revisions to GO 95 are implemented, utilities shall process requests to install pole-top antennas in a timely manner and in good faith. It is expected that the amount of time and effort needed to process requests may vary depending on the complexity of a request, the number of poles involved, and other relevant factors.

5.3.2. Internal Standards for Specific Antenna Installations

We recognize that actual utility poles and individual antenna installations may have unique characteristics, as pointed out by PG&E, SCE, and SDG&E. Therefore, an electric utility may want to establish internal standards in addition to the rules contained in GO 95. Such internal standards would go beyond the scope of this proceeding. However, we emphasize that pole owners and antenna owners should work cooperatively in the case of specific antenna installations, as stressed by PG&E and the Wireless Parties. We are encouraged by the manner in which parties worked together in this proceeding and urge parties to continue this working relationship into the future.

5.3.3. Publication

CPSD is directed to revise GO 95 to conform to today's Decision and to post the revised general order on the Commission's website within 45 days from the effective date of today's Decision.

6. Categorization and Need for Hearings

In OIR 07-12-001, the Commission preliminarily determined pursuant to Rule 7.1(d) of its Rules of Practice and Procedure that the category of this proceeding is quasi-legislative and that hearings were needed. These determinations were affirmed by Scoping Memo.

Ultimately, hearings were not held because (1) all issues were addressed through the technical conferences, the TCR, and written comments; and (2) no

party requested a hearing. Therefore, we hereby alter the prior determinations on the need for hearing. We now find that hearings are not needed.

7. Comments on the Proposed Decision

The proposed decision of the assigned Commissioner was issued for comment pursuant to Pub. Util. Code § 311 and Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on September 4, 2008, by PacifiCorp, PG&E, SCE, and SDG&E. There were no reply comments. These comments have been reflected, as appropriate, in the final Decision adopted by the Commission.

8. Assignment of the Proceeding

Rachelle B. Chong is the assigned Commissioner for Rulemaking 07-12-001 and Timothy Kenney is the assigned Administrative Law Judge.

Findings of Fact

1. The TCR contains a proposal by the active parties in this proceeding to revise GO 95 to incorporate basic construction standards for pole-top antennas on joint-use utility poles. The proposal is supported by a broad cross section of affected interests. There is no opposition to the proposal.

2. The proposed construction standards for pole-top antennas are designed to (i) protect the safety of workers and the public, and (ii) allow pole-top antennas to be installed in a manner that is compatible with equipment and facilities attached to joint-use utility poles by electric utilities, telecommunications providers, and cable service providers.

3. A strong and robust wireless infrastructure is essential to many consumers' daily lives; the state's economic growth and prosperity; and public safety and welfare. Expanding the wireless infrastructure therefore provides significant public benefits.

4. The proposed revisions to GO 95 contained in the TCR will facilitate the expansion of the State's wireless infrastructure.

5. The TCR's proposed Rule 92-1F(2) inadvertently excluded a cross reference to "Rule 38."

6. SCE's proposed revisions to Rule 94.5, Appendix H, were never identified as a matter within the scope of this proceeding. SCE did not provide notice of its proposed revisions until its written comments on the TCR.

7. The Commission preliminarily determined in the OIR that hearings were needed. This was affirmed by the Scoping Memo.

8. Hearings were not held because (i) all matters within the scope of this proceeding were addressed by the parties through the technical conferences, the TCR, and written comments on the TCR; and (ii) no party requested a hearing.

Conclusions of Law

1. It is in the public interest to expand California's wireless infrastructure.

2. The proposed revisions to GO 95 contained in the TCR should be adopted because, for the reasons set forth in the body of today's Decision, the revisions are reasonable in light of the whole record, consistent with the law, and in the public interest.

3. Proposed Rule 92.1-F(2) should be corrected to include a cross reference to "Rule 38."

4. SCE's proposal to delete parts of GO 95, Rule 94.5, Appendix H, cannot be considered at this time because (i) it is outside the scope of this proceeding, and (ii) the notice requirements of Pub. Util. Code § 1708 have not been met.

5. Affected parties should work cooperatively to resolve antenna installation issues in a way that (i) protects the safety of workers and public, and (ii) facilitates the expansion of the State's wireless infrastructure.

6. The revisions to GO 95 adopted by today's Decision should be effective 270 days after the date of today's Decision.

7. CPSD should revise GO 95 to conform to today's Decision and post the revised general order on the Commission's website within 45 days.

8. Pursuant to existing GO 95, Rule 13, the revisions to GO 95 adopted by today's Decision are not intended as complete construction specifications, but embody only the requirements that are most important from the standpoint of safety and service. Construction shall be according to accepted good practice for the given local conditions in all particulars not specified in the rules.

9. There is no need for hearings in this proceeding. The previous determination that hearings are needed should be reversed.

10. The following order should be effective immediately.

O R D E R

IT IS ORDERED that:

1. The proposed revisions to General Order (GO) 95 that are contained in the Technical Conference Report are hereby adopted, effective 270 days after the date of today's Decision. The affected provisions of GO 95, as amended by this Decision, are shown in Appendix A, Attachment C of today's Decision.

2. The Commission's Consumer Protection and Safety Division shall revise GO 95 to conform to this Decision and post the revised general order on the Commission's website within 45 days from the effective date of today's Decision.

3. Hearings are not needed.

4. Rulemaking 07-12-001 is closed.

This order is effective today.

Dated _____, at San Francisco, California.

Appendix A

Technical Conference Report

SUBMISSION OF POLE-TOP ANTENNAS WORKSHOP REPORT BY SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON BEHALF OF WORKSHOP PARTICIPANTS

Pursuant to the Scoping Memo and Ruling of the Assigned Commissioner filed March 21, 2008 ("Scoping Memo"), Southern California Edison Company ("SCE"), on behalf of the workshop participants,[1] submits this Workshop Report on the Pole-Top Antennas workshops held April 3 & 4, 2008 in San Francisco, April 16, 2008 in San Diego, and May 01, 2008 in San Francisco.[2] It is expected that Parties will comment on the Workshop Report, attached hereto as Appendix 1, pursuant to the schedule set forth in the Scoping Memo as modified by the May 2, 2008 Administrative Law Judge's Ruling Revising the Schedule for the Proceeding, with Opening Comments due May 27, 2008 and Reply Comments due June 6, 2008.

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[1] The workshop participants on whose behalf SCE files this report are: AT&T – California, AT&T Mobility, California Cable & Telecommunications Association (CCTA), California Municipal Utility Association (CMUA), City of Anaheim, Consumer Protection & Safety Division (CPSD), Crown Castle USA, ExteNet Systems, IBEW 47, IBEW 1245, Northern California Power Agency (NCPA), NewPath Networks, NextG Networks, PacifiCorp, Pacific Gas & Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE), Sprint-Nextel, Time Warner Cable, T-Mobile, Verizon – California, and Verizon Wireless. The foregoing workshop participants have authorized SCE to sign and submit this filing on their behalf.

[2] The workshop participants also wish to thank PG&E for hosting the prehearing conference "meet and confer session", as well as AT&T - California, SDG&E and the CPSD for hosting technical workshops.

Respectfully submitted,

JAMES M. LEHRER
ROBERT F. LeMOINE

/s/ Robert F. LeMoine
By: Robert F. LeMoine

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-4182
Facsimile: (626) 302-6693
E-mail: Robert.F.LeMoine@sce.com

Appendix 1

I. INTRODUCTION

The stated purpose of this proceeding ((R) 07-12-001) is to determine whether the Commission should adopt the proposed revisions to General Order (GO) 95 as submitted by the GO 95/128 Rules Committee in Petition (P) 07-07-020.

II. PROCEDURAL HISTORY

In Decision (D) 07-02-030, the Commission adopted new GO 95 rules for the installation of wireless antennas on jointly used utility poles, but expressly reserved for a later date the possible adoption of rules for the installation of wireless antennas above or between supply lines.

Subsequently, the GO 95/128 Rules Committee submitted P.07-07-020, recommending revisions to Rule 94 as adopted in D.07-02-030 and proposed changes to other GO 95 rules to establish new uniform construction standards for wireless antennas installed above or between supply conductors operating at 0 -50,000 Volts, including pole-top antennas above communication lines on joint-use utility poles.

The Commission later issued an Order Instituting Rulemaking (OIR) 07-12-001 to consider uniform construction standards for "pole-top antennas." Opening and reply comments were filed on January 14 and February 15, 2008, respectively. A prehearing conference (PHC) was held on March 5, 2008 to develop a joint PHC statement that affirmed the Parties' consensus on the scope and schedule of this instant proceeding.

On March 21, 2008, the Commission issued a Scoping Memo setting forth the scope, schedule, category, need for hearing, the presiding officer and the rules for *ex parte* communications in this instant proceeding, pursuant to Rule 7.3(a) of the Rules of Practice and Procedure.

III. WORKSHOPS

In keeping with the workshop calendar established in the Scoping Memo, a two-day technical workshop was convened in San Francisco on April 03-04, 2008, followed by a one-day workshop in San Diego on April 16, 2008 and concluded with a one-half day workshop in San Francisco on May 01, 2008.

San Francisco Workshop

On April 3, 2008, interested parties met to consider several audio-visual presentations in advance of engaging in technical discussions concerning the minimum vertical clearances between wireless antennas and supply lines operating at 750 – 22,500 Volts noted in Proposed Rule Change (PRC) #4 (Rule 38, Table 2, new Case 21). After the lunch break, the CPSD representative stated that after an internal review, the CPSD was officially withdrawing a previously stated concern regarding the possible need for insulating a pole-top antenna's communication cables that pass high voltage supply lines. At the conclusion of the afternoon session, attendees agreed to reconvene the next morning to discuss, in more detail, the possible reduction of the 96-inch vertical clearance (in PRC #4) to 72-inches.

During the April 4th morning session, attendees thoroughly assessed the correlating provisions of Case 21 and Rule 94 and agreed that each entity would need to consider (internally) the ramifications of a 72-inch vertical clearance in advance of the next workshop. A draft "red-line" revision of new Case 21, including a 72-inch minimum vertical clearance between antennas (including associated equipment and support elements) installed above 750 – 35,000 Volt supply lines was prepared. During the afternoon session, attending parties also agreed to consider certain editorial revisions to Rule 94 (PRC #1), Rule 91.3-B

(PRC #2) and Rule 92.1-F2 (PRC #3). Before adjourning, Raymond Fugere (CPSD) offered to revise the Figures 94.1 – 94.5 and Sam Stonerock (SCE) offered to organize the proposed workshop revisions to PRCs 1-4. Both the Figures and revisions were subsequently distributed to the Parties.

San Diego Workshop

On April 16th, interested parties met at the San Diego Sheraton Hotel. At the start of the workshop, a non-binding poll indicated attending parties either agreed with the previously proposed 72-inch clearance or chose to take no position.

During the morning session, no "showstoppers" were identified; however, attendees did engage in a protracted discussion about the implications of a 72-inch vertical clearance. Because there appeared to be some interpretive ambiguity stemming from Footnote "v v" to Case 21, the attendees eventually agreed to revise this footnote.

During the afternoon session, attendees discussed revisions to Figures 94.1 – 94.5 and concluded that a new Figure that encapsulates the variety of wireless antenna installations above and below supply and communication lines on a joint-use utility pole would be preferable to five separate Figures.

Prior to adjournment, the remaining attendees agreed to reconvene via teleconference on April 24th, at 8:30 a.m., to review the draft workshop report and identify new items of concern (if any) in advance of a scheduled teleconference with ALJ Kenney on April 25. Raymond Fugere offered to continue development of a new Figure (94-1) and Sam Stonerock agreed to compile and compose a draft workshop report for distribution to parties on or before April 21.

San Francisco Workshop

On May 01, 2008, interested parties met at the California Public Utilities Commission offices in San Francisco to resolve an interpretive dispute arising after the San Diego Workshop. The attendees[1] discussed the possible addition of a new footnote "yy" to apply to Columns E, F, and G of new Case 21, that would allow certain support elements (for example, pole-top antenna mounting brackets) to extend into the required vertical clearance by "mutual agreement." After extensive discussion, the attendees[2] concluded the new footnote was unnecessary because existing GO 95 Rule 15.2 allows experimental installations 15 days after the filing of a full statement with the Commission disclosing such installation, provided the appropriate precautions and other requirements of Rule 15.2 are met.

IV. CONCLUSION

Before the first technical workshop was convened, Parties agreed that the 8-foot vertical clearance expressed in Rule 38, Table 2, Case 21 Columns E, F, G was the principal matter of dispute. Parties also agreed that a number of editorial revisions should be considered in light of the written comments.

After three and one-half days of careful review and discussion during technical workshops sessions (including several parties' technical presentations) and multiple hours expended between workshops, it was determined that a 6-foot vertical clearance between Antennas (including associated equipment and

[1] See Attachment E.

[2] The CPSD did not agree with the other attendees' views regarding the applicability of Rule 15.2.

support elements) and supply lines energized at 750 – 35,000 Volts is an appropriate minimum requirement.

It was also determined that additional practical and editorial revisions to Rules 94, 91.3, 92.1, and Rule 38, Case 21 are needed to help ensure the new "pole-top" antenna requirements: (1) protect the safety of utility workers and the public; (2) do not compromise system reliability; (3) are consistent with other GO 95 rules; and (4) meet the Commission's broader goal of facilitating the expansion of California's wireless infrastructure.

V. WORKSHOP REPORT ATTACHMENTS

- Attachment A: Proposed Rule Changes Submitted in P.07-07-020
- Attachment B: Strikeout/Underline Revisions
- Attachment C: Final Versions of GO 95 Rules
- Attachment D: Rationales for GO 95 Rules
- Attachment E: Workshop Attendees

ATTACHMENT – A

Proposed Rule Changes
Submitted in Petition 07-07-020

GO 95, Rule 94 (Antennas)

Proposed Final in P.07-07-020

94 Antennas

94.1 Definition (See Rule 20.0)

94.2 Maintenance and Inspection (See Rules 31.1 and 31.2)

94.3 General Requirements

On joint use poles supporting Class T, C, L or H Circuits (up to 50 kV), the following shall apply:

A. Antennas shall meet the requirements of Class C equipment, unless otherwise specified in this rule.

B. All associated elements of the antenna (e.g. associated cables, messengers, and pole line hardware) shall meet the requirements of Class C circuits.

94.4 Material Strengths

A. Support elements (e.g. arms, braces, brackets, pole-top extensions, hardware) installed above supply lines must:

(1) Meet Grade A requirements.

(2) Conform to the requirements of Section IV.

B. Support elements (e.g. arms, braces, brackets, pole-top extensions, hardware) installed above or below communication lines (where supply lines are not attached) must:

(1) Meet Grade F requirements.

(2) Conform to the requirements of Section IV.

94.5 Clearances

A. Antennas and supporting elements (e.g. crossarms, brackets) below supply lines shall maintain a vertical clearance of 6 feet from Supply Conductors operating at 0 -50kV. (See Figure 94-1)

B. Antennas and supporting elements (e.g. crossarms, brackets) below communication lines shall maintain a 2 ft. vertical separation from communication conductors and equipment. (See Figure 94-2)

C. Antennas, associated equipment (e.g. terminations, enclosures) and support elements installed above supply lines and/or communication lines of different

ownership attached to the same structure shall maintain the vertical clearances specified in Rule 38, Table 2, Case 21, Columns A - H.

Note: Other vertical clearances between communication equipment and supply lines are specified in Rule 92.1-F(2).

D. Antennas, associated equipment (e.g. terminations, enclosures) and support elements, installed above supply lines and/or communication lines of different ownership, shall maintain the radial clearances from unattached supply and communication lines specified in Rule 38, Table 2, Case 3.

E. Antennas shall maintain a 2 ft. horizontal clearance from centerline of pole when affixed between supply and communication lines or below communication lines. (See Figures 94-1 and 94-2)

F. Horizontal clearances from centerline of the pole for Antennas, associated equipment and support elements, affixed between supply lines or at the top of a climbable pole, are not specified, but must be arranged so that qualified persons may climb the structure safely.

G. Antennas shall have a vertical clearance above ground as specified in Table 1, Column B, Cases 1 to 6a.

94.6 Marking

A. No antenna owner or operator shall install an antenna on a joint use pole unless such installation is subject to an agreement with the pole owner(s) that includes marking requirements that are substantially similar to and achieve at least the same safety standards as those set forth in Appendix H to GO 95.

B. Joint use poles shall be marked with a sign for each antenna installation as follows:

(1) Identification of the antenna operator.

(2) A 24-hour contact number of antenna operator for Emergency or Information.

(3) Unique identifier of the antenna installation.

94.7 Climbing Space

A. Climbing space above supply lines shall be maintained in accordance with Rule 54.7-A to:

(1) The bottom of the Antenna (including associated support elements) if affixed less than eight inches from the surface of the pole at the top of the pole or pole-top extension.

(2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than eight inches from the surface of the pole or pole-top extension.

(3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels above supply lines. (See Figure 94.3)

B. Climbing space above communication lines shall be maintained in accordance with Rule 84.7 to:

(1) The bottom of the Antenna (including associated support elements) at the top of the pole or pole-top extension when affixed less than eight inches from the surface of the pole.

(2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than eight inches from the surface of the pole or pole-top extension.

(3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels.

94.8 Stepping (See Exception to Rule 91.3)

94.9 Risers and Vertical Runs

A. Risers and vertical runs passing supply and/or communication lines, or space typically occupied by supply or communication lines, and equipment on nonmetallic structures (e.g. single wood, concrete, composite, fiberglass poles or multiple pole configurations) shall be suitably covered throughout its length; occur on a single pole; and shall be installed outside the climbing space in accordance with Rule 54.6-D 1, 2, 3 and 5.

(1) Associated cable runs extending to an adjacent structure or building shall be bonded to existing communication cables and messengers and effectively grounded at the originating structure. (See Rule 83.4) Where communication guard arm construction exists, the protective covering shall extend below the guard arm.

B. The suitable protective covering for risers and vertical runs passing supply lines or space typically occupied by supply lines and equipment shall extend no less than: (See Figure 94.3)

(1) 3 ft. above lines energized from 0 – 750 Volts.

(2) 7 ft. above lines energized from 750 – 22,500 Volts.

(3) 9 ft. above lines energized from 22,500 – 50,000 Volts.

C. Risers and vertical runs passing supply and/or communication lines, or space typically occupied by supply or communication lines and equipment, on metallic structures shall occur on a single structure, and be installed outside the climbing space in accordance with Rule 54.6-D 4.

94.10 De-energizing

No antenna owner or operator shall install an antenna on a joint use pole unless such installation is subject to an agreement with the pole owner(s) that includes de-energizing protocols that are substantially similar to and achieve at least the same safety standards as set forth in Appendix H to GO 95.

Exceptions: Antennas utilized by utilities for the sole purpose of operating and monitoring their supply system are exempt from this rule and shall only meet the construction and clearance requirements of supply equipment.

Antennas embedded in or attached to communication cables and messengers are exempt from this rule and shall only meet the construction requirements for Class C circuits.

Rules 94.5-A & E

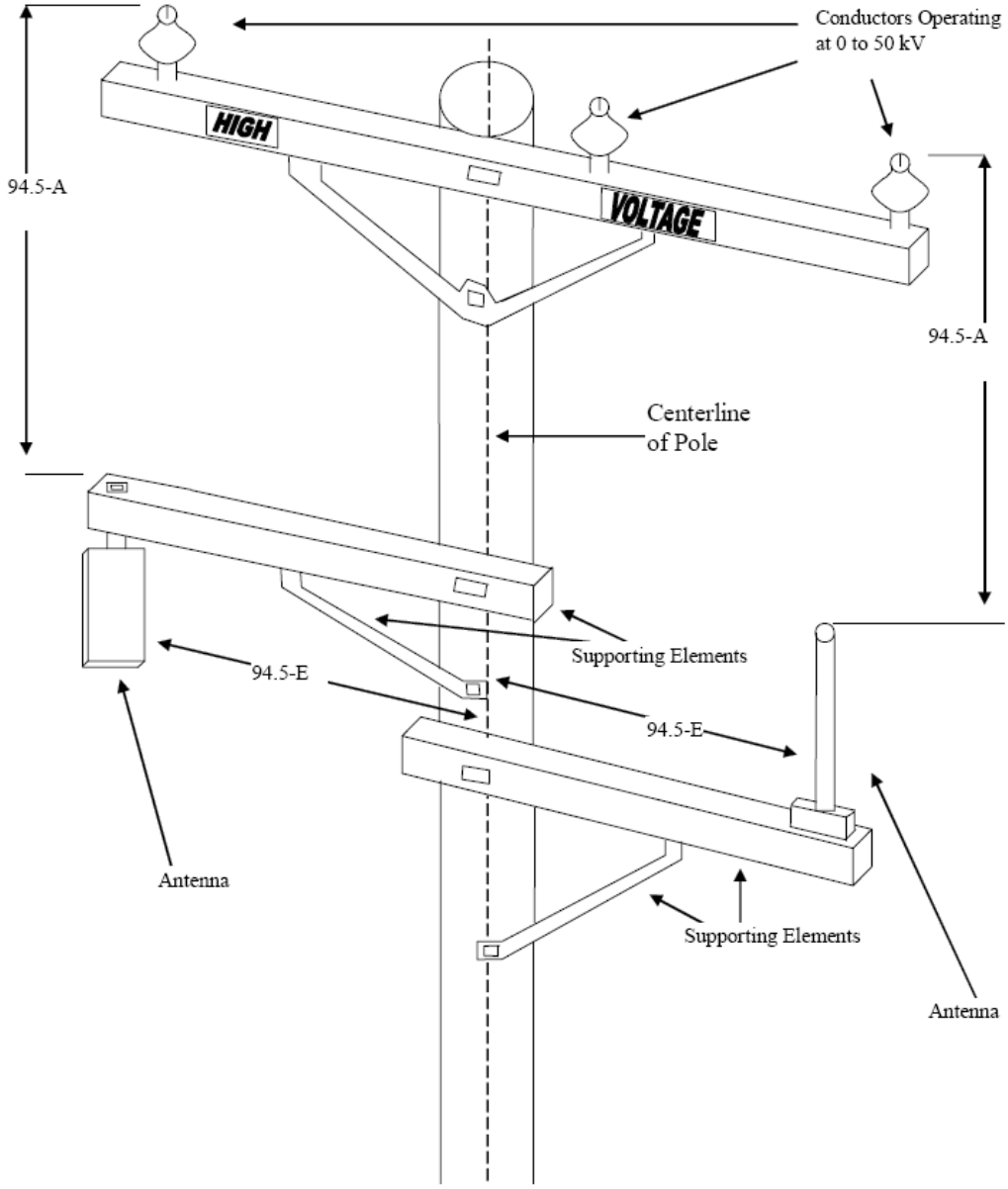


Figure 94.1

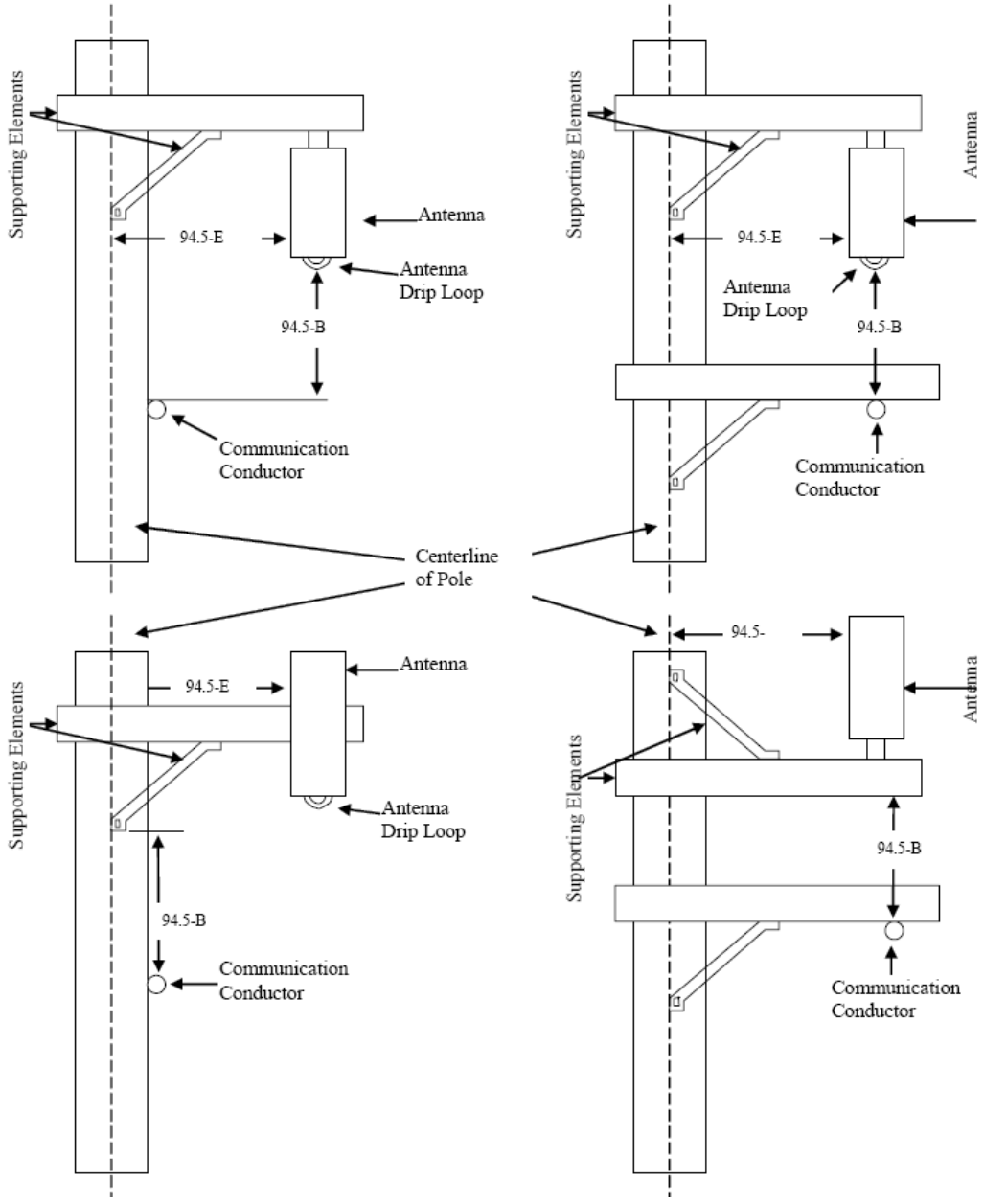

Supporting Elements
Antenna
94.5-E
Antenna
Drip Loop
94.5-B
Communication
Conductor
Centerline
of Pole
Supporting Elements
Antenna
94.5-E
Antenna
Drip Loop
94.5-B
Communication
Conductor
Supporting Elements
Antenna
94.5-E
Antenna
Drip Loop
94.5-B
Communication
Conductor
Supporting Elements
Antenna
94.5-
94.5-B
Communication
Conductor

Figure 94.2

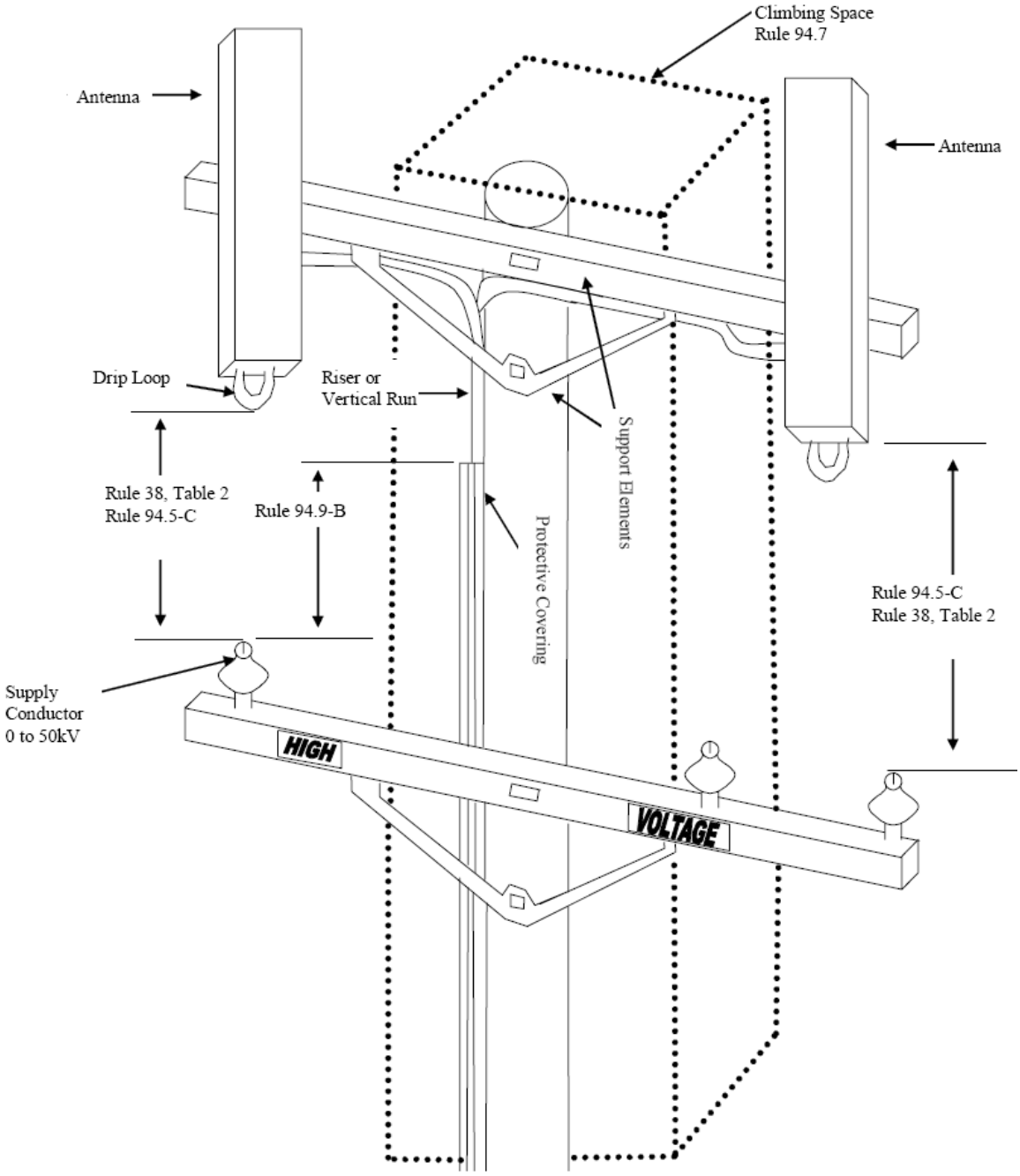

Climbing Space
Rule 94.7
Antenna
Antenna
Drip Loop
Riser or
Vertical Run
Support Elements
Rule 38, Table 2
Rule 94.5-C
Rule 94.9-B
Protective Covering
Rule 94.5-C
Rule 38, Table 2
Supply
Conductor
0 to 50kV
HIGH
VOLTAGE

Figure 94.3

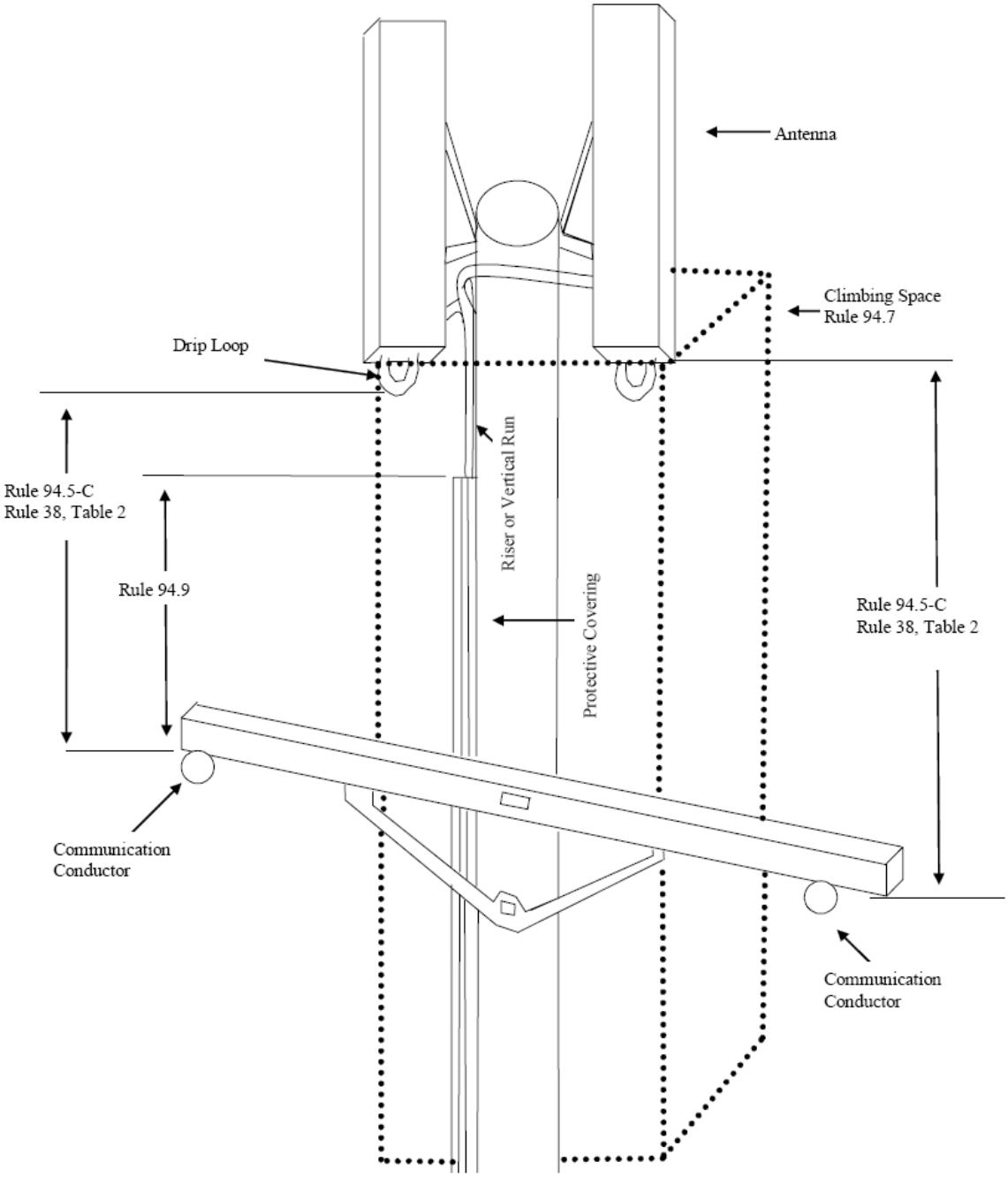

Antenna
Climbing Space
Rule 94.7
Drip Loop
Riser or Vertical Run
Rule 94.5-C
Rule 38, Table 2
Rule 94.9
Protective Covering
Rule 94.5-C
Rule 38, Table 2
Communication
Conductor
Communication
Conductor

Figure 94.4

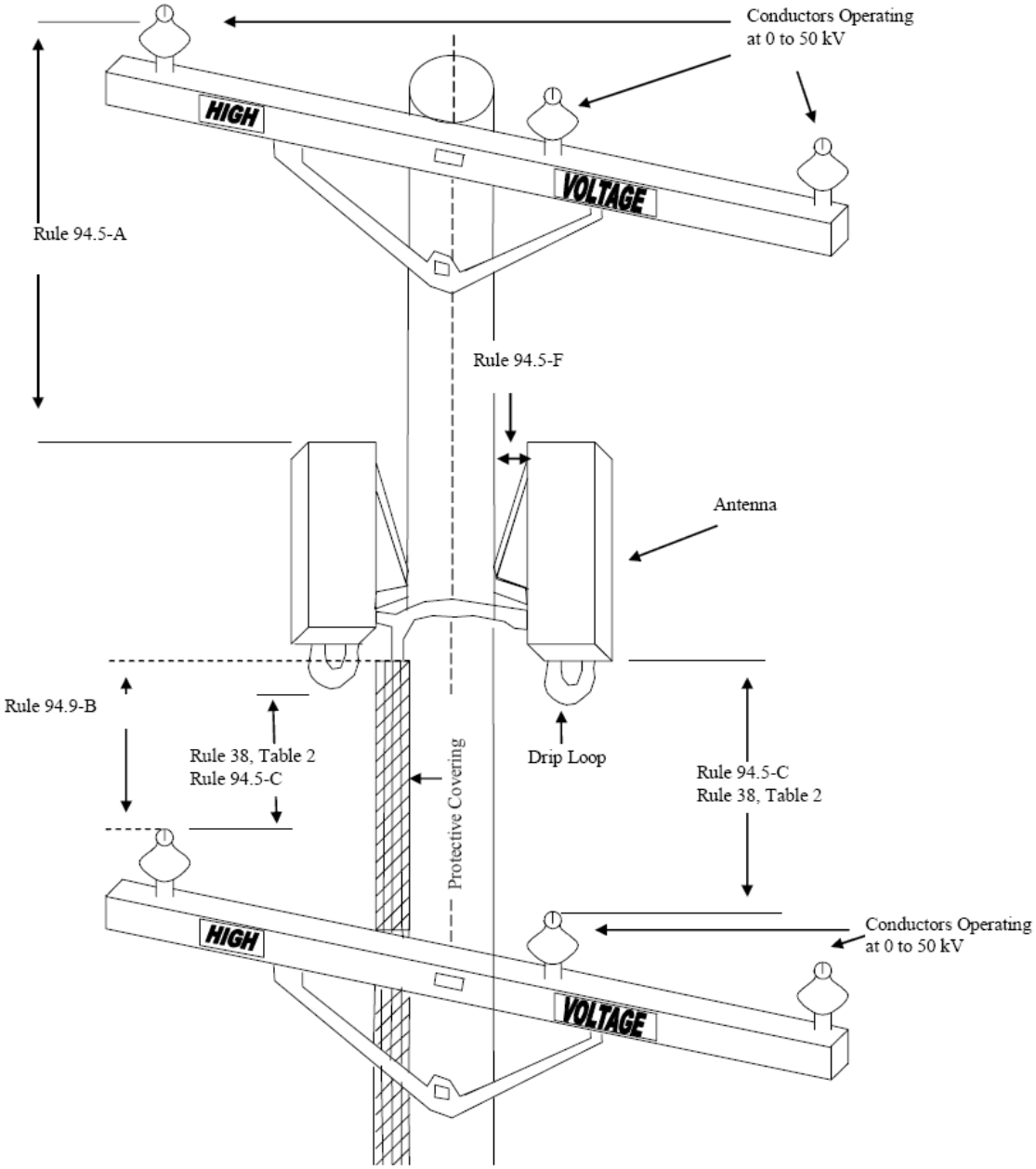

Conductors Operating
at 0 to 50 kV
HIGH
VOLTAGE
Rule 94.5-A
Rule 94.5-F
Antenna
Rule 94.9-B
Rule 38, Table 2
Rule 94.5-C
Protective Covering
Drip Loop
Rule 94.5-C
Rule 38, Table 2
HIGH
VOLTAGE
Conductors Operating
at 0 to 50 kV

Figure 94.5

GO 95 Rule 91.3-B (Stepping)

Proposed Final in P.07-07-020

91.3 Stepping

B. Location of Steps

The lowest step shall be not less than 7 feet 6 inches from the ground line and above this point steps shall be placed, with spacing between steps on the same side of the pole not exceeding 36 inches, at least to that conductor level above which only circuits operated and maintained by one party remain. Steps shall be so placed that runs or risers do not interfere with the free use of the steps.

Exception: Steps are not required in a Supply utility's designated space when a third party Antenna is affixed above supply conductors.

GO 95, Rule 92.1-F(2)

Proposed Final in P.07-07-020

92.1 Vertical Clearances

F. Between Conductors, Cables, Messengers and Miscellaneous Equipment)

(2) Cable Terminals or Metal Boxes: On jointly used poles, all parts of metal communication cable terminals, metal boxes or similar equipment shall maintain vertical clearances from conductors not less than those specified in Table 2, Col. C, Cases 8 to 13 inclusive.

Exception: The minimum vertical distance between all parts of such metal terminals, boxes or similar equipment which are 8 inches or more from the center line of pole and are supported by cable and/or messenger alone can be reduced to not less than 1 inch by mutual agreement between the affected owners (see Rule 38, Table 2, Case 8, Column C).

For clearance between street light drop wires and cables, other conductors, and metal boxes see Rules 58.5–B3 and 92.1–F5.

For vertical clearances between Antennas and associated elements located above supply and communication lines see Rule 38, Table 2, Case 21.

GO 95, Rule 38, Table 2, Case 21

Proposed Final in P.07-07-020

Case No.	Nature of Class and Class and Voltage of Wire, Cable or Conductor Concerned	A Span Wires, Guys and Messengers	B Trolley Contact Conductors 0-750 Volts	C Communication Conductors (Including Open Wire, Cables and Service Drops	D 0 - 750 Volts (Including Service Drops) and Trolley Feeders (a)	E 750 – 7,500 Volts	F 7,500 - 20,000 Volts	G 20,000 - 35,000 Volts	H 35,000 - 75,000 Volts	I 75,000 – 150,000 Volts	J 150,000 – 300,000 Volts
	Vertical clearance above supply and/or communication lines										
21	Antennas and associated elements on the same support structure. (tt, xx)	24 (ww)	48 (ww)	24 (uu)	48 (ww)	96 (ww, zz)	96 (ww, zz)	120 (ww, yy)	120 (vv, ww)	-	-

(tt) Clearances for supply antennas from supply and communication lines … 58.6 and 54.4-G

(uu) May be reduced to 10 inches for cables installed/operated by antenna owner.

(vv) Up to 50 kV.

(ww) Pole-top antenna lead-in wires, drip loops or incidental wiring shall not extend more than 12 inches below the specified clearance.

(xx) For clearances below supply and communication lines and between supply and communication lines see Rule 94.5A – B.

(yy) May be reduced to 96 inches for circuits up to 22,500 volts.

(zz) May be reduced to 72 inches for circuits up to 22,500 volts provided the antenna is suitably isolated. Where a reduction to 72 inches is allowed, the clearance for associated risers and vertical runs specified in 94.9-B2 may be reduced to 5 feet.

ATTACHMENT – B

Strikeout/Underline Revisions
Developed in R.07-12-001 Workshops

GO 95, Rule 94 (Antennas)

Strikeout / Underline Revisions

94 Antennas

94.1 Definition (See Rule 20.0)

94.2 Maintenance and Inspection (See Rules 31.1 and 31.2)

94.3 General Requirements

On joint use poles supporting Class T, C, L or H Circuits (up to 50 kV), the following shall apply:

A. Antennas shall meet the requirements of Class C equipment, unless otherwise specified in this rule.

B. All associated elements of the antenna (e.g. associated cables, messengers~~, and pole line hardware~~) shall meet the requirements of Class C circuits.

C. Support elements (e.g. arms, braces, brackets, hardware) and pole-top extensions shall conform to the requirements of Section IV.

Note: Support elements (e.g. arms, braces, brackets, hardware) and pole-top extensions installed above supply lines shall ~~must~~ meet Grade "A" requirements and safety factors specified in Rule 44 Table 4.

~~(2) Conform to the requirements of Section IV.~~

~~**B.** Support elements (e.g. arms, braces, brackets, pole top extensions, hardware) installed above or below communication lines (where supply lines are not attached) must:~~

~~(1) Meet Grade F requirements.~~

~~(2) Conform to the requirements of Section IV.~~

94.~~5~~ 4 Clearances

A. Antennas and support~~ing~~ elements ~~(e.g. crossarms, brackets)~~ below supply lines shall maintain a vertical clearance of 6 feet from Supply Conductors operating at 0 –50kV. (See Figure 94-1)

B. Antennas and support~~ing~~ elements ~~(e.g. crossarms, brackets)~~ below communication lines shall maintain a 2 ft. vertical separation from communication conductors and equipment. (See Figure 94-1~~2~~)

C. Antennas, associated equipment (e.g. terminations, enclosures) and support elements installed above supply lines and/or communication lines of different

ownership attached to the same structure shall maintain the vertical clearances specified in Rule 38, Table 2, Case 21, Columns A - H.

Note: Other vertical clearances between communication equipment and supply lines are specified in Rule 92.1-F (2).

D. Antennas, associated equipment (e.g. terminations, enclosures) and support elements, installed above supply lines and/or communication lines of different ownership, shall maintain the radial clearances from unattached supply and communication lines specified in Rule 38, Table 2, Case 3.

E. Antennas shall maintain a 2 ft. horizontal clearance from centerline of pole when affixed between supply and communication lines or below communication lines. (See Figure 94-1 ~~and 94-2~~)

F. Horizontal clearances from centerline of the pole for Antennas, associated equipment and support elements, affixed between supply lines or at the top of a climbable pole, are not specified, but must be arranged so that ~~qualified persons may climb~~ the pole may be climbed ~~structure~~ safely.

G. Antennas shall have a vertical clearance above ground as specified in Rule 37, Table 1, Column B, Cases 1 - ~~to~~ 6a. (See Figure 94-1)

94.~~6~~ 5 Marking

A. No antenna owner or operator shall install an antenna on a joint use pole unless such installation is subject to an agreement with the pole owner(s) that includes marking requirements that are substantially similar to and achieve at least the same safety standards as those set forth in Appendix H to GO 95.

B. Joint use poles shall be marked with a sign for each antenna installation as follows:

(1) Identification of the antenna operator.

(2) A 24-hour contact number of antenna operator for Emergency or Information.

(3) Unique identifier of the antenna installation.

94.~~7~~ 6 Climbing Space

A. Climbing space above supply lines shall be maintained in accordance with Rule 54.7-A to:

(1) The bottom of the Antenna (including associated support elements) if affixed less than eight inches from the surface of the pole at the top of the pole or pole-top extension.

(2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than eight inches from the surface of the pole or pole-top extension.

(3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels above supply lines. (~~See Figure 94.3~~)

B. Climbing space above communication lines shall be maintained in accordance with Rule 84.7 to:

(1) The bottom of the Antenna (including associated support elements) at the top of the pole or pole-top extension when affixed less than eight inches from the surface of the pole.

(2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than eight inches from the surface of the pole or pole-top extension.

(3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels.

94.~~8~~ 7 Stepping (See Rule 91.3)

94.~~9~~ 8 Risers and Vertical Runs

A. Risers and vertical runs passing supply lines and/or equipment~~/or~~ or communication lines~~, or space typically occupied by supply or communication lines, and~~ and/or equipment on nonmetallic structures (e.g. single wood, concrete, composite, fiberglass poles or multiple pole configurations) shall be suitably covered throughout ~~its their~~ length; shall occur on a single pole; ~~and~~ shall be installed outside the climbing space; and shall be constructed and maintained in accordance with Rules 54.6-D 1, 2, 3 and 5.

(1) Associated cable runs extending to an adjacent structure or building shall be bonded to existing communication cables and messengers and effectively grounded at the originating structure~~.~~ (~~S~~see Rule 83.4). Where communication guard arm construction exists, the protective covering shall extend below the ~~guard~~ arm.

B. The suitable protective covering (see Rule 22.8) for risers and vertical runs passing supply lines ~~or space typically occupied by supply lines~~ and/or equipment shall extend no less than~~:~~ (~~S~~see Figure 94.1~~3~~):

(1) 3 ft. above lines energized from 0 – 750 Volts.

(2) ~~7~~ 6 ft. above lines energized from 750 – ~~22,500~~ 35,000 Volts.

(3) 9 ft. above lines energized from ~~22,500~~ 35,000 – 50,000 Volts.

C. Risers and vertical runs passing supply lines and/or equipment or communication lines~~, or space typically occupied by supply or communication lines~~ and/or

equipment~~,~~ on metallic structures shall occur on a single structure, and be installed outside the climbing space in accordance with Rule 54.6-D 4.

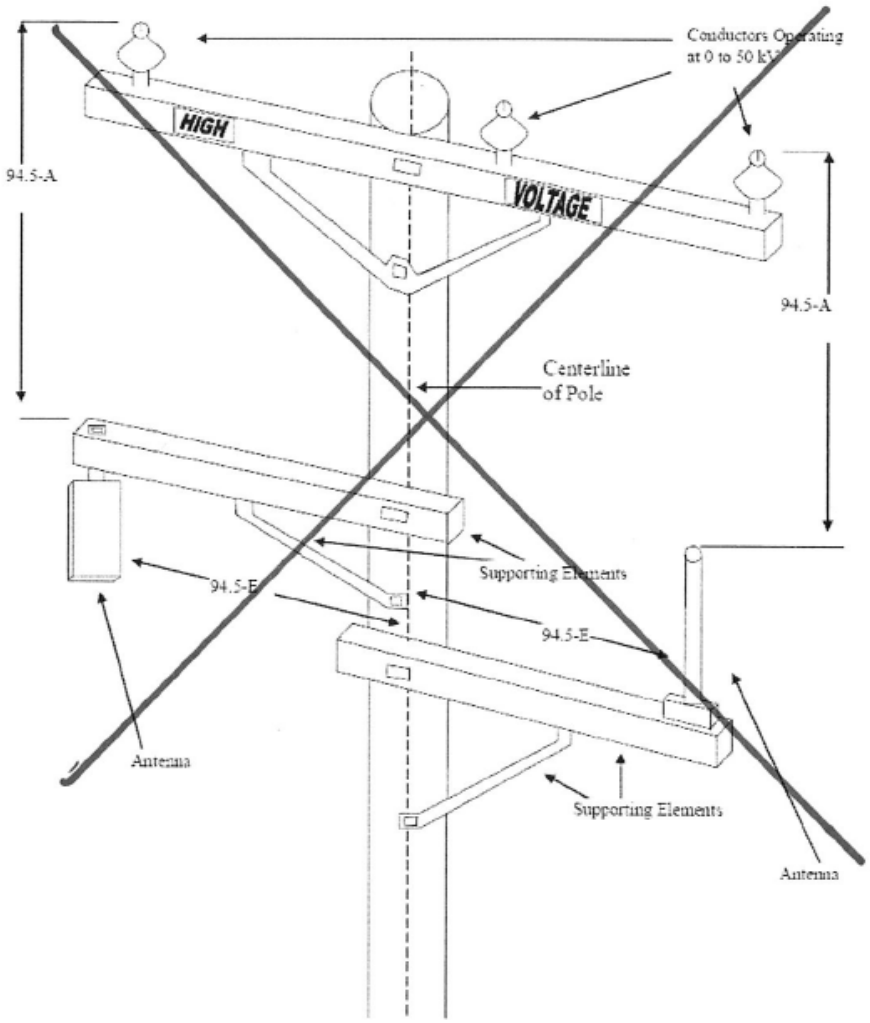
94.~~10~~ 9 De-energizing

No antenna owner or operator shall install an antenna on a joint use pole unless such installation is subject to an agreement with the pole owner(s) that includes de-energizing protocols that are substantially similar to and achieve at least the same safety standards as set forth in Appendix H to GO 95.

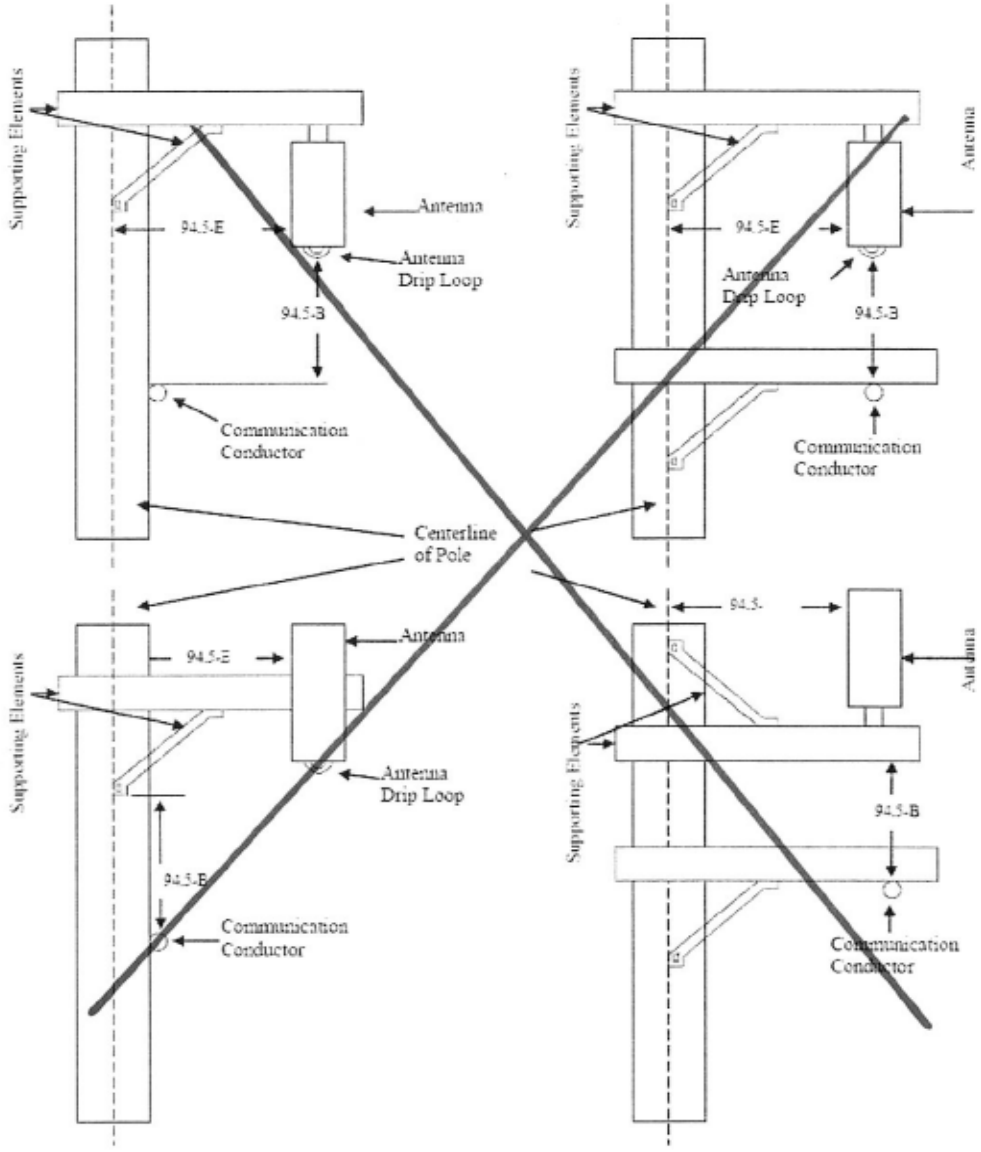
Exceptions: Antennas utilized by utilities for the sole purpose of operating and monitoring their supply system are exempt from this rule and shall only meet the construction and clearance requirements of supply equipment.

Antennas embedded in or attached to communication cables and messengers are exempt from this rule and shall only meet the construction requirements for Class C circuits.

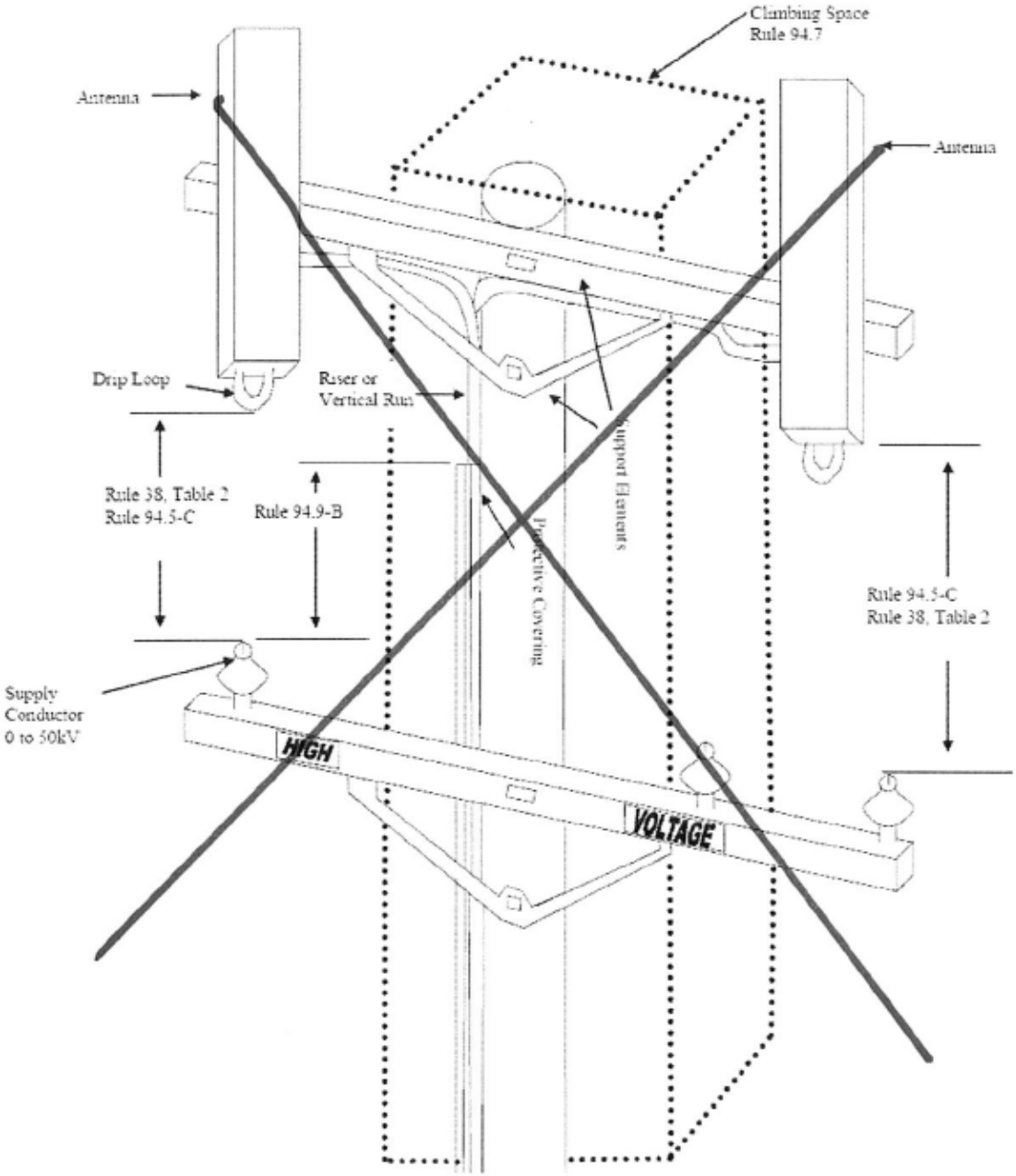
~~Rules 94.5-A & E~~



~~**Figure 94.1**~~


Supporting Elements
Antenna
94.5-E
Antenna
Drip Loop
94.5-B
Communication
Conductor
Centerline
of Pole
Supporting Elements
Antenna
94.5-E
Antenna
Drip Loop
94.5-B
Communication
Conductor
Supporting Elements
Antenna
94.5-E
Antenna
Drip Loop
94.5-E
Communication
Conductor
Supporting Elements
94.5-
Antenna
94.5-B
Communication
Conductor

~~Figure 94.2~~


Climbing Space
Rule 94.7
Antenna
Antenna
Drip Loop
Riser or
Vertical Run
Rule 38, Table 2
Rule 94.5-C
Rule 94.9-B
Supported Elements
Protective Covering
Rule 94.5-C
Rule 38, Table 2
Supply
Conductor
0 to 50kV
HIGH
VOLTAGE

~~Figure 94.3~~

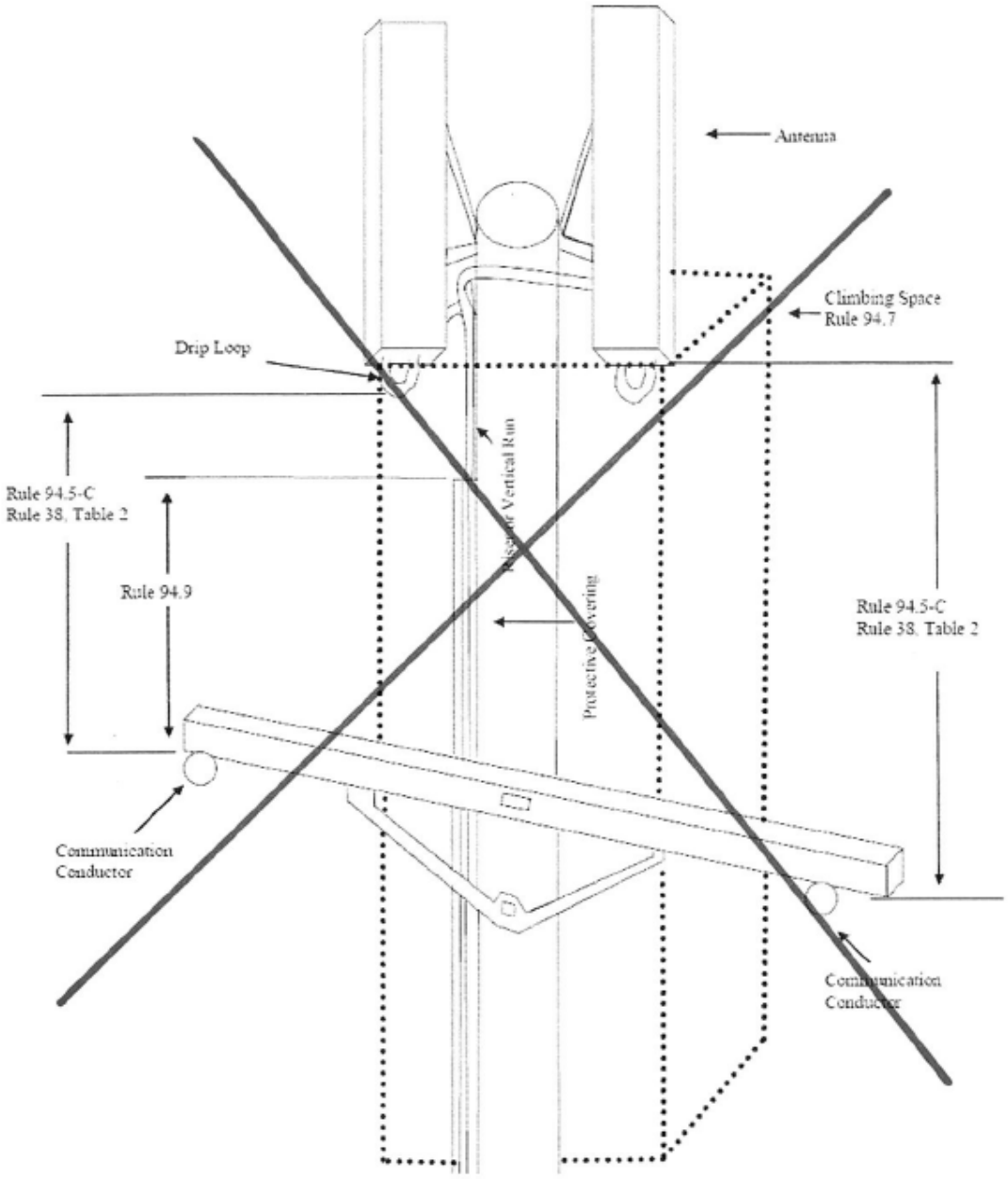

Antenna
Climbing Space
Rule 94.7
Drip Loop
Riser or Vertical Run
Rule 94.5-C
Rule 38, Table 2
Rule 94.9
Protective Covering
Rule 94.5-C
Rule 38, Table 2
Communication
Conductor
Communication
Conductor

Figure 94.4

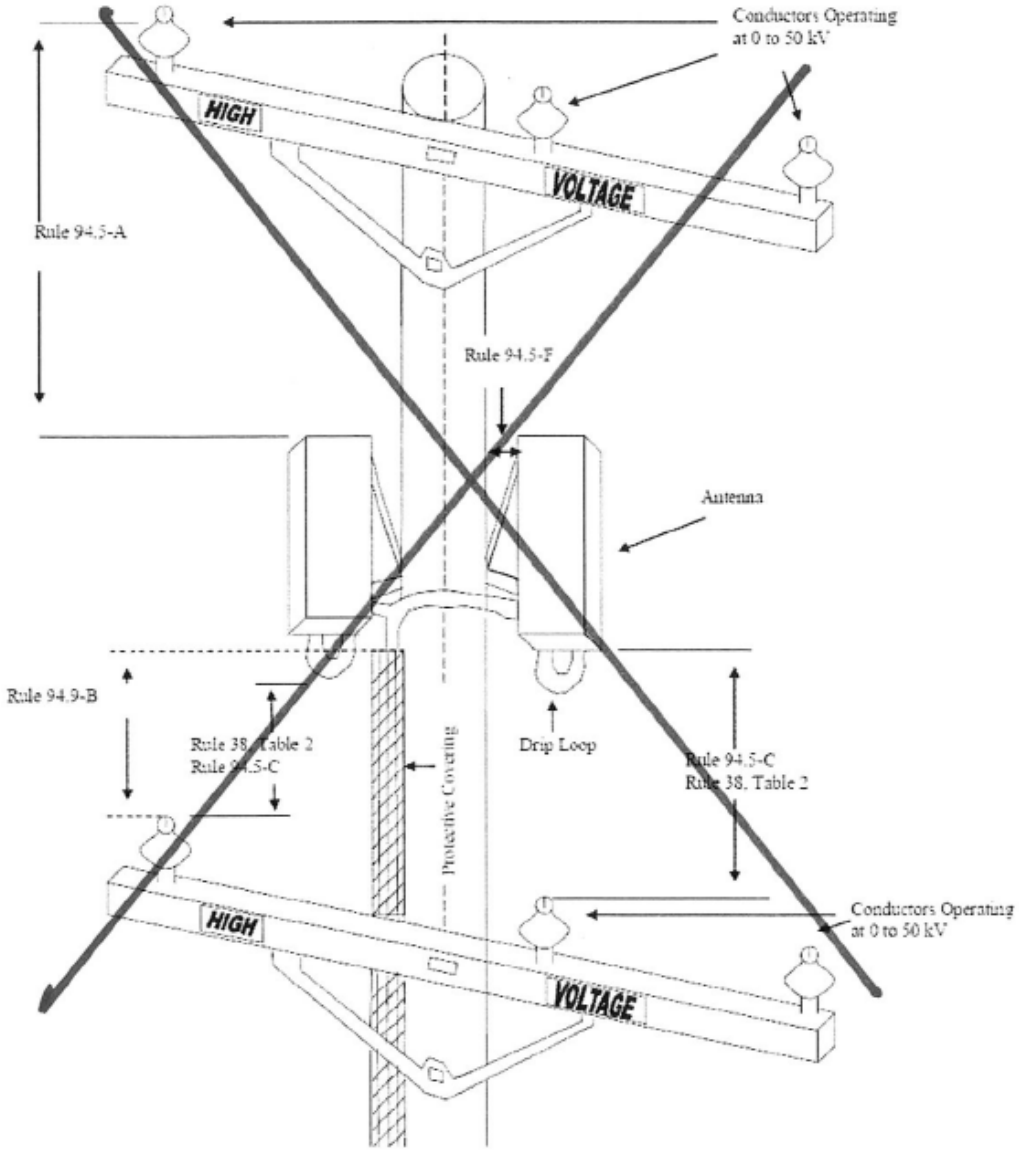
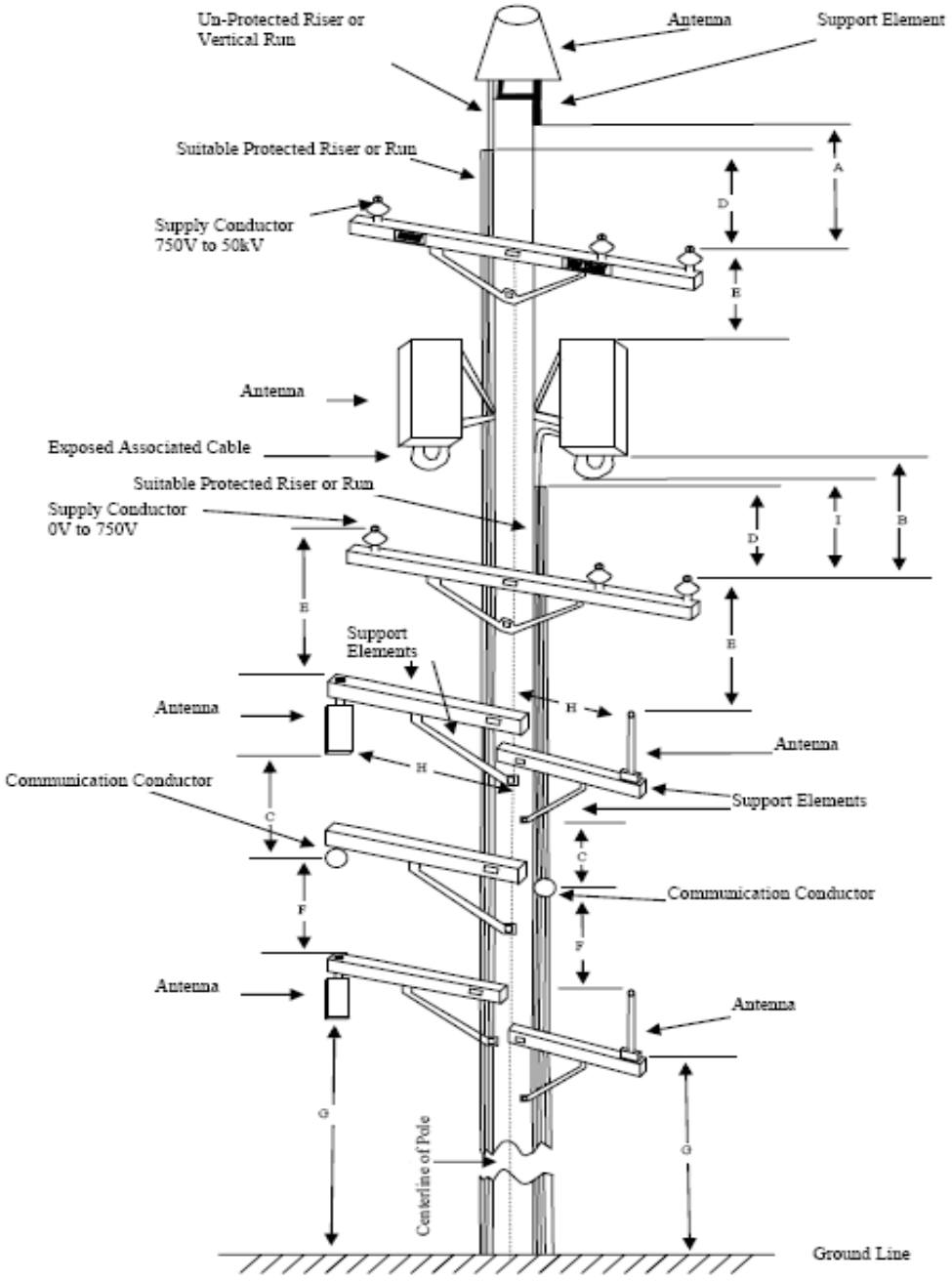

Conductors Operating at 0 to 50 kV
HIGH VOLTAGE
Rule 94.5-A
Rule 94.5-F
Antenna
Rule 94.9-B
Rule 38, Table 2
Rule 94.5-C
Protective Covering
Drip Loop
Rule 94.5-C
Rule 38, Table 2
Conductors Operating at 0 to 50 kV
HIGH VOLTAGE

Figure 94.5



Index	Reference
A	94.4-C, Table 2, Case 21, Columns E to H
B	94.4-C, Table 2, Case 21, Column D
C	94.4-C, Table 2, Case 21, Column C
D	94.8-B
E	94.4-A
F	94.4-B
G	94.4-G, Table 1 Column B, Cases 1 to 6a
H	94.4-E
I	Table 2, Case 21, Column D, See Footnote VV

Figure 94-1

PRC #2 - GO 95 Rule 91.3-B (Stepping)

Strikeout / Underline Revisions

91.3 Stepping

B. Location of Steps

The lowest step shall be not less than 7 feet 6 inches from the ground line and above this point steps shall be placed, with spacing between steps on the same side of the pole not exceeding 36 inches, at least to that conductor level above which only circuits operated and maintained by one party remain. Steps shall be so placed that runs or risers do not interfere with the free use of the steps.

Exception: Steps are not required ~~in a Supply utility's designated space when a third party~~ above the uppermost Class C circuit where an Antenna is affixed above supply conductors.

GO 95, Rule 92.1-F(2) (Vertical Clearances)

Strikeout / Underline Revisions

92.1 Vertical Clearances

F. Between Conductors, Cables, Messengers and Miscellaneous Equipment)

(2) Cable Terminals or Metal Boxes: On jointly used poles, all parts of metal communication cable terminals, metal boxes or similar equipment shall maintain vertical clearances from conductors not less than those specified in Table 2, Col. C, Cases 8 to 13 inclusive.

Exception: The minimum vertical distance between all parts of such metal terminals, boxes or similar equipment which are 8 inches or more from the center line of pole and are supported by cable and/or messenger alone can be reduced to not less than 1 inch by mutual agreement between the affected owners (see Rule 38, Table 2, Case 8, Column C).

For clearance between street light drop wires and cables, other conductors, and metal boxes see Rules 58.5–B3 and 92.1–F5.

For ~~vertical~~ clearances between Antennas and ~~associated elements located above~~ supply ~~and~~ or communication lines see Rule 38, Table 2, Case 21 and Rule 94.4.

GO 95, Rule 38, Table 2, Case 21

Strikeout / Underline Revisions

Case No.	Nature of Class and Class and Voltage of Wire, Cable or Conductor Concerned	A Span Wires, Guys and Messengers	B Trolley Contact Conductors 0-750 Volts	C Communication Conductors (Including Open Wire, Cables and Service Drops)	D 0-750 Volts (Including Service Drops) and Trolley Feeders (a)	E 750 - 7,500 Volts	F 7,500 - 20,000 Volts	G 20,000 - 35,000 Volts	H 35,000 - 75,000 Volts	I 75,000 - 150,000 Volts	J 150,000 - 300,000 Volts
	Vertical clearance above supply and/or communication lines										
21	Antennas and associated elements on the same support structure. (tt, ~~xx~~ uu)	24 (vv)	48 (~~ww~~ vv)	24 (~~uu~~ ww)	48 (~~ww~~ vv, xx)	~~96~~ 72 (~~ww, zz~~)	~~96~~ 72 (~~ww, zz~~)	~~120~~ 72 (~~ww, zz~~)	120 (vv, yy, ~~ww~~)	-	-

(tt) For Antennas utilized by utilities for the sole purpose of operating and monitoring their supply system see Rules 54.4-G and 58.6. ~~Clearances for supply antennas from supply and communication lines … 58.6 and 54.4-G~~

(uu) For clearances below supply and communication lines see Rules 94.4-A and 94.4-B ~~and between supply and communications lines see Rules 94.5-A and 94.5-B~~.

(vv) ~~Pole top Antenna~~ Clearances for exposed ~~lead in wires, drop loops or incidental~~ associated cables ~~wiring~~ may be reduced by ~~shall not extend more than~~ 12 inches ~~below the specified clearance~~.

(ww) May be reduced to 10 inches for cables installed~~/operated~~ by ~~antenna~~ Antenna owner/operator.

(~~vv~~ xx) Clearance from service drop point of attachment on structure to Antenna(s) and associated supporting elements may be reduced to 10 inches.

(yy) Up to 50 kV.

~~(ww) Pole top antenna lead-in wires, drip loops or incidental wiring shall not extend more than 12 inches below the specified clearance.~~

~~(xx) For clearances below supply and communication lines and between supply and communication lines see Rule 94.5A – B.~~

~~(yy) May be reduced to 96 inches for circuits up to 22,500 volts.~~

~~(zz) May be reduced to 72 inches for circuits up to 22,500 volts provided the antenna is suitably isolated. Where a reduction to 72 inches is allowed, the clearance for associated risers and vertical runs specified in 94.9-B2 may be reduced to 5 feet.~~

ATTACHMENT – C

Final Version of GO 95 Rules Developed in R.07-12-001 Workshops

PRC #1 - GO 95, Rule 94 (Antennas)

Proposed Final

94 Antennas

94.1 Definition (See Rule 20.0)

94.2 Maintenance and Inspection (See Rules 31.1 and 31.2)

94.3 General Requirements

On joint use poles supporting Class T, C, L or H Circuits (up to 50 kV), the following shall apply:

A. Antennas shall meet the requirements of Class C equipment, unless otherwise specified in this rule.

B. All associated elements of the antenna (e.g. associated cables, messengers) shall meet the requirements of Class C circuits.

C. Support elements (e.g. arms, braces, brackets, hardware) and pole-top extensions shall conform to the requirements of Section IV.

Note: Support elements (e.g. arms, braces, brackets, hardware) and pole-top extensions installed above supply lines shall meet Grade "A" requirements and safety factors specified in Rule 44, Table 4.

94.4 Clearances

A. Antennas and support elements below supply lines shall maintain a vertical clearance of 6 feet from Supply Conductors operating at 0 –50kV. (See Figure 94-1)

B. Antennas and support elements below communication lines shall maintain a 2 ft. vertical separation from communication conductors and equipment. (See Figure 94-1)

C. Antennas, associated equipment (e.g. terminations, enclosures) and support elements installed above supply lines and/or communication lines of different ownership attached to the same structure shall maintain the vertical clearances specified in Rule 38, Table 2, Case 21, Columns A - H.

Note: Other vertical clearances between communication equipment and supply lines are specified in Rule 92.1-F(2).

D. Antennas, associated equipment (e.g. terminations, enclosures) and support elements, installed above supply lines and/or communication lines of different ownership, shall maintain the radial clearances from unattached supply and communication lines specified in Rule 38, Table 2, Case 3.

E. Antennas shall maintain a 2 ft. horizontal clearance from centerline of pole when affixed between supply and communication lines or below communication lines. (See Figure 94-1)

F. Horizontal clearances from centerline of the pole for Antennas, associated equipment and support elements, affixed between supply lines or at the top of a climbable pole, are not specified, but must be arranged so that the pole may be climbed safely.

G. Antennas shall have a vertical clearance above ground as specified in Rule 37, Table 1, Column B, Cases 1 - 6a. (See Figure 94-1)

94.5 Marking

A. No antenna owner or operator shall install an antenna on a joint use pole unless such installation is subject to an agreement with the pole owner(s) that includes marking requirements that are substantially similar to and achieve at least the same safety standards as those set forth in Appendix H to GO 95.

B. Joint use poles shall be marked with a sign for each antenna installation as follows:

(1) Identification of the antenna operator.

(2) A 24-hour contact number of antenna operator for Emergency or Information.

(3) Unique identifier of the antenna installation.

94.6 Climbing Space

A. Climbing space above supply lines shall be maintained in accordance with Rule 54.7-A to:

(1) The bottom of the Antenna (including associated support elements) if affixed less than eight inches from the surface of the pole at the top of the pole or pole-top extension.

(2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than eight inches from the surface of the pole or pole-top extension.

(3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels above supply lines.

B. Climbing space above communication lines shall be maintained in accordance with Rule 84.7 to:

(1) The bottom of the Antenna (including associated support elements) at the top of the pole or pole-top extension when affixed less than eight inches from the surface of the pole.

(2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than eight inches from the surface of the pole or pole-top extension.

(3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels.

94.7 Stepping (See Rule 91.3)

94.8 Risers and Vertical Runs

A. Risers and vertical runs passing supply lines and/or equipment or communication lines and/or equipment on nonmetallic structures (e.g. single wood, concrete, composite, fiberglass poles or multiple pole configurations) shall be suitably covered throughout their length; shall occur on a single pole; shall be installed outside the climbing space; and shall be constructed and maintained in accordance with Rules 54.6-D 1, 2, 3 and 5.

(1) Associated cable runs extending to an adjacent structure or building shall be bonded to existing communication cables and messengers and effectively grounded at the originating structure (see Rule 83.4). Where communication guard arm construction exists, the protective covering shall extend below the arm.

B. The suitable protective covering (see Rule 22.8) for risers and vertical runs passing supply lines and/or equipment shall extend no less than (see Figure 94.1):

(1) 3 ft. above lines energized from 0 – 750 Volts.

(2) 6 ft. above lines energized from 750 – 35,000 Volts.

(3) 9 ft. above lines energized from 35,000 – 50,000 Volts.

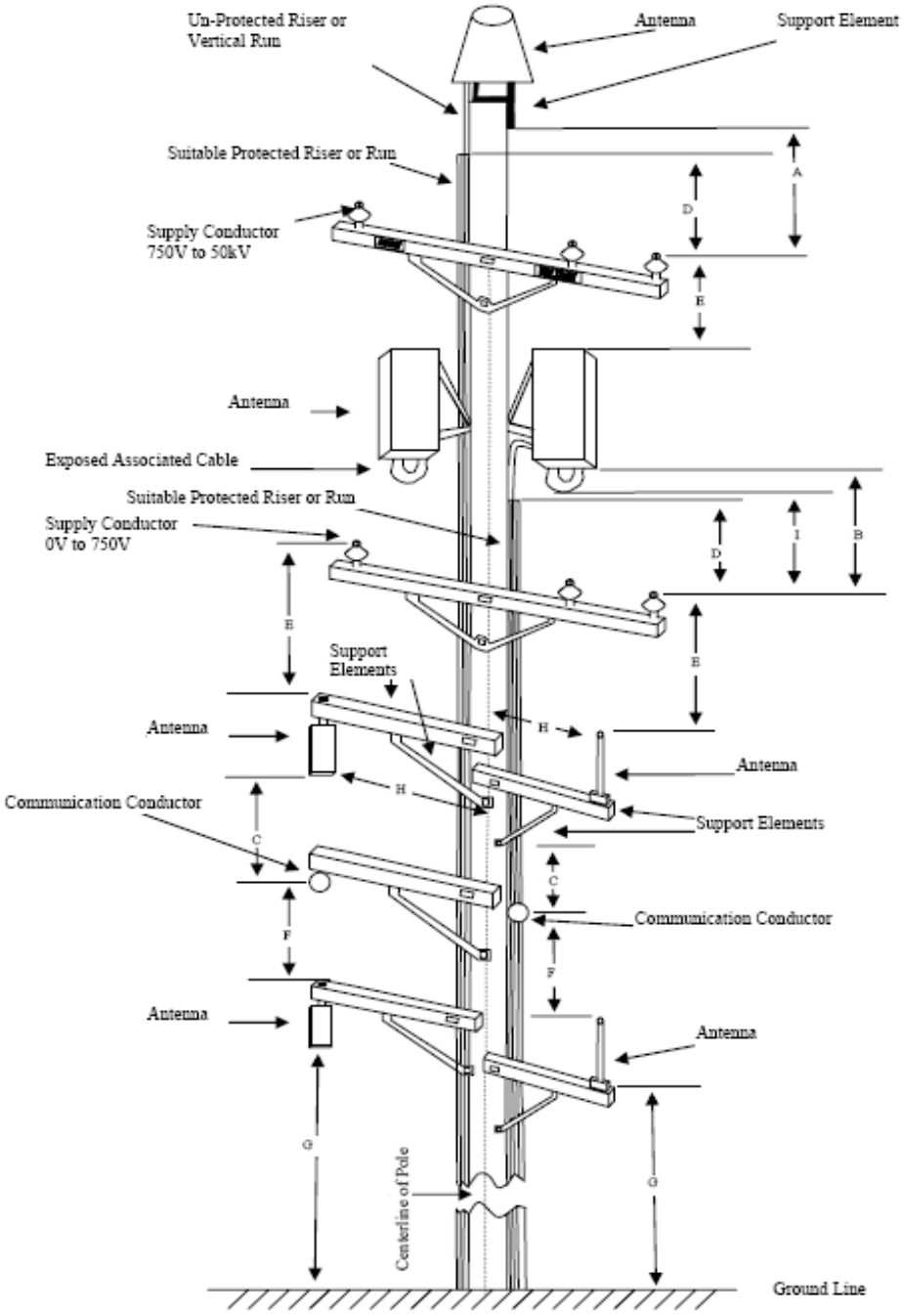
C. Risers and vertical runs passing supply lines and/or equipment or communication lines and/or equipment on metallic structures shall occur on a single structure, and be installed outside the climbing space in accordance with Rule 54.6-D 4.

94.9 De-energizing

No antenna owner or operator shall install an antenna on a joint use pole unless such installation is subject to an agreement with the pole owner(s) that includes de-energizing protocols that are substantially similar to and achieve at least the same safety standards as set forth in Appendix H to GO 95.

Exceptions: Antennas utilized by utilities for the sole purpose of operating and monitoring their supply system are exempt from this rule and shall only meet the construction and clearance requirements of supply equipment.

Antennas embedded in or attached to communication cables and messengers are exempt from this rule and shall only meet the construction requirements for Class C circuits.



Index	Reference
A	94.4-C, Table 2, Case 21, Columns E to H
B	94.4-C, Table 2, Case 21, Column D
C	94.4-C, Table 2, Case 21, Column C
D	94.8-B
E	94.4-A
F	94.4-B
G	94.4-G, Table 1 Column B, Cases 1 to 6a
H	94.4-E
I	Table 2, Case 21, Column D, See Footnote VV

Figure 94-1

PRC #2 - GO 95 Rule 91.3-B (Stepping)

Proposed Final

91.3 Stepping

B. Location of Steps

The lowest step shall be not less than 7 feet 6 inches from the ground line and above this point steps shall be placed, with spacing between steps on the same side of the pole not exceeding 36 inches, at least to that conductor level above which only circuits operated and maintained by one party remain. Steps shall be so placed that runs or risers do not interfere with the free use of the steps.

Exception: Steps are not required above the uppermost Class C circuit where an Antenna is affixed above supply conductors.

PRC #3 - GO 95, Rule 92.1-F(2) (Vertical Clearances)

Proposed Final

92.1 Vertical Clearances

F. Between Conductors, Cables, Messengers and Miscellaneous Equipment)

(2) Cable Terminals or Metal Boxes: On jointly used poles, all parts of metal communication cable terminals, metal boxes or similar equipment shall maintain vertical clearances from conductors not less than those specified in Rule 38, Table 2, Col. C, Cases 8 to 13 inclusive.

Exception: The minimum vertical distance between all parts of such metal terminals, boxes or similar equipment which are 8 inches or more from the center line of pole and are supported by cable and/or messenger alone can be reduced to not less than 1 inch by mutual agreement between the affected owners (see Rule 38, Table 2, Case 8, Column C).

For clearance between street light drop wires and cables, other conductors, and metal boxes see Rules 58.5–B3 and 92.1–F5.

For clearances between Antennas and supply or communication lines see Rule 38, Table 2, Case 21 and Rule 94.4.

PRC #4 - GO 95, Rule 38, Table 2, Case 21

Proposed Final

Case No.	Nature of Class and Class and Voltage of Wire, Cable or Conductor Concerned	A Span Wires, Guys and Messengers	B Trolley Contact Conductors 0-750 Volts	C Communication Conductors (Including Open Wire, Cables and Service Drops)	D 0-750 Volts (Including Service Drops) and Trolley Feeders (a)	E 750 - 7,500 Volts	F 7,500 - 20,000 Volts	G 20,000 - 35,000 Volts	H 35,000 - 75,000 Volts	I 75,000 - 150,000 Volts	J 150,000 - 300,000 Volts
	Vertical clearance above supply and/or communication lines										
21	Antennas and associated elements on the same support structure. (tt, uu)	24 (vv)	48 (vv)	24 (ww)	48 (vv, xx)	72	72	72	120 (vv, yy)	-	-

(tt) For Antennas utilized by utilities for the sole purpose of operating and monitoring their supply system see Rules 54.4-G and 58.6.

(uu) For clearances below supply and communication lines see Rules 94.4-A and 94.4-B

(vv) Clearances for exposed associated cables may be reduced by 12 inches.

(ww) May be reduced to 10 inches for cables installed by Antenna owner/operator.

(xx) Clearance from service drop point of attachment on structure to Antenna(s) and associated supporting elements may be reduced to 10 inches.

(yy) Up to 50 kV.

ATTACHMENT – D

~

Rationales for GO 95 Rules Developed in R.07-12-001 Workshops

Introduction

Many of the proposed revisions to Proposed Rule Changes (PRCs) 1-4 developed during the technical workshops stemmed from the central topic of dispute (i.e., "vertical clearances"), while other revisions are more editorial in nature and intended to clarify conditions and/or help ensure continuity within the rule itself or the within the context of other General Order (GO) 95 requirements.

The rationales provided herein are not intended for use as "rule interpretations," but should be viewed as a high-level account of the decisions reached by the Parties attending the workshops.

Final Version - PRC #1

94.3-B: This revision is linked to new 94.3-C and demonstrates the differences between "associated elements" and "support elements".

New 94.3-C: This revision would add a new Subsection "C" and encapsulate the intent of the deleted Section 94.4 (proposed by the Rules Committee). This revision demonstrates the differences between "support elements" and "associated elements," and sets pole-top extensions apart from both categories.

The fine print note is needed to ensure that the material strengths and safety factors of support elements and pole-top extensions meet the requirements as those for Supply utilities constructing at the top of a joint-use utility pole.

New 94.4: In addition to being renumbered from (original) 94.5, several formatting and editorial corrections were made to Subsections A, B, E, F and G, due in part to the recommendations made by the CPSD and PG&E.

Also, the references to multiple Figures (94.1 – 94.5) were replaced with references to a new composite Figure 94.1.

New 94.5: Renumbered from (original) 94.6.

New 94.6: Renumbered from (original) 94.7, a reference to (original) Figure 94.3 was also removed as parties agreed this reference was no longer needed.

New 94.7: Renumbered from (original) 94.8. The text –"Exception to" was deleted as parties agreed the entirety of Rule 91.3 should be referenced.

New 94.8: Renumbered from (original) 94.9. Subsections A, A(1), B and C were modified to address PG&E and CPSD comments and to clarify the proper application of these requirements

The revisions to Subsection B(2) were made in conjunction with the revisions to PRC #4 to clarify that a wireless antenna's communication cables and conductors must be encased by suitable protective covering within the ascribed 6 ft. vertical clearance between wireless antennas and 750 – 35,000 Volt supply lines.

The revision to Subsection B(3) was made to reconcile the revised voltage ranges now expressed in B(2).

The revisions to Subsection B(3) were made to reconcile the text with the revisions to Subsection A.

New 94.9: Renumbered from (original) 94.10.

Final Version - PRC #2

91.3-B, Exception: This revision was made in response to a CPSD comment regarding the use of the term "designated space" and still allows for the omission of pole steps when a wireless antenna is installed between or above supply lines.

Final Version - PRC #3

92.1-F(2): The revision to the final paragraph reconciles the editorial revisions proposed in Rule 94 and adds a reference to same.

Final Version - PRC #4

Columns A – D and H: No changes were made to the vertical clearances originally expressed in PRC #4. The principle revisions involve the Footnote designations.

Columns E – G: These revisions specify that a minimum 6 ft. vertical clearance is required between wireless antennas installed above supply lines operating at 750 – 35,000 Volts. Notably, the Footnote designations have been removed as there are no allowable vertical clearance reductions for these voltage ranges.

Footnotes:

New "tt" – text revised to match Rule 94 Exception.

New "uu" - Revised text from (original) "xx". Renumbered to support alphabetical rearrangement of Footnotes within the Case. An editorial revision was also made to the cited rules.

New "vv" – revised from (original) "ww" for editorial purposes. New text encompasses previously referenced lead-in wires, drip loops and incidental wiring into new term "associated cables". This footnote retains the original option of reducing the expressed vertical clearance for these cables by 12 inches.

New "ww" – revised from (original) "uu" for editorial purposes. Editorial change clarifies the excepted vertical clearance is applicable to cables installed by Antenna's owner/operator.

New "xx" – allows for a reduction in the prescribed vertical clearance under a specific set of circumstances.

New "yy" – revised from (original) "vv" for editorial purposes. No changes to text.

Original "zz" – deleted, as workshop attendees agreed to clearances for Columns E – G.

ATTACHMENT – E

~

R.07-12-001 Workshop Attendees

April 03 - 04, 2008 Workshops - San Francisco, CA

ATTENDEES:

Joe Kieren (AT&T-CA)
Ellen Magnie (AT&T-CA)
Tony Lloyd (AT&T-CA)
David Miller (AT&T-CA)
Kent Tracey (AT&T-CA)
Robert Wolfe (AT&T-CA)
Cindy Manheim (AT&T Mobility)
Bob Gundermann (Crown Castle)
Bob Ritter (Crown Castle)
Rich Rolita (Crown Castle)
Nick Goldman (NextG Networks)
Nicole Mason (NextG Networks)
David Marne (NextG Networks)
Richard Walker (NextG Networks)
Deanna Adams (Pacific Corp)
Heide Caswell (Pacific Corp)
Ryan Flynn (Pacific Corp)
Larry Chow (SCE)
Steve Ford (SCE)
Robert F. LeMoine (SCE)
Sam Stonerock (SCE)
Kristen Jacobsen (Sprint PCS)
Jim Graham (Verizon Wireless)
Michael Bagley (Verizon Wireless)
Jerome Candelaria (CCTA)
Don Hooper (ES&C Inc. / CCTA)
David Pierce (American Tower)
Fred Barvarz (Anaheim)
Andy Campbell (CPUC)
Raymond Fugere (CPUC/CPSD)
Jane Whang (CPUC)
Justin Wynne (CMUA)
Natasha Ernst (ExteNet Systems)
Anita Taff-Rice (ExteNet Systems)
Randy Heldoorn (IBEW 47)
Landis Martilla (IBEW 1245)
Steve Bowen (NewPath Networks/BLG)
Jacqueline McCarthy (PCIA)
Leon Bloomfield (T-Mobile)
Marc Brock (PG&E)
Pat Geoffrey (PG&E)
Grant Guerra (PG&E)
Charlie Poston (PG&E)
Paul Alvarado (SDG&E)
Rebecca Giles (SDG&E)
John Pacheco (SDG&E)
Greg Walters (SDG&E)
Ron Boyer (Time Warner Cable)

Via teleconference:

Barry McCarthy (Anaheim / NCPA)
Stella Zahariudakis (PG&E)
Patty Larson (PG&E)
Tom Dell (BMS)
Steve Rodriguez (T-Mobile)

April 16, 2008 Workshop - San Diego, CA

ATTENDEES:

Dave Miller (AT&T-CA)
Robert Wolfe (AT&T-CA)
Kent Tracey (AT&T-CA)
Jay Baumler (CES)
Raymond Fugere (CPUC/CPSD)
Rich Rolita (Crown Castle)
Randy Heldoorn (IBEW 47)
Steve Bowen (NewPath/ BLG)
Nicole Mason (NextG Networks)
Richard Walker (NextG Networks)
Heide Caswell (Pacific Corp)
David Holt (PacifiCorp)
Pat Geoffrey (PG&E)
Ron Boyer (Time Warner Cable)
Steve Rodriguez (T-Mobile)
Malcolm Brown (Verizon Wireless)
Tom Dell (BMS Communications)
Don Hooper (CCTA/ ES&C Inc.)
Jackie Hooper (CCTA/ ES&C Inc.)
Jerome Candelaria (CCTA)
Natasha Ernst (ExteNet Systems)
Anita Taff-Rice (ExteNet Systems)
Larry Chow (SCE)
Sam Stonerock (SCE)
Paul Alvarado (SDG&E)
Carlos Castro (SDG&E)
Rebecca Giles (SDG&E)
John Pacheco (SDG&E)
Jim Turman (SDG&E)
Greg Walters (SDG&E)
Alvin White (SDG&E)

Via teleconference:

Andy Campbell (CPUC)
Jane Whang (CPUC)
Ryan Flynn (Pacific Corp)
Grant Guerra (PG&E)
Cindy Manheim (AT&T Mobility)
Suzanne Toller (DWT/Crown Castle)
Susan O'Brien (NCPA/Anaheim)

May 01, 2008 Workshop – San Francisco, CA

ATTENDEES:

Dave Miller (AT&T-CA)
Raymond Fugere (CPUC/CPSD)
Rich Rolita (Crown Castle)
Marc Brock (PG&E)
Pat Geoffrey (PG&E)
Grant Guerra (PG&E)
Sam Stonerock (SCE)
Suzanne Toller (DWT/Crown Castle)
Anita Taff-Rice (ExteNet Systems)
Steve Bowen (NewPath/ BLG)
Paul Alvarado (SDG&E)
Carlos Castro (SDG&E)
Rebecca Giles (SDG&E)
John Pacheco (SDG&E)

Via teleconference:

Robert Wolfe (AT&T-CA)
Kent Tracey (AT&T-CA)
Cindy Manheim (AT&T Mobility)
Don Hooper (CCTA/ ES&C Inc.)
Justin Wynne (CMUA)
Natasha Ernst (ExteNet Systems)
Larry Chow (SCE)
Robert LeMoine (SCE)
Barry McCarthy (Anaheim / NCPA)
Jerome Candelaria (CCTA)
Tom Dell (BMS Communications)
Nicole Mason (NextG Networks)
Heide Caswell (Pacific Corp)
Kristen Jacobson (Sprint PCS)
Steve Rodriguez (T-Mobile)