

Decision No. 38316

BEFORE THE RAILROAD COMMISSION OF THE STATE OF CALIFORNIA

**ORIGINAL**

In the matter of the application of  
 PACIFIC GAS AND ELECTRIC COMPANY for  
 an order of the Railroad Commission  
 of the State of California amending  
 and modifying those provisions of  
 General Order No. 95 herein mentioned.

Application No. 25309

BY THE COMMISSION:

FOURTH SUPPLEMENTAL OPINION.

Pacific Gas and Electric Company (also referred to as Pacific) has heretofore been authorized to deviate in certain respects from the rules of General Order No. 95, such authorization being the subject of Decision Nos. 36344 (44 C.R.C. 684), 36791 (45 C.R.C. 135), 37088 and 37696, rendered in response to the original and First, Second, and Third Supplemental Applications herein, respectively. The Fourth Supplemental Application seeks amplification of certain deviations heretofore granted and deviation in certain other respects not heretofore requested.

(A) In the Third Supplemental Application and accompanying Decision, provisions of Rule 54.4 and 54.7, in so far as they relate to the requirement for providing "extended dead-end" insulators where minimum radial clearance of conductors from poles is not provided, were modified to a certain extent in recognition of the principle that these "extended dead-ends" added nothing to the safety of line construction where construction conditions or operating procedures removed the possibility of workmen contacting such conductors when energized. The Commission accepted the representations of Pacific in that proceeding as having merit and granted a restricted deviation, holding that it could not be used on poles in the construction of which exceptions to the fundamental clearances of Table 1 were resorted to. As a result of experience

with "extended dead-ends," the consensus of the workmen who install the facilities is that "extended dead-ends" under certain conditions introduce additional hazards rather than alleviating those already present. As a consequence of these results and a further review of the exceptions to Table 1, Applicant has now renewed its request for substantially the same deviation heretofore requested, but so phrased as to presently provide a more satisfactory solution of the problem. Under the circumstances, therefore, the deviation appears reasonable and shall be granted as requested.

(B) Pacific seeks to have the provisions of Rule 54.7-D modified to such an extent as will permit the use of dead-end insulator hardware on poles or crossarms in the most practical and economical location, at the same time recognizing that, under certain circumstances, such hardware needs additional protection not otherwise provided for in the General Order. It also seeks the opportunity of making reasonable use of through bolts and dead-end hardware having a separation of less than  $1\frac{1}{2}$  inches. In urging this modification, Applicant reasons that circuits of a voltage of less than 750 volts attached to space bolts or dead-end hardware introduced no particular hazard at any location on the pole and that similar hardware associated with single circuits in excess of 7500 volts at the top of a pole present no hazard. It is further urged that hardware associated with circuits from 750 to 7500 volts can be adequately protected by an impregnated fiber cover having the dimensions delineated on the drawing attached to the Fourth Supplemental Application as Exhibit 1. The principles and reasoning urged by Applicant appear to us to be reasonable, and the deviation as requested shall be granted.

(C) In the Third Supplemental Application, Pacific sought modification of Rule 54.7-A in so far as the rule applied to buck arm construction used in conjunction with taps from a single circuit of more than 7500 volts in flat construction at the top of a pole. This modification was requested on the basis that the climbing space required by the rule was unnecessary under these circumstances because circuits of this classification would be worked on only with

"hot line" tools or when the circuit was de-energized. In Decision No. 37696 the Commission recognized the reasonableness of the request in principle, but concluded that no deviation was necessary if the provisions of Rule 54.4-D8 were applicable, and if the line conductors and tap conductors supported by the buck arm were considered to be the same conductor level. Pacific now points out that this interpretation, if Rule 54.4-D8 is not applicable, may be in conflict with other rules of the order specifying the requirement to leave certain crossarm pin positions open where line and buck arm construction is involved. The request for a more explicitly worded deviation appears reasonable and shall be granted.

(D) In the Third Supplemental Application, Pacific requested a deviation from the provisions of Rule 38, Rule 56.4-C4, and Rule 86.4-C4, which provide that a clearance of 3 inches must be maintained between guys and communication conductors. The application therein was for a specific deviation phrased in the same language as a deviation previously granted to some telephone utilities within the State. This deviation permits use of an insulator in the guy and a mechanical abrasion protector mounted on the communication conductors as a substitution for the 3-inch separation required by the rules. This deviation as granted has the disadvantage that when one utility avails itself of the deviation, it is incumbent upon the other utility involved to perform certain construction operations on its plant. Decision No. 37696 recognized the need for and justification of a deviation from these rules and the deviation granted therein was phrased in general terminology which it was hoped would stimulate further consideration of the method of satisfactorily accomplishing the objective sought and at the same time provide a satisfactory solution to the objection heretofore cited. In the Fourth Supplemental Application it is apparent that Pacific has re-examined its request and restudied the principles involved and now seeks deviation in general conforming to that granted the telephone companies, but modified to confine all the necessary construction to its own plant. In view of the representations heretofore made in

the Third Supplemental Application and the further representations made herein, the deviation as requested appears reasonable and shall be granted.

(E) In Decision No. 36791, Pacific was granted authority to deviate from Rule 58.3-B5 to the extent that a clearance of less than  $1\frac{1}{2}$  inches between transformer cases and through bolts was permissible provided the portion of the through bolt projecting into the climbing space was covered with a wooden covering having certain specifications and dimensions as delineated in Exhibit B of the First Supplemental Application herein. In view of its present request for authority to use the impregnated fiber bolt covers heretofore discussed under Section (B) above, it now wishes permission to use the same fiber covers as an alternative to the wooden cover heretofore authorized. The request appears reasonable and shall be granted.

#### ORDER

The Commission having considered the above application and being of the opinion that it should be granted; that a public hearing is unnecessary and good cause appearing,

IT IS HEREBY ORDERED that Pacific Gas and Electric Company be and it is hereby authorized to deviate from the provisions of General Order No. 95 in the following particulars and under the conditions hereinafter specified.

(A) Rule 54.4-D7a

Clearances between conductors and center line of pole greater than the basic clearances of Table 1, Case 8, Col. D, as required by Rule 54.4-D7a, shall not be held to apply to the middle conductor of a single three wire 0-750 volt circuit dead-ended in flat configuration.

Clearances between conductors and center line of pole greater than the basic clearances of Table 1, Case 8, Col. E, as required by Rule 54.4-D7a, shall not be held to apply to the middle conductors of a single three wire 750-7500 volt circuit, dead-ended in flat configuration, said conductor being attached to a crossarm in such a manner that the point of attachment is less than 15 inches radially from the axial center line of pole, provided all portions of the middle line conductor so dead-ended, and jumpers connected thereto, are at least 15 inches radially from all points on the boundaries of the climbing space at the level of the conductors concerned.

Transformers or similar apparatus shall not be connected to a 750-7500 volt circuit having the center conductor so dead-ended, if a line arm and related buck arm on the pole are associated with the circuit concerned.

Rule 54.4-D7b and Rule 54.7-A4

Clearances between conductor and center line of pole greater than the basic clearances of Table 1, Case 8, Col. E, as required by Rule 54.4-D7b shall not be held to apply to the middle conductor of a single three wire circuit of more than 7500 volts dead-ended in flat configuration, said conductor being attached to a crossarm in such a manner that the point of attachment is less than 18 inches radially from the axial center line of pole, when there is no circuit on the pole above the circuit so constructed; nor shall they be held to apply to the middle conductor of a single three wire circuit installed as described above and located below other circuits on the pole provided all portions of the middle line conductor so dead-ended, and jumpers connected thereto, are at least 18 inches radially from all points on the boundaries of the climbing space at the level of the conductors concerned.

Transformers or similar apparatus shall not be connected to a circuit of more than 7500 volts having center conductor so dead-ended if a line arm and related buck arm are associated with the circuit concerned.

Dead-end or strain type insulators which support line conductors of a single circuit of more than 7500 volts located at the top circuit level of a pole may extend not more than one-half of their diameter into the climbing space at that level.

For the purpose of applying the aforesaid deviations from Rule 54.4-D7 the word "circuit" shall be held to include all line conductors, jumpers, and insulators attached to a line arm or to a line arm and its related buck arm.

If a circuit is constructed in accordance with this deviation the reduced vertical clearances between said circuit and other circuits permitted by Rules 54.4-C1a and 54.4-C1b shall not be applied on the same pole.

(B) Rule 52.7-D shall not be held to apply to:

- (1) Through bolts or space bolts and dead-end hardware associated with circuits of 0-750 volts in any configuration at any level on a pole or structure;
- (2) Through bolts or space bolts and dead-end hardware associated with circuits of 750 to 7500 volts in any configuration at any level on a pole or structure, provided that the ends of such bolts which project into a climbing space are covered with a suitable nonconducting shield or cover having the insulating efficiency and mechanical strength of impregnated fiber 5/16 inches thick, similar to the cover submitted herewith;

- (3) Through bolts or space bolts and dead-end hardware associated with circuits of more than 7500 volts in any configuration at any level on a pole or structure provided that the ends of such bolts which project into a climbing space are covered with a suitable nonconducting shield or cover as described above; with this exception, that no covers shall be required if the bolts are associated with a single circuit constructed in vertical, flat, or triangular construction at the top level of a pole.

If dead-end hardware and through bolts are in contact, a positive electrical contact shall be made. If bolt covers are used the area of the climbing space shall

not be reduced more than 10% at any level, and said bolts and bolt covers shall be deemed to be allowable climbing space obstructions. No part of any guy shall be in a climbing space if said guy is less than 1-1/2 inches from any bolt which is connected to or less than 1-1/2 inches from dead-end hardware.

- (C) The requirement of Rule 54.7A that climbing space shall be maintained for a distance of not less than 4 feet vertically both above and below each conductor level through which it passes and the requirements of Rule 54.7-A3b which relate to leaving certain pinholes in line arms and/or buck arms vacant, shall not be held to apply to a single circuit of more than 7500 volts in flat construction at the top of the pole, provided:

- (1) No portion of any conductor of such a circuit shall be a lesser radial distance from axial center-line of pole than that required by Rule 37, Table 1, Case 8.
- (2) Climbing space as required by Rule 54.7-A2 and/or deviation granted under Decision No. 36344 shall be maintained through the level of the conductors on the lower arm, and where a related buck arm is involved said climbing space need not extend above the level of the conductors on the upper arm, but shall extend to such level.

- (D) The minimum clearance of 3 inches specified in Rule 38, Table 2, Case 19, Col. C, Rule 56.4-C4 and Rule 86.4-C4 need not be maintained between guys and communication conductors other than open wire conductors, provided that: (1) The guy is not a "guy in proximity" to supply line conductors (as defined in Rule 21.3-D); or (2) All parts of the guy are 6 feet or more below 0-750 volt supply conductors supported on the same pole to which the guy is attached; or (3) The guy is a "guy in proximity" to supply line conductors (as defined in Rule 21.3-D) which are not less than 6 feet above communication messenger and/or cable, and said guy is sectionalized (a) with an insulator having a minimum flashover of 25,000 volts installed in accordance with Rule 56.7-B which is also located above the messenger and/or cable, or (b) with an insulator as described in (a) located less than 6 feet from surface of pole but not less than 3 inches nor more than 6 inches above the messenger and/or cable, in which latter case, it shall not be necessary to install a second insulator located as required by the first sentence of Rule 56.7-B; and (4) In every case where a clearance of 3 inches is not maintained a suitable wood guard shall be placed on the messenger and cable or on the guy wire to prevent physical contact and resultant mechanical damage.

(E) Rule 58.3-B5

The minimum clearance of 1-1/2 inches from transformer cases; hanger and other transformer metal parts to through bolts, arm braces, and other hardware, specified in Rule 58.3-B5, need not apply to through bolts in metallic contact with transformer cases or metal parts thereof nor to through bolts supporting heel arms, provided the portion of such through bolts extending into the climbing space is covered with a wood protective covering having dimensions not less than those specified in Exhibit B of First Supplemental Application No. 25309, and further provided that such coverings are made of well seasoned Douglas Fir (Oregon Pine) and are installed in a workmanlike manner, or, in the alternative, with impregnated fiber bolt covers 5/16 inches thick having critical dimensions equal to or greater than the device covered by the drawing marked Exhibit No. 1, annexed to Fourth Supplemental Application No. 25309.

The effective date of this order shall be the date hereof.

Dated at San Francisco, California this 19<sup>th</sup> day of October

1945.

David C. Anderson  
Justice F. Cassius  
Francis W. Brown  
Frank P. Russell

(Commissioners)