

PUBLIC UTILITIES COMMISSION

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October 11, 2018

Melvin Stark
Principal Manager, T&D Compliance Integration
Southern California Edison
1 Innovation Way
Pomona, CA 91786

EA2018-824

Subject: Audit of Southern California Edison's Catalina Island District

Mr. Stark:

On behalf of the Electric Safety and Reliability Branch of the California Public Utilities Commission (CPUC), Derek Fong, Majed Ibrahim, James Miller, and Howard Huie of my staff conducted an electric audit of Southern California Edison's (SCE) Catalina Island District from April 16, 2018, to April 20, 2018. The audit included a review of SCE's records and field inspections of SCE's facilities.

During the audit, my staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please advise me no later than November 12, 2018, by electronic or hard copy, of all corrective measures taken by SCE to remedy and prevent such violations.

If you have any questions concerning this audit, you can contact Derek Fong at (213) 576-6850 or derek.fong@cpuc.ca.gov

Sincerely,

A handwritten signature in blue ink that reads "Fadi Daye".

Fadi Daye, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosures: CPUC Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC
Lee Palmer, Deputy Director, Office of Utility Safety, CPUC
Charlotte TerKeurst, Program Manager, Electric Safety and Reliability Branch, CPUC
Derek Fong, Senior Utilities Engineer, CPUC

AUDIT FINDINGS

I. Records Review

During the audit, my staff reviewed the following records:

- Overhead and underground detailed inspections records.
- Completed and pending corrective action work orders.
- Pole loading calculations.
- Safety hazard notifications.
- Intrusive test records
- SCE's documented inspection program.

II. Records Review – Violations List

My staff observed the following violations during the records review portion of the audit:

GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.

GO 95, 31.2, Inspection of Lines, states in part:

Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard.

SCE's records indicate that from 2015 to 2018, SCE completed 3 work orders past their scheduled due date of corrective action.

III. Field Inspections

My staff inspected the following facilities during the field inspection:

No.	Structure ID.	Type of Structure	Location
1	2006380E	Pole	Avalon
2	1491738E	Pole	Avalon
3	1492840E	Pole	Avalon
4	1492839E	Pole	Avalon
5	1492838E	Pole	Avalon
6	1292837E	Pole	Avalon
7	2365067E	Pole	Avalon
8	X10119E	Pole	Avalon
9	X10116E	Pole	Avalon
10	2365066E	Pole	Avalon
11	1492878E	Pole	Avalon
12	39668	Pole	Avalon
13	39669	Pole	Avalon
14	39670	Pole	Avalon
15	1492874E	Pole	Avalon
16	4659465E	Pole	Avalon
17	504459H	Pole	Avalon
18	4659466E	Pole	Avalon
19	X10114E	Pole	Avalon
20	X10136E	Pole	Avalon
21	1492399E	Pole	Avalon
22	1492877E	Pole	Avalon
23	2276627E	Pole	Avalon
24	P5639344	Padmount Transformer	Avalon
25	B5060676	Transformer	Avalon
26	5062530/RAG2526	Switch	Avalon
27	B5060680	Transformer	Avalon
28	P5062557	Padmount Transformer	Avalon
29	P5408671/PMS8671	Padmount Switch	Avalon
30	P5408672	Padmount Transformer	Avalon
31	P5408674	Padmount Transformer	Avalon
32	P5408675	Padmount Transformer	Avalon
33	S5062583/BS2531	BURD Switch	Avalon
34	B5060659	BURD Transformer	Avalon
35	B5060658/BS2508	BURD Transformer	Avalon
36	P5435851	Padmount Transformer	Avalon
37	1491729E	Pole	Avalon
38	1491755E	Pole	Avalon
39	1492355E	Pole	Avalon
40	521988H	Pole	Avalon
41	2092187E	Pole	Avalon
42	4037493E	Pole	Avalon
43	5060688	Pole	Avalon

IV. Field Inspection Violations List

My staff observed the following violations during the field inspection:

GO 95, Rule 51.6-A, Marking and Guarding, High Voltage Marking of Poles, states in part:

Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words "HIGH VOLTAGE", or pair of signs showing the words "HIGH" and "VOLTAGE", not more than six (6) inches in height with letters not less than 3 inches in height. A pair of signs may be stacked to a height of no more than 12 inches. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible.

The High Voltage sign on the following SCE poles was damaged:

- X10119E – Missing high voltage sign on one side and missing letters on the other side
- 1492874E – Missing high voltage sign on one side and missing voltage on other side
- 504459E – Missing high voltage sign

GO 95, Rule 54.8-C4, Communication Service Drops, states in part:

The radial clearance between supply service drop conductors and communication service drop conductors may be less than 48 inches as specified in Table 2, Column C, Cases 4 and 9; Column D, Cases 3 and 8, but shall be not less than 24 inches. Where within 15 feet of the point of attachment of either service drop on a building, this clearance may be further reduced but shall be not less than 12 inches.

The clearance between service drops and communications cable on the following poles was not in accordance with the above rule:

- 1292837 – An SCE service drop and a communications cable were touching.
- 2365067E – Within 15 feet of the attachment point, an SCE service drop and a communications cable had a radial clearance of less than 12”.
- 1492877E – An SCE service drop and a communications cable were touching.

GO 95, Rule 38, Table 2, Case 17, Column D requires the “radial separation of conductors on same crossarm, pole or structure – incidental pole wiring: conductors, taps or lead wires of the same circuit” of 0-750 Volts to be 3 inches.

The conductors that are part of the service drop on pole No. 2276627E were touching.

GO 95, Rule 54.8-B1, Above Public Thoroughfares, states in part:

Service drop conductors shall have a vertical clearance of not less than 18 feet above public thoroughfares, except that this clearance may grade from 18 feet at a position not more than 12 feet horizontally from the curb line to a clearance of not less than 16 feet at the curb line, provided the clearance at the centerline of any public thoroughfare shall in no case be less than 18 feet. Where there are no curbs the foregoing provisions shall apply using the outer limits of possible vehicular movement in lieu of a curb line.

The above ground clearance of the service drops on the following SCE poles was not in accordance with the above rule:

- 2365066E – An SCE service drop had an above ground clearance of 14 feet at the curb line.
- 1492878E – An SCE service drop had an above ground clearance of 13.5 feet at the curb line.
- 39670 – Two SCE service drops had above ground clearances of 12.5 feet and 14 feet, respectively, at the curb line.

GO 95, Rule 37, Table 1, Case 6, Column D requires the “vertical clearance” of supply conductors of 0-750 V “above walkable surfaces on buildings, bridges or other structures which do not ordinarily support conductors, whether attached or unattached” to be 8 feet.

The vertical clearance of the service drops on following SCE poles above the walkable surface of a deck was less than 8 feet:

- 39670 – An SCE service drop had a vertical clearance of approximately 7 feet above a deck.
- 2365067E – An SCE service drop had a vertical clearance of less than 8 feet above a deck.

GO 95, Rule 54.7, Climbing and Working Space, states in part:

Climbing space shall be maintained from the ground level.

The climbing space on SCE pole No. X10116E was obstructed by a communications cable.

GO 95, Rule 44.3, Replacement, states in part:

Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades “A” and “B” construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade “C” construction to less than one-half of the safety factors specified in Rule 44.1.

There are several discrepancies with the pole loading calculation for pole No. X10116E: (1) SCE’s calculation used a wind load of 8 lbs./ft² instead of a wind load of 21.33 lbs./ft² (8 lbs./ft²*2.67 = 21.33 lbs./ft²), thus underestimating the pole’s lateral deflection and the amount of bending moment caused by the vertical loads; (2) SED Staff found that the three communications span cables had

higher attachment height on the subject pole than on the two adjacent poles; SCE's calculation did not appear to take into account the increase in vertical loading on the subject pole that is caused by uneven attachment height; (3) SCE's pole loading calculation did not appear to include the additional wind loading on the splice boxes, amplifiers, filters, and other incidental wiring and equipment on the communications span cables that are attached to the pole.

Without accounting for the three aforementioned issues, it is unclear if Pole number X10116E is in compliance with the requirements of GO 95, Rule 44.3. SED requests that SCE provide the following by November 12, 2018:

- (1) An updated pole load calculation and/or explain how SCE's calculations account for the three aforementioned issues.
- (2) The Modulus of Elasticity value used in the pole load calculation.
- (3) The weight density (in lbs./ft.) of the three communications span cables¹.

¹ Per SCE's pole loading calculation of Pole number X10116E, the three communications span cables consist of one 3" CATV cable (with 0.25" messenger) installed at 25 feet, one 2.5" TELCO communications span cable (with 0.25" messenger) installed at 24 feet, and one 2.5" TELCO communications span cable (with 0.25" messenger) installed at 23 feet.