

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



December 21, 2016

EA2016-014

Melvin Stark
Principal Manager, Maintenance & Inspections/Asset Management
Southern California Edison Company (SCE)
3 Innovation Way
Pomona, CA 91786

Subject: Audit of Southern California Edison's Arrowhead Division

Mr. Stark:

On behalf of the Electric Safety and Reliability Branch of the California Public Utilities Commission (CPUC), Richard Kyo and Eric Ujjiye of my staff conducted an electric audit of Southern California Edison's (SCE) Arrowhead District from October 10, 2016 to October 14, 2016. 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 January 30, 2017, 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 Richard Kyo at (213) 576-7081 or richard.kyo@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, SED
Charlotte TerKeurst, Program Manager, Electric Safety and Reliability Branch, 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 165, Section III-C, Standards for Inspection, states:

For all inspections records shall specify the circuit, area, facility or equipment inspected, the inspector, the date of the inspection, and any problems (or items requiring corrective action) identified during each inspection, as well as the scheduled date of corrective action.

SCE's records indicated that from 2013 to 2016, one work order was completed past its scheduled 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	10089E	Pole	Crestline
2	4734030E	Pole	Crestline
s3	4749385E	Pole	Crestline
4	4744885E	Pole	Crestline
5	4832775E	Pole	Crestline
6	GT5566	Pole	Crestline
7	F7871Y	Pole	Crestline
8	GT119514	Pole	Crestline
9	4850223E	Pole	Crestline
10	4852816E	Pole	Crestline
11	4850222E	Pole	Crestline
12	1569335E	Pole	Crestline
13	1569336E	Pole	Crestline
14	4850881E	Pole	Crestline
15	1466903E	Pole	Running Springs
16	1466964E	Pole	Running Springs
17	1406965E	Pole	Running Springs
18	1466962E	Pole	Running Springs
19	1466901E	Pole	Running Springs
20	4275411E	Pole	Running Springs
21	4228671E	Pole	Running Springs
22	1466960E	Pole	Running Springs
23	1466959E	Pole	Running Springs
24	1466958E	Pole	Running Springs
25	4003798E	Pole	Running Springs
26	4003797E	Pole	Running Springs
27	1589833E	Pole	Running Springs
28	4373192E	Pole	Running Springs
29	2007910E	Pole	Running Springs
30	1818848E	Pole	Running Springs
31	4580478E	Pole	Running Springs
32	1854822E	Pole	Running Springs
33	2007912E	Pole	Running Springs
34	4732049E	Pole	Running Springs
35	2007914E	Pole	Running Springs
36	4748316E	Pole	Running Springs
37	2137822E	Pole	Running Springs
38	2007917E	Pole	Running Springs
39	2007918E	Pole	Running Springs

40	458246E	Pole	Crestline
41	1384394E	Pole	Crestline
42	464548E	Pole	Crestline
43	1448517E	Pole	Crestline
44	4029941E	Pole	Crestline
45	1448518E	Pole	Crestline
46	4884351E	Pole	Crestline
47	F19271	Pole	Crestline
48	4850316E	Pole	Crestline
49	1884602E	Pole	Crestline
50	1884003E	Pole	Crestline
51	4003678E	Pole	Crestline
52	2277217E	Pole	Crestline
53	1204318E	Pole	Crestline
54	4620099E	Pole	Crestline
55	4620098E	Pole	Crestline
56	1204319E	Pole	Crestline
57	1204316E	Pole	Crestline
58	4576268E	Pole	Crestline
59	1204315E	Pole	Crestline
60	1204314E	Pole	Crestline
61	2348174E	Pole	Crestline
62	1649498E	Pole	Arrow Bear
63	486829E	Pole	Arrow Bear
64	4666282E	Pole	Green Valley Lake
65	1302106E	Pole	Blue Jay
66	4768096E	Pole	Crestline
67	4621045E	Pole	Crestline
68	2314908E	Pole	Crestline
69	458519E	Pole	Crestline
70	5131279	Vault	Running Springs
71	5003668	Vault	Lake Arrowhead
72	5167009	Vault	Lake Arrowhead
73	5306791	Vault	Blue Jay
74	P5003696	Vault	Crestline
75	5193987	Vault	Crestline

IV. Field Inspection Violations List

My staff observed the following violations during the field inspection:

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

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

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 poles were damaged:

- Pole 1466964E - Pole 1406965E - Pole 1466960E - Pole 1466959
- Pole 1589833E - Pole 2007912E - Pole 2007914E - Pole 1818848E

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

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

GO 95, Rule 54.6-B, Ground Wires, states in part:

That portion of the ground wires attached on the face or back of wood crossarms or on the surface of wood poles and structures shall be covered by a suitable protective covering (see Rule 22.8).

The ground moulding supported on poles numbered 1818848E and 1204319E was damaged.

GO 95, Rule 38, Minimum Clearances of Wires from Other Wires, states in part:

The minimum vertical, horizontal or radial clearances of wires from other wires shall not be less than the values given in Table 2.

GO 95, Table 2, Case 19, Column F, requires the minimum radial separation of guys and span wires from supply conductors of 7,500-20,000 volts supported on the same pole to be 9 inches.

A down guy wire and primary conductor supported on pole number 2007910E had less than nine inches of radial clearance.

GO 95, Rule 34, Foreign Attachments, states in part:

Nothing in these rules shall be construed as permitting the unauthorized attachment, to supply, street light or communication poles or structures, of antennas, signs, posters, banners, decorations, wires, lighting fixtures, guys, ropes and any other such equipment foreign to the purposes of overhead electric line construction.

An unauthorized meter panel was installed on Pole number GT5566.

GO 95, Rule 35, Vegetation Management, states in part:

When a supply or communication company has actual knowledge, obtained either through normal operating practices or notification to the company, that its circuit energized at 750 volts or less shows strain or evidences abrasion from vegetation contact, the condition shall be corrected by reducing conductor tension, rearranging or replacing the conductor, pruning the vegetation, or placing mechanical protection on the conductor(s). Strain on a conductor is present when vegetation contact significantly compromises the structural integrity of supply or communication facilities.

Secondary triplex conductors supported on poles numbered 1854822E, 1884602E, and 1204315E showed strain from vegetation contact.

A secondary triplex conductor supported on pole number 1448518 showed abrasion from vegetation contact.

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

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

GO 95, Rule 56.2, Uses (Guy Wires), states in part:

Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44.

An down guy wire on pole number 4748316E was not taut.

GO 95, Rule 91.3-A1 Stepping, Use of Steps, Pole with Vertical Runs and Risers, states in part:

All jointly used poles which support supply conductors shall be provided with pole steps if vertical runs or risers are attached to the surface of such poles.

Joint poles numbered GT5566 and 4003798E, which supported risers, did not have pole steps.

GO 128, Rule 32.7, Covers, states in part:

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

A handhole adjacent to pole number 4228671E was unsecured and open.

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

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

An SCE down guy wire supported on pole number 2137822E was contacting a primary crossarm.

GO 128, Rule 35.3, Warning Signs, states:

Warning signs indicating high voltage shall be installed on an interior surface or barrier if present, inside the entrance of vaults, manholes, handholes, pad mounted transformer compartments, and other above ground enclosures containing exposed live parts above 750 volts. Such warning signs shall also be installed on an exterior surface of all such pad mounted transformer compartments and other above ground enclosures. Such signs shall be clearly visible to a person in position to open any such access door, other opening, or barrier.

Vaults numbered 5003696 and 5193987 did not have warning signs installed around their entrance.

Handhole number 5306791 did not have warning signs indicating high voltage installed around its entrance.