PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
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May 27, 2021 EA20201-898

Melvin Stark
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1 Innovation Way
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Subject: Audit of Southern California Edison's Arrowhead District

Mr. Stark:

On behalf of the Electric Safety and Reliability Branch of the California Public Utilities Commission (CPUC), Kyle King, Eric Ujiiye, and Calvin Choi of my staff conducted an electric distribution audit of Southern California Edison's (SCE) Arrowhead District from May 3, 2021 to May 7, 2021. 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 June 28, 2021, 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 Kyle King at (213)-266-3260 or Kyle.King@cpuc.ca.gov.

Sincerely,

Fadi Daye

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

Enclosures: Audit Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
Nika Kjensli, Program Manager, ESRB, SED, CPUC
Kyle King, Utilities Engineer, ESRB, SED, 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.
- Vegetation Management Records

II. Records Review – Violations List

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

The applicable pre-2018 version of GO 95, Rule 18 B, Notification of Safety Hazards, states in part:

> *If a company, while performing inspections of its facilities, discovers a safety hazard(s) on or near a communications facility or electric facility involving another company, the inspecting company shall notify the other company and/or facility owner of such safety hazard(s) no later than 10 business days after the discovery. To the extent the inspecting company cannot determine the facility owner/operator, it shall contact the pole owner(s), who shall be responsible for promptly notifying the company owning/operating the facility with the safety hazard(s), normally not to exceed five business days after being notified of the safety hazard. The notification shall be documented and such documentation must be preserved by all parties for at least ten years.*
>
> *Note: Each pole owner must be able to determine all other pole owners on poles it owns. Each pole owner must be able to determine all authorized entities that attach equipment on its portion of a pole.*

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.*

SCE's records indicated that from 2013 to 2020, SCE completed 248 work orders past their due date for corrective actions. Additionally, as of the date of the audit, SCE had 130 open work orders that were past their scheduled due date for corrective actions.

GO 165, Standard III-B, Distribution Facilities, Standards for Inspections, states in part:

> *Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table-1.*

GO 95, Rule 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 indicated that from 2016 to 2020, SCE completed 89 overhead detailed inspections past their scheduled due date.

GO 165, Standard III-B, Distribution Facilities, Standards for Inspections, states in part:

> *Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table-1.*

GO 128, Rule 17.2, Inspection, states in part:

> *Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements these rules.*

SCE's records indicated that from 2016 to 2020, SCE completed 13 underground detailed inspections past their scheduled due date.

GO 128, Rule 17.1, 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.*

SCE's records indicated that from 2011 to 2020, SCE completed 6 work orders past their due date for corrective actions. Additionally, as of the date of the audit, SCE had 2 open work orders that were past their scheduled due date for corrective action.

III. Field Inspections

My staff inspected the following structures during the field inspection portion of the audit:

	Structure No.	Structure Type	Location
1	4831577E	Utility Pole	Crestline
2	1589783E	Utility Pole	Crestline
3	924131E	Utility Pole	Crestline
4	924130E	Utility Pole	Crestline
5	924129E	Utility Pole	Crestline
6	1246732E	Utility Pole	Crestline
7	1818566E	Utility Pole	Crestline
8	1818567E	Utility Pole	Crestline
9	1818568E	Utility Pole	Crestline
10	1818569E	Utility Pole	Crestline
11	1818570E	Utility Pole	Crestline
12	1818571E	Utility Pole	Crestline
13	1818572E	Utility Pole	Crestline
14	4621172E	Utility Pole	Crestline
15	1818574E	Utility Pole	Crestline
16	4507334E	Utility Pole	Crestline
17	1056863E	Utility Pole	Crestline
18	1056862E	Utility Pole	Crestline
19	1056861E	Utility Pole	Crestline
20	1056920E	Utility Pole	Crestline
21	1056919E	Utility Pole	Crestline
22	1027491E	Utility Pole	Crestline
23	1027490E	Utility Pole	Crestline
24	1884829E	Utility Pole	Crestline
25	1027455E	Utility Pole	Crestline
26	1027454E	Utility Pole	Crestline
27	1027453E	Utility Pole	Crestline
28	1027452E	Utility Pole	Crestline
29	1027451E	Utility Pole	Crestline
30	1008950E	Utility Pole	Crestline
31	1008949E	Utility Pole	Crestline
32	1008948E	Utility Pole	Crestline
33	1481284E	Utility Pole	Running Springs
34	1481281E	Utility Pole	Running Springs
35	1481282E	Utility Pole	Running Springs
36	4555491E	Utility Pole	Running Springs

	Structure No.	Structure Type	Location
37	1481283E	Utility Pole	Running Springs
38	1448276E	Utility Pole	Running Springs
39	1448275E	Utility Pole	Running Springs
40	1448274E	Utility Pole	Running Springs
41	4620903E	Utility Pole	Running Springs
42	1448273E	Utility Pole	Running Springs
43	1448272E	Utility Pole	Running Springs
44	1448271E	Utility Pole	Running Springs
45	1511403E	Utility Pole	Running Springs
46	1511404E	Utility Pole	Running Springs
47	4496566E	Utility Pole	Running Springs
48	1261284E	Utility Pole	Running Springs
49	1261283E	Utility Pole	Running Springs
50	1261282E	Utility Pole	Running Springs
51	1211145E	Utility Pole	Running Springs
52	1211144E	Utility Pole	Running Springs
53	1211143E	Utility Pole	Running Springs
54	1211142E	Utility Pole	Running Springs
55	1384431E	Utility Pole	Running Springs
56	1384430E	Utility Pole	Running Springs
57	4844481E	Utility Pole	Running Springs
58	1511353E	Utility Pole	Lake Arrowhead
59	1511352E	Utility Pole	Lake Arrowhead
60	1511351E	Utility Pole	Lake Arrowhead
61	1414446E	Utility Pole	Lake Arrowhead
62	4275592E	Utility Pole	Lake Arrowhead
63	1414448E	Utility Pole	Lake Arrowhead
64	1414449E	Utility Pole	Lake Arrowhead
65	1414450E	Utility Pole	Lake Arrowhead
66	1513849E	Utility Pole	Lake Arrowhead
67	1513850E	Utility Pole	Lake Arrowhead
68	1884433E	Utility Pole	Lake Arrowhead
69	1885398E	Utility Pole	Lake Arrowhead
70	1885397E	Utility Pole	Lake Arrowhead
71	1885396E	Utility Pole	Lake Arrowhead
72	1885395E	Utility Pole	Lake Arrowhead
73	4201703E	Utility Pole	Lake Arrowhead
74	1885393E	Utility Pole	Lake Arrowhead
75	1885392E	Utility Pole	Lake Arrowhead
76	P5618530	Pad-mounted Transformer	Lake Arrowhead

	Structure No.	Structure Type	Location
77	PME0457	Pad-mounted Switch	Lake Arrowhead
78	5014751	Vault	Lake Arrowhead
79	P5325150	Pad-mounted Transformer	Lake Arrowhead
80	P5000784	Pad-mounted Transformer	Lake Arrowhead
81	P5000783	Pad-mounted Transformer	Lake Arrowhead
82	P5000789	Pad-mounted Transformer	Lake Arrowhead
83	P5618532	Pad-mounted Switch	Lake Arrowhead
84	P5000788	Pad-mounted Switch	Lake Arrowhead
85	P5000787	Pad-mounted Transformer	Lake Arrowhead
86	P5000786	Pad-mounted Transformer	Lake Arrowhead
87	P5306800	Pad-mounted Transformer	Blue Jay
88	P5326981	Pad-mounted Transformer	Blue Jay
89	P5003695	Pad-mounted Transformer	Blue Jay
90	5326980	Junction Box	Blue Jay
91	P5597402	Pad-mounted Transformer	Lake Arrowhead
92	5573104	Junction Box	Lake Arrowhead
93	P5597404	Pad-mounted Transformer	Lake Arrowhead
94	495395E	Utility Pole	Lake Arrowhead
95	1884894E	Utility Pole	Lake Arrowhead
96	772512E	Utility Pole	Lake Arrowhead
97	772513E	Utility Pole	Lake Arrowhead
98	772514E	Utility Pole	Lake Arrowhead
99	709884E	Utility Pole	Lake Arrowhead
100	772515E	Utility Pole	Lake Arrowhead
101	1933649E	Utility Pole	Crestline
102	1933648E	Utility Pole	Crestline
103	1933650E	Utility Pole	Crestline
104	783446E	Utility Pole	Crestline
105	4003721E	Utility Pole	Crestline
106	2008142E	Utility Pole	Crestline
107	1448287E	Utility Pole	Crestline
108	1448288E	Utility Pole	Crestline
109	1448289E	Utility Pole	Crestline
110	1763017E	Utility Pole	Crestline
111	1384321E	Vegetation	Lake Arrowhead
112	1384320E	Vegetation	Lake Arrowhead
113	1384322E	Vegetation	Lake Arrowhead
114	1384323E	Vegetation	Lake Arrowhead
115	4565671E	Vegetation	Lake Arrowhead
116	1448247E	Vegetation	Lake Arrowhead

	Structure No.	Structure Type	Location
117	1448246E	Vegetation	Lake Arrowhead
118	1448245E	Vegetation	Lake Arrowhead
119	4275425E	Vegetation	Lake Arrowhead
120	2314918E	Vegetation	Lake Arrowhead

IV. Field Inspection - Violations List

GO 95, Rule 51.6, 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 signs on each of the following poles were either missing or damaged:

- 1027490E
- 1261284E
- 1884433E
- 772513E
- 772514E
- 772515E

GO 95, Rule 56.2, Overhead Guys, Anchor Guys and Span Wire Use, 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 .*

The down guy wire attached to each of the following SCE poles was loose:

- 772512E
- 1818567E
- 1448275E

GO 95, Rule 86.4-D2, Clearances for Down Guys Passing & Attached to same pole, states in part:

> *Where a guy of a communication system and a guy of a supply system pass each other and are attached to the same pole, a separation of not less than 3 inches shall be maintained between such guys. No separation is required between such guys of communication systems, provided neither is an exposed guy (see Rule 21.5–C).*

The primary, secondary, and communication down guy wire on SCE Pole 1481281E were touching.

A span guy wire attached to SCE Pole 1448276E was touching a down guy wire attached to same pole.

GO 95, Rule 86.4-C4, Clearances for Conductors and Guys supported by or attached on the same pole, states in part:

> *The radial clearances between guys and conductors supported by or attached to the same poles or crossarms shall not be less than as specified in Table 2, Case 19.*

A down guy wire attached to SCE Pole 1448275E was touching a communications conductor.

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).*

A secondary conductor attached to SCE Pole number 1511404E was strained by vegetation.

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.*

A down guy wire attached to each of the following SCE poles was strained by vegetation:

- 1885392E
- 1513850E

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 attached to each of the following SCE poles was damaged:

- 1211143E
- 772514E
- 4003721E

GO 128, Rule 35.3, Warning Sign, states in part:

> *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.*

Underground junction cabinet number 5573104, which contained live parts above 750 volts, did not have a high voltage sign installed on the interior surface.

GO 128, Rule 17.1, 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.*

- The enclosure of Padmounted transformer P5000783 was damaged.
- An elbow inside Padmounted transformer P5306800 had a high/unsafe temperature "hot spot" reading.

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. (Also see Rule 17.8, and Appendix B, Figs. 9 and 17.)*
>
> *If the cover of a subsurface equipment enclosure is a grate a means shall be provided to prevent tampering with the equipment housed therein.*

The cover of a Junction Box 5326980 was not secured properly.