

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



November 9, 2018

EA2018-823

Hien Vuong  
Acting Director of Electrical Operations  
Electrical Operations  
City of Azusa, Azusa Light and Water  
1020 W 10th St.  
Azusa, CA 91702

**SUBJECT:** Audit of Azusa Light and Water's Electrical Distribution System

Mr. Vuong:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Eric Ujjiye, Derek Fong and Howard Huie of my staff conducted an electric distribution audit of Azusa Light and Water's (ALW) system from June 11, 2018 to June 14, 2018. The audit included a review of ALW electrical distribution inspection and maintenance records and a field inspection of ALW's electrical distribution 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 December 10, 2018, by electronic or hard copy, of all corrective measures taken by ALW to remedy and prevent such violations.

If you have any questions concerning this audit, you can contact Eric Ujjiye at (213) 620-2598 or [eric.ujjiye@cpuc.ca.gov](mailto:eric.ujjiye@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

Enclosure: Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC  
Lee Palmer, Deputy Director, Office of Utility Safety, SED, CPUC  
Charlotte TerKeurst, Program Manager, Electric Safety and Reliability Branch, CPUC  
Eric Ujjiye, Utilities Engineer, ESRB, CPUC

## **Audit Findings**

### **I. Records Review**

During the audit, my staff reviewed the following records:

- Overhead and underground detailed inspection records.
- Completed and pending corrective action work orders.
- Pole loading calculations.
- Intrusive test records.
- Diagnostic test records, e.g. infrared thermography inspections and oil insulation testing.
- ALW's visual 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, Rule 18, Reporting and Resolution of Safety Hazards Discovered by Utilities**, requires utilities to establish an auditable maintenance program for their facilities and to establish and follow a timeline for corrective actions to correct GO 95 violations that they identified.

AWL's records indicate that from 2011 to 2015, AWL completed three work orders past their scheduled due date of corrective action: one "Rating 1" work order completed in May 2011; one "Rating 2" work order completed in 2012; and one "Rating 2" work order completed in August 2015.

### III. Field Inspection

My staff inspected the following facilities during the field inspection:

No.	Structure ID.	Type of Structure	Location
1	4298MA	Pole	Near 2 <sup>nd</sup> and Alameda
2	4505MA	Pole	Near 2 <sup>nd</sup> and Alameda
3	4506MA	Pole	Near 2 <sup>nd</sup> and Alameda
4	3301MA	Pole	Near 2 <sup>nd</sup> and Alameda
5	1224MA	Pole	Near 2 <sup>nd</sup> and Alameda
6	2303MA	Pole	Near 2 <sup>nd</sup> and Alameda
7	3309MA	Pole	Near 2 <sup>nd</sup> and Alameda
8	2302MA	Pole	Near 2 <sup>nd</sup> and Alameda
9	2301MA	Pole	Near 2 <sup>nd</sup> and Alameda
10	5314MA	Pole	Near 2 <sup>nd</sup> and Alameda
11	2391MA	Pole	Paramount St. and Angeleno Ave
12	2543MA	Pole	Paramount St. and Angeleno Ave
13	2575MA	Pole	Paramount St. and Angeleno Ave
14	2388MA	Pole	Paramount St. and Angeleno Ave
15	2574MA	Pole	Paramount St. and Angeleno Ave
16	2387MA	Pole	Paramount St. and Angeleno Ave
17	2389MA	Pole	Paramount St. and Angeleno Ave
18	5338MA	Pole	Paramount St. and Angeleno Ave
19	2576MA	Pole	Paramount St. and Angeleno Ave
20	2385MA	Pole	Paramount St. and Angeleno Ave
21	2384MA	Pole	Paramount St. and Angeleno Ave
22	3041MA	Pole	Rockvale Ave. and Lee Pl.
23	3848MA	Pole	Rockvale Ave. and Lee Pl.
24	3021MA	Pole	Rockvale Ave. and Lee Pl.
25	703 Matchwood	Pole	Rockvale Ave. and Lee Pl.
26	3882MA	Pole	Rockvale Ave. and Lee Pl.
27	5199MA	Pole	Rockvale Ave. and Lee Pl.
28	3022MA	Pole	Rockvale Ave. and Lee Pl.
29	5075MA	Pole	Rockvale Ave. and Lee Pl.
30	4545MA	Pole	10 <sup>th</sup> Street and McKeever Ave
31	1767MA	Pole	10 <sup>th</sup> Street and McKeever Ave
32	3953MA	Pole	10 <sup>th</sup> Street and McKeever Ave
33	1766MA	Pole	10 <sup>th</sup> Street and McKeever Ave
34	1765MA	Pole	10 <sup>th</sup> Street and McKeever Ave
35	4120MA	Pole	10 <sup>th</sup> Street and McKeever Ave
36	2336MA	Pole	10 <sup>th</sup> Street and McKeever Ave
37	2539MA	Pole	10 <sup>th</sup> Street and McKeever Ave
38	2541MA	Pole	10 <sup>th</sup> Street and McKeever Ave
39	1852MA	Pole	10 <sup>th</sup> Street and McKeever Ave
40	1360MA	Pole	Foothill Blvd and Azusa Ave
41	0998MA	Pole	Foothill Blvd and Azusa Ave

42	1381MA	Pole	Foothill Blvd and Azusa Ave
43	1382MA	Pole	Foothill Blvd and Azusa Ave
44	5454MA	Pole	Citrus Ave
45	4056MA	Pole	Azusa Ave
46	2400	Pad-mount transformer	Shell Station
50	1503MA	Pole	
51	2417MA	Pole	
52	4573MA	Pole	
53	1762MA	Pole	
54	GT8623	Pole	
55	4682MA	Pole	
56	3831MA	Pole	
57	2154	Pad-mount transformer	Apartment 89
58	263	Vault	
59	168	Pad-mount switch	
60	3894	Pad-mount transformer	Near McDonalds
61	2180	Pad-mount transformer	Near In and Out
62	529	BURD	
63	3367	Pad-mount transformer	Foothill Ave
64	2398	Pad-mount transformer	Near Citrus College
65	3312	BURD transformer	
66	3665	BURD	
67	2044	BURD transformer	
68	3105	Pad-mount transformer	
69	3104	Pad-mount transformer	
70	3782	Pad-mount transformer	
71	3696	Pad-mount transformer	

#### **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 signs on the following ALW poles were damaged and/or missing:

- 4298MA – The upper-most crossarm was missing “VOLTAGE” on one side and displayed “VOL” on the other side.
- 3309MA – The voltage section only displayed “VOL”.
- 2302MA – “HIGH” was missing from the crossarm.
- 2301MA – “HIGH” was missing from the crossarm.
- 5314MA – The voltage section only displayed “V”.
- 2575MA – “HIGH” was missing from the crossarm.
- 2574MA – The pole supporting primary conductors did not have high voltage signs.
- 2389MA – “HIGH” was missing on one side of the top crossarm; on the other side of the crossarm, the voltage section only displayed “LTAGE”.
- 2384MA – “HIGH” was missing on the uppermost crossarm.
- 703 Matchwood St. – The pole at 703 Matchwood Ave did not have high voltage signs.
- 3882MA – “VOLTAGE” was missing from the upper crossarm; the perpendicular positioned lower crossarm did not have a high voltage sign.
- 3022MA – The lower crossarm did not have high voltage signs.
- 5075MA – “HIGH” was missing from the lower crossarm.
- 4545MA – The pole supporting primary conductors did not have a high voltage signs.
- 1767MA – The pole supporting primary conductors did not have a high voltage signs.
- 1766MA – The pole supporting primary conductors did not have high voltage signs.
- 2539MA – The pole supporting primary conductors did not have high voltage signs.
- 2540MA – The pole supporting primary conductors did not have high voltage signs.

- 2541MA – The pole supporting primary conductors did not have high voltage signs.

**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 molding on the following ALW poles were damaged:

- 2303MA – The ground molding was damaged so that sections of ground wire were exposed.
- 2391MA – The ground molding was bowed out from the surface of the pole; additionally, the ground molding near the base of the pole was damaged, exposing the ground wire.
- 1767MA – The ground molding was damaged, exposing the ground wire.
- 2541MA – The ground molding was damaged, exposing the ground wire at the public level.

**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.*

- 4505MA – A Mylar balloon was attached to a span of overhead primary conductors.
- 3309MA – The visibility strips were damaged.
- 2575MA – The pole identification tag was missing numbers.
- 2388MA – The pole identification tag was missing numbers.
- 2574MA – The pole identification tag was missing.
- 2385MA – the base of the pole exhibited signs of damage that reduced the pole circumference.
- 3848MA – The pole identification tag was covered by ground molding.
- 2574MA – The pole identification tag was missing.
- 703 Matchwood – The pole identification tag was missing from the pole at this location.
- 3882MA – The pole identification tag was missing.
- 3953MA – The crossarm supported on the pole exhibited a crack between two of the vertical predrilled holes.
- 2336MA – The crossarm supported on the pole exhibited a crack from one end of the crossarm to the insulator bolt.

- 2541MA – The pole top exhibited a split from the top of the pole to the top bolt of the transformer attached to the pole.

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

*Climbing space shall be maintained from the ground level. Climbing space, measured from center line of pole, shall be provided on one side or in one quadrant of all poles or structures with dimensions as specified in the following ...*

The climbing space on pole 1360MA was obstructed by communication facilities.

**GO 95, Rule 91.3-A, Stepping, Use of Steps, Poles with Vertical Runs or 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*

Pole steps on the following joint-use poles – which supported vertical risers – were missing:

- 4505MA
- 4506MA
- 2302MA
- 2301MA
- 2543MA
- 5338MA
- 5199MA
- 5075MA
- 1767MA

**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.*

**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.*

- The anchoring bolts were missing from the entry grid cover of BURD 3312.
- The anchoring bolts were missing from the entry grid cover of BURD 3665.
- Two of the anchoring bolts were missing and two were damaged from the entry grid cover of BURD 2044.

**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 lock on the door of the following padmounted transformers were rusted:

- 3105 – The lock securing the door was rusted in the closed position preventing access.
- 3104 – The lock securing the door was rusted in the closed position preventing access.

**GO 128, Rule 35.3, Warning Signs**, 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.*

A high voltage sign at the entrance of BURD 3665, which housed primary voltage equipment, was missing.

**GO 128, Rule 34.3-B, Self-contained and Surface-mounted Equipment**, states in part:

*Pad-mounted equipment that contains exposed live parts shall be installed to resist the passing of a wire the equivalent of a bare number 18 AWG from the outside between the pad and the housing of the equipment, into the compartment which contains live parts when it is closed.*

The following padmounted transformers had a gap between the housing and the foundation pad:

- 3894
- 3367
- 2398