

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



March 9, 2022

EA2021-910

Marvin Moon
Assistant General Manager of Power Delivery
Pasadena Water and Power (PWP)
1055 East Colorado Blvd., Suite 350
Pasadena, CA 91106

SUBJECT: Audit of PWP's Electrical Distribution Facilities

Mr. Moon:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Joceline Pereira, Eric Ujjiye and Calvin Choi of my staff conducted an electric distribution audit of PWP from August 9, 2021 through August 13, 2021. The audit included a review of PWP's inspection and maintenance records and a field inspection of PWP'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 April 11, 2022, by electronic or hard copy, of all corrective measures taken by PWP to remedy and prevent such violations.

If you have any questions concerning this audit, you can contact Joceline Pereira at (213) 269-2510 or joceline.pereira@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: Lee Palmer, Director, Safety and Enforcement Division, CPUC
Nika Kjensli, Program Manager, ESRB, CPUC
Joceline Pereira, Utilities Engineer, ESRB

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.
- PWP'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 18-B, Maintenance Programs, states in part:

The auditable maintenance program must include, at a minimum, records that show the date of the inspection, type of equipment/facility inspected, findings, and a timeline for corrective actions to be taken following the identification of a potential violation of GO 95 or a Safety Hazard on the company's facilities.

PWP's maintenance and inspection program does not utilize priority levels for potential safety violations as defined in Rule 18-B1a and, furthermore, does not include a timeline for corrective actions following the identification of potential safety violations.

III. Field Inspection

My staff inspected the following facilities during the field inspection:

| No. | Structure ID. | Type of Structure | Location |
|-----|---------------|-------------------|------------------|
| 1 | 21611MP | Pole | Loma Alta |
| 2 | 21612MP | Pole | Loma Alta |
| 3 | 21617MP | Pole | Loma Alta |
| 4 | 564MP | Pole | Loma Alta |
| 5 | 2862MP | Pole | Loma Alta |
| 6 | 15127MP | Pole | Loma Alta |
| 7 | 15125MP | Pole | Loma Alta |
| 8 | 15183MP | Pole | Loma Alta |
| 9 | 1095MP | Pole | Loma Alta |
| 10 | 423MP | Pole | Loma Alta |
| 11 | 1741MP | Pole | Loma Alta |
| 12 | 17413MP | Pole | Loma Alta |
| 13 | 11605MP | Pole | Loma Alta |
| 14 | 15066MP | Pole | Loma Alta |
| 15 | 19945MP | Pole | South Arroyo |
| 16 | 21537MP | Pole | South Arroyo |
| 17 | 15836MP | Pole | South Arroyo |
| 18 | 765358MP | Pole | South Arroyo |
| 19 | 21538MP | Pole | South Arroyo |
| 20 | 21539MP | Pole | South Arroyo |
| 21 | 21540MP | Pole | South Arroyo |
| 22 | 765359M | Pole | South Arroyo |
| 23 | 21541MP | Pole | South Arroyo |
| 24 | 21542MP | Pole | South Arroyo |
| 25 | 21543MP | Pole | South Arroyo |
| 26 | 21544MP | Pole | South Arroyo |
| 27 | 9194MP | Pole | South Arroyo |
| 28 | 9191MP | Pole | South Arroyo |
| 29 | 9183MP | Pole | South Arroyo |
| 30 | 19847MP | Pole | North Arroyo |
| 31 | 951MP | Pole | North Arroyo |
| 32 | 9784MP | Pole | North Arroyo |
| 33 | 9805MP | Pole | North Arroyo |
| 34 | 21644MP | Pole | Central Pasadena |
| 35 | 21645MP | Pole | Central Pasadena |
| 36 | 21646MP | Pole | Central Pasadena |
| 37 | 9578MP | Pole | Central Pasadena |
| 38 | 21647MP | Pole | Central Pasadena |
| 39 | 21648MP | Pole | Central Pasadena |

| | | | |
|----|----------|------|------------------|
| 40 | 2148MP | Pole | Central Pasadena |
| 41 | 21649MP | Pole | Central Pasadena |
| 42 | 21650MP | Pole | Central Pasadena |
| 43 | 19577MP | Pole | Central Pasadena |
| 44 | 21486MP | Pole | Central Pasadena |
| 45 | 21487MP | Pole | Central Pasadena |
| 46 | 21488MP | Pole | Central Pasadena |
| 47 | 7363MP | Pole | Central Pasadena |
| 48 | 710786MP | Pole | Central Pasadena |
| 49 | MP19610 | Pole | Central Pasadena |
| 50 | 20568MP | Pole | Central Pasadena |
| 51 | 14809MP | Pole | Central Pasadena |
| 52 | 20029MP | Pole | Central Pasadena |
| 53 | 14539MP | Pole | Central Pasadena |
| 54 | 20994MP | Pole | Central Pasadena |
| 55 | 15898MP | Pole | Central Pasadena |
| 56 | 19570MP | Pole | Central Pasadena |
| 57 | 15897MP | Pole | Central Pasadena |
| 58 | 20970MP | Pole | Central Pasadena |
| 59 | 19569MP | Pole | Central Pasadena |
| 60 | 21229MP | Pole | Central Pasadena |
| 61 | 13709MP | Pole | Central Pasadena |
| 62 | 21151MP | Pole | Central Pasadena |
| 63 | 14499MP | Pole | Hastings Ranch |
| 64 | 14500MP | Pole | Hastings Ranch |
| 65 | 20094MP | Pole | Hastings Ranch |
| 66 | 14502MP | Pole | Hastings Ranch |
| 67 | 17733MP | Pole | Hastings Ranch |
| 68 | 3501MP | Pole | Hastings Ranch |
| 69 | 21634MP | Pole | Hastings Ranch |
| 70 | 21635MP | Pole | Hastings Ranch |
| 71 | 21636MP | Pole | Hastings Ranch |
| 72 | 3219MP | Pole | Hastings Ranch |
| 73 | 20791MP | Pole | Hastings Ranch |
| 74 | 3939MP | Pole | Altadena |
| 75 | 21337MP | Pole | Altadena |
| 76 | 21338MP | Pole | Altadena |
| 77 | 20978MP | Pole | Altadena |
| 78 | 20455MP | Pole | Altadena |
| 79 | 20254MP | Pole | Altadena |
| 80 | 16106MP | Pole | Altadena |
| 81 | 7686MP | Pole | Altadena |
| 82 | 21305MP | Pole | Altadena |
| 83 | 4289MP | Pole | Altadena |
| 84 | 21629MP | Pole | Altadena |

| | | | |
|----|---------|-------------------------|------------------|
| 85 | 14877MP | Pole | Altadena |
| 86 | V1181 | Vault | East Pasadena |
| 87 | V8158 | Vault | East Pasadena |
| 88 | V6473 | Vault | East Pasadena |
| 89 | V6418 | Vault | East Pasadena |
| 90 | B10103 | Handhole/pull box | East Pasadena |
| 91 | PM119 | Pad mounted transformer | East Pasadena |
| 92 | PM226 | Pad mounted transformer | East Pasadena |
| 93 | PM100 | Pad mounted transformer | East Pasadena |
| 94 | B11402 | Handhole/pull box | East Pasadena |
| 95 | PM142 | Pad mounted transformer | Central Pasadena |
| 96 | PM169 | Pad mounted transformer | Central Pasadena |
| 97 | PM191 | Pad mounted transformer | Central Pasadena |
| 98 | PM167 | Pad mounted transformer | Central Pasadena |
| 99 | PM166 | Pad mounted transformer | Central Pasadena |

IV. Field Inspection – Violations List

My staff observed the following violations during the field inspection portion of the audit:

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.

High voltage signs attached to the following PWP poles were damaged and/or missing:

- 2862MP
- 15127MP
- 15183MP
- 423MP
- 9194MP
- 9191MP
- 9183MP
- 710786MP
- 19610MP
- 20568MP
- 14539MP
- 15898MP
- 19570MP
- 20970MP
- 19569MP
- 17733MP
- 3501MP
- 3219MP
- 20791MP
- 20455MP
- 20254MP

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 each of the following PWP poles was obstructed by vegetation:

- 19577MP
- 15898MP
- 15897MP
- 3939MP

GO 95, Rule 31.6, Abandoned Lines, states in part:

Lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property.

An abandoned ground wire was still attached to Pole No. 765359M.

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, Table 2, Column C, Case 19 requires the minimum radial clearance between guys and span wires passing communication conductors supported on the same poles to be three inches.

A down guy wire attached to Pole No. 20254MP was contacting a communications conductor supported on the same pole.

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 poles was damaged:

- 1741MP
- 564MP
- 17413MP
- 19569MP
- 13709MP

GO 95, Rule 91.3-C, Stepping, states in part:

Where installed, the lowest step shall not be less than 8 feet from the ground line, or any easily climbable foreign structure from which one could reach or step.

The lowest pole step on Pole No. 1095MP was 7.5 feet above the ground line.

GO 95, Rule 56.2 Overhead Guys, Anchor Guys, and Span 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.

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

- 21540MP
- 3939MP

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

- 1095MP
- 15836MP

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.

PWP facilities on the following poles required maintenance:

- Pole No. 15183MP: an insulator attached to the primary crossarm was sunken.
- Pole No. 15183MP: a tree was straining a span guy wire on the pole, causing the wire to deflect.
- Pole No. 21540MP: a down guy anchor supporting the pole was completely buried.
- The unidentified pole adjacent to Pole No. 17733MP was missing its pole tag.

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 underground access panel for pad-mounted transformer PM226 was missing a bolt.
- The cover for the handhole/pull box B11402 was missing several bolts.

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.

The entrance to vault V1181 was missing a high voltage warning sign.