

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



May 3, 2024

EA2024-1186

Parikshat Pathak, P.E.
Supervising Principal Engineer, T&D Maintenance Planning
Sacramento Municipal Utility District (SMUD)
4401 Bradshaw Road, Sacramento, CA 95827

SUBJECT: Electric Distribution Audit of SMUD

Dear Mr. Pathak:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Brandon Vazquez and Nora Nguyen of ESRB staff conducted an electric distribution audit of SMUD from March 4, 2024 through March 8, 2024. During the audit, ESRB staff conducted field inspections of SMUD's distribution facilities and equipment, and reviewed pertinent documents and records.

As a result of the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response no later than **May 31, 2024**, by electronic copy of all corrective actions and preventive measures taken by SMUD to correct the identified violations and prevent the recurrence of such violations.

Please note that ESRB will be posting the audit report and your response to our audit on the CPUC website. If there is any information in your response that you would like us to consider as confidential, we request that in addition to your confidential response, you provide us with a public version (a redacted version of your confidential response) to be posted on our website.

If you have any questions concerning this audit, please contact Brandon Vazquez at (628) 249-2867 or brandon.vazquez@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rickey Tse".

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

Enclosure: CPUC Electric Distribution Audit Report for SMUD

Cc: Lee Palmer, Director, Safety and Enforcement Division (SED), CPUC

Nika Kjensli, Program Manager, ESRB, SED, CPUC
Fadi Daye, Program and Project Supervisor, ESRB, SED, CPUC
Nathan Sarina, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
Yi Yang, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
Brandon Vazquez, Utilities Engineer, ESRB, SED, CPUC
Nora Nguyen, Utilities Engineer, ESRB, SED, CPUC
Maria Veloso Koenig, Director- Distribution Planning & Operations, SMUD
Harry Marks, Manager- Distribution Planning, SMUD

**SACRAMENTO MUNICIPAL UTILITY DISTRICT (SMUD)
ELECTRIC DISTRIBUTION AUDIT FINDINGS
MARCH 4-8, 2024**

I. Records Review

During the audit, ESRB staff reviewed the following records:

- SMUD’s inspection, maintenance, and vegetation management procedures.
- Overhead and underground facilities statistics.
- Completed and canceled notifications from 1/1/2023 to 12/31/2023, and open notifications from 1/1/2019 to 12/31/2023.
- Patrol and detailed inspection records from 1/1/2019 to 12/31/2023.
- Distribution Reliability Metrics from 1/1/2019 to 12/31/2023.
- SMUD’s Service Territory Map.
- New construction projects (both overhead and underground) completed from 1/1/2023 to 12/31/2023.
- Pole loading and safety factor calculations completed from 1/1/2023 to 12/31/2023.
- Third Party Safety Hazard notifications sent and received from 1/1/2019 to 12/31/2023.
- Inspector list and inspector qualifications from 1/1/2019 to 2/1/2024.
- Distribution equipment test records from 1/1/2021 to 12/31/2023.
- Vegetation Management inspection records and tree trimming records from 1/1/2019 to 12/31/2023.
- Intrusive inspection records from 1/1/2021 to 12/31/2023.

II. Records Violations

1. General Order (GO) 95, Rule 18-B1(a), Maintenance Programs states in part:

“The maximum time periods for corrective actions associated with potential violation of GO 95 or a Safety Hazard are based on the following priority levels:

- (i) *Level 1 -- An immediate risk of high potential impact to safety or reliability:*
 - *Take corrective action immediately, either by fully repairing or by temporarily repairing and reclassifying to a lower priority.*
- (ii) *Level 2 -- Any other risk of at least moderate potential impact to safety or reliability:*
 - *Take corrective action within specified time period (either by fully repair or by temporarily repairing and reclassifying to Level 3 priority). Time period for corrective action to be determined at the time of identification by a qualified company representative, but not to exceed: (1) six months for potential violations that create a fire risk located in Tier 3 of the High Fire-Threat District; (2) 12 months for potential violations that create a fire risk located in Tier 2 of the High Fire-Threat District; (3) 12 months for potential violations that compromise worker safety; and (4) 36 months for all other Level 2 potential violations.*
- (iii) *Level 3 -- Any risk of low potential impact to safety or reliability:*

- *Take corrective action within 60 months subject to the exception specified below.*”

ESRB’s review of SMUD’s notifications from 1/1/2019 to 12/31/2023 found that SMUD had a total of 182 late-completed notifications. Late-completed notifications are notifications that were completed past their assigned due date based on their priority level.

2. 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.”

GO 165, Section III-B, Standards for Inspection 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.”

ESRB’s review of SMUD’s overhead patrol and inspection records found a total of 24 late completed inspections and 259 late outstanding inspections per the GO 165 due date.

3. GO 128, Rule 17.2, Inspection states:

“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 of these rules.”

GO 165, Section III-B, Standards for Inspection 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.”

ESRB’s review of SMUD’s underground patrol and inspection records found that SMUD completed a total of two detailed inspections past their GO 165 due dates.

III. Field Inspection

During the field inspection, ESRB staff inspected the following facilities:

Location #	Structure #	Structure Type	Structure Location	City
1	196304	Wood Pole	3678 Lemay St	Mather
2	196303	Wood Pole	3678 Lemay St	Mather
3	196302	Wood Pole	3678 Lemay St	Mather
4	196301	Wood Pole	3678 Lemay St	Mather
5	196131	Wood Pole	3678 Lemay St	Mather
6	196623	Wood Pole	38°35'9.83"N, 121°18'31.66"W	Rancho Cordova
7	191179	Wood Pole	10444 Coloma Road	Rancho Cordova
8	044595	Wood Pole	13639 Jackson Rd	Sloughhouse
9	044629	Wood Pole	13639 Jackson Rd	Sloughhouse
10	024085	Wood Pole	38.3256352,-121.3198484	Galt
11	024086	Wood Pole	38.3256289,-121.3210133	Galt
12	077083	Wood Pole	8911 Mooney Rd	Wilton
13	077082	Wood Pole	8911 Mooney Rd	Wilton
14	077081	Wood Pole	8881 Mooney Rd	Wilton
15	058755	Wood Pole	Pleasant Grove Elementary	Elk Grove
16	135085	Wood Pole	Pleasant Grove Elementary	Elk Grove
17	058752	Wood Pole	Pleasant Grove Elementary	Elk Grove
18	135055	Secondary Wood Pole	Pleasant Grove Elementary	Elk Grove
19	TX-01018959	Padmount Transformer	8458 Casablanca Way	Sacramento
20	140049	Wood Pole	7485 Elder Creek Rd	Sacramento
21	044307	Wood Pole	8666 W Stockton Blvd	Elk Grove
22	044309	Wood Pole	1 Pole North of Loc 21	Elk Grove
23	045032	Wood Pole	Near Big Horn Blvd and Portofino Dr	Elk Grove
24	197717	Wood Pole	1516 Florin Rd	Sacramento
25	072797	Wood Pole	1516 Florin Rd	Sacramento
26		Secondary Wood Pole	1520 23rd St	Sacramento
27	076873	Wood Pole	2214 Opera Aly	Sacramento
28	182257	Wood Pole	2214 Opera Aly	Sacramento
29	190925	Wood Pole	2214 Opera Aly	Sacramento
30	020812	Wood Pole	2212 Opera Aly	Sacramento
31	134002	Wood Pole	2767 Altos Ave	Sacramento
32	117552	Secondary Wood Pole	3531 Becerra Way	Sacramento
33	190063	Wood Pole	7749 Fair Oaks Blvd	Sacramento
34	029842	Wood Pole	4021 California Ave	Sacramento

35	029843	Wood Pole	4045 California Ave	Sacramento
36	062244	Wood Pole	Filbert Ave and Hazel Oak Ct	Orangevale
37	172069	Wood Pole	38.6944513, -121.2158446	Orangevale
38	178770	Wood Pole	38.6940309, -121.2158694	Orangevale
39	062246	Wood Pole	38.6935908, -121.215892	Orangevale
40	087567	Wood Pole	9475 Golden Gate Ave	Orangevale
41	087568	Wood Pole	9449 Golden Gate Ave	Orangevale
42	087570	Wood Pole	9429 Golden Gate Ave	Orangevale
43	181584	Wood Pole	9429 Golden Gate Ave	Orangevale
44	060082	Wood Pole	7312 Bonita Way	Citrus Heights
45	060081	Wood Pole	7325 Bonita Way	Citrus Heights
46	060080	Wood Pole	7300 Bonita Way	Citrus Heights
47	198251	Wood Pole	4660 Chicago Ave	Fair Oaks
48	177900	Wood Pole	4701 Chicago Ave	Fair Oaks
49		Wood Pole	4701 Chicago Ave	Fair Oaks
50	049199	Wood Pole	4701 Chicago Ave	Fair Oaks
51	185706	Wood Pole	7732 Winding Way	Fair Oaks
52	199721	Secondary Wood Pole	7732 Winding Way	Fair Oaks
53	196049	Secondary Wood Pole	7732 Winding Way	Fair Oaks
54	124941	Wood Pole	38.6031338,-121.3922421	Sacramento
55	192024	Wood Pole	38.602351,-121.3922023	Sacramento
56	124949	Wood Pole	38.601474,-121.3922043	Sacramento
57	191896	Wood Pole	38.6018433,-121.3922012	Sacramento
58	191895	Wood Pole	38.6020912,-121.3922023	Sacramento
59	124652	Wood Pole	38.6027186,-121.3922284	Sacramento
60	187406	Wood Pole	38.6031338,-121.3922421	Sacramento
61	TX-01073378	Padmount Transformer	1600 Howe Ave	Sacramento
62	TX-01073785	Padmount Transformer	2201 Howe Ave	Sacramento
63	TX-01074126	Padmount Transformer	2201 Howe Ave	Sacramento
64	TX-01074128	Padmount Transformer	2201 Howe Ave	Sacramento
65	TX-01074132	Padmount Transformer	2201 Howe Ave	Sacramento
66	161530	Wood Pole	6131 Quincewood Cir	Citrus Heights
67	160588	Wood Pole	38.707329,-121.3205246	Citrus Heights
68	184802	Wood Pole	38.707344,-121.3201984	Citrus Heights
69	160586	Wood Pole	38.707376,-121.3197015	Citrus Heights
70	TX-01053993	Padmount Transformer	8427 Lichen Dr	Citrus Heights
71	199337	Wood Pole	5600 Rich Ln	Antelope

72	068866	Wood Pole	5600 Rich Ln	Antelope
73	068865	Wood Pole	5549 Rich Ln	Antelope
74	068864	Wood Pole	5549 Rich Ln	Antelope
75	068862	Wood Pole	5601 Rich Ln	Antelope
76	068863	Secondary Wood Pole	5630 Rich Ln	Antelope
77	106814	Secondary Wood Pole	445 Adair St	Elverta
78	106813	Wood Pole	445 Adair St	Elverta
79	106818	Wood Pole	454 Adair St	Elverta
80	106817	Secondary Wood Pole	454 Adair St	Elverta
81	106819	Wood Pole	Across 436 Adair St	Elverta

IV. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. 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.”

- 1.1. Wood Pole #044595 at 13639 Jackson Rd in Sloughouse (Location 8) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#32056510) to replace the pole.
- 1.2. Wood Pole #077083 at 8911 Mooney Rd in Wilton (Location 12) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#31971177) to replace the pole.
- 1.3. Wood Pole #044307 at 8666 W Stockton Blvd in Elk Grove (Location 21) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#31969882) to replace the pole.
- 1.4. Wood Pole #045032 near Big Horn Blvd and Portofino Dr in Elk Grove (Location 23) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#31877912) to replace the pole.
- 1.5. Wood Pole #020812 at 2212 Opera Aly in Sacramento (Location 30) has a cracked pole top and a large crack starting at the ground to approximately 15 feet up the pole.
- 1.6. Wood Pole #062246 located at GPS coordinates 38.6935908, -121.215892 in Orangevale (Location 39) has a significantly degraded and shrunk/reduced pole top.
- 1.7. Wood Pole #087567 at 9475 Golden Gate Ave in Orangevale (Location 40) has a degraded primary crossarm that is missing a section of wood near the insulator hardware.
- 1.8. Wood Pole at 4701 Chicago Ave in Fair Oaks (Location 49) has a primary crossarm with a crack approximately 2.5 feet long at the through bolt.
- 1.9. Wood Pole #124941 located at GPS coordinates 38.6031338,-121.3922421 in Sacramento (Location 54) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#32135071) to replace the pole.
- 1.10. Wood Pole #124652 located at GPS coordinates 38.6027186,-121.3922284 in Sacramento (Location 59) has a degraded pole top with a 2 foot long crack.
- 1.11. Wood Pole #161530 at 6131 Quincewood Cir in Citrus Heights (Location 66) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#31997472) to replace the pole.
- 1.12. Secondary Wood Pole #106814 at 445 Adair St in Elverta (Location 77) needs to be replaced due to a failed intrusive test. SMUD has a preexisting notification (#32304966) to replace the pole.

2. 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.”

- 2.1. Wood Pole #044629 at 13639 Jackson Rd in Sloughouse (Location 9) has a broken high-visibility strip.
- 2.2. Wood Pole #024085 located at GPS coordinates 38.3256352,-121.3198484 in Galt (Location 10) is leaning more than 10% and has soil erosion at its base.
- 2.3. Wood Pole #135085 at Pleasant Grove Elementary in Elk Grove (Location 16) has a damaged/loose high-visibility strip.
- 2.4. Secondary Wood Pole at 1520 23rd St in Sacramento (Location 26) is leaning more than 10%. SMUD has a preexisting notification (#32073607) to adjust the pole.

3. GO 95, Rule 51.6-A, High Voltage Marking 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. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible.”

- 3.1. Wood Pole #024086 located at GPS coordinates 38.3256289,-121.3210133 in Galt (Location 11) is missing high voltage signs on both sides.
- 3.2. Wood Pole #077082 at 8911 Mooney Rd in Wilton (Location 13) has a loose high voltage sign.
- 3.3. Wood Pole #072797 at 1516 Florin Rd in Sacramento (Location 25) is missing high voltage signs on both sides.
- 3.4. Wood Pole #020812 at 2212 Opera Aly in Sacramento (Location 30) has a damaged/partially missing high voltage sign.
- 3.5. Wood Pole #060080 at 7300 Bonita Way in Citrus Heights (Location 46) has deteriorated/partially missing high voltage signs on both sides.
- 3.6. Wood Pole #192024 located at GPS coordinates 38.602351,-121.3922023 in Sacramento (Location 55) is missing a high voltage sign.
- 3.7. Wood Pole #068862 at 5601 Rich Ln in Antelope (Location 75) is missing a high sign.

4. 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.”

Wood Pole #077082 at 8911 Mooney Rd in Wilton (Location 13) has a barbed wire fence attached to it.

5. 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.

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 [the] communication or supply lines and equipment.”

- 5.1. Padmount Transformer TX-01018959 at 8458 Casablanca Way in Sacramento (Location 19) has an oil leak. SMUD has a preexisting notification (#32140777) to repair the leak.
- 5.2. Padmount Transformer TX-01073785 at 2201 Howe Ave in Sacramento (Location 62) has sunk several inches into the ground causing it to slant sideways. SMUD has a preexisting notification (#32068191) to reset the padmount.
- 5.3. Padmount Transformer TX-01053993 at 8427 Lichen Dr in Citrus Heights (Location 70) has dried oil residue on the exterior enclosure that needs to be cleaned.

6. 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).”

Vegetation is causing strain/abrasion to a secondary line at Secondary Wood Pole #117552 at 3531 Becerra Way in Sacramento (Location 32). SMUD has a preexisting notification (#35705412) to trim the vegetation.

7. GO 95, Rule 56.6-A, Guys in Proximity to Supply Conductors of Less than 35,500 Volts states in part:

“All portions of guys within both a vertical distance of 8 feet from the level of supply conductors of less than 35,500 volts and a radial distance of 6 feet from the surface of wood poles or structures shall not be grounded, through anchors or otherwise. Where necessary to avoid the grounding of such portions, guys shall be sectionalized by means of insulators installed at locations as specified in Rule 56.7.”

Wood Pole #087567 at 9475 Golden Gate Ave in Orangevale (Location 40) has vegetation contact at/above the anchor guy bob which is providing a path to ground.

8. GO 95, Rule 54.6-B, Vertical and Lateral Conductors, Ground Wires states in part:

“That portion of the ground wire 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).”

GO 95, Rule 59.4-A1(c), Grounding Conductors states:

“The grounding conductor from the ground rod to the common neutral conductor shall be continuous, unless suitable electrical compression connections are used.”

Wood Pole #184802 located at GPS coordinates 38.707344,-121.3201984 in Citrus Heights (Location 68) is missing a 7 foot section of ground wire and ground molding at the base of the pole.

V. Observations

1. ESRB staff observed the following SMUD potential safety concern:

Wood Pole #068864 at 5549 Rich Ln in Antelope (Location 74) has a primary insulator with a minor chip and possible arc damage.

2. ESRB staff observed the following third-party potential safety concerns during the field inspection:

GO 95, Rule 18, Reporting and Resolution of Safety Hazards Discovered by Utilities states in part:

“For purposes of this rule, “Safety Hazard” means a condition that poses a significant threat to human life or property...”

GO 95, Rule 18-A, Resolution of Potential Violations of General Order 95 and Safety Hazards states in part:

“(3) 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 entity of such Safety Hazard(s) no later than ten (10) business days after the discovery.

“(4) To the extent a company that has a notification requirement under (2) or (3) above cannot determine the facility owner/operator, it shall contact the pole

owner(s) within ten (10) business days if the subject of the notification is a Safety Hazard, or otherwise within a reasonable amount of time not to exceed 180 days after discovery. The notified pole owner(s) shall be responsible for promptly (normally not to exceed five business days) notifying the company owning/operating the facility if the subject of the notification is a Safety Hazard, or otherwise within a reasonable amount of time not to exceed 180 days, after being notified of the potential violation of GO 95.”

- 2.1. There is an abandoned communications line hanging 6-7 feet from the ground at Wood Pole #058755 at Pleasant Grove Elementary in Elk Grove (Location 15).
- 2.2. There is an abandoned cable coax line on the ground at Secondary Wood Pole #135055 at Pleasant Grove Elementary in Elk Grove (Location 18).
- 2.3. Vegetation is causing strain/abrasion to a communications line at Secondary Wood Pole #117552 at 3531 Becerra Way in Sacramento (Location 32).
- 2.4. Cable buddy pole next to Wood Pole #190063 at 7749 Fair Oaks Blvd in Sacramento (Location 33) has a down guy that is missing a guy guard.
- 2.5. There is a downed communications line on the ground from Secondary Pole #196049 to #199721 at 7732 Winding Way in Fair Oaks (Location 52).
- 2.6. A tree branch is growing into a communications anchor guy at Wood Pole #068865 at 5549 Rich Ln in Antelope (Location 73).