PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

August 28, 2024 EA2024-1174

Mr. Nicholas Zettel
Electric Utility Director
Redding Electric Utility (REU)
777 Cypress Ave
Redding, CA 96001

SUBJECT: Electric Transmission and Distribution Facilities Audit of Redding Electric Utility (REU)

Mr. Zettel:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Joe Murphy, Samuel Mandel, and I conducted an audit of REU's electric transmission and distribution facilities from April 29 to May 3, 2024. During the audit, ESRB staff conducted field inspections of REU's distribution, transmission and substation facilities, equipment and reviewed pertinent documents and records.

As a result of the audit, ESRB staff identified violations of General Order (GO) 95, GO 128, GO 165 and GO 174. A copy of the audit findings itemizing the violations and observations is enclosed. Note: each section addresses the distribution and transmission findings (GO 95, 128, and 165) separate from the substation findings (GO 174).

Please provide a response no later than September 27, 2024, via electronic copy of all corrective actions and preventive measures taken by REU 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 Joe Murphy at (415) 308-4159 or muj@cpuc.ca.gov.

Sincerely,

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 Redding Electric Utility Transmission and Distribution facilities.

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
Yi (Rocky) Yang, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
Samuel Mandell, Utilities Engineer, ESRB, SED, CPUC
Joe Murphy, Utilities Engineer, ESRB, SED, CPUC
Holly Johnson, Compliance Officer, Redding Electric Utility

REDDING ELECTRIC UTILITY
ELECTRIC DISTRIBUTION, TRANSMISSION AND SUBSTATION AUDIT FINDINGS
APRIL 29 – MAY 3, 2024

I. Records Review

During the audit, Electric Safety and Reliability Branch (ESRB) staff reviewed the following:

Distribution and transmission documents and records

- REU Overhead and Underground Asset Inspection and Preventative Maintenance Guidelines.
- Overhead and underground facilities statistics.
- Completed transmission and distribution work orders with notifications, canceled work orders with notifications, and open work orders with notifications from March 2019 through February 2024.
- Transmission and distribution patrol and detailed inspection records from March 2019 through February 2024.
- Reliability metrics and sustained outages from March 2019 through February 2024.
- REU service area map.
- New construction projects (both overhead and underground) from March 2023 through February 2024.
- List of pole loading and safety factor calculations completed from March 2023 through February 2024, and Pole loading and safety factor calculations for selected structures.
- Third party notifications sent and received from March 2023 through February 2024.
- Inspector list and qualifications from March 2023 through February 2024.
- Equipment test records from March 2023 through February 2024.
- Intrusive inspection records from March 2023 through February 2024.
- REU Vegetation policies and procedures.
- Overhead and Underground Asset Inspection and Preventative Maintenance Guidelines.
- Vegetation inspection and tree trimming records from March 2019 through February 2024.
- Vegetation inspector list and qualifications from March 2023 through February 2024.

Substation documents and records

- List of all substations/switching stations operated by the City of Redding Electric Utility (REU).
- Map showing all substations/switching stations operated by REU.
- REU Substation Inspection and Preventative Maintenance Guidelines
- REU Substation Infrared Inspection Guidelines
- REU Diagnostic Guidelines for Dissolved Gas-in-oil Concentration Limits (Oil Guidelines)
- REU Substation Preventative Maintenance Guidelines
- REU Counter Logs
- REU Battery System Operation and Maintenance Checks
- REU Fire System and Preventive Maintenance Report
- List of all REU substation inspections conducted from March 2019 through February 2024.
- Last two visual inspection checklists for each REU substation. List of all open/pending, completed, cancelled, and late work orders and maintenance items from March 2019 through February 2024.
- Equipment lists for each REU substation.
- Single-line diagrams for each REU substation.
- List of transformer banks that operated beyond nameplate capacity from March 2019 through February 2024.
- Infrared Testing records from March 2019 through February 2024.
- Most recent oil sample test results from March 2019 through February 2024.
- Most recent electric test results from March 2019 through February 2024.
- Training records for all substation and maintenance personnel from March 2019 through February 2024.

II. Records Violations

ESRB observed the following violations during the record review portion of the audit:

Distribution and transmission record violations

1. **GO 165, Section III. Distribution Facilities C. Record Keeping** states in part:

   "The utility shall maintain records for (1) at least ten (10) years of patrol and detailed inspection activities, and (2) the life of the pole for intrusive inspection activities…."

   REU Overhead and Underground Asset Inspection and Preventative Maintenance Guidelines (Guidelines) p. 2 states that records are retained for five years. GO 165, Section III. C. requires records to be retained for at least 10 years or the life of the pole for intrusive inspections.

2. **GO 165, Section III. Distribution Facilities C. Record Keeping** further states in part:

   "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."

   a) Prior to the introduction of the "MIMS" system in 2023, REU's digital records include only the date of failed facility inspections. Inspections prior to the MIMS system have no digital or searchable record of facilities that have been inspected (unless a non-compliance is identified), so annual patrol or periodic detailed inspections cannot be assured.

   b) REU noted difficulties in accessing and querying inspection records from both their current MIMS system and the previous tracking system. As a result, REU was limited in the data that could be supplied to the CPUC. ESRB acknowledges that REU is implementing a new tracking system in the Fall of 2024.

   c) REU's "MIMS" patrol data does not include a scheduled or required date of corrective action on any identified non-conformance.[1]

   d) ESRB acknowledges that REU Guidelines call for annual patrols conducted during the Fall.[2] REU's patrol maps (provided for grid squares G21, G29, F43, R38)[3]:
   - Do not identify the type of inspection: patrol or detailed.
   - Do not specify the circuit inspected.

[1] DR05a_PoleInspectionsMIMS_Annual Patrol
[2] EA2023-1174 REU Post-Audit DR 20240514_Response -Final
[3] 2019-2022 Patrol Maps G21, G29, F43, R38 provided to ESRB in response to a post-audit data request

- Do not specify the inspector conducting the inspection.[4]
- Do not provide a legend.
    - Multiple color highlighters are used to mark inspected areas, meaning of highlights are not noted.

e) Not all facilities were inspected per the markings on Map Grid R38 (2021).[5]

f) Maps dates show inspections were conducted in June or July of each year. This is outside the REU Fall inspection months of August through October.[6] Additionally, if a Year 1 inspection occurs in (for example) June and the Year 2 inspection occurs in the specified period (for example, October), the elapsed time between inspections will exceed GO 165 requirements. GO 165 notes in Table 1 *"the term 'year' is defined as 12 consecutive calendar months starting the first full calendar month after an inspection is performed, plus three full calendar months, not to exceed the end of the calendar year".*

3. GO 95, Rule 18-B, Maintenance Programs, (1)(a) 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."*

REU Guidelines Table 5-1, Condition Rating 4 states that Medium Priority Level II Tier 2 or Zone 1 vegetation transmission issues or other vegetation concerns be addressed within 36 months. GO 95, Rule 18-B requires corrective action be taken within 12 months for conditions that compromise worker safety in all areas.

[4] ESRB acknowledges that the inspector(s) conducting these inspections was provided in CPUC Post Audit Data Request-Responses Section I Q3b but inspectors are not specified with the inspection map.
[5] 2021 Patrol Maps R38 contained within post-audit data request response 2021 Patrol Maps G21, G29, F43, R38.
[6] EA2024-1174 REU Post-Audit DR 20240514_Response -Final Response to Question 3 c).

REU Guidelines Table 5-1, Condition Rating 4 states that Low Priority Level II maintenance priorities for Tier 2 or Zone 1 be addressed within 36 months. GO 95, Rule 18-B requires corrective action be taken within 12 months for potential violations that create a fire risk located in Tier 2 of the High Fire-Threat District.

REU work order priority in the Distribution Overhead & Underground Inspection and Preventative Maintenance Guideline (2014 & 2019) was used to identify emergency, internal, and contractor work and did not provide for a corrective action interval.[7] ESRB acknowledges that the 2023 revision of the Overhead and Underground Asset Inspection and Preventative Maintenance Guidelines uses priorities to indicate safety hazard level and the maximum corrective action period.

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

> *"For all particulars not specified in General Order 95, a supply or communications company is in compliance with this rule if it designs, constructs and maintains a facility in accordance with accepted good practice for the intended use and known local conditions."*

REU Guidelines: Non-linear Asset, Pole and Structures, p. 26 states: "*Less than 20 degrees of lean on non-equipment poles has little reliability concern. However, greater than 20 degrees of lean on poles with oil-filled equipment requires maintenance. Lean can also be an indication of foundation or guy failure*."
A 20 degrees lean is equal to a 36 percent lean. Industry practice is to limit pole lean to lean to less than 10 percent. REU's Guidelines allow pole lean of more than three times industry practice.

5. **GO 95, Rule 18-B, Maintenance Programs, (1)(a)** 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:*

(iv)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.*

(v) 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)*

[7] EA2024-1174 REU Post-Audit DR 20240514_Response -Final

12 months for potential violations that compromise worker safety; and (4) 36 months for all other Level 2 potential violations.

(vi)Level 3 -- Any risk of low potential impact to safety or reliability:

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

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.

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 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."

ESRB staff reviewed open and completed work orders within REU's service area over the past 60 months (March 2019 – February 2024). Work orders do not record either the initiation date or a required completion date. Each work order listed a priority.

REU's Distribution Overhead & Underground Inspection and Preventative Maintenance Guideline, in use until 2023 did not define priority codes nor associated time frames for correction of the non-conformance.

REU provided the historical priority definitions:[8]

- ***Priority 0 and Blank****: No prioritization level assigned.*
- ***Priority 1****: Confirming Work Orders (Emergency Work).*
- ***Priority 2****: Contractor/Developer projects.*
- ***Priority 3****: Internal maintenance/reconstruction work.*

[8] EA2024-1174 REU Post-Audit DR 20240514_Response -Final

REU's Overhead and Underground Asset Inspection and Preventative Maintenance Guidelines (2023) Table 5-1 lists the following condition and maintenance priority rating:

- ***Condition Rating 1***
  - *Emergency Level I: Immediate Public Safety Hazard, 72 hour response.*
- ***Condition Rating 2***
  - *High Priority Level II: Failure Imminent: Component damaged or no longer suitable for intended use. Service not yet interrupted. Failure or interruption of service is imminent, 6 month response.*
- ***Condition Rating 3***
  - *Medium Priority Level II: Asset Renewal Required: Significant wear, corrosion, or damage to warrant action plan, 12 month response.*
- ***Condition Rating 4***
  - *Low Priority Level II: Minimal/Moderate Maintenance Required under scheduled timeframe: Minor damage/wear, corrosion, etc. but still in functional condition for the intended purpose. Tier 2 or Zone 1 vegetation access issues or other vegetation concerns, 36 month response.*
- ***Condition Rating 5***
  - *No Maintenance Required Level III: Reportable minor damage/wear, corrosion, etc. but still in functional condition for the intended purpose, reevaluate during next inspection cycle.*

The earliest date associated with REU's work order records is the "Date Design Started", the non-conformance discovery date is not listed. ESRB staff found 96 records where the Completion Date is prior to the Date Design Started.[9] These records have errors that could not be resolved.

ESRB reviewed late work orders found and determined that REU did not address between 82 and 140 work orders by dates based on their priority level (up to 236 including erroneous entries noted above). Table 1 below breaks down the late work orders by their given priority and status.

[9] Work Orders 3-29 to 2-24 provided by REU in response to a post-audit data request.

Table 1: Late Work Orders

Priority Code	Late Work Orders Pending	Late Work Orders Completed	Total
I	28 [10]	7	**35**
II	40 [11]	7 / 65 [12]	**47 / 105**
III[13]	0	0	**0**
0 [14]	0	0	**0**
blank [15]	0	0	**0**
Total	**68**	**14 / 72**	**82 / 140**

REU needs to provide ESRB with its corrective action plan to complete the late pending work orders and its preventive actions to prevent any work orders to be addressed late in the future.

Table 2 below identifies the most overdue non-exempt work orders for each priority.

Table 2: Most Overdue Work Orders

Priority Code	Most Overdue Work Orders (Year/WO Seq)	Number of Days Past Assigned Due Date
1	2020-81	1389
2	2019-37	1795

REU listed the Date Design Started for work order/work order sequence 2020-81 as May 11, 2020, to replace a street light pole (description: ST. LT. POLE REPL. N34165) with a priority level of 1. REU had not completed the work order as of February 29, 2024.

REU listed the Date Design Started for work order/work order sequence 2019-37 as April 1, 2019, for an Office Warehouse Shell with a priority level of 2. REU had not completed the work order as of February 29, 2024.

[10] Priority 1 was used for Emergency (72 hour) response throughout the audit look-back period. 28 Work orders remain open from 2020 and 2021 with a Priority Level 1.
[11] 40 Priority 2 Work orders remain open from 2020 and 2021. These work orders are from 801 to 1795 days old based on the Date Design Started.
[12] 7 Priority 2 Work orders were completed more than 1095 days (36 months) after the Date Design Started. 36 months is the longest Priority 2 correction time. 65 Priority 2 Work orders were completed more than 185 days (6 months) after the Date Design Started. 6 months is the shorted Priority 2 correction time.
[13] Based on a 60-month non-compliance correction time.
[14] Ibid.
[15] Ibid.

Substation records violations

1. **General Order (GO) 174, Rule 12, General** states:

   "These rules are not intended as complete specifications, but embody only minimum requirements that will promote safety and enable adequacy of service.

   "Substations shall be designed, constructed and maintained for their intended use, regard being given to the conditions under which they are to be operated, to promote the safety of workers and the public and enable adequacy of service.

   "Design, construction and maintenance should be performed in accordance with accepted good practices for the given local conditions known at the time by those responsible."

   a) REU Substation Inspection and Preventative Maintenance Guidelines[16] (Substation Guidelines) do not specify priority levels or required correction intervals for non-conformances. The Substation Guidelines states in Section 3.1 General Instructions:

   "The Program Supervisor will schedule any required maintenance, which should be completed in a timely fashion depending upon the availability of time and labor forces."

   REU needs to specify priority levels and corrective action intervals in REU's documentation in an auditable fashion not dependent on a particular individual.[17]

   b) REU Substation Guidelines 3.2 c) Report of Field Conditions calls out that documentation forms have a "Description of deficiencies and priority". Priority levels are not specified or defined in the document. REU needs to specify priority levels throughout REU's Substation Guidelines.

   c) The REU Substation Guidelines do not address recording of counters (e.g circuit breaker operations, voltage regulator tap movements, transformer load tap controller operations). ESRB acknowledges that REU records counter position but does not specify what maintenance, nor under what conditions (loaded, unloaded, etc.) requires further action. REU needs to specify how counter values indicate required actions.

   d) REU Substation Infrared Inspection[18] does not address what conditions are necessary for a valid test. Industry practice is to identify conditions that may yield incorrect results (e.g. wind speed).

[16] Preaudit data request responses: DR19b_REU Substation Maintenance Guidelines GO174 2023
[17] GO 174 Rule 33.1 requires inspections records to include conditions rating and scheduled date of corrective action where applicable.
[18] Preaudit data request responses: DR19d_Substation IR Guidelines

2. **GO 174, Rule 33.1 Records** states:

"Electronic or hard copy records of completed Inspections shall include, at a minimum:

- *Inspector name or identification*
- *Inspection date*
- *Brief description of identified discrepancies*
- *Condition rating (where applicable)*
- *Scheduled date of corrective action (where applicable)."*

a) REU does not record results of infrared inspections for facilities that pass inspection. This causes a "pass" inspection to have the same entry as a missed inspection. REU needs to make positive entries for all inspections.

b) REU Substation Infrared Inspection provides Severity Rating (Section 5. Severity Ratings) based on measured temperature differences but does not indicate a required correction interval or scheduled date of corrective action based on these measurements.

c) Neither REU's Substation Open nor Completed Work Order records include the Inspectors name or identification, Condition Rating (Priority) or a Scheduled date of corrective action.[19] REU needs to make entries for all required records noted in GO 174, Rule 33.1.

d) Due to the lack of condition ratings and scheduled dates of corrective action, ESRB is unable to assess the timeliness of REU's response to non-conformances. ESRB's analysis of REU's Open Work Orders notes 21 work orders open for more than 1 year.[20]

[19] Preaudit data request responses: DR21-01_Substation Completed WO and DR21-02_Substation Open WO
[20] Ibid.

III. Field Inspection

During the field inspection, ESRB inspected the following distribution, transmission and substation facilities.

Distribution and transmission facilities inspected are listed in Table 3:

Table 3: Field Inspection Locations

Location #	Structure ID	Structure Type	Latitude	Longitude
1	R40-104	Wood Pole-Trans/Dist	40.52357222	-122.3161306
2	R40-105	WOOD POLE-Trans/Dist	40.52198889	-122.3145917
3	R41-100	WOOD POLE-Trans/Dist	40.52106389	-122.3145972
4	R41-101	WOOD POLE-Trans/Dist	40.52019444	-122.3145833
5	S44-109	WOOD POLE-Trans/Dist	40.48260556	-122.2999194
6	S44-108	WOOD POLE-Trans/Dist	40.50441389	-122.305
7	S44-110	WOOD POLE-Trans/Dist	40.5052	-122.3049778
8	S43-109	Glue Lam-Trans/Dist	40.50544722	-122.3051306
9	S44-102	WOOD POLE-Dist	40.50260556	-122.3017583
10	S44-103	WOOD POLE-Dist	40.50260833	-122.3020556
11	S44-101	WOOD POLE-Dist	40.50243889	-122.3010778
12	S44-104	WOOD POLE-Dist	40.50170833	-122.3010417
13	K20-119	WOOD POLE-Trans	40.63388056	-122.3920139
14	D29-144	WOOD POLE-Trans	40.58353056	-122.4378667
15	T11340	Padmount	40.64224167	-122.3671889
16	T5986L0	Padmount	40.64235556	-122.3670111
17	None	WOOD POLE-Dist	40.64289444	-122.3668444
18	K18-105	WOOD POLE-Trans/Dist	40.642875	-122.3667833
19	K18-107	WOOD POLE-Trans/Dist	40.64262778	-122.366875
20	SW4483	Padmount	40.63194167	-122.3901972
21	SW4484	Padmount	40.63023056	-122.3898472
22	SW4485	Padmount	40.63138333	-122.3900306
23	SW4486	Padmount	40.63048056	-122.3898472
24	T11236	UG	40.63019444	-122.3898694
25	T11235	WOOD POLE-Trans/Dist	40.62564722	-122.4062194
26	T4247	WOOD POLE-Trans/Dist	40.62563333	-122.4054861
27	J1094	WOOD POLE-Trans/Dist	40.62575833	-122.4051278
28	G21-132	WOOD POLE-Dist	40.625375	-122.404975
29	G21-131	WOOD POLE-Dist	40.62486389	-122.4048222
30	G21-129	WOOD POLE-Dist	40.62333611	-122.4205861
31	G22-119	WOOD POLE-Trans/Dist	40.62322222	-122.4212278
32	G21-121	UG	40.61757222	-122.3983917
33	E22-104	WOOD POLE-Dist	40.61723056	-122.3936694
34	E22-103	WOOD POLE-Dist	40.617375	-122.3940806
35	J3105	WOOD POLE-Dist	40.61720556	-122.3936222
36	H23-114	WOOD POLE-Dist	40.61808333	-122.3949444
37	H23-113	WOOD POLE-Dist	40.61809167	-122.3951806
38	H23-112	WOOD POLE-Trans	40.60879444	-122.4432
39	H23-111	WOOD POLE-Trans	40.60895556	-122.4431528
40	H23-110	WOOD POLE-Trans	40.608875	-122.442025

Location #	Structure ID	Structure Type	Latitude	Longitude
41	C24-100	WOOD POLE-Trans	40.60868333	-122.442025
42	C24-101	WOOD POLE-Dist	40.61153889	-122.3682722
43	C24-103	WOOD POLE-Dist	40.6111	-122.3684139
44	C24-102	WOOD POLE-Trans/Dist	40.61082778	-122.3199306
45	K24-142	WOOD POLE-Trans/Dist	40.61	-122.3196722
46	K24-141	WOOD POLE-Trans/Dist	40.60981111	-122.3195111
47	R24-102	WOOD POLE-Dist	40.57426944	-122.4193111
48	R24-101	WOOD POLE-Dist	40.57405	-122.419975
49	R24-100	Padmount	40.57477222	-122.4187
50	E31-103	UG	40.57459167	-122.4188917
51	E31-104	WOOD POLE-Dist	40.57442778	-122.4185417
52	T7850L	WOOD POLE-Dist	40.57460278	-122.4169167
53	J3233	WOOD POLE-Dist	40.57459722	-122.4165889
54	F31-100	WOOD POLE-Dist	40.57446667	-122.4164417
55	F31-135	WOOD POLE-Dist	40.57503611	-122.415375
56	F31-122	WOOD POLE-Dist	40.58507222	-122.4087056
57	F31-120	WOOD POLE-Dist	40.58528611	-122.4082639
58	F31-119	WOOD POLE-Dist	40.58583889	-122.4075083
59	F29-009	WOOD POLE-Dist	40.587925	-122.3930194
60	F29-043	WOOD POLE-Dist	40.58735	-122.3933861
61	G29-035	Padmount	40.58788333	-122.3931111
62	2541	WOOD POLE-Dist	40.58607778	-122.3791722
63	H28-125	WOOD POLE-Dist	40.58574167	-122.3788222
64	T11261	WOOD POLE-Dist	40.58496944	-122.3791417
65	J29-104	WOOD POLE-Dist	40.58530556	-122.3776694
66	J29-109	Padmount	40.55632778	-122.38465
67	N/A	UG	40.55620833	-122.3843833
68	J29-106	Padmount	40.55623889	-122.3844917
69	T9682	Padmount	40.56125278	-122.3622889
70	J4175	Padmount	40.56113333	-122.3619389
71	T10139L	UG	40.56092778	-122.3612222
72	T9271L	Padmount	40.56090833	-122.3610917
73	T8303L	UG	40.56121389	-122.3616944
74	J4464	WOOD POLE-Dist	40.56198611	-122.3530417
75	T9430L	WOOD POLE-Dist	40.56138889	-122.3531722
76	J742	WOOD POLE-Dist	40.56078611	-122.3529889
77	M33-145	WOOD POLE-Dist	40.57227222	-122.354775
78	M33-144	WOOD POLE-Dist	40.57195278	-122.3551778
79	M33-143	WOOD POLE-Dist	40.57196944	-122.3554389
80	L31-213	Padmount	40.56131389	-122.339775
81	L31-214	UG	40.56169444	-122.3393694
82	L31-220	WOOD POLE-Trans/Dist	40.53369444	-122.3802333
83	T4046	UG	40.53355278	-122.3798306
84	J1777	WOOD POLE-Trans/Dist	40.53413889	-122.3793722
85	J38-194	WOOD POLE-Trans/Dist	40.53438889	-122.3787083
86	J3769	WOOD POLE-Dist	40.52499722	-122.3832556
87	J38-195	WOOD POLE-Dist	40.525	-122.3835278
88	J38-196	WOOD POLE-Dist	40.52559167	-122.3823167
89	J40-126	WOOD POLE-Dist	40.52540833	-122.3831417
90	J40-127	WOOD POLE-Dist	40.51543333	-122.3830028

Location #	Structure ID	Structure Type	Latitude	Longitude
91	J40-106	WOOD POLE-Dist	40.5148	-122.38285
92	J40-107	WOOD POLE-Dist	40.51428333	-122.3827889

Substations inspected are listed in Table 4:

Table 4: Substations Inspected

Substation	Type / Transformer Banks	Location
Airport-Redding	Substation-Two Banks	299 Sylvia Lane
Canby	Substation-Three Banks	980 Industrial Ave
Beltline	Substation-One Bank	4200 Oasis Rd
Eureka Way	Substation-One Bank	4400 Eureka Way
Oregon Street	Substation-One Bank	1205 Oregon Street

IV. Field Inspection Violations

ESRB identified the following violations during the field inspection of distribution and transmission facilities:

1. **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."*

ESRB's findings are listed in Table 5:

Table 5: GO 95, Rule 31.1 Findings

Location #	Findings
1	Loose transmission hardware.
2	Switch less than 15 feet from ground.[21]
4	Loose transmission hardware.
9	Buried down guy anchor. (Preexisting REU work order: DWG 23-027, prior to field audit.)
13	Buried down guy anchor.
14	Damage High Voltage sign.
40	Loose transmission hardware.
76	Missing visibility strips.
84	Loose bracket hardware.
88	Tilted top insulator.

2. **GO 95, Rule 49.2 C, Crossarm Strength** states in part:

> *"Crossarms shall be securely supported by bracing, where necessary, to withstand unbalanced vertical loads and to prevent tipping of any arm sufficiently to decrease clearances below the values specified in Section III.."*

ESRB's findings are listed in Table 6:

[21] REU Kearney 12kV Underarm Sidebreak Switch General Instruction #8.

Table 6: GO 95, Rule 49.2 C Findings

Location #	Findings
9	Split, deteriorated crossarm. (Preexisting REU work order: DWG 23-027, prior to field audit.)
18	Crossarm split from insulator to end.
34	Crossarm split from insulator to end.
60	Crossarm split from insulator to end.
65	Crossarm split from insulator to end.
84	Deteriorated crossarm.
85	Crossarm rolled forward.

3. **GO 95, Rule 51.6 A, Marking and Guarding, 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."*

ESRB's findings are listed in Table 7:

Table 7: GO 95, Rule 51.6 A Findings

Location #	Findings
5	Damage High Voltage sign.
14	Damage High Voltage sign.
19	Loose High Voltage sign.
38	Damage High Voltage sign.
42	Damage High Voltage sign.
87	Damage High Voltage sign.

4. **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."*

ESRB's findings are listed in Table 8:

Table 8: GO 95, Rule 54.6 B Findings

Location #	Findings
5	Exposed ground wire, arrestor.
6	Exposed ground wire, broken moulding.
13	Exposed ground wire, broken moulding.
14	Exposed ground wire, broken moulding.
19	Exposed ground wire, broken moulding.
34	Exposed ground wire, broken moulding.
57	Exposed ground wire, broken moulding.

5. **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..."*

ESRB's findings are listed in Table 9:

Table 9: GO 95, Rule 54.7 Findings

Location #	Findings
64	Climbing space is obstructed by vegetation.
91	Climbing space is obstructed by vegetation.

6. **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."*

ESRB's findings are listed in Table 10:

Table 10: GO 95, Rule 56.2 Findings

Location #	Findings
25	Slack span guy.
39	Slack down guy.
48	Slack span guy.

7. **GO 95, Rule 56.9, Guy Marker (Guy Guard)** states:

> *"A substantial marker of suitable material, including but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, only the outermost guy is required to have a marker."*

ESRB's finding is listed in Table 11:

Table 11: GO 95, Rule 56.9 Finding

Location #	Finding
4	Missing guy marker.

8. **GO 95, Rule 59.4 A (1) (a) Ground, Material and Size, Grounding Conductor** states:

> *"The grounding conductors of the common neutral system shall conform to each of the following requirements:(a) The grounding conductor from each ground rod to the base of the pole shall not be less than 1 foot below the surface of the ground."*

ESRB's findings are listed in Table 12:

Table 12: GO 95, Rule 59.4 A (1) (a) Findings

Location #	Findings
13	Exposed ground rod.
14	Exposed ground rod.
59	Exposed ground rod.

9. **GO 128, Rule 17.8 Identification of Manholes, Handholes, Subsurface and Self-contained Surface-mounted Equipment Enclosures** states:

> *"Manholes, handholes, subsurface and self-contained surface-mounted equipment enclosures shall be marked as to ownership to facilitate identification by persons authorized to work therein and by other persons performing work in their vicinity"*

ESRB's findings are listed in Table 13:

Table 13: GO 128, Rule 17.8 Findings

Location #	Findings
24	Missing ownership mark.
32	Missing ownership mark.
50	Missing ownership mark.
61	Missing ownership mark.
73	Misidentified ownership.

10. **GO 128, Rule 32.7 Covers** states:

> *"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."*

ESRB's findings are listed in Table 14:

Table 14: GO 128, Rule 32.7 Findings

Location #	Findings
73	Access to interior through gap in cover.
81	Access to interior through hole in cover.

11. GO 128, Rule 34.3 B Self–contained Surface–mounted Equipment, Guarding Live Parts states:

> *"Compartments and enclosures which will, during normal operation, contain exposed live parts shall be designed and installed to prevent a person from passing a wire or other conducting material into such compartment from the outside when it is closed.."*

ESRB's findings are listed in Table 15:

Table 15: GO 128, Rule 34.3 B Findings

Location #	Findings
15	Access to interior through gap at base.
20	Access to interior through holes in top of ground cover plates.
80	Access to interior through gap at base.

12. GO 128, Rule 35.3 Marking and Guarding, 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."*

ESRB's findings are listed in Table 16:

Table 16: GO 128, Rule 35.3 Findings

Location #	Findings
24	Missing High Voltage warning sign.
50	Missing High Voltage warning sign.

ESRB identified the following violations during the field inspection of substations:

GO 174, Rule 12, General states in part:

"…Substations shall be designed, constructed and maintained for their intended use, regard being given to the conditions under which they are to be operated, to promote the safety of workers and the public and enable adequacy of service.

Design, construction, and maintenance should be performed in accordance with accepted good practices for the given local conditions known at the time by those responsible."

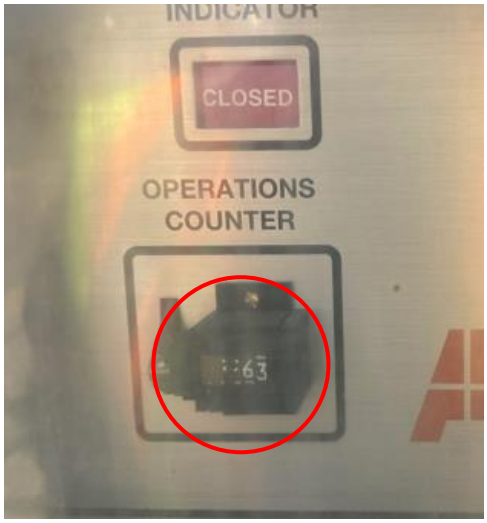
1. Canby Substation

1.1. Fire extinguisher inspection is out of date.

1.2. 120 V temporary line on ground, attached to fence.

1.3. Transformer Bank 2 has an oil leak.

1.4. Faded/illegible counters on feeder breakers: 1203, 2401, 2402, 2403, 2404.



2. Beltline Substation

2.1. Annunciator light on: Panel 4, XFMR 1. No label on alarm, no action being taken.

2.2. Fire extinguisher inspection is out of date.

2.3. Faded/illegible counters on feeder breakers:
3631, 3635, 3544, 1101, 1102, 1103, and 1104.

3. Eureka Substation

3.1. Fire extinguisher inspection is out of date.

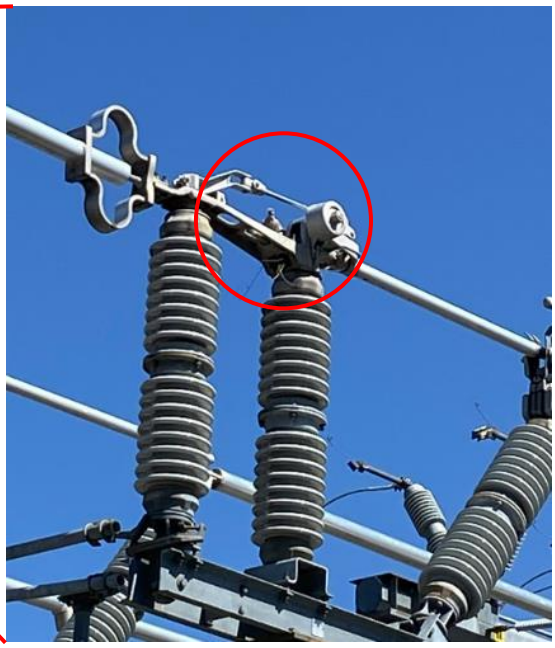
3.2. Bird nest in SW 3242 B phase bushing base.

4. Oregon Substation

4.1. External warning signs are unreadable on the north side of substation.



4.2. Bird nest, SW 3205 A phase, switch pivot.

4.3. Exposed ground, broken moulding, transmission pole H29-205 located within the substation.

V. Observations

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

(2) "Where a communications company's or an electric utility's (Company A's) actions result in potential violations of GO 95 for another entity (Company B), that entity's (Company B's) remedial action will be to transmit a single documented notice of identified potential violations to the communications company or electric utility (Company A) within a reasonable amount of time not to exceed 180 days after the entity discovers the potential violations of GO 95. If the potential violation constitutes a Safety Hazard, such notice shall be transmitted within ten (10) business days after the entity discovers the Safety Hazard.

(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 GO95."

Table 17 includes all non-REU (third-party) findings that ESRB observed during the audit:

Table 17: Observations

Location #	Observations
11	Communications down guy broken.
16	Communications conductor loose from pole.
18	Unauthorized third-party attachment to pole
19	Communications conductor loose from pole. Broken communications riser cover.
25	Communications riser lifted, exposing conductors.
26	Communications conductor loose from pole. Communications ground conductor exposed.

Location #	Observations
30	Communications conductor loose from pole. Communications facilities not transferred to new pole.
33	Communications conductor loose from pole. Communications riser lifted, exposing conductors.
35	Communications conductor loose from pole. Communications riser less than 8 ft. above ground.
36	Communications conductor loose from pole.
42	Communications conductor loose from pole.
43	Communications down guy slack. Communications down guy anchor corroded. Communications riser raised, exposed conductor.
47	Communications conductor loose from pole. Communications down guy marker missing.
48	Third party attachment.
54	Third party attachment.
55	Communications conductor loose from pole.
56	Communications ground exposed and broken moulding.
57	Communication drop abandoned. Communication ground rod exposed.
59	Communication drop abandoned. Communications conductor loose from pole.
60	Communications ground exposed and broken moulding.
71	Communications underground box causing a trip hazard.
74	Communications down guy not taut.
77	Communications ground exposed. Communications facilities not transferred to new pole
78	Communications conductor loose from pole.
79	Communications riser lifted, exposing conductors.
86	Unauthorized third-party attachment to pole
89	Communications ground exposed.
91	Communications drop less than 16 ft above ground at road edge.
92	Communications drop abandoned, on ground.