

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



May 25, 2021

CA2021-918

Michael Montgomery
Operations Manager
Sierra Telephone Company, Inc.
40033 Sierra Way
Oakhurst, CA 93644

SUBJECT: Communications Infrastructure Audit of Sierra Telephone Company

Dear Mr. Montgomery:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission, Charles Mee and Caroline Thierry conducted a communications infrastructure audit of Sierra Telephone Company (Sierra) from April 12 to April 16, 2021. The audit included a review of Sierra's procedures, records, and field inspections of its facilities.

During the audit, my staff identified violations of one or more General Orders and observed some deficiencies. A copy of the audit findings itemizing the violations and observations is enclosed. Please provide a response no later than June 22, 2021, by electronic copy of all remedial actions to correct the violations and observations and preventive measures to prevent the recurrence of all deficiencies. The response should indicate the date of the remedial actions and preventive measures completed.

If you have any questions concerning this audit, please contact Charles Mee at (415) 730-7012 or charles.mee@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Banu Acimis".

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

Enclosure: CPUC Audit Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
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CPUC AUDIT FINDINGS OF SIERRA TELEPHONE COMPANY

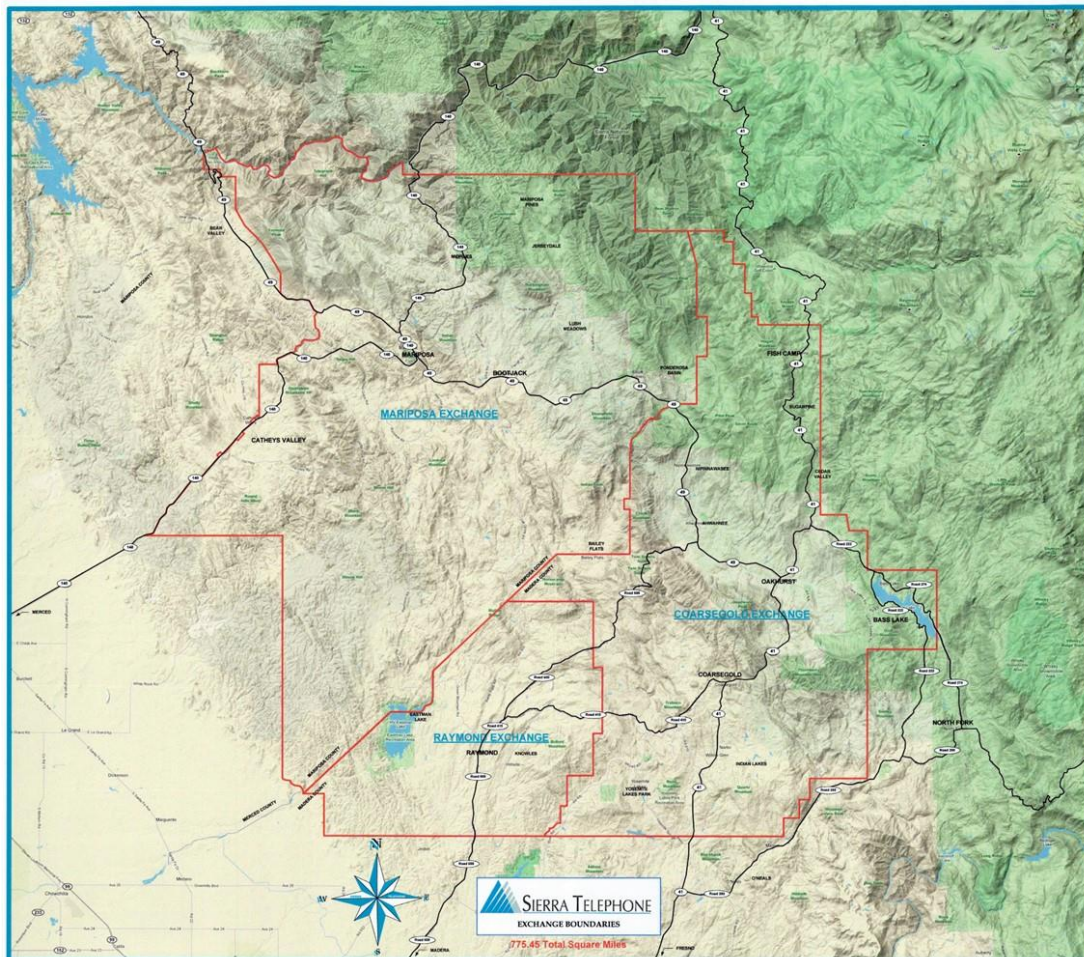
April 12-16, 2021

I. Introduction:

Sierra Telephone Company (Sierra) provides telephone and digital subscriber line (DSL) internet services to most of Eastern Madera County and a large portion of Mariposa County. Sierra serves 15,235 active customers in the following zip codes, in whole or in part: 93614 (Coarsegold), 93653 (Raymond), 93601 (Ahwahnee), 93644 (Oakhurst), 93604 (Bass Lake), 93669 (Wishon), 93623 (Fish Camp), 95338 (Mariposa), 95306 (Catheys Valley), and 95345 (Midpines).

Sierra's service area encompasses 755 square miles and three exchanges: Coarsegold, Raymond, and Mariposa. Refer to Figure 1:

Figure 1: Sierra Telephone Company Service Area



Sierra's communication infrastructures include 24.76 miles of overhead (OH) lines with 704 poles and 2,720.35 miles of underground (UG) cables with 21,187 UG structures. Sierra has 99% of its facilities undergrounded and continues to convert the remaining overhead facilities to underground.

Sierra's communication infrastructures include copper lines and fiber lines. The fiber lines are interconnected to 151 carrier sites to form multiple fiber networks. Each carrier site is interconnected to at least two other carrier sites in a fiber optic ring network topology. This redundancy allows each carrier site to communicate with either one of the two carrier sites it is interconnected with.

Each carrier site is comprised of a Service Access Interface (SAI), fiber splice case, and calix equipment. To maintain communication service reliability, Sierra installed batteries at each carrier site to continue service for a minimum of eight hours. Sierra is in the process of upgrading carrier sites to also install onsite propane generators as secondary backup. In extreme circumstances in which both the battery and the onsite backup generator fail, Sierra can utilize a portable backup generator to maintain the continuation of the service.

Sierra's network is interconnected to its neighbor telephone service providers in Fresno and Fairmead to communicate with the Public Switch Telephone Network and other data services. Sierra provides two types of technologies in providing communication services:

1. Most of the customer premises are interconnected to the fiber networks through underground copper lines to a SAI, which is collocated with and interconnected to a carrier site. A customer's call-out will go to the SAI first, then to Sierra's fiber networks and beyond. A call-in to the customer will get to Sierra's networks first and then through the SAI to the customer's premises. The copper lines carry communication signals with voltage of 48-volt direct current (VDC) and current in the level of milliamps. The communication signals can be felt by human being; however, Sierra employees have never experienced injuries by contacting copper lines carrying the communication signals.
2. In recent years, Sierra started to install fiber lines all the way to some customer premises. These customers now access the fiber network instead of the copper lines to make phone calls and to use internet services. However, instead of abandoning the copper lines, Sierra uses them to support the terminal equipment for the fiber lines. Under this arrangement, the copper lines carry supportive electric power with voltage of 300 VDC and current in the level of milliamps. This supportive electric power can be felt by human being, but Sierra employees have never experienced injuries by contacting the copper lines carrying the supportive electric power.

Under normal operations as described above, the copper lines used for carrying the communication signals and the supportive electric power appear not to have safety hazards. However, it is possible the copper lines as described above may be contacted by third-party electric utility power lines. The electric utility power lines carry significant amount of electric

power energy with voltage at the level of 10,000 volt alternating current (VAC) and with current at the level of 1,000 amps. It is also possible the copper lines receive lightning signals, which have extremely high voltages with very short time duration.

To protect the communication facilities and the customers, Sierra uses gas protectors on the copper line terminations at the customer premises and Sierra's carrier sites. When high voltage signals appear on the copper lines, the gas protectors will ground the copper lines to ensure safety of the communication facilities and customers. When the gas protectors act, communication lines become momentarily disabled, but are designed to return to normal service immediately following the high voltage event.

II. Records Review

During the audit, ESRB staff reviewed the following records:

- Sierra's procedure for site routine cabinet
- Sierra's procedure for site routine building
- Sierra's overhead pole inspection forms
- Sierra's partial patrol and detailed inspection records for 2016-2017 and complete patrol and detailed inspection records for 2018, 2019, and 2020 for its overhead facilities
- Sierra's repair work order records from 2016 through 2020, for its overhead and underground facilities
- Sierra's facility inspection and maintenance records for its underground facilities.

III. Records Review Violations

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

1. Sierra failed to meet the patrol and inspection frequency requirements.

General Order (GO) 95, Rule 80.1.A.(1) – Inspection Requirements for Joint-Use Poles in High Fire-Threat District states:

“In Tiers 2 and 3 of the High Fire-Threat District, inspection intervals for (i) Communication Lines located on Joint Use Poles (see Rule 21.8) that contain Supply Circuits (see Rule 20.6-D), and (ii) Communication Lines attached to a pole that is within three spans of a Joint Use Pole with Supply Circuits, shall not exceed the time specified in the following Table.”

Inspection Frequency	Tier 2	Tier 3
Patrol	2 Years	1 Year
Detailed	10 Years	5 Years

Sierra’s patrol and inspection logs provided in response to ESRB’s pre-audit data request #1, question #6 indicates that Sierra does not comply with the required frequency of patrol and detailed inspections as dictated by GO 95, Rule 80.1.A.(1).

Sierra is required to develop a plan to comply with the inspection requirements as described in GO 95, Rule 80.1.A.(1).

2. Sierra failed to maintain patrol and inspection records.

GO 95, Rule 80.1.A.(4) – Record Keeping states:

“Each company shall maintain records for at least ten (10) years that provide the following information for each facility subject to this rule: The location of the facility, the date of each inspection of the facility, the results of each inspection, the personnel who performed each inspection, the date and description of each corrective action, and the personnel who performed each correction action.”

In response to ESRB’s pre-audit data request, question 6, Sierra stated:

“Sierra has patrol inspections and detail inspections that date back to 2018. We have partial records for the time period prior to that.”

During the field audit, Sierra noted a non-recoverable loss of records for the period prior to 2018. Sierra also stated that it has since implemented a daily record upload program to reduce future risk of record loss.

Sierra is required to comply with the recording keeping requirements as described in GO 95, Rule 80.1.A.(4).

3. Sierra needs to clarify the priority level of the potential violations of GO 95 and safety hazards.

GO 95, Rule 18.B.(1)(a) – Maintenance Programs and Resolution of Potential Violations of General Order 95 and Safety Hazards 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 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.*

EXCEPTION – Potential violations specified in Appendix J or subsequently approved through Commission processes, including, but not limited to, a Tier 2 Advice Letter under GO 96B, that can be completed at a future time as opportunity-based maintenance.

Where an exception has been granted, repair of a potential violation must be completed the next time the company’s crew is at the structure to perform tasks at the same or higher work level, i.e., the public, communications, or electric level. The condition’s record in the auditable maintenance program must indicate the relevant exception and the date of the corrective action.

Sierra provided Pole Inspection Form¹ and Resolution of Safety Hazards and GO 95 Violations Form² for Work Order 7-085-15 for pole number #830. The form indicates the level of the safety hazard is Priority 1. According to GO 95, Rule 18-B.(1)(a), a Priority 1 safety hazard must be corrected immediately, but corrective actions for the Work Order 7-085-15 had not occurred at the time of ESRB’s field inspection, which was more than one year from that date the hazard had been identified. During the field inspection, Sierra explained that it had recently revised its priority ranking system to align with GO 95, Rule 18-B.(1)(a).

Sierra needs to update inspection forms to clarify that Priority 1 means high priority and Priority 3 means low priority.

¹Sierra Telephone Company’s Response to ESRB Pre-Audit Data Request #1, Question #5 Pole Inspection Form

²Sierra Telephone Company’s Resolution of Safety Hazards and GO 95 Violations Form

4. Sierra needs to maintain records for communication and coordination with third-party utilities.

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 GO 95.

(5) A company receiving a notification under (2), (3), or (4) above shall take appropriate corrective action consistent with the provisions of this rule. For at least ten (10) years, the documentation of the notice shall be maintained by both the notifying and receiving parties and documentation of the correction shall be maintained by the receiving party.”

Sierra did not provide any record of outgoing or incoming third-party notifications. Sierra’s pole inspection form did not indicate any requirement to notify the third-party for any observed safety hazard, either.

Sierra needs to do the following:

- 1) Maintain records for both outgoing and incoming third-party notifications, and
- 2) Revise inspection form to ensure that when Sierra observes safety hazards and potential violations of GO 95 on facilities owned by a third-party, Sierra will notify the third-party.

IV. Field Inspection

From April 12 through April 16, 2021, ESRB staff inspected the following facilities:

Location	Facility No.	Facility Type	Address
1	MCZ1	Carrier Site	Mariposa
2	MAC1	Carrier Site	Mariposa
3	Bootjack	Wire Center	Mariposa
4	MB4	Pedestal	Mariposa
5	933	Pole	5138A Jones Street, Mariposa
6	931	Pole	1 span north of pole 933, Mariposa
7	93713 Drop	Service Line	5137 Jones Street, Mariposa
8	T1G8	Pedestal	Mariposa
9	830	Pole	Mariposa
10	89692 Cable	Service Line	5020 Mariposa Street, Mariposa
11	MEN11	Carrier Site	Mariposa
12	Oakhurst CO	Wire Center	Coarsegold
13	OMQ1	Carrier Site	Coarsegold
14	OHA1	Carrier Site	Coarsegold
15	FA5	Pedestal	Coarsegold
16	FA 8 9	Pedestal	Coarsegold
17	789	Pole	55298 Lake View Drive, Coarsegold
18	602	Pole	39047 Island, Coarsegold
19	27249 Drop	Service Line	39047 Island, Coarsegold
20	526	Pole	38626 Road 222, Coarsegold
21	124	Pole	35481 Hwy 41, Coarsegold
22	123	Pole	1 span south of 35481 Hwy 41, Coarsegold
23	122	Pole	35497 HWY 41, Coarsegold
24	20434 Drop	Service Line	35497 HWY 41, Coarsegold
25	OKT1	Carrier Site	Coarsegold
26	LL1A 61A1	Telephone Network Interface	Coarsegold
27	OLJ1	Carrier Site	Coarsegold
28	OKA1	Switching Center	Coarsegold
29	YCS1	Carrier Site	Coarsegold
30	Raymond	Wire Center	Raymond
31	E2A X X	Pedestal	Raymond

Location	Facility No.	Facility Type	Address
32	RYMD#9	Surface Fiber	Daulton Creek and Road 600, Raymond

V. Field Inspection Violations and Observation

During the field inspection, ESRB staff found the following violations:

1. Sierra failed to maintain clearance between communication lines and electric power supply lines.

GO 95, Rule 38 – Minimum Clearances of Wires from Other Wires, Table 2, Column C Case No.’s 9, 10, 11, 12, and 13 provides the minimum allowable clearances between communication conductors (including open wire, cables, and service drops) and supply conductors. The minimum clearance between communication conductors and supply conductors is 48”, with a greater minimum value with increased supply conductor’s voltage.

Communication cable located at Location 10 - 5020 Mariposa Street, Mariposa was within the minimum 48” clearance of a supply conductor. Refer to Figure 2.

Sierra is required to correct this deficiency to meet the requirement of GO 95, Rule 38, Table 2.

Figure 2: Clearance Issue at Location 10



2. Sierra failed to maintain service drops clearances above buildings at two locations.

GO 95, Rule 84.8.C.(4) – Service Drops Clearances above Ground and Buildings states:

“The vertical clearances shall not be less than the minimum clearances specified in Rule 37, Table 1, Column B, with the following exceptions:

Service drops are not required to clear the roofs of buildings on the premises served any specified vertical distance. The vertical clearance above buildings on premises other than the one being served shall not be less than 8 feet, except that a reduction to not less than 2 feet is permitted under either of the following conditions:

- (a) Over roofs whose slope exceeds 9 inches of rise per 12 inches of run (see sketch),
or*
- (b) Over roofs where the service drop does not overhang the building by more than 6 feet.”*

Figure 3 shows the following two locations where overhead service drops contacted the roof of buildings that are not the ones receiving the services from the service drops:

- Location 7 - 5137 Jones Street, Mariposa
- Location 18 - 39047 Island, Bass Lake

Sierra is required to correct these deficiencies to meet the requirements of GO 95, Rule 84.8.C.(4).

Figure 3: Clearance Issue at Location 7 and 18



3. Sierra failed to mark its communication cables attached to a joint-use pole.

GO 95, Rule 91.5 – Marking states in part:

“Each communication cable and conductors as defined by Rules 20.4, 20.6(A), 20.9, 84.1, 87.4(C), and 89.1 that is attached to a joint-use pole shall be marked as to ownership. The marker shall (1) identify the owner of the cable and/or conductor; (2) provide a 24 hour contact number for emergencies or information; (3) be made of weather and corrosion resistant material; and (4) be clearly visible to workers who climb the pole or ascend by mechanical means. This marking requirement applies only to (A) new construction, (B) of facilities, and (C) existing aerial communication cables and conductors that a technician works on when the technician ascends the joint-use pole for regular maintenance.”

Sierra’s overhead lines at Location 5 do not have ownership markings. Refer to Figure 4.

Sierra is required to correct this deficiency to meet the requirement of GO 95, Rule 91.5.

Figure 4: Ownership Marking Issue at Location 5



4. Sierra did not perform intrusive inspections to poles in High Fire Threat District.

GO 95, Rule 80.1-B – Intrusive Inspections in the High Fire-Threat District states in part:

“Wood poles in Tier 3 of the High Fire-Threat District that support only Communication Lines or equipment shall be intrusively inspected in accordance with the schedule established in General Order 165 if they are:

- Interset between joint-use poles supporting supply lines in Southern California.*
- Within three spans of a joint-use pole supporting supply lines in Southern California.*
- Within one span of a joint-use pole supporting supply lines in Northern California.*

Sierra did not provide intrusive inspection records for the pole that is owned by Sierra at Location 6 near 5140A Jones Street, Mariposa supports only communication lines within one span of a joint-use pole (Location 5 - Pole #933) supporting supply lines. Refer to Figure 5.

Sierra needs to conduct the required intrusive inspections.

Figure 5: Lack of Intrusive Inspection at Location 5



5. Sierra did not have ownership marking on some of its underground facilities.

GO 128, Rule 17.8 – Identification of Manholes, Handholes, Subsurface and Self-contained Surface-mounted Equipment Enclosures states in part:

“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.”

During the field audit, ESRB noted several locations where Sierra owned manholes, handholes, subsurface and self-contained surface-mounted equipment enclosures were not marked with ownership. Figure 6 shows five locations at which Sierra did not label the ownership of its facilities:

- Location 11 - MEN 11 – Heavy duty vault in equipment pad.
- Location 14 - OHA1 – Heavy duty vault in equipment pad.
- Location 25 - OKT1 – Heavy duty vault in equipment pad.
- Location 28 - OKA1 – Heavy duty vault.
- Location 30 - Raymond CO – Heavy duty vault.

However, Sierra noted a recent initiative to install ownership markers to existing facilities.

Sierra needs to mark its underground facilities.

Figure 6: Ownership Marking Issue at Locations 11, 14, 25, 28, and 30



6. Several mice were found inside Sierra's facility.

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.”

ESRB staff found several mice inside the SAI at carrier site MCZ 1. Those mice may damage the copper lines which can cause interruption of the communication services.

After ESRB notified Sierra about this discovery, Sierra corrected this issue before the end of the audit.

Sierra needs to take preventive measures to prevent this issue from happening again to provide safety and reliability services to communication customers.

During the field inspection, ESRB staff found the following observation:

1. Sierra did not label some flammable propane tanks at its carrier site.

29 Code of Federal Regulations (CFR) § 1910.106(f)(6) states:

“Sources of ignition. Category 1 or 2 flammable liquids, or category 3 flammable liquids with a flashpoint below 100 F (37.8C) shall not be handled, drawn, or dispensed where flammable vapors may reach a source of ignition. Smoking shall be prohibited except in designated localities. “No Smoking” signs shall be conspicuously posted where hazard from flammable liquid vapors is normally present.”

29 CFR §1910.106(d)(3)(ii), states in part

“Cabinets shall be labeled in conspicuous lettering, “Flammable – Keep Fire Away””

Figure 7 shows two locations where Sierra did not have adequate labeling for the propane tanks:

- Location 2 - MAC1
- Location 14 - OHA1

ESRB recommends Sierra correct these deficiencies.

Figure 7: Inadequate labeling at Location 2 and 14

