

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



November 8, 2011

EA2011-033

Ms. Eleanor Joyce Pefferman
EO SR&S Sustainable Reliability
Pacific Gas and Electric Company
245 Market St, N14
San Francisco, CA 94105

Subject: PG&E North Valley Division Electric Audit

Dear Ms. Pefferman:

On behalf of the Utilities Safety and Reliability Branch (USRB) of the California Public Utilities Commission (CPUC), Ivan Garcia, Kenneth How and I conducted an electric audit of PG&E's North Valley Division, Red Bluff, Oroville, and Chico Districts from August 29-September 2, 2011. The audit included a review of the division's records for the period January 2003 through August 2011. This electric audit was a specialized audit to address a complaint letter the CPUC received. The majority of the audit was focused on the complaint's issues and the majority of the field verification was underground facilities.

During the audit, we identified violations of one or more General Orders. I have enclosed a copy of our audit summary itemizing those violations. By December 12, 2011, PG&E must send me a response to this letter detailing its plans to address those violations and when PG&E expects to complete them. You may email an electronic copy of the response to ryan.yamamoto@cpuc.ca.gov or send a hard copy to:

Attn: Ryan T. Yamamoto
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

Should you have any questions concerning this letter I can be reached by telephone at (415) 703-2192 or by email at ryan.yamamoto@cpuc.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Ryan T. Yamamoto", written over a horizontal line.

Ryan T. Yamamoto, P.E.
Utilities Safety and Reliability Branch
Consumer Protection and Safety Division
California Public Utilities Commission

Enclosures: Audit Summary

CC: Alok Kumar, Senior Utilities Engineer, CPUC USRB
Raymond Fugere, Program and Project Supervisor, CPUC USRB
Curtis Todd Ryan, Supervisor, PG&E Gas & Electric System Support

AUDIT SUMMARY

I. Record Violations

This section summarizes the General Order (GO) violations that we found during our review of PG&E North Valley Division maintenance records.

A. GO 165 Inspection Record Violations

1. Late/missed GO 165 Inspections

GO 165 Section IV: Standards for Inspection, Record-keeping, and Reporting states in part:

Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to assure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in the attached table.

PG&E must inspect their facilities per the cycles outlined in GO 165. PG&E tracks these inspections by highlighting inspected facilities on inspection maps per PG&E's Electric Distribution Preventive Maintenance (EDPM) Manual. Facilities not highlighted within a GO 165 cycle indicate that PG&E has not inspected those facilities on time.

The following inspection maps had facilities not inspected within a GO 165 inspection cycle:

Records in the table below were provided by PG&E

Record	Explanation of Violation
Overhead Patrol Map T2011 (Willows - 2009)	Patrol not conducted in 2009
Overhead Inspection Map L40 (Redding - 2009)	Inspection not conducted in 2009
Overhead Inspection Map L41 (Redding - 2009)	Inspection not conducted in 2009
Overhead Inspection Map I2523 (Oroville - 2009)	Inspection not conducted in 2009
Overhead Inspection Map J21Q (Oroville - 2009)	Inspection not conducted in 2009
Overhead Inspection Map J21X (Oroville - 2009)	Inspection not conducted in 2009
Overhead Inspection Map J22 (Oroville - 2009)	Inspection not conducted in 2009

Record	Explanation of Violation
Overhead Inspection Map J2204 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map J2205 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map J2209 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map J2214 (Oroville -2009)	Inspection not conducted in 2009
Overhead Inspection Map J2219 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map J2222 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map J2224 (Oroville -2009)	Inspection not conducted in 2009
Overhead Inspection Map J2225 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map K21L (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map K2413 (Oroville – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T32 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3203 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3211 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3216 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3221 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T33 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3308 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3309 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3314 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3315 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3320 (Redding – 2009)	Inspection not conducted in 2009
Overhead Inspection Map T3324 (Redding – 2009)	Inspection not conducted in 2009

Record	Explanation of Violation
Overhead Inspection Map T3325 (Redding – 2009)	Inspection not conducted in 2009
Underground Inspection Map R31 (Chico – 2009)	Inspection not conducted in 2009
Underground Inspection Map V34 (Chico – 2009)	Inspection not conducted in 2009
Underground Inspection Map H2312 (Oroville – 2009)	Inspection not conducted in 2009
Underground Inspection Map T2011 (Willows -2009)	Inspection not conducted in 2009
Underground Inspection Map X3313 (Red Bluff – 2010)	Inspection not conducted in 2010
Underground Inspection Map Q3302 (Redding – 2010)	Inspection not conducted in 2010

B. Equipment Test and Inspection Record Violations

1. Corrective Actions Not Recorded on Equipment Test Forms

GO 95 Rule 31.1 Design, Construction and Maintenance [of overhead lines] and GO 128 Rule 17.1 Design, Construction and Maintenance [of underground systems] state in part:

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice

Section 7 of PG&E’s Rev. 06/2010 Capacitor Bank Test Report form requires an ERR Pin number if the tester identifies abnormal conditions on a capacitor. PG&E’s Recloser test form requires similar procedures. USRB interprets “accepted good practice” in part to mean following all established internal company procedures.

A number of capacitor forms were missing these numbers even after the tester marked them as necessary. It is unknown whether the abnormal equipment received corrective action. Without corrective action and corrective action numbers written on the form per PG&E maintenance procedures, the equipment is not being maintained in accordance with PG&E’s procedures.

Below is a list of equipment we found whose test forms indicated that they required ERR Pin numbers and/or EC Notification numbers but had none written down.

Record	Explanation of Violation
Cap Bank 511	No EC notification number written
Cap Bank 537	Not tested due to being offline for 15 years according to notes
Cap Bank 516	Counter did not change during test. No remedial action noted
Cap Bank 346	No EC notification number written
Cap Bank 315	No EC notification number written
Cap Bank 511	No EC notification number written
Cap Bank 212	No EC notification number written.
Cap Bank 462	Did not measure current at jumpers. No follow up actions noted.
Cap Bank 578	Did not measure current at jumpers. No follow up actions noted.
Recloser Operation # 2060	Checked no equipment appears to be in good condition. No EC notification number or what actions should be taken.
Recloser Operation # 2580	Checked a condition existing requiring a new EC Notification. No EC notification number written.

2. Incomplete or Incorrectly Marked Capacitor Test Forms

GO 95 Rule 31.1 Design, Construction and Maintenance [of overhead lines] and GO 128 Rule 17.1 Design, Construction and Maintenance [of underground systems] state in part:

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice

We consider the completion of PG&E's Rev. 06/2010 Capacitor Bank Test Report form to be part of PG&E's procedures. USRB interprets "accepted good practice" in part to mean following all established internal company procedures.

A number of capacitor test forms that were incorrectly or incompletely marked. Incorrect test forms are incomplete per PG&E maintenance standards, resulting in equipment not being maintained in accordance with PG&E's procedures.

Below are capacitor test records that appear to be incompletely or incorrectly filled out.

Record	Explanation of Violation
Cap Bank 275	Box for "this unit does not have SCADA" not checked
Cap Bank 109	Box for "this unit does not have SCADA" not checked

3. Late Equipment Tests

GO 95 Rule 31.1 Design, Construction and Maintenance [of overhead lines] and GO 128 Rule 17.1 Design, Construction and Maintenance [of underground systems] state in part:

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice

PG&E Standard TD-2302S outlines PG&E equipment inspection and test cycles. USRB interprets “accepted good practice” in part to mean following all established internal company procedures and standards.

25 regulators, 33 reclosers and 678 capacitors were completed late or not inspected in 2009. 16 regulators, 385 reclosers and 676 capacitors were completed late or not inspected in 2010. Late equipment inspections are not compliant with PG&E standard TD2302-S.

C. Late Corrective Actions

GO 95 Rule 31.1 Design, Construction and Maintenance [of overhead lines] and GO 128 Rule 17.1 Design, Construction and Maintenance [of underground systems] state in part:

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice

PG&E’s EDPM manual outlines PG&E’s methodology for prioritizing (with end dates) corrective actions for issues it finds on its electric system. USRB interprets “accepted good practice” in part to mean following all established internal company procedures and standards. Thus, past due corrective actions that violate the PG&E’s EDPM manual are also violations of GOs 95 and/or 128.

PG&E North Valley Division had 1107 corrective actions that were completed late or still pending.

II. Field Violations

This section lists the GO 95 and 128 violations that we identified during our field inspections of PG&E facilities. For the field work, we chose locations that PG&E inspected for GO violations per its maintenance program recent to our audit date.

A.	Location:	Eagle Nest Drive, Chico
	Transformer No.:	T3069
	Previous Visit by Utility:	Underground Inspection Map U3008 Completed 7/14/10
	Date Visited by CPUC:	8/31/11
	Explanation of Violation(s):	
	<p>GO 128 Rule 12.2, Maintenance states:</p> <p style="text-align: center;"><i>Systems shall be maintained in such condition as to secure safety to workmen and the public in general.</i></p> <p>Oil was in the drip trays.</p>	

B.	Location:	Eagle Nest Drive, Chico
	Transformer No.:	T3070
	Previous Visit by Utility:	Underground Inspection Map U3009 Completed 7/15/11
	Date Visited by CPUC:	8/31/11
	Explanation of Violation(s):	
	<p>GO 128 Rule 12.2, Maintenance states:</p> <p style="text-align: center;"><i>Systems shall be maintained in such condition as to secure safety to workmen and the public in general.</i></p> <p>Oil was in the drip trays.</p>	

C.	Location:	Eagle Nest Drive, Chico
	Transformer No.:	T3071
	Previous Visit by Utility:	Underground Inspection Map U3009 Completed 7/15/11
	Date Visited by CPUC:	8/31/11
	Explanation of Violation(s):	
	<p>GO 128 Rule 12.2, Maintenance states:</p> <p><i>Systems shall be maintained in such condition as to secure safety to workmen and the public in general.</i></p> <p>Oil was in the drip trays.</p>	

D.	Location:	1227 5 th Avenue, Oroville
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2319 Completed 10/27/10
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 95, Rule 35, Vegetation Management states:</p> <p><i>Communication and electric supply circuits, energized at 750 volts or less, including their service drops, should be kept clear of vegetation in new construction and when circuits are reconstructed or repaired, whenever practicable. When a utility has actual knowledge, obtained either through normal operating practices or notification to the utility, that any 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).</i></p> <p>A service drop that show signs of strain.</p>	

E.	Location:	5 th Avenue and Montgomery Street, Oroville
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2319 Completed 10/27/10
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 95, Rule 54.6, Vertical and Lateral Conductors states:</p> <p><i>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</i></p> <p>Ground Molding not attached</p>	

F.	Location:	1370 5 th Avenue, Oroville
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2319 Completed 10/27/10
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 95, Rule 38, Minimum Clearances of Wires from Other Wires states:</p> <p><i>The minimum vertical, horizontal or radial clearances of wires from other wires shall not be less than the values given in Table 2 and are based on a temperature of 60° F, and no wind.</i></p> <p>Power service drop and communication conductor touching midspan</p>	

G.	Location:	5 th Avenue and High Street, Oroville
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2319 Completed 10/27/10
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 95, Rule 49.1, Poles, Towers and Other Structures states:</p> <p style="padding-left: 40px;"><i>A. Strength</i> <i>(1) Wood poles shall be of sound timber, ...</i></p> <p>The top of pole was split near crossarm through bolt</p>	

H.	Location:	Bonnie Lane and 12 th Street, Thermalito
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2321 Completed 10/22/10
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 95, Rule 54.6, Vertical and Lateral Conductors states:</p> <p style="padding-left: 40px;"><i>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</i></p> <p>Ground Molding not attached</p>	

I.	Location:	Dodge Avenue and 12 th Street, Thermalito
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2220 Completed 9/27/10
	Date Visited by CPUC:	9/2/11
	Explanation of Violation(s):	
<p>GO 95, Rule 54.6, Vertical and Lateral Conductors states:</p> <p><i>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</i></p> <p>Ground Molding not attached</p>		

J.	Location:	Leta Lane and Grand Avenue, Thermalito (Sixth pole from Grand Avenue on Leta Lane)
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2220 Completed 9/27/10
	Date Visited by CPUC:	9/2/11
	Explanation of Violation(s):	
<p>GO 95, Rule 54.6, Vertical and Lateral Conductors states:</p> <p><i>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</i></p> <p>Missing Ground Molding</p>		

K.	Location:	Around 1720 Grand Avenue, Thermalito
	Pole No.:	N/A
	Previous Visit by Utility:	Overhead Inspection Map G2220 Completed 9/27/10
	Date Visited by CPUC:	9/2/11
Explanation of Violation(s):		
<p>GO 95, Rule 54.6, Vertical and Lateral Conductors states:</p> <p><i>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</i></p> <p>Ground Molding not attached</p>		

L.	Location:	16 Sturgeon Court, Oroville
	Transformer No.:	T609
	Previous Visit by Utility:	Underground Inspection Map G2607 Completed 8/9/10
	Date Visited by CPUC:	8/31/11
Explanation of Violation(s):		
<p>GO 128, Rule 12.2, Maintenance states:</p> <p><i>Systems shall be maintained in such condition as to secure safety to workmen and the public in general. Systems and portions thereof constructed, reconstructed, or replaced on or after the effective date of these rules shall be kept in conformity with the requirement of these rules.</i></p> <p>Transformer pad crumbling</p>		

M.	Location:	548 Lodgeview Drive, Oroville
	Transformer No.:	T608
	Previous Visit by Utility:	Underground Inspection Map G2607 Completed 8/9/10
	Date Visited by CPUC:	8/31/11
	Explanation of Violation(s):	
	<p>GO 128, Rule 34.2, Equipment in Manholes, Vaults, Rooms and Other Enclosures states:</p> <p><i>Equipment shall be so arranged as to provide reasonable accessibility to personnel and working space for the safe operation, maintenance, and replacement of said equipment.</i></p> <p>Clearance issue with secondary box lid unable to open completely.</p>	

N.	Location:	90 Plata Court, Oroville
	Transformer No.:	T6252
	Previous Visit by Utility:	Underground Inspection Map G2224 Completed 5/12/11
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 128, Rule 12.2, Maintenance states:</p> <p><i>Systems shall be maintained in such condition as to secure safety to workmen and the public in general. Systems and portions thereof constructed, reconstructed, or replaced on or after the effective date of these rules shall be kept in conformity with the requirement of these rules.</i></p> <p>Transformer leaking oil</p>	

O.	Location:	14 Avery Court, Oroville
	Transformer No.:	T6036
	Previous Visit by Utility:	Underground Inspection Map G2219 Completed 3/11/11
	Date Visited by CPUC:	9/1/11
	Explanation of Violation(s):	
	<p>GO 128, Rule 34.2, Equipment in Manholes, Vaults, Rooms and Other Enclosures states:</p> <p><i>Equipment shall be so arranged as to provide reasonable accessibility to personnel and working space for the safe operation, maintenance, and replacement of said equipment.</i></p> <p>Large tree in front of transformer eight (8) foot clearance issue with transformer</p>	

P.	Location:	3981 Riceton Hwy, Biggs
	Transformer No.:	T1683
	Previous Visit by Utility:	Underground Inspection Map H1924 Completed 8/6/10
	Date Visited by CPUC:	9/2/11
	Explanation of Violation(s):	
	<p>GO 128 Rule 17.1 Design, Construction and Maintenance states:</p> <p><i>For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice...</i></p> <p>PG&E's Location, Clearances, and Mechanical Protection Details For Pad-Mounted and Subsurface Equipment Standards outlines use of removable post when posts are installed less than 8 feet in front of equipment doors. USRB interprets "accepted good practice" in part to mean following all established internal company procedures.</p> <p>Non-removable post for eight (8) foot clearance in front of operable side</p>	

Q.	Location:	3981 Riceton Hwy, Biggs
	Transformer No.:	T1684
	Previous Visit by Utility:	Underground Inspection Map H1924 Completed 8/6/10
	Date Visited by CPUC:	9/2/11
Explanation of Violation(s):		
<p>GO 128 Rule 17.1 Design, Construction and Maintenance states:</p> <p><i>For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice...</i></p> <p>PG&E's Location, Clearances, and Mechanical Protection Details For Pad-Mounted and Subsurface Equipment Standards outlines use of removable post when posts are installed less than 8 feet in front of equipment doors. USRB interprets "accepted good practice" in part to mean following all established internal company procedures.</p> <p>Non-removable post for eight (8) foot clearance in front of operable side</p>		

R.	Location:	Midway and Richvale Hwy, Biggs
	Transformer No.:	T562
	Previous Visit by Utility:	Underground Inspection Map H19 Completed 8/5/10
	Date Visited by CPUC:	9/2/11
Explanation of Violation(s):		
<p>GO 128 Rule 17.1 Design, Construction and Maintenance states:</p> <p><i>For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice...</i></p> <p>PG&E's Location, Clearances, and Mechanical Protection Details For Pad-Mounted and Subsurface Equipment Standards outlines use of removable post when posts are installed less than 8 feet in front of equipment doors. USRB interprets "accepted good practice" in part to mean following all established internal company procedures.</p> <p>Non-removable post for eight (8) foot clearance in front of operable side</p>		

S.	Location:	320 La Mirada Avenue, Oroville
	Pole No.:	N/A
	Previous Visit by Utility:	Pole Loading Calculation
	Date Visited by CPUC:	9/2/11
	Explanation of Violation(s):	
	<p>GO 95 Rule 44.1 Outlines the minimum safety factor requirements for poles. To ensure that those safety factors are met, PG&E must perform accurate safety factor calculations on its poles that take into account all attachments.</p> <p>A service drops on the pole was not included in the pole's safety factor calculation. See section IV, B for further discussion of this violation.</p>	

III. Complaint Issues

This section will discuss the pending issues from the complaint letter the CPUC received.

A. Grooves Cut Into Metal Supports for Vault

During the field visit to Miners Alley in Oroville we confirmed grooves were cut into the metal supports because the switch was too large to clear the supports in the vault. Please ensure the integrity of the supports and public safety weren't comprised by cut grooves in the supports.

B. 474 Lodgeview Drive (Kelly Ridge Area) in Oroville

During the field visit to 474 Lodgeview Drive, we found pad-mounted transformer T625 was unlevel and has a working space issue. Please provide us updates of the progress for the open tag to level the transformer and how the working space issue will be resolved.

IV. Programmatic Violations

This section discusses GO violations stemming from issues raised during the review of PG&E's maintenance procedures and from observation of PG&E's implementation of those procedures. These violations may be systemic in nature and might not be specific to the North Valley Division.

A. PG&E is Not Using an Equipment Test Deferment List Per Its Standards

GO 95 Rule 31.1 Design, Construction and Maintenance [of overhead lines] and GO 128 Rule 17.1 Design, Construction and Maintenance [of underground systems] state in part:

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice

We requested a list of equipment that had its inspection or maintenance deferred with explanation. PG&E's North Valley Division was unable to determine who maintains the deferred equipment inspection list or if there is a deferred equipment list.

PG&E requires that equipment not tested within their test cycles be added to a deferment list per TD2302P-05. Conversations with PG&E during the audit indicate that the requirement for deferment lists, new in 2011, was not communicated to the departments in charge of equipment testing and that they did not necessarily maintain TS2302P-05 deferment lists. If PG&E does not maintain these deferment lists per its standards, then PG&E is in violation of GO 95 Rule 31.1 and/or GO 128 Rule 17.1.

B. PG&E Does Not Take Into Account All Working Stresses in Safety Factor Calculations

GO 95, Rule 44, outlines the minimum safety factor requirements for poles. To ensure that those safety factors are met, PG&E must perform accurate safety factor calculations on its poles and take into account all working stresses including those from attachments.

While in the field we found a pole with safety factor calculations that did not include all facilities, namely service drops. PG&E standard 015203 also indicates that moments created by secondary services should be “considered” and follows with instructions on how to estimate them. However, during our review of PG&E’s loading calculations, we could not find any records showing that PG&E considered or estimated service moments. PG&E must indicate that they have taken into account all facilities, including services, when performing safety factor calculations to show that those calculations are within the requirements of GO 95, Rule 44.