

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



September 21, 2009

Eleanor Pefferman, Manager  
Sustainable Electric Reliability  
Pacific Gas and Electric Company  
245 Market Street, Mail Code N14L  
San Francisco, CA 94105

CPUC File No. E200914

**SUBJECT:** Electric Audit of PG&E's San Jose Division

On behalf of the Utilities Safety and Reliability Branch (USRB) of the California Public Utilities Commission, Aimee Dalusong, Kenneth How and I conducted an Electric Audit of PG&E's San Jose Division from July 6-10, 2009. The audit included a review of your records for the period of 2007-2008.

During the inspection, we identified violations of one or more General Orders. A copy of the audit summary itemizing the violations is enclosed. Please advise me by electronic or hard copy of all the corrective measures taken by the Utility regarding the violation(s) and the date on which they were corrected.

If you have any questions, please contact me at (415) 703-2192.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jadwindar Singh".

Jadwindar Singh, P.E.  
Utilities Safety and Reliability Branch  
Consumer Protection and Safety Division

Enclosure: Audit Summary

CC: Ms. Holly Meyer-Zebzda, PG&E  
Ms. Aimee Cauquiran, CPUC  
Mr. Kenneth How, CPUC

## Audit Summary

### Violations

(1) **General Order (GO) 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, 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. "

During our review of both the overhead and underground inspections and patrols, we identified the following violations related to highlighting and tallying of facilities on maps by PG&E Inspectors.

- a) PG&E Inspectors are inaccurately tallying the facilities inspected/patrolled. The tallying errors are most likely due to simple addition errors. However, these errors lead to changing facility counts year to year as the new count will supersede the prior, correct count. The tallying errors also create uncertainty when determining the number of facilities that were GO 165 inspected/patrolled, as the tally will not match the number of actual facilities on the map.
- b) PG&E Inspectors are overlooking (not highlighting) some facilities and not including them in the facility count. The Inspectors then fail to realize that the new, incorrect facility count is different than the prior count and then fail to investigate why there is a discrepancy. These highlighting and tallying errors also create uncertainty when determining the number of facilities that were GO 165 inspected/patrolled, as the not highlighted and not tallied facilities indicate that the facilities were not inspected.
- c) PG&E Inspectors are overlooking (not highlighting) some facilities on the maps, but are somehow able to accurately tally the total number of the facilities. The USRB has the impression that PG&E Inspectors are sometimes copying the prior facility count and using that number as the current count. Had the Inspectors properly counted the facilities actually inspected, the counts would not match.

PG&E's inspection program relies on the combination of highlighted facilities and tallied facility counts in order to comply with the inspection and patrol requirements of General Order 165. Without an agreement between the number of highlighted facilities and tallied facility count, the USRB can not definitively and unequivocally say that PG&E's Overhead and Underground Inspection program is inspecting all facilities and is in compliance with General Order 165. Furthermore, the USRB finds that these mistakes should have been found by the reviewing Compliance Supervisor. The fact that these issues exist show that more attention to detail must be paid when reviewing the inspections/patrols.

PG&E must implement methods that will ensure that all facilities have definitively and unequivocally been inspected/patrolled. These methods must also include provisions to ensure that facility counts are accurate and updated year to year. Please note that this

violation was also cited for the Peninsula Division audit conducted earlier this year, and is indicative of a system wide issue.

Below are examples of the violations:

Map #	Year	Facilities Reported as Inspected	Facilities Highlighted	Facilities Missed (Not Highlighted)
OH N-23-02	2003	40	36	9
OH M-25-18	2007	74	74	3

**(2) General Order (GO) 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, 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. "

During our review of the overhead and underground inspections and patrols, we identified the following violations:

**Overhead**

Map #	Description
N-24-23	Inspection in 2007 is late, as there was no inspection prior to 2007.
N-24-24	Inspection in 2007 is late, as there was no inspection prior to 2007.
N-24-25	Inspection in 2007 is late, as there was no inspection prior to 2007.
H-20-20	2005 urban patrol is missing.
J-17-03	2005 urban patrol is missing.
J-20-04	Inspection in 2007 is late, as a patrol was done in 2002.
K-24-20	Inspection in 2007 is late, as the previous inspection was in 2001.

**Underground**

Map #	Description
J-21-19	The 2009 planned inspection is late, as a patrol was done in 2006 and 2007. Last inspection was done in 2004.
K-24-16	No inspection was completed after the 2004 inspection. Patrols were done in 2006 and 2008.
K-24-17	No inspection was completed after the 2004 inspection. Patrols were done in 2006 and 2008.
K-24-18	No inspection was completed after the 2004 inspection. Patrols were done in 2006 and 2008.
H-21-00	2005 urban patrol is missing.
I-20-07	Inspection in 2007 is late, as the previous inspection was in 2002. Patrols were done in 2004 and 2005.
I-20-25	2005 urban patrol is missing.

Please explain why each of the violations exist and were not caught by the reviewing authority.

**(3) General Order (GO) 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, 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. "

During our review of both the overhead and underground inspections and patrols, we identified inconsistencies regarding the highlighting, tallying, and mapping of PG&E owned streetlights. On a few maps the Inspector counted and highlighted the streetlights, while on most of the other maps, the Inspector did not highlight, nor did they count the facilities. Furthermore, we noticed that streetlights aren't mapped consistently. For example, both private and company owned streetlights exist on maps, however, we noticed that both private and company owned streetlights were not mapped if a discrepancy was identified. Therefore, if a PG&E streetlight was neither highlighted nor tallied, it is a violation of GO 165.

Please address the following questions regarding this issue:

- a) Are PG&E Inspectors expected to inspect, tally, and highlight streetlights?
- b) Are PG&E Inspectors expected to add private and company owned street lights to the maps?

Please explain why each of the violations exist and were not caught by the reviewing authority.

**(4) GO 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, states in part:

"For all inspections, within a reasonable period, company records shall specify the circuit, area, or equipment inspected, the name of the inspector, the date of the inspection, and any problems identified during each inspection, as well as the scheduled date of corrective action. "

PG&E's 2007 and 2008 Annual GO 165 Reports state that San Jose Division incurred 17 and 14 late notifications, respectively. PG&E procedures allow EC notification to not be considered late until the end of the year, and therefore, given the amount of time that PG&E has to "address" a notification, the USRB finds it unacceptable that PG&E has

any late notifications. Please ensure that all notifications are "addressed" in the year they are due.

(5) **GO 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, states in part:

"For all inspections, within a reasonable period, company records shall specify the circuit, area, or equipment inspected, the name of the inspector, the date of the inspection, and any problems identified during each inspection, as well as the scheduled date of corrective action."

**PG&E EDPM Manual, Equipment Testing and Inspection Intervals**

PG&E's EDPM Manual states in part:

"Capacitor Bank, OH & UG, Fixed or Switched, Pad-Mounted or OH" shall be tested twice yearly.

During our review of the capacitor inspections, we identified the following violations:

- a) The following capacitors were not inspected in 2007:
  - K310L
  - K943
  
- b) The following capacitors were not inspected in 2008:
  - K146L
  - K152L
  - K2633
  - K306
  - K310L
  - K456
  - K484
  - K557
  - K561
  - K948
  - XK018
  - XK019

Please explain why each of the violations exist and were not caught by the reviewing authority.

(6) **GO 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, states in part:

"For all inspections, within a reasonable period, company records shall specify the circuit, area, or equipment inspected, the name of the inspector, the date of the inspection, and any problems identified during each inspection, as well as the scheduled date of corrective action."

**PG&E EDPM Manual, Equipment Testing and Inspection Intervals**

PG&E's EDPM Manual states in part:

"Switch, Manhole - Subway Type, Load-Break Oil Switches -- TGRAM & TGRAL" shall be inspected yearly.

During our review of the TGRAM/TGRAL inspections, we identified the following violations. The table below summarizes the TGRAM/TGRAL inspection records provided by the Division.

TGRAM/TGRAL Operation #	2006	2007	2008
H130A			
H130B			
MH10		x	x
MH133	x	x	
MH27A			
MH27B			
MH27C			
MH27D			
MH33		x	
MH35		x	
MH36A			
MH36B			
MH67		x	
MH80		x	
MH89A			
MH89B			
MH89C			

According to the inspection records provided, the TGRAM/TGRAL's of San Jose Division have been grossly neglected, as many have not been inspected in the last three years. Please explain why each of the violations exist and were not caught by the reviewing authority.

**(7) GO 165, Section IV, Standards for Inspection, Record-keeping, and Reporting**

Section IV, states in part:

"For all inspections, within a reasonable period, company records shall specify the circuit, area, or equipment inspected, the name of the inspector, the date of the inspection, and any problems identified during each inspection, as well as the scheduled date of corrective action."

**PG&E EDPM Manual, Equipment Testing and Inspection Intervals**

PG&E's EDPM Manual states in part:

"Recloser, OH - Hydraulic Electronic & Microprocessor" shall be tested/inspected twice yearly.

During our review of the recloser inspections, we identified the following violations:

- a) No records of the first or second 2007 recloser inspections were provided to USBR Engineers. The Division did not offer any other method in which to prove that any of the first or second 2007 recloser inspections had been completed.
- b) The following reclosers were either inspected late (past the end of the year) or were not inspected at all for 2008:

First (Spring) Inspections

XR258	No inspection	XR318	No inspection
XR260	No inspection	XR320	No inspection
XR298	No inspection	XR322	No inspection
XR300	No inspection	XR324	No inspection
XR302	No inspection	XR326	No inspection
XR310	No inspection	XR336	No inspection
XR312	No inspection		

Second (Fall) Inspections

1772	No inspection	XR100	Late on 1/9/09
6658	Late on 1/14/09	XR116	Late on 1/9/09
30042	Late on 1/15/09	XR122	Late on 1/14/09
60492	Late on 1/9/09	XR132	Late on 1/9/09
60502	Late on 1/9/09	XR154	Late on 1/9/09
62468	No inspection	XR158	Late on 1/15/09
62510	No inspection	XR170	Late on 1/9/09
63732	Late on 1/15/09	XR174	Late on 1/9/09
A62	No inspection	XR186	No inspection
C62	No inspection	XR204	No inspection
D80	Late on 1/9/09	XR206	Late on 1/14/09
E62	Late on 1/14/09	XR208	No inspection
XR010	Late on 1/9/09	XR226	No inspection
XR024	Late on 1/14/09	XR242	No inspection
XR026	Late on 1/9/09	XR248	Late on 1/9/09
XR028	Late on 1/9/09	XR256	Late on 1/9/09
XR032	No inspection	XR262	Late on 1/9/09
XR034	Late on 1/9/09	XR270	Late on 1/9/09
XR038	Late on 1/14/09	XR272	Late on 1/9/09
XR040	Late on 1/14/09	XR274	Late on 1/9/09
XR044	Late on 1/14/09	XR302	Late on 1/9/09
XR068	Late on 1/9/09	XR306	No inspection
XR092	No inspection	XR336	No inspection
XR098	Late on 1/9/09		

- c) There were instances where the 2008 inspection form indicated that there were no SCADA controls, yet the SCADA test was performed on the piece of equipment:
- XR090
  - XR118
  - XR192
  - XR106
  - XR008
  - L82

- d) The second 2008 inspection of XR262 indicated that the wrong form was given (3A instead of 6). The incorrect form was given to the inspector again during the 1/19/09 inspection.
- e) There were instances where the 2008 inspection form indicated that the recloser was "dead," yet no re-inspection or EC Notification is indicated on the tag:
  - 60492
  - 60502

Please explain why each of the violations exist and also why they were not caught by the reviewing authority.

**(8) PG&E EDPM Manual, Equipment Testing and Inspection Intervals – Fault Indicators**

PG&E's EDPM Manual states in part:

"Fault Indicators, UG – Manual & Automatic Reset" shall be inspected yearly.

PG&E's EDPM Manual states that fault indicators shall be inspected yearly. However, Division staff stated that that do not follow this directive. Please explain why this violation exists and was not caught by the reviewing authority.

**(9) GO 128, Rule 12.2 Maintenance**

Rule 12.2 states in part:

"Systems shall be maintained in such condition as to secure safety to workmen and the public in general."

At Location 1 on Wednesday, July 8 we observed transformer T-2472 at 808 Capital Expressway that had evidence of recent oil leakage. The oil had leaked onto the top of the concrete pad and down the side where it makes contact with the parking lot pavement. The transformer was inspected on 2/17/09 and given a Priority "P" that is due 1/30/2010 (EC Notification #103684968). According to PG&E Utility Work Procedure WP2320-1, this leakage constitutes a "Spill (Category 1B)" which is defined as follows:

"Insulating fluid has run off the surface of the equipment and is in contact with the soil or vegetation, or has run off the surface onto or into a supporting structure. Spill is less than or equal to 1 gallon (gal) of fluid."

Page 31 of PG&E's EDPM Manual has the "PCB Spill Response Cleanup Matrix" that requires that Spills (Category – 1) be given an EC Notification Priority of "A" and require an immediate response. However, according to PG&E personnel on site with USB Engineers, the priority was minimized, citing that the oil had not spilled onto the pavement, but only made contact with it. We find this to be a violation of WP2320-1, as the priority of the existing EC Notification 103684968 should have immediately been upgraded to "A" per PG&E's EDPM Manual.



Furthermore, the EC Notification does not adequately describe the extent of the oil leakage and it can not be determined what the Inspector observed on 2/17/09. We insist that PG&E inspectors be detailed in their comments. Also, given the history of this transformer, as another tag was created and closed in 2006 for the same, leaking oil issue at this transformer (EC # 102020809), and the fact that the transformer is currently leaking oil onto the concrete pad, the current EC notification should have been given a shorter due date.

**(10) GO 128, Rule 12.2 Maintenance**

Rule 12.2 states in part:

“Systems shall be maintained in such condition as to secure safety to workmen and the public in general.”

At Location 5 on Wednesday, July 8 we observed that Switch 60454 was not identified on the outside of the enclosure. The switch was inspected between 1/6/09 and 1/12/09. The PG&E EDPM Manual's Underground Inspection Job Aid specifies "Equipment Number Missing" as "Minor Work" that should have been corrected during the inspection.

**(11) GO 128, Rule 12.2 Maintenance**

Rule 12.2 states in part:

“Systems shall be maintained in such condition as to secure safety to workmen and the public in general.”

At Location 6 on Wednesday, July 8 we observed that Junction 5590 was not identified on the outside of the enclosure. The junction was inspected between 1/6/09 and 1/12/09. The PG&E EDPM Manual's Underground Inspection Job Aid specifies "Equipment Number Missing" as "Minor Work" that should have been corrected during the inspection.

**(12) GO 95, Rule 51.6, Marking and Guarding**

Rule 51.6 states in part:

“Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words “HIGH VOLTAGE”, or pair of signs showing the words “HIGH” and “VOLTAGE”, not more than six (6) inches in height with letters not less than 3 inches in height. A pair of signs may be stacked to a height of no more than 12 inches. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible.”

At Location 12 on Thursday, July 9 we observed a missing High Voltage sign at the pole that should have been identified during the overhead inspection between 4/21/09 and 5/6/09.

**(13) GO 95, Rule 51.6, Marking and Guarding**

Rule 51.6 states in part:

"Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words "HIGH VOLTAGE", or pair of signs showing the words "HIGH" and "VOLTAGE", not more than six (6) inches in height with letters not less than 3 inches in height. A pair of signs may be stacked to a height of no more than 12 inches. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible."

At Location 13 on Thursday, July 9 we observed a missing High Voltage sign at the pole that should have been identified during the overhead inspection between 4/21/09 and 5/6/09.

**(14) GO 95, Rule 31.1 Design, Construction and Maintenance**

Rule 31.1 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."

At Location 14 on Thursday, July 9 we observed that the skirt on the primary insulator was broken. The insulator is located on the west phase, behind 1589 Adrian. The broken insulator should have been identified during the overhead inspection between 4/21/09 and 5/6/09.

**(15) GO 95, Rule 31.1 Design, Construction and Maintenance**

Rule 31.1 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."

At Location 15 on Thursday, July 9 we observed that the 500 bob on the secondary service to 1543 Adrian was broken. The bob is located on the west side of the pole. The broken 500 bob should have been identified during the overhead inspection between 4/21/09 and 5/6/09.

**(16) GO 95, Rule 56.2 Use**

Rule 56.2 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."

At Location 34 on Thursday, July 9 we observed a slack down guy. The slack down guy should have been identified during the overhead inspection between 5/15/09 and 5/19/09.

**(17) GO 95, Rule 31.1 Design, Construction and Maintenance**

Rule 31.1 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."

At Location 35 on Thursday, July 9 we observed that the house side of a 500 bob on the secondary service to 1979 Rigoletto was shorted, and flipped onto the cross arm. The shorted 500 bob should have been identified during the overhead inspection between 5/15/09 and 5/19/09.

**(18) GO 95, Rule 31.1 Design, Construction and Maintenance**

Rule 31.1 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."

At Location 37 on Thursday, July 9 we observed a broken insulator on the secondary cross arm. The broken insulator should have been identified during the overhead inspection between 5/15/09 and 5/19/09.

**(19) GO 95, Rule 31.1 Design, Construction and Maintenance**

Rule 31.1 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."

At Location 39 on Thursday, July 9 we observed a badly deteriorated primary crossarm. The crossarm had been identified during the overhead inspection on 6/5/09 (EC Notification # 103882762). However, the crossarm was given a correction date of 9/30/09 and our field visit showed that the primary dead end could have pulled out at any moment. In fact, you could see directly through the cross arm because the wood was so badly deteriorated. We find the correction date established by the inspector to be completely unacceptable and the inspector should have called to have the crossarm immediately changed out.

## Concerns and Recommendations

### (1) Late EC Notifications, January – June 2009

San Jose Division staff provided a spreadsheet of about 320 EC Notifications that were allowed to go past their end of the month due dates for the time period January – June, 2009. Each of these notifications is a violation of PG&E procedure. Please explain the following:

- When will PG&E resume compliance with the end of the month requirement?
- How does PG&E expect to address each of these past due notifications, in addition to the upcoming notifications, by the end of the year?

### (2) Check Boxes on EC Notifications

USRB suggests creating checkboxes on the EC Notifications that go out to the field so that the person addressing the tag can easily choose from one of the four options available to them (NCOA, Cancelled, Completed, Reassessed). This will make it easier for office personnel who enter the notifications into the database, as they will no longer need to interpret the written comments left by the inspector.

### (3) High Voltage Signs

During the field portion of the audit, one of the members of PG&E's team explained their belief of GO 95's High Voltage sign applicability. Specifically, the person explained that High Voltage signs are only required on both sides of the cross arm if near water (or something to that effect). GO 95's High Voltage sign requirements mention nothing about water. Please ensure all PG&E personal are familiar with the requirements of Rule 51.6

### (4) List of Equipment Inspected/Maintained

Prior to the audit, San Jose Division staff was given a data request that asked for a "Listing of equipment that was not maintained per PG&E requirements for the years 2007 and 2008." In order to answer this question, the USRB expected that San Jose Division know the total amount of each type of equipment in service from 2007-2008. However, the Division had a difficult time producing a list of each type of equipment. In the future, USBR expects that Divisions provide an exact list of each type of equipment in service for the audit period.

### (5) Supervisory Review of Inspection Maps, Logs, and Records

As evidenced in this report, the USRB found many deficiencies that should have been caught by the Supervisor in charge of reviewing the documents. PG&E already has procedures in place that mandate Supervisory review and signatures, however, we must conclude that the review is cursory, as many of the issues we found were obvious. We insist that PG&E review the responsibilities with Supervisors to ensure that inspection/patrol facility counts, inspection log EC notifications, and equipment testing procedures are completely followed by their staff.

