

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



October 27, 2010

Russ Kamiyama
Manager, Electric Operations Department
City of Palo Alto
3201 East Bayshore Road
MSC-C
Palo Alto, CA 94303

CPUC File No.: EA2010-21

SUBJECT: Electric Audit of the City of Palo Alto's Electric Department

On behalf of the Utilities Safety and Reliability Branch (USRB) of the California Public Utilities Commission, Terence Eng and I conducted an audit of the city of Palo Alto's Electric Department from July 21-23, 2010. The audit included a review of your records for the period of 2005-2010 and field verifications.

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 December 27, 2010 of all corrective measures taken by the Utility regarding the above violation(s). Please provide electronic or hard copy records showing the correction date for each violation.

If you have any questions, please contact me at (415) 703-1817.

Sincerely,

A handwritten signature in cursive script that reads "Paul Penney".

Paul Penney, PE
Utilities Engineer
Utilities Safety and Reliability Branch (USRB)
Consumer Protection and Safety Division

Enclosure: Audit Summary
(1) Records Review
(2) Field Findings

CC: Terence Eng, Utilities Engineer, USRB

Audit Summary

I. Records Violations

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

“Each utility subject to this General Order shall submit an annual report detailing its compliance with this General Order under penalty of perjury. The first report required under this section shall be filed with the Commission by no later than July 1, 1998. Each utility shall file subsequent annual reports for every following year by no later than July 1...”

Currently, the city of Palo Alto does not send Annual Reports to the Commission.¹ This is a violation of the above referenced paragraph. The city of Palo Alto should send future annual reports by July 1st of each year to the following address:

California Public Utilities Commission
320 West 4th Street, Suite 500
Los Angeles, CA 90013

Attention: Raymond Fugere, Program and Project Supervisor
Utilities Safety and Reliability Branch

Alternately, the city of Palo Alto may email the reports to Mr. Fugere at raymond.fugere@cpuc.ca.gov .

B. GO 165, Section IV, Standards for Inspection, Record-keeping, and Reporting

“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.” (Underline added)

The city of Palo Alto’s “Preventative Maintenance Plan” (PMP) states:

“Priority #1 – Immediate Hazard
Conditions that may affect the integrity of the system or present a hazard to workers or the general public. All Priority #1 tags

¹ During the audit, the city of Palo Alto provided us with a hard copy of its 2009 Annual Report.

will be responded to immediately, and appropriate action taken until the hazardous condition is remedied.

Priority #2 – Non-Emergency Repair Condition

Conditions that require maintenance that can be scheduled to maintain the integrity of the system. Priority #2 tags will be prioritized by urgency and will be scheduled to have appropriate repairs made to correct the condition within 18 months, where feasible.

Priority #3 &4 –Non-Emergency Repair Conditions

Conditions that do not present a situation that could jeopardize the safety of the system, workers, and the general public. Priority #3 and #4 tags will be issued with the time interval recommended. Work will be scheduled to be completed either in two years for Priority #3 tags, unless otherwise noted during annual visual inspections, or three years for priority #4 tags.”

The caveat at the end of the Priority #2 paragraph states “where feasible” and thus does not require a scheduled date of corrective, which is in violation of this rule.

C. GO 128, Rule 12.2(A) states:

Electric Supply System - “An Auditable and consistent maintenance program, see Rule 22.4, shall be in place to minimize deterioration of underground equipment.”

Rule 22.4 states,

“A Maintenance Program means a written policy that shall include the following key elements:

- 1) Inspection intervals
- 2) Rejection criteria
- 3) Corrective actions”

The city of Palo Alto’s PMP had an incomplete listing of rejection criteria for certain equipment categories listed on pages 4-8. For example, the category titled “Transformers, Subsurface/Subway” had an incomplete list of rejection criteria for the line item “Inspect primary terminations.” Where applicable, rejection criteria must be added to each line item.

D. GO 165, Detailed Inspection of Overhead Facilities

GO165 requires that overhead equipment be inspected once every 5 calendar years. The following table provides 10 instances of where the city of Palo Alto did not meet the inspection interval requirements of GO 165.

Pole Number	Detailed Inspection Date 1	Detailed Inspection Date 2
1494	02/06/02	06/01/09
1493	02/06/02	06/01/09
1453	03/11/02	06/01/09
1454	03/11/02	06/01/09
1471	02/05/02	05/27/09
1470	02/05/02	05/27/09
1496	03/11/02	06/01/09
1467	03/13/03	05/26/09
2182	03/13/08	05/26/09
1583	04/11/03	06/08/09

E. GO 165, Detailed Inspection of Underground Facilities

The table in GO165 requires that underground equipment be inspected once every 3 calendar years. We found PB2460 on Map F9 was inspected on 5/17/06 and then again on 3/3/10, exceeding the 3 year requirement.

F. GO 165, Section IV, Standards for Inspection, Record-keeping, and Reporting

Paragraph one of this section states:

“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...”

There are three types of inspections identified in GO165: patrol, detailed and intrusive, where detailed inspection is defined as:

“...one where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded” (emphasis added).”

The city of Palo Alto's inspection program only conducts visual examination of its field capacitors as part of its five year detailed inspections^{2 3}. General Order 165 requires that diagnostic tests be done on equipment if appropriate, practical and useful information can be gathered.

Diagnostic testing of in field capacitor banks is appropriate, practical and useful. Thus, the city of Santa Clara must perform diagnostic testing on in field capacitor banks.

2 As noted by Palo Alto during a post audit email, the city currently has four 300kVA fixed capacitor banks on its 4kV circuits with 50A fuses.

3 We did review diagnostic test records for the substation capacitors.

II. Field Violations

This section lists the GO 95 and 128 violations that were identified during the field portion of the audit. The locations that were audited were recently inspected by city of Palo Alto. The following violations should have either been identified or corrected by city of Palo Alto staff during their inspection.

A.	Location:	Not Available
	Pole No.:	Pole #5065
	Previous Inspection Details:	Overhead Inspection Completed ?
	Date of CPUC Inspection:	7/23/2010
Explanation of Violation(s):		
<u>Pole Setting Depth</u>		
GO 95 Rule 49.1-C:		
<p><i>The depths of pole setting given in Table 6 are applicable to wood poles set in firm soil or in solid rock. Where the soil is not firm, deeper settings or other special methods of pole setting should be used. Where unguyed poles are set subject to heavy strain, or at corners or curves, deeper settings or other special measures to prevent overturning or excessive movement of the pole at the ground line should be used. Where poles were set in firm soil, but the soil has since been excavated or subjected to minor ground erosion, the measure setting depth shall remain within 10% of the minimum values specified in Table 6, columns 2 and 3...</i></p>		
<p>The brand stamp on Pole #5065, a 45 foot wood pole, was located at 5 feet 8 inches above the ground line. The brand stamp for wood poles 50 feet and less is generally considered to be 10 feet from the butt of the pole, meaning a set depth of 4 feet, 4 inches. Rule 49.1-C requires a pole setting depth of 5 feet 4.8 inches. Please verify the depth, and if the pole does not meet the requirement in Rule 49.1-C, remediate the violation.</p>		

B.	Location:	El Camino and Arastradero Road
	Pole No.:	Poles 0031 and 0032
	Previous Inspection Details:	Overhead Inspection Completed ?
	Date of CPUC Inspection:	7/23/2010
Explanation of Violation(s):		
<p><u>Safety Factors</u></p> <p>GO 95 Rule 49.1-C:</p> <p><i>Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to deterioration) in Grades "A" and "B" construction to less than two-thirds of the construction safety factors specified in Rule 44.1 and in Grades "C" and "F" construction to less than one-half of the construction safety factors specified in Rule 44.1. Poles in Grade "F" construction shall also conform to the requirements of Rule 81.3-A.</i></p> <p><i>In no case shall the application of this rule be held to permit the use of structures or any member of any structure with a safety factor less than one...</i></p> <p>Two poles located at El Camino and Arastradero Road appeared to have significant loading and may potentially be overloaded. Please provide pole loading calculations for these two poles to verify the safety factor has not degraded below 2.67.</p>		