

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



March 13, 2014

SA2014-001

Cory Mitsui
Manager, Operations and Engineering
San Diego Gas and Electric
5488 Overland Avenue
San Diego, CA 92123

SUBJECT: Audit of SDG&E's North County and Orange County Districts Substation Facilities

Dear Mr. Mitsui:

On behalf of the Safety and Enforcement Division of the California Public Utilities Commission, Ben Brinkman and Koko Tomassian conducted an audit of San Diego Gas and Electric's (SDG&E's) electric substation facilities in the Orange County and North County Districts from February 3 to February 7, 2014. The audit included a review of SDG&E's maintenance records and inspections of SDG&E's facilities.

During the audit, we identified violations of General Order 174. A copy of the audit summary itemizing the violations is enclosed. As part of a new risk-based audit protocol for substations, the summary also includes recommendations.

Please advise me no later than April 18, 2014, by electronic or hard copy, of all corrective measures taken by SDG&E to remedy and prevent such violations.

If you have any questions concerning this audit you can contact Ben Brinkman of my staff at (213) 576-7093 or Benjamin.Brinkman@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Raymond G. Fugere".

Raymond G. Fugere, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division

Enclosure: Audit Summary

CC: Elizaveta Malashenko, Deputy Director, Safety and Enforcement Division
Ben Brinkman, Senior Utilities Engineer, CPUC

Audit Summary

Company: SDG&E
Location: Electric Substation System, North County and Orange County District
Audit: Substation
Date: February 3-7, 2014

Violations

Field Portion

1.	Structure ID / Location:	Switchyard, Del Mar Substation
	Previous SDG&E Visit Details:	December 9, 2013
	Date of CPUC Inspection:	February 4, 2014
Explanation of Violation(s):		
<p><u>Broken Fence Ground</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Ground broken on east side fence, 69 KV switchyard. Inspector failed to note in inspection checklist.</p>		

2.	Structure ID / Location:	Bank 30, North City West Substation
	Previous SDG&E Visit Details:	December 9, 2013
	Date of CPUC Inspection:	February 4, 2014
Explanation of Violation(s):		
<p><u>Low N2 Cylinder</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>N2 cylinder on Bank 30 needs replacement. Inspector failed to note in inspection report.</p>		

3.	Structure ID / Location:	Control Room, Encinitas Substation
	Previous SDG&E Visit Details:	December 4, 2013
	Date of CPUC Inspection:	February 4, 2014
Explanation of Violation(s):		
<p><u>Control Room Light</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Control room emergency light not functional and not listed on inspection report.</p>		

4.	Structure ID / Location:	Battery Room, Encinitas Substation
	Previous SDG&E Visit Details:	December 4, 2013
	Date of CPUC Inspection:	February 4, 2014
Explanation of Violation(s):		
<p><u>Battery Post Growth</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Post growth on battery, EM499B. Not listed on inspection report.</p>		

5.	Structure ID / Location:	East Fence, Encinitas Substation
	Previous SDG&E Visit Details:	December 4, 2013
	Date of CPUC Inspection:	February 4, 2014
Explanation of Violation(s):		
<p><u>Excessive vegetation</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Excessive vegetation covering east facing fence, not listed in inspection report.</p>		

6.	Structure ID / Location:	West Fence, Batiquitos Substation
	Previous SDG&E Visit Details:	December 10, 2013
	Date of CPUC Inspection:	February 4, 2014
Explanation of Violation(s):		
<p><u>Gap under substation fence</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Large gap under fence in southwest corner of substation, not listed in inspection report.</p>		

7.	Structure ID / Location:	12 KV Switchyard, Shadowridge Substation
	Previous SDG&E Visit Details:	December 9, 2013
	Date of CPUC Inspection:	February 5, 2014
Explanation of Violation(s):		
<p><u>Inconsistent nomenclature</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Inspectors use inconsistent and confusing nomenclature for bushings on 12 KV switchyard (metal clad breakers). One report appears to refer to these bushings as cable terminations.</p>		

8.	Structure ID / Location:	General Substation, Melrose Substation
	Previous SDG&E Visit Details:	December 10, 2013
	Date of CPUC Inspection:	February 5, 2014
	Explanation of Violation(s):	
	<p><u>Broken floodlight lens</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Lens for northeast corner flood light is broken and not listed in inspection report.</p>	

9.	Structure ID / Location:	General Substation, Melrose Substation
	Previous SDG&E Visit Details:	December 10, 2013
	Date of CPUC Inspection:	February 5, 2014
Explanation of Violation(s):		
<p><u>Broken barbed wire</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Extensive broken barbed wire on substation fence. Noted on last two inspection reports but SDG&E failed to generate a work order.</p>		

10.	Structure ID / Location:	Bank 30, Melrose Substation
	Previous SDG&E Visit Details:	December 10, 2013
	Date of CPUC Inspection:	February 5, 2014
Explanation of Violation(s):		
<p><u>Dessicant needs replacement</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Bank 30 controls cabinet desiccant needs replacement. Inspector failed to note this on inspection report.</p>		

11.	Structure ID / Location:	Bank 32, Melrose Substation
	Previous SDG&E Visit Details:	December 10, 2013
	Date of CPUC Inspection:	February 5, 2014
Explanation of Violation(s):		
<p><u>Radiator oil leak</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Bank 32 radiator oil leak not reported on inspection report.</p>		

12.	Structure ID / Location:	12 KV Switchyard, Pico Substation
	Previous SDG&E Visit Details:	December 16, 2013
	Date of CPUC Inspection:	February 5, 2014
	Explanation of Violation(s):	
	<p><u>Heavy contamination on bushings</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Extremely heavy contamination of bushings in 12 KV metal-clad switchyard. Reported on last two inspections but no work orders generated.</p>	

13.	Structure ID / Location:	Control room, Basilone Substation
	Previous SDG&E Visit Details:	December 4, 2013
	Date of CPUC Inspection:	February 5, 2014
Explanation of Violation(s):		
<p><u>Emergency telephone</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>No emergency substation phone on site.</p>		

14.	Structure ID / Location:	Bank 41, Laguna Niguel Substation
	Previous SDG&E Visit Details:	December 14, 2013
	Date of CPUC Inspection:	February 6, 2014
	Explanation of Violation(s):	
	<p><u>N2 Cylinder Empty</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>Bank 41 N2 cylinder needs replacement and is not listed on inspection report.</p>	

15.	Structure ID / Location:	12 KV Switchyard, Margarita Substation
	Previous SDG&E Visit Details:	December 9, 2013
	Date of CPUC Inspection:	February 6, 2014
	Explanation of Violation(s):	
	<p><u>High Voltage Signs Deteriorated</u> GO 174, Rule 30.1, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>High Voltage signs deteriorated and unreadable, not listed on inspection report.</p>	

16.	Structure ID / Location:	Bank 42 gas breaker cabinet, Margarita Substation
	Previous SDG&E Visit Details:	December 9, 2013
	Date of CPUC Inspection:	February 6, 2014
Explanation of Violation(s):		
<p><u>High Voltage Signs Deteriorated</u> GO 174, Rule 31, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>High Voltage signs deteriorated and unreadable, not listed on inspection report.</p>		

17.	Structure ID / Location:	Bank 43 gas breaker cabinet, Margarita Substation
	Previous SDG&E Visit Details:	December 9, 2013
	Date of CPUC Inspection:	February 6, 2014
Explanation of Violation(s):		
<p><u>High Voltage Signs Deteriorated</u> GO 174, Rule 31, states in part:</p> <p style="text-align: center;"><i>Each Operator shall establish, update as needed, and follow an Inspection Program.</i></p> <p>SDG&E's Inspection Program Practice, Document 510.012, Section 4.2.1, states in part:</p> <p style="text-align: center;"><i>Corrective action, which requires attention, is turned in by the inspector as a result of an item identified in one of the above inspections.</i></p> <p>High Voltage signs deteriorated and unreadable, not listed on inspection report.</p>		

Recommendations

SED recommends that SDG&E:

- Consider a risk-based protocol for optimizing substation practices, including inspection activities and inspection intervals,
- Develop a policy for the collection and use of counter data,
- Consider developing and documenting standard minimum guidelines for identification, classification, monitoring and repair of inspection items such as insulation or bushing contamination and equipment oil leaks.