CITY OF LONG BEACH
Gas & Oil
DEPARTMENT

CHRISTOPHER J. GARNER
DIRECTOR

2400 EAST SPRING STREET · LONG BEACH, CA 90806
(562) 570-2000 · FAX (562) 570-2008
www.lbgo.org

June, 2009 CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. Chris Hoidal
Director of Western Region
Office of Pipeline Safety
12300 W. Dakota Ave., Suite 110
Lakewood, CO 80228

Reference: CPF No. 5-2005-0029

Dear Mr. Hoidal:

This letter is our updated response to the issues identified in your Proposed Compliance Order and Notice of Amendment" dated December 28, 2005.

Proposed Compliance Order to meet the requirements of:
192.605 (b) Procedural Manual for Operations, Maintenance, and Emergencies
192.465 (d) External Corrosion Control: Monitoring
192.467 (a) External Corrosion Control: Electrical Isolation

Summary of the Current Situation

Work has been performed in all CP areas during the past twelve months. The Long Beach system can be considered to be "in compliance" because work has been performed in all CP areas.
The Department has been aggressively working to bring the system under cathodic protection and we have been submitting semi-annual reports to you on the status of the work in progress. Since the start of the program in early 2004 we estimated that only 30% of the system was under cathodic protection. Currently we estimate that 87 % of the system is fully under CP.

The changing percentage of areas fully under CP can and will vary constantly because of such issues as electrical shorts grounding the system. Long Beach has 45 CP areas and the table below identifies in broad scope the status associated with the areas. Also, these areas can vary as they are constantly being reevaluated to establish new boundaries associated with the changing conditions. The reason for the drop from June 2008 - 93% coverage in areas meeting the criteria to 87% is associated with pipeline construction isolating the east side of the port area, the installation of four new deep anode beds to cover five areas and 614 electrical shorts have been discovered and 596 cleared by in-house resources.

As required, I have attached to this letter the next revision of the status report. It should be noted that we have been submitting reports to you, starting early 2004, since we voluntarily informed you of the issues.

Sincerely,

Alan Winter
Manager of Engineering and Construction
(562) 570-2040

AW:

Attachment: Corrosion Control - Cathodic Protection Recovery Plan December 2008

Corrosion Control - Cathodic Protection Recovery Plan

Original October 2003

Revision 1 February 2, 2004 updated bridge and casing records
Rev 2 Feb 11,2004 updated casing records and reformatted
Rev 3 Feb 13 updated with bridge status
Rev 4 March 26, 2004 updated with bridge status
Rev 5 April 13, 2004 updated with bridge and casing status
Rev 6 June 23, 2004 updated with latest status
Rev 7 Nov 11, 2004 updated with latest status
Rev 8 Feb 24, 2005 updated with latest status and planned construction anode activity
Rev 9 August 11, 2005 updated with latest status
Rev 10 January 10, 2006 updated with latest status
Rev 11 June 27, 2006 updated with latest status
Rev 12 December 2006 updated with latest status
Rev 13 June 2007 updated with latest status
Rev 14 December 2007 updated with latest status
Rev 15 June 2008 updated with latest status
Rev 16 December 2008 updated with latest status
Rev 17 June 2009 updated with latest status

Introduction

The corrosion control system is a necessary part of the federal regulatory compliance requirements. The underlying premise for the City of Long Beach corrosion control program is that all steel pipelines are under cathodic protection.

Current Situation

The Long Beach system can be considered to be "in compliance" because work has been performed in all CP areas. Approximately 87% of the Long Beach system is fully under cathodic protection, by meeting the negative 850 mv or negative polarization voltage shift of 100 mv criteria. This is estimated to be a 65% increase since February 2004.

In early 2005 an order was placed to install new deep well anode beds and new shallow well beds. Three new deep well anode beds and seven new shallow well anode beds are operational. As of January 2006, three new deep well anodes became operational (Vernon at Long Beach Boulevard, Chestnut and Broadway, Carson and Gundry) and five new shallow well beds were installed and became operational (Canton and Long Beach Boulevard, Marine Stadium, Dovey Drive, Judson and 16th Street, Ellis and Gladys).

Since December 2006 further accomplishments include the energizing of the anode and rectifier sites at 11th and Alamo, deep wells at Spring and Montair and deep wells at Long Beach Boulevard and 37 Street and a deep well in port for CP 34

Since June 2007, six new anode beds were installed at Vermont and Haines; the shallow well at Ellis and Gladys was converted to a deep well anode bed system and is operational. A deep well system has been constructed at Studerbaker and Wardlow (CP 49 - north east Long Beach) that replaced the shallow well at Dovey Drive.

The Department has just awarded a bid to convert all engineering records to a GIS system and the project "kicked off" in August 2006 and will last two years. The partial implementation of this project to date has resulted in the discovery of a number of steel risers that may have been stranded because of several reasons. These isolated steel risers have been replaced with anodeless risers and/or the service will be replaced (which has been Long Beach's practice) or monitored as required by 49CFR, Part 192.463. A work order to replace 174 stranded risers was issued and has now been completed.

Four new deep well anode beds were installed and made operational during 2008. They were installed in areas 27,32, 43 and 45. CP 45 anode bed was moved to a new location and the old well abandoned. CP43 has a new deep well anode bed installed at the current location.

The proposed design for three new thermo-electric rectifier systems has been revised to three shallow well anode beds with impressed current rectifiers for installation at Pier G, J and F in the Port of Long Beach. This proposal was too expensive and design is progressing on a new shallow well for Pier J. The area around Pier G will be replaced with new PE pipe. Pier F is being redesigned and future shallow well is in design phase.

There is a design for four new deep well anode beds at CP 40, 11, 28/35 and 50.

Preliminary work has been done to mitigate stray currents from the Metro Light rail system by installing magnesium anodes at pipeline locations perpendicular to the rail line. The City is proposing to replace pipelines parallel to the rail line with P.E. pipe.

Organization

The CP group is part of the Engineering and Construction Bureau and is within the Construction Division. The group comprises a corrosion control supervisor (NACE CP Tester certified), one Gas Maintenance Supervisors (NACE CP Tester certified),), two Gas Crew Utility Assistant Three (one is NACE CP Tester certified and the other has been certified through the Western States Basic course). Workforce is supplemented from Construction Division for below grade work and the Gas Services Bureau supplements the group for above ground shorts associated with meter set assemblies. Engineering has reorganized the Corrosion Control record retention program.

Training, Roles and Responsibilities

A supervisor, who has a NACE CP level 1 certificate, leads the corrosion group along with two other personnel who have the same qualification.. Farwest Corrosion Control Company continues to provide training, guidance and support.

The table below summarizes the current status of training and education

Title	Number of Employees	Certificate
Corrosion Control Supervisor	1	NACE CP level 1 certificate
Gas Maintenance Supervisor	1	NACE CP level 1 certificate
Gas Crew Utility Worker 111	1	NACE CP level 1 certificate
Gas Maintenance Supervisor	3	NACE Basic
Gas Crew Utility Worker 11	5	NACE Tester Recognition
Gas Crew Utility Worker 111	1	NACE Basic
Construction Inspectors	5	Western States Basic

Gas Crew Utility Worker 111	1	Western States Basic

The following responsibilities are covered in the training or covered by other means such as use of consultants or outside education (e.g. NACE).

- Record Keeping
- Maintain file on annual pipe to soil reads for DOT records
- Maintain Bi-Monthly rectifier reads for DOT file
- Read area book on rectifier areas annually
- Analyze and taking pipe to soil reads and diagnose problems
- Troubleshooting and Correcting Interference
- Troubleshooting and Data Interpretation
- Write construction orders on insulator problems
- Issue work assignments on areas requiring short work investigations
- Request annual blanket repair order annually and close out old one
- Read casings yearly
- Rectifier Safety
- Rectifier Station Installation
- Rectifier Maintenance of Circuitry and Components:
- Troubleshoot and clean rectifiers
- Reading Rectifier Amp & Volt Meters
- Maintain rectifier folders with changes to site drawings etc
- Read Shunts
- Temporary Drain Station
- Pipe Locators
- Rebuild Small MSAs
- Installing New Areas Under Cathodic Protection
- Insulating Fitting Selection
- Impressed Current Anode Bed Design
- Monitor existing rectifier, anode beds and design future locations
- Maintain supply of corrosion material in warehouse, anodes, coke breeze, etc
- Maintain NACE membership
- Review engineering work packages to ensure correct cathodic protection criteria, insulators etc
- Review engineering work packages to ensure that there is no stranding of steel lines from cathodic protection

Summary Of Short Findings December 2004

The table below shows in detail current work in progress that identifies bridges, below ground shorts, above ground shorts other than casings and the current status of clearing those shorts. It should be noted that clearing a short in a given area does not automatically mean that the area will come into protection. The short has to be cleared and the area re-inspected to discover if further shorts exist in that area.

Summary Of Short Findings June 2009

Number of shorts by type	Cleared	Pending	Totals
Underground	266	20	286
Above Ground (e.g. MSA, Bridges)	326	4	330
Total	592	24	616

Summary Of Short Findings Dec 2008

Number of shorts by type	Cleared	Pending	Total
Underground	260	18	278
Above ground (e.g. MSA, bridges)	305	6	311
Total	565	24	589

June 2009 CP System Status Summary: Percent of CP Areas Meeting Criteria for either 100 mV Depolarization or 850 mV is 87%.

Work has been performed in all CP areas during the past twelve months. The changing percentage of areas fully under CP can and will vary constantly because of such issues as electrical shorts grounding the system. Long Beach has 45 CP areas and the table below identifies in broad scope the status associated with the areas. Also, these areas can vary as they are constantly being reevaluated to establish new boundaries associated with the changing conditions. The reason for the drop from June 2008 - 93% coverage in areas meeting the criteria to 87% is associated with on-going maintenance of clearing shorts. The areas will be cleared but shorts are an on going problem. None of these reasons are expected to have any serious delay in obtaining CP coverage.

% CP Areas Meeting DOT Criteria for CP = 86.7%

CP SYSTEM STATUS SUMMARY							
SYS #	NEXT READ MONTH	CP STATUS	COMPLIANCE ACTION	Comments	COMPLIANCE WORK REMAINING	CP TESTING CRITERIA	LAST DATE PROVEN
46	May-10	OK	NONE REQ'D	Complete	NONE	850 mV	5/7/09
34	Jul-09	OK	NONE REQ'D	Complete	NONE	850 mV	2/25/09
13				Rectifier shutdown and removed ground bed to be abandoned	CIP to remove steel pipe		
20	Aug-09	OK	NONE REQ'D	Complete	NONE	100 mV Depol	8/13/08

CP SYSTEM STATUS SUMMARY							
SYS #	NEXT READ MONTH	CP STATUS	COMPLIANCE ACTION	Comments	COMPLIANCE WORK REMAINING	CP TESTING CRITERIA	LAST DATE PROVEN
18/45	Aug-08	LOW	WIP	Current increased on CP18,short to be removed in CP45 reads to be taken to determine depol status in area	Reads to be taken in area	100 mV Depol	8/29/07
27	Sep-08	LOW	WIP	3132 Cade St. need service to be rewnewed	Reads to be taken in area	100 mV Depol	9/12/07
26/38	Sep-09	OK	NONE REQ'D	JC's crew working with Farwest to reinstall new pad location	NONE	100 mV Depol	9/16/08
48	Sep-09	OK	NONE REQ'D	Complete	NONE	100 mV Depol	9/23/08
28/35	Sep-09	OK	NONE REQ'D	Possible 2009 Deep Well replacement	NONE	100 mV Depol	10/21/08
30	Oct-08	Low	WIP	in house work to remove pipe shorted to SHP @ Spring and Orange	Construction has W.O.	100 mV Depol	2/29/08
39	Oct-09	OK	NONE REQ'D	Complete	NONE	100 mV Depol	10/27/08
98	Oct-09	OK	NONE REQ'D	Complete	NONE	850 mV	10/16/08

CP SYSTEM STATUS SUMMARY							
SYS #	NEXT READ MONTH	CP STATUS	COMPLIANCE ACTION	Comments	COMPLIANCE WORK REMAINING	CP TESTING CRITERIA	LAST DATE PROVEN
99	Oct-09	OK	NONE REQ'D	New shallow well impressed current system to combine CP98 and 99 in design phase	NONE	100 mV Depol	11/12/08
10/14	Oct-09	OK	NONE REQ'D	Major CIP work to eliminate amount of old steel in the area in 2010	NONE	100 mV Depol	10/15/08
8	Nov-09	OK	NONE REQ'D	Borders being checked for interference with other areas depol completed ,but P/S reads are elevated	NONE	850mV	1/30/09
03/17	Nov-08	OK	NONE REQ'D	Completed	NONE	100 mV Depol	11/12/08
11	Dec-09	OK	NONE REQ'D	New deep well in design for 2009 Area being sweeped by MU	NONE	100 mV Depol	12/23/08
22	Dec-09	OK	NONE REQ'D	Combined with CP2 and recitifier removed from that site	NONE	850 mV	12/4/08
31	Dec-08	LOW	WIP	6" Short to edison conduit in area has to be eliminated from area	Construction has W.O.	100 mV Depol	2/19/08
24	Jan-10	OK	NONE REQ'D	Completed	NONE	100 mV Depol	1/6/09
29	Jan-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	1/12/09

CP SYSTEM STATUS SUMMARY							
SYS #	NEXT READ MONTH	CP STATUS	COMPLIANCE ACTION	Comments	COMPLIANCE WORK REMAINING	CP TESTING CRITERIA	LAST DATE PROVEN
33			Area combined with new CP49	Rectifier shutdown but grd. Bed not abandoned			
42	Jan-10	OK	2006 actions completed -->	Complete	NONE	100 mV Depol	2/19/09
25	Feb-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	4/10/09
36	Feb-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	2/3/09
7	Feb-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	2/23/09
1	Mar-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	3/25/09
4	Mar-10	OK	NONE REQ'D	Possible 2010 Deep Well replacement	NONE	100 mV Depol	3/31/09
5	Mar-10	OK	NONE REQ'D	picked up most of old CP 2	NONE	100 mV Depol	3/26/09
41	Mar-09	OK		Possible 2009 Deep Well replacement	Short to be removed from area	100 mV Depol	6/2/08
21	Apr-10	OK	NONE REQ'D	Short to bridge over PCH needs to be seperated from CP21		100 mV Depol	5/18/09

CP SYSTEM STATUS SUMMARY							
SYS #	NEXT READ MONTH	CP STATUS	COMPLIANCE ACTION	Comments	COMPLIANCE WORK REMAINING	CP TESTING CRITERIA	LAST DATE PROVEN
23	Apr-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	5/18/09
26	Apr-09	OK	NONE REQ'D	Rectifier needed to be relocated due to Public works project Farwest will be installing new pad on 5/27/2009	NONE	850 mV	4/15/08
47	Apr-10	OK	In house work to be done to remove known shorts	Shorts in area have been identified and need to be eliminated from area	NONE	100mV Depol	4/28/09
18	May-09	LOW	NONE REQ'D	Current increased on CP18,short to be removed in CP45 reads to be taken to determine depol status in area	Combined with CP45 reads to be taken in area	100 mV Depol	8/29/07
37	May-09	OK	NONE REQ'D	Need vault access and short scanning of area.	NONE	100 mV Depol	7/21/08
43	May-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	5/19/09
49	May-10	OK	NONE REQ'D	Complete	NONE	100 mV Depol	5/22/09
9	Jun-09	OK	NONE REQ'D	Completed	NONE	100 mV Depol	5/6/08

CP SYSTEM STATUS SUMMARY							
SYS #	NEXT READ MONTH	CP STATUS	COMPLIANCE ACTION	Comments	COMPLIANCE WORK REMAINING	CP TESTING CRITERIA	LAST DATE PROVEN
12	Jun-09	OK	NONE REQ'D	Completed	NONE	100mV Depol	7/25/08
19	Jun-09	OK	NONE REQ'D	Complete	NONE	100 mV Depol	9/25/08
40	Jun-09	OK	NONE REQ'D	Will be getting new GB Due to CIP work in area. Site located new Deep well 2009	NONE	100 mV Depol	10/16/08
6	Jul-09	OK	NONE REQ'D	Complete	NONE	100 mV Depol	7/17/08
15	Jul-09	OK	NONE REQ'D	Complete	NONE	100mV Depol	7/14/08
16	Jul-09	OK	NONE REQ'D	Complete	NONE	100 mV Depol	7/21/08
Pier F				New shallow well impressed current system in design phase			
Pier G			Al+ anodes	Pipe to be replaced			
Pier J			Mag Anodes	New shallow well impressed current system in design phase			
32	Mar-10	OK	NONE REQ'D	Completed	NONE	100 mV Depol	5/11/09
TOTAL No. Areas =		45					

RECTIFIER AND ANODE DATA AS OF JUNE 2009

Rectifier #	CP #	LOCATION	EXISTING TYPE (SURF/DEEP)	VOLTS	AMPS	OHMS	CP STATUS	Anode Type	Year Installed	Anode Size / Weight
1	1	Anaheim & Iroquois	10" x 250' Deep Well	16.5	28.6	0.58	OK	MMO	1998	1" x 60"
2	2	Atherton & Ximeno	Ground Bed Retired							
4	4	Bellflower & Abbeyfield	10" x 250' Deep Well	47.5	20.1	2.36	OK	Graphite	2000	3"x 60"
5	5	Bellflower & Anaheim	10" x 250' Deep Well	15.5	34.9	0.44	OK	MMO	1996	1" x 60"
6	6	65th & Butler	10" x 250' Deep Well	21.9	37.4	0.59	OK	MMO	2000	1" x 60"
7	7	South & California	10" x 250' Deep Well	23.6	30.5	0.77	OK	MMO	1997	1" x 60"
8	8	Canton & LBB	Shallow Four Hole 49' wells	11.9	17.8	0.67	OK	MMO	2005	1" x 60"
9	9	Chestnut and Broadway	New 253' Deep well installed in 2005	11.8	40.9	0.29	OK	MMO	2005	1" x 60"
11	11	Vermont & Haines	Six anode well in the Lagoon	6.7	43.3	0.15	OK	Graphite	2007	3"x 60"
12	12	Del Amo & Gardenia	Shallow Three Hole 49' Wells	14.9	8.8	1.69	OK	Graphite	1992	3"x 60"
13	13	Delta & Frontage	Ground Bed Retired							
15	15	Gladys & Ellis	12" x 320" Deep Well	17.9	35	0.51	WIP	HISCI	2007	60", 50 lb
16	16	37th & AE Gaviota	10" x 250' Deep Well	26.1	24.1	1.08	OK	MMO	2001	1" x 60"
19	19	Home & Cedar	10" x 250' Deep Well	19.7	39.5	0.50	OK	MMO	2000	1" x 60"

Rectifier #	CP #	LOCATION	EXISTING TYPE (SURF/DEEP)	VOLTS	AMPS	OHMS	CP STATUS	Anode Type	Year Installed	Anode Size / Weight
20	20	Jaymills & Chestnut	10" x 300' Deep Well	23.3	19.7	1.18	OK	Graphite	2001	4" x 80"
21	21	16th & Judson	Shallow 49' wells	5.6	14.1	0.40	OK	HISCI	2005	60", 50 lb
22	22	Lakewood & Stearns	10" x 300' Deep Well	35.2	24.5	1.44	OK	Graphite	2001	4" x 80"
23	23	10th & Locust	10" x 250' Deep Well	8.5	18.6	0.46	OK	MMO	1996	1" x 60"
24	24	Marine Stadium	Shallow Four Hole 49' wells	4.5	22.4	0.20	OK	HISCI	2005	60", 50 lb
25	**25**	Ocean @ 55th Place	Shallow Four Hole 49' wells	4.8	29.4	0.16	OK	HISCI	2006	3" x 84"
26	26	17th & Oregon	10" x 250' Deep Well	16.1	31.6	0.51	OK	Graphite	2000	4" x 80"
27	27	63rd & Paramount	10" x 300' Deep Well	43.7	41.5	1.05	OK	HISCI	2008	60", 50 lb
29	29	Penfold & Alley E/O Olive	Shallow Five Hole 49' Wells	13.7	20.3	0.67	OK	Graphite	2003	3"x 60"
30	30	2400 E. Spring St	Two 10" x 400' Deep Wells	26	49	0.53	OK	MMO	1999	1" x 60"
31	31	11th & Alamo	Shallow Four Hole 49' wells	10.1	9.4	1.07	OK	HISCI	2006	3" x 84"
32	32	CurryE/O Cherry	Deep Well to be installed in 2008	7	15	0.47	site in design phase	HISCI	2008	60", 50 lb
33	33	Dovey Dr. @ old pistol range	Shallow(Shut Down) Ground Bed still in place				OK	HISCI	2005	60", 50 lb
34	34	Port of Long Beach Middle Harbor Site	New 300' Deep well installed in 2006	2.8	14.3	0.20	OK	MMO	2006	1" x 60"

Rectifier #	CP #	LOCATION	EXISTING TYPE (SURF/DEEP)	VOLTS	AMPS	OHMS	CP STATUS	Anode Type	Year Installed	Anode Size / Weight
36	36	Alley S/O Anaheim & St Louis	10" x 250' Deep Well	11.1	38	0.29	OK	MMO	1998	1" x 60"
37	37	Spring @ Montair	New 245' Deep well in 2006	15	27.5	0.55	OK	MMO	2006	1" x 60"
38	38	Vernon Alley W/O LB Blvd	New 250' Deep wells installed in 2005	8.6	22.3	0.39	OK	HISCI	2005	60", 50 lb
39	39	37th @ LB Blvd.	New 250' deep wells installed in 2006	13.7	29.1	0.47	OK	MMO	2006	1" x 60"
40	40	64th & Walnut	Deep Well to be installed in 2009	12.9	21.9	0.59	OK	MMO	1997	1" x 60"
41	41	Willow @ Los Cerritos Channel	10" x 250' Deep Well	47.4	21.7	2.18	OK	MMO	1996	1" x 60"
42	42	6th & Junipero	Shallow Five Hole 49' Wells	18.2	20.9	0.87	OK	HISCI	2005	60", 50 lb
46	46	33rd & Alley E/O Magnolia	10" x 250' Deep Well	9.3	12.9	0.72	OK	Graphite	2000	4" x 80"
47	**47**	Ocean @ 36th Pl	Shallow Five Hole 49' Wells	8	11	0.73	OK	HISCI	2006	3" x 84"
48	48	45th & Alley W/O Atlantic	10" x 250' Deep Well	17.8	25.5	0.70	OK	MMO	2000	1" x 60"
3	03/17	Banner & 45th	10" x 250' Deep Well	20.5	26	0.79	OK	MMO	1997	1" x 60"
17	03/17	Carson & Gundry	New 255' Deep well installed in 2005	12.9	16.7	0.77	OK	MMO	2005	1" x 60"
14	10/14	Carson & Faculty	Shallow Three Hole 49' Wells	30.6	6.1	5.00	OK	Graphite	1992	3' x 60"