



**Roya Kambin**  
Project Manager  
Marketing Business Unit

**Chevron Environmental  
Management Company**  
6101 Bollinger Canyon Road  
San Ramon, CA 94583  
Tel (925) 790-6270  
RKambin@Chevron.com

May 10, 2013

Alameda County Health Care Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**RECEIVED**

*By Alameda County Environmental Health at 3:56 pm, May 14, 2013*

Re: Former 76 Service Station No. 351644  
66 MacArthur Boulevard  
Oakland, California  
ACHCS Case NO 0455

I accept the **Fourth Quarter 2012 Ozone Injection System O&M Report**.

I agree with the conclusions and recommendations presented in this document. The information included is accurate to the best of my knowledge, and appears to meet local agency and Regional Board guidelines. This **Fourth Quarter 2012 Ozone Injection System O&M Report** was prepared by Environ Strategy Consultants, Inc on behalf of Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

A handwritten signature in black ink, appearing to read "Roya Kambin", written in a cursive style.

Roya Kambin  
Project Manager

Attachment: **Fourth Quarter 2012 Ozone Injection System O&M Report**

1036 W. Taft Avenue  
Orange, California 92865  
Tel 714-919-6500  
Fax 714-919-6501  
www.environstrategy.com

December 20, 2012

Nathan Lee  
Conestoga-Rovers & Associates (CRA)  
5900 Hollis Street, Suite A  
Emeryville, CA 94608

Project No. 696-A

**Fourth Quarter 2012**  
**Ozone Injection System O&M Report**  
**76 Service Station No. 1871 (351644)**  
96 MacArthur Boulevard  
Oakland, California

Dear Mr. Lee:

On behalf of Chevron Environmental Management Company, for itself and as Attorney-in-Fact for Union Oil Company of California, Environ Strategy Consultants Inc. (Environ Strategy) is pleased to submit this Ozone Injection System Operation and Maintenance (O&M) Report for 76 Service Station No. 1871, located at 96 MacArthur Boulevard, Oakland, California (Figure 1). An ozone injection system was started on June 23, 2003 to remediate hydrocarbon-impacted groundwater (Table 1). Wells MW-1 and MW-7 are monitored as indicators of ozone injection system performance (Table 2).

Environ Strategy appreciates the opportunity to be of service. If you have any questions or require additional information regarding this report, please do not hesitate to contact us at (714) 919-6525, or by email at [dnygaard@environstrategy.com](mailto:dnygaard@environstrategy.com).

Respectfully submitted,



Dane Nygaard  
Project Manager



Jinghui Niu, P.E.  
Principal Engineer



**Fourth Quarter 2012 O&M Report**  
**76 Service Station No. 1871 (351644)**  
December 20, 2012

---

**Ozone Injection System**

**KVA Ozone Injection System**

**Reporting Period:** September 1, 2012 – November 30, 2012

**Days of Operation:** Operated 91 days during the period

**Hours of Operation:** 2,190

**System Operation Data Since Startup on June 23, 2003:**

**Total Hours of Operation:** 57,110

**Notes:** Fourth Quarter 2012 – Period hours includes dates August 30, 2012 to November 29, 2012.

Attachments: Figure - Site Plan

Table 1 - Ozone Injection - System Operation Data

Table 2 - Ozone Injection - Groundwater Monitoring Data

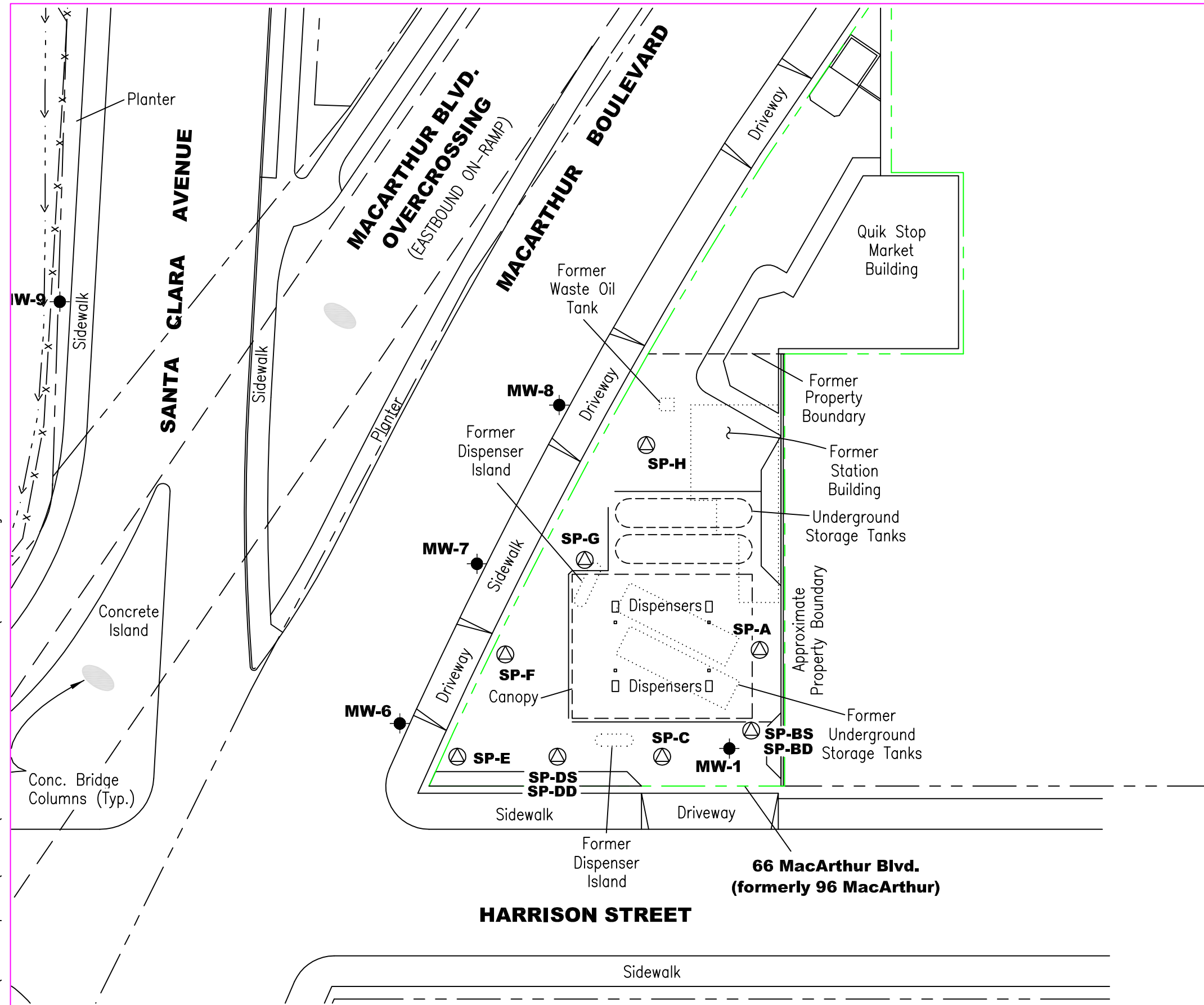
Graph 1 - MW-1 TPHg, Benzene, and MTBE Groundwater Concentrations

Graph 2 - MW-7 TPHg, Benzene, and MTBE Groundwater Concentrations

Appendix A - Field Notes

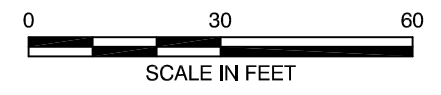
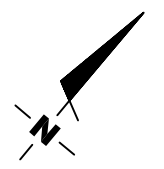
**Figure**

20111219.1121051 X:\ConocoPhillips O&M\Site Plans\Revised O&M AutoCAD files 8-16-11\1871 SITE PLAN.dwg



**EXPLANATION**

● Groundwater monitoring well



Source: Caltrans As-Built Plans and Right of Way Maps confirmed by field observations

DRAWN BY: MD  
 CHECKED: AD  
 APPROVED: RB  
 DATE: 3/22/04 PR  
 JOB NO.: 77CP.60004.01  
 CAD FILE: SITEPLAN

PREPARED BY:  
 environ strategy consultants, inc.   
 1036 W. TAFT AVE, SUITE 200  
 ORANGE, CA 92865

PREPARED FOR:  
 76 STATION #1871  
 96 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA

FIGURE 1

SITE PLAN

## **Tables**

**Table 1**  
**Ozone Injection - System Operation Data**  
76 Service Station No. 1871 (351644)  
96 MacArthur Blvd., Oakland, California  
Page 1 of 4

Date	Notes	OZONE SPARGE SYSTEM						SP-A	SP-BS	SP-BD	SP-C	SP-DS	SP-DD	SP-E	SP-F	SP-G	SP-H	
		System Status (On/Off)		Hourmeter Reading	Period Online Factor	Cumulative Online Factor	Ozone Injected (lbs)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)
		Arrival	Departure					Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	
6/23/03		On	On	8807.26	--	0.95	--	20	18	19	20	21	23	20	26	14	26	
7/16/03		Off	On	8850.46	0.09	0.91	0.39	27	18	31	40	28	29	31	38	24	25	
8/30/03		On	On	9180.61	0.35	0.86	2.97	17	15	17	19	19	19	20	26	19	26	
9/18/03		On	On	9327.43	0.37	0.84	1.32	13.5	14.7	17.0	16.3	16.0	19.7	16.8	19.8	15.7	20	
10/16/03		On	On	--	--	0.84	--	27.0	19.5	40.8	39.0	40.8	38.5	34.2	46.4	24.2	39.8	
11/17/03		On	On	9696.55	0.29	0.81	--	11.0	20.0	17.0	18.0	17.5	17.0	16.0	21.0	51.0	22.0	
12/5/03		On	On	9804.98	0.29	0.80	0.98	33.0	21.0	44.0	40.0	43.0	39.0	33.5	44.0	26.0	33.0	
1/16/04		On	On	10471.28	0.76	0.79	6.00	12.5	11.0	18.5	16.5	17.5	17.0	16.0	20.0	16.0	20.0	
2/3/04		On	On	10727.69	0.68	0.79	2.31	12.3	11.5	18.2	16.5	18.2	17.3	16.0	19.0	16.0	18.2	
3/24/04		On	On	11424.95	0.66	0.78	6.28	31.0	18.3	37.5	26.0	34.0	33.2	32.3	41.5	23.0	31.0	
4/14/04		On	On	11676.10	0.57	0.77	2.26	32.0	19.0	38.7	26.0	37.7	37.1	32.8	41.8	23.8	29.5	
4/15/04	a	On	On	11685.29	0.44	0.77	0.08	--	--	--	--	--	--	--	--	--	--	
4/16/04	a	On	On	11693.80	0.41	0.77	0.08	--	--	--	--	--	--	--	--	--	--	
4/19/04	a	On	On	11742.90	0.78	0.77	0.44	--	--	--	--	--	--	--	--	--	--	
4/23/04	a	On	On	11773.10	0.36	0.77	0.27	--	--	--	--	--	--	--	--	--	--	
5/4/04		Off	On	11837.70	0.28	0.76	0.58	32.2	20.5	39.4	36.2	38.1	32.0	33.5	60.0	25.8	33.1	
5/11/04		On	On	11950.51	0.77	0.76	1.02	32.5	20.0	38.5	29.8	38.8	39.5	34.8	60.0	23.5	35.9	
6/14/04	b,c	On	On	12464.64	0.72	0.76	4.63	20.0	21.0	38.8	27.2	37.0	38.2	35.2	60.0	24.0	32.1	
7/29/04	d	On	On	844.62	0.99	0.77	7.60	22	15	--	26	35	34	35	--	25	33	
8/12/04	e	On	On	1075.97	0.98	0.78	2.08	--	--	--	--	--	--	--	--	--	--	
9/10/04		On	On	1490.23	0.85	0.78	3.73	32	32	33	33	21	24	30	20	26	30	
10/5/04		On	On	1868.83	0.90	0.78	3.41	31	32	33	31	22	23	31	21	26	28	
11/5/04		On	On	2360.90	0.93	0.79	4.43	22	26	12	18	12	22	30	32	26	22	
12/2/04	f	Off	Off	2802.02	0.97	0.79	3.97	--	--	--	--	--	--	--	--	--	--	
1/13/05		Off	On	2802.07	0.00	0.76	0.00	23	27	15	20	15	23	31	34	28	25	
2/25/05	g	Off	Off	2802.42	0.00	0.73	0.00	--	--	--	--	--	--	--	--	--	--	
3/8/05	h,i	Off	Off	2802.42	0.00	0.72	0.00	--	--	--	--	--	--	--	--	--	--	
4/5/05	i	Off	Off	2802.42	0.00	0.70	0.00	--	--	--	--	--	--	--	--	--	--	
5/4/05	j	Off	On	2802.49	0.00	0.69	0.00	14	11	16	12	20	27	25	29	25	31	
6/2/05	k	On	On	3407.97	1.00	0.69	5.45	35	25	Off	40	41	36	35	34	27	25	
7/7/05	k,l,m	On	On	4067.42	1.29	0.71	5.94	31	23	Off	30	Off	26	32	28	25	Off	
8/26/05	n	On	On	4665.98	0.81	0.72	5.39	13	13	Off	14	Off	13	12	12	13	Off	
9/23/05	o	On	On	4947.97	0.69	0.71	2.54	16	15	Off	Off	Off	16	16	16	16	Off	
10/23/05	p	On	On	5264.28	0.72	0.71	2.85	16	16	Off	Off	Off	16	16	16	16	Off	
11/11/05	q,r	On	Off	0.90	--	0.71	--	--	--	--	--	--	--	--	--	--	--	
11/15/05	s	Off	On	0.90	0.00	0.71	0.00	35	16	16	22	23	18	23	23	23	24	
12/6/05	t	Off	On	2.49	0.00	0.70	0.01	22	20	19	24	24	22	26	23	24	25	
1/4/06	u	Off	On	6	0.01	0.69	0.03	20	20	18	17	23	20	25	19	22	20	
1/18/06	u	Off	On	203	0.67	0.69	1.77	22	19	19	20	19	18	21	22	22	23	
2/1/06	v	Off	On	316	0.38	0.68	1.02	20	20	18	22	22	18	23	23	22	25	
2/15/06	v	Off	On	344	0.10	0.68	0.25	20	19	18	17	19	20	23	19	22	20	
3/1/06	v	Off	On	417	0.25	0.67	0.66	21	20	19	19	21	17	24	23	21	21	
3/16/06	u	Off	On	501	0.27	0.67	0.76	20	19	18	17	19	20	23	20	22	20	
3/29/06	u	Off	On	560	0.22	0.67	0.53	20	20	19	19	20	21	25	21	22	21	
4/16/06	u	Off	On	624	0.17	0.66	0.58	20	19	18	17	19	20	23	20	23	21	
4/25/06	u	Off	On	718	0.50	0.66	0.85	20	20	19	18	20	22	24	21	22	20	

**Table 1**  
**Ozone Injection - System Operation Data**  
76 Service Station No. 1871 (351644)  
96 MacArthur Blvd., Oakland, California  
Page 2 of 4

Date	Notes	OZONE SPARGE SYSTEM						SP-A	SP-BS	SP-BD	SP-C	SP-DS	SP-DD	SP-E	SP-F	SP-G	SP-H
		System Status (On/Off)		Hourmeter Reading	Period Online Factor	Cumulative Online Factor	Ozone Injected (lbs)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)
		Arrival	Departure														
5/9/06	u	Off	On	776	0.20	0.65	0.52	20	19	19	17	19	21	22	20	22	20
5/23/06	u	Off	On	834	0.20	0.65	0.52	19	20	18	18	20	20	23	20	23	21
6/6/06	u	Off	On	1,042	0.71	0.65	1.87	20	19	18	17	19	20	23	20	22	20
6/20/06	w	Off	On	1,206	0.56	0.65	1.48	19	20	18	18	19	20	25	21	23	21
7/7/06	x	Off	Off	1,313	0.30	0.65	0.96	--	--	--	--	--	--	--	--	--	--
7/28/06	y	Off	On	1,313	0.00	0.64	0.00	19	17	16	19	24	17	22	19	21	23
8/15/06	u	Off	On	1,616	0.80	0.64	2.73	19	17	17	16	19	19	23	19	21	21
8/29/06	u	Off	On	1,801	0.63	0.64	1.67	19	19	17	17	21	18	21	19	22	23
9/12/06	u	Off	On	2,022	0.75	0.64	1.99	23	19	17	16	19	19	25	19	22	21
9/22/06	u	Off	On	2,204	0.87	0.64	1.64	21	21	19	20	23	21	26	23	25	27
10/4/06	u	Off	On	2,313	0.43	0.64	0.98	18	18	17	18	18	18	25	23	22	21
10/18/06	u	Off	On	2,401	0.30	0.64	0.79	20	19	17	16	18	19	20	20	21	27
10/31/06	w	Off	On	2,516	0.42	0.63	1.04	22	20	19	20	19	19	23	21	25	23
11/14/06	u	Off	On	2,636	0.41	0.63	1.08	18	18	17	17	18	18	22	24	22	24
11/28/06	u	Off	On	2,744	0.37	0.63	0.97	20	20	19	20	22	21	25	25	22	23
12/14/06	u	Off	On	2,801	0.17	0.63	0.51	19	19	18	18	19	19	22	22	23	22
12/26/06	u	Off	On	2,906	0.42	0.62	0.95	20	20	19	20	21	20	25	25	20	24
1/15/07	u	Off	On	2,983	0.18	0.62	0.69	19	20	18	18	19	19	22	23	22	22
1/29/07	v	Off	On	3,076	0.32	0.62	0.84	20	20	19	20	20	20	24	21	23	24
2/6/07	u	Off	On	3,156	0.48	0.62	0.72	19	20	18	17	19	19	21	24	21	23
2/21/07	u	Off	On	3,303	0.47	0.62	1.32	20	21	20	20	18	21	23	21	25	23
3/5/07	u	Off	On	3,378	0.30	0.61	0.68	19	20	18	18	18	20	21	23	22	22
3/19/07	u	Off	On	3,476	0.33	0.61	0.88	20	21	20	19	18	21	23	24	23	24
4/4/07	u	Off	On	3,515	0.12	0.61	0.35	19	20	18	17	18	19	21	21	21	22
4/18/07	u	Off	On	3,606	0.31	0.60	0.82	21	21	20	20	18	21	24	24	24	23
5/10/07	u	Off	On	3,676	0.15	0.60	0.63	19	20	19	17	18	19	20	23	20	21
5/25/07	u	Off	On	3,758	0.26	0.60	0.74	22	21	20	19	19	21	22	22	22	23
6/4/07	u	Off	On	3,801	0.18	0.59	0.39	18	20	18	18	17	19	19	20	21	20
6/18/07		On	On	4,137	1.00	0.60	3.02	20	20	19	19	19	20	22	22	20	22
7/2/07		On	On	4,373	0.70	0.60	2.12	15	21	19	18	20	19	24	21	21	23
7/16/07		On	On	4,409	0.11	0.59	0.32	18	20	20	19	21	20	26	23	22	25
8/8/07		On	On	4,961	1.00	0.60	4.97	13	20	20	18	20	18	29	22	20	24
8/27/07		On	On	5,411	0.99	0.60	4.05	14	21	19	20	21	19	30	20	21	21
9/13/07		On	On	5,822	1.00	0.61	3.70	22	21	21	23	21	22	30	20	21	21
9/27/07		On	On	6,155	0.99	0.61	3.00	28	25	25	27	25	26	32	21	26	25
10/29/07		On	On	6,917	0.99	0.62	6.86	28	25	24	25	33	32	32	21	30	30
11/26/07		On	On	7,591	1.00	0.62	6.07	26	22	24	25	31	30	32	22	30	30
12/31/07		On	On	8,425	0.99	0.63	7.51	26	20	24	24	30	32	32	30	28	30
1/28/08		On	On	9,103	1.01	0.63	6.10	26	21	22	21	26	30	28	26	27	27
2/25/08		On	On	9,778	1.00	0.64	6.08	23	19	22	20	25	30	30	28	27	28
3/24/08		On	On	10,475	1.00	0.64	6.27	25	20	21	20	24	30	28	27	26	27
4/28/08		On	On	11,317	1.00	0.65	7.58	24	22	20	22	22	30	29	24	26	26
5/26/08		On	On	11,992	1.00	0.65	6.08	23	20	22	22	23	30	30	25	27	28
6/30/08		On	On	12,828	1.00	0.66	7.52	25	22	21	23	22	31	29	26	27	26
7/28/08		On	On	13,498	1.00	0.66	6.03	22	26	24	28	23	30	22	27	29	21
8/25/08		On	On	14,261	1.00	0.66	6.87	18	15	25	14	19	22	23	25	24	20
9/29/08		On	On	15,100	1.00	0.67	7.55	20	14	15	16	18	28	28	20	19	22
10/27/08	z	On	On	15,358	0.38	0.67	2.32	20	16	16	17	20	28	28	18	19	21



**Table 1**  
**Ozone Injection - System Operation Data**  
76 Service Station No. 1871 (351644)  
96 MacArthur Blvd., Oakland, California  
Page 3 of 4

Date	Notes	OZONE SPARGE SYSTEM						SP-A	SP-BS	SP-BD	SP-C	SP-DS	SP-DD	SP-E	SP-F	SP-G	SP-H
		System Status (On/Off)		Hourmeter Reading	Period Online Factor	Cumulative Online Factor	Ozone Injected (lbs)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)
		Arrival	Departure														
11/24/08		On	On	16,028	1.00	0.67	6.03	20	15	15	15	18	25	25	18	16	20
12/29/08		On	On	16,869	1.00	0.67	7.57	20	15	17	16	20	24	22	19	14	20
1/26/09		On	On	17,542	1.00	0.68	6.06	22	17	16	16	21	25	20	18	15	22
2/23/09		On	On	18,214	1.00	0.68	6.05	21	18	19	18	20	23	21	19	16	20
3/30/09		On	On	19,005	0.94	0.69	7.12	20	19	17	17	22	22	21	18	16	21
4/27/09		On	On	19,727	1.00	0.69	6.50	21	21	18	18	21	22	20	19	18	20
5/25/09		On	On	20,400	1.00	0.69	6.06	22	20	17	16	20	21	21	20	19	19
6/22/09		On	On	21,072	1.00	0.70	6.05	20	20	17	18	17	20	21	19	20	20
7/27/09		On	On	21,912	1.00	0.70	7.56	22	21	18	19	16	22	22	21	19	18
8/3/09	aa	On	Off	22,080	1.00	0.70	1.51	21	20	20	21	18	21	20	20	21	19
11/4/09		Off	On	22,080	0.00	0.68	0.00	20	19	19	20	17	20	19	18	19	17
12/30/09		On	On	23,424	1.00	0.68	12.10	23	21	21	23	20	22	23	21	22	21
1/27/10		On	On	24,096	1.00	0.69	6.05	21	20	20	22	21	24	23	20	24	23
2/24/10		On	On	24,767	1.00	0.69	6.04	22	24	22	21	22	25	24	21	26	24
3/30/10		On	On	25,607	1.00	0.69	7.56	20	21	22	23	19	23	22	22	25	23
4/27/10		On	On	26,280	1.00	0.70	6.06	21	22	21	22	20	21	20	20	24	21
5/25/10		On	On	26,953	1.00	0.70	6.06	22	24	23	21	21	22	21	22	23	22
6/29/10		On	On	27,795	1.00	0.70	7.58	24	21	22	24	22	20	21	22	24	23
7/27/10		On	On	28,467	1.00	0.71	6.05	21	18	20	22	20	17	19	18	21	20
8/31/10		On	On	29,308	1.00	0.71	7.57	12	18	24	15	13	14	16	10	17	8
9/28/10		On	On	29,980	1.00	0.71	6.05	11	18	15	19	20	17	23	16	15	20
10/26/10		On	On	30,652	1.00	0.71	6.05	9	18	18	20	21	17	21	10	19	17
11/30/10		On	On	31,492	1.00	0.72	7.56	13	22	19	18	28	20	19	15	17	19
12/28/10		On	On	32,163	1.00	0.72	6.04	14	19	18	18	26	21	20	18	18	18
1/25/11		On	On	32,834	1.00	0.72	6.04	18	17	15	21	24	17	19	21	20	15
2/22/11		On	On	33,506	1.00	0.72	6.05	20	21	18	25	21	23	28	25	22	20
3/29/11		On	On	34,342	1.00	0.73	7.52	19	20	18	22	23	22	25	24	23	20
4/26/11		On	On	35,012	1.00	0.73	6.03	22	21	19	20	21	21	23	24	23	22
5/31/11		On	On	35,851	1.00	0.73	7.55	20	20	20	21	20	20	21	22	21	21
6/28/11		On	On	36,523	1.00	0.73	6.05	21	22	21	19	20	22	19	20	23	20
7/26/11		On	On	37,196	1.00	0.74	6.06	19	20	20	21	18	20	16	22	21	22
8/30/11		On	On	38,034	1.00	0.74	7.54	25	31	26	-	30	34	27	28	22	24
9/27/11		On	On	38,705	1.00	0.74	6.04	21	30	27	20	29	31	22	26	20	23
10/27/11		On	On	39,417	0.99	0.74	6.41	18	22	17	26	19	24	18	19	15	19
11/24/11		On	On	40,093	1.00	0.75	6.08	21	20	17	24	16	21	19	17	16	18
12/29/11		On	On	40,931	1.00	0.75	7.54	25	22	29	23	20	20	19	18	15	17
1/24/12		On	On	41,555	1.00	0.75	5.62	21	18	25	20	20	18	19	15	16	21
2/27/12		On	On	42,391	1.00	0.75	7.52	30	25	33	44	22	29	23	20	24	29
3/26/12		On	On	43,064	1.00	0.75	6.06	26	22	29	35	20	25	21	18	23	33
4/23/12		On	On	43,739	1.00	0.76	6.08	23	17	25	34	26	22	25	18	23	29
5/28/12		On	On	44,583	1.00	0.76	7.60	20	19	22	30	21	24	20	16	20	24
6/28/12		On	On	45,329	1.00	0.76	6.71	22	21	20	32	20	24	21	17	18	23
7/26/12		On	On	45,999	1.00	0.76	6.03	23	18	21	29	21	20	20	17	20	20
8/30/12		On	On	46,843	1.00	0.76	7.60	20	15	19	25	16	18	19	16	18	16
9/27/12		On	On	47,514	1.00	0.77	6.04	18	14	19	22	18	15	16	17	16	17

**Table 1**  
**Ozone Injection - System Operation Data**  
76 Service Station No. 1871 (351644)  
96 MacArthur Blvd., Oakland, California  
Page 4 of 4

Date	Notes	OZONE SPARGE SYSTEM						SP-A	SP-BS	SP-BD	SP-C	SP-DS	SP-DD	SP-E	SP-F	SP-G	SP-H
		System Status (On/Off)		Hourmeter Reading	Period Online Factor	Cumulative Online Factor	Ozone Injected (lbs)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)	Pressure (psi)
		Arrival	Departure														
10/25/12		On	On	48,190	1.00	0.77	6.08	26	19	24	26	22	25	20	23	24	20
11/29/12		On	On	49,033	1.00	0.77	7.59	22	17	25	30	20	24	20	21	27	23
(6/23/2003-present) Sparge time per cycle (min)								7	7	7	7	7	7	7	7	7	
(6/23/2003-03/24/2008)Number of Cycles per Day								18	18	18	18	18	18	18	18	18	18
(03/24/2008-present)Number of Cycles per Day								20	20	20	20	20	20	20	20	20	
<b>Reporting Period: Fourth Quarter 2012 (09/01/2012 to 11/30/2012)</b>																	
Total Hours Operational: 57,110																	
Total Pounds Ozone Injected: 514																	
Period Hours Operational: 2,190																	
Period Percent Operational: 100%																	
Period Pounds Ozone Injected: 20																	

**Definitions:**

- psi Pounds per square inch
  - Data not available
  - NA Not applicable
  - lbs Pounds
- Ozone Injection Calculation:  $\text{ozone concentration}(0.009) \times \text{hours online} = \text{total pounds O}_3$

**Notes:**

- Hour Meter Formula adjusted 12/19/07
- June 4, 2007 - Control Panel retrofit installed.**
- August 3, 2009 - Ozone down by request of COP PM**
- November 4, 2009 - System restarted**
- a Troubleshooting time counter
- b Hourmeter replaced
- c Solenoid 8 has high pressure, taken offline
- d Solenoid 3 leaking, taken off line
- e Pressures not properly recorded
- f Ozone generator hose ruptured on effluent side to solenoid manifold. No Readings.
- g System down due to bad GFI
- h New GFI was installed.
- i Fan in compressor broken and tubing from compressor to manifold needs to be replaced. System left off until repairs made.
- j Installed new motor fan and manifold fittings, restarted system.
- k OZ-3 turned off due to high pressure of over 60 psi.
- l OZ-5 too brittle. Left off until lines are replaced.
- m OZ-10 turned off due to leak in secondary containment
- n Hourmeter reading not correct, will check next visit
- o Hourmeter not working properly.
- p Pressure gauge stuck at 16 psi.
- q New hourmeter, panel fan, and GFCI installed
- r Fuse blown in ozone generator, system left off
- s Replaced tubing to all wells and replaced ozone generator circuit board and pressure gauge
- t System down due to tripped GFI; foam on door may have been pressing reset button. Foam removed.
- u Ozone sensor tripped; system restarted.
- v Rainbird meter malfunction.
- w System down time due to tripped GFI; system restarted.
- x System off due to bad compressor.
- y Compressor repaired; system restarted.
- z September 10-27,2008 - System down for well repair.

**Table 2**  
**Ozone Injection - Groundwater Monitoring Data**  
 76 Service Station No. 1871 (351644)  
 96 MacArthur Blvd., Oakland, California  
 Page 1 of 1

Date	Notes	Monitoring Well: MW-1								Monitoring Well: MW-7							
		ORP (mV)	DO (mg/l)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (total) (µg/L)	MtBE (µg/L)	ORP (mV)	DO (mg/l)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (total) (µg/L)	MtBE (µg/L)
4/16/03	a	NM	NM	510	57	0.62	29	61	160	NM	NM	<25,000	<250	<250	<250	<500	37,000
6/23/03	a	NM	NM	75	<0.50	<0.50	<0.50	5.3	12	NM	NM	20,000	260	<0.50	<0.50	<1.0	20,000
8/29/03	a	NM	NM	11,000	64	<10	330	1,400	440	NM	NM	<10,000	<100	<100	<100	<200	24,000
9/18/03		NM	NM	390	2.3	<0.50	3.6	31	30	NM	NM	--	--	--	--	--	--
10/16/03		NM	NM	2,100	6.0	<0.50	24.0	120	110	NM	NM	--	--	--	--	--	--
11/17/03		NM	NM	130	0.51	<0.50	2.1	7.9	43	NM	NM	16,000	<130	<130	<130	<250	17,000
12/5/03		NM	NM	<50	<0.50	<0.50	<0.50	<1.0	36	NM	NM	12,000	<100	<100	<100	<200	19,000
1/16/04	b	NM	NM	<50	<0.50	<0.50	<0.50	<1.0	<2.0	NM	NM	17,000	160	270	<130	<250	19,000
2/3/04		238	NM	<50	<0.50	<0.50	<0.50	<1.0	<2.0	72	NM	10,000	<25	<25	<25	<50	15,000
3/24/04	b	169	NM	55	<0.50	<0.50	0.80	2.9	7.8	56	NM	13,000	<100	<100	<100	<200	15,000
4/14/04	b	0.4	NM	23,000	310	10	590	2400	1700	42	NM	9,000	<50	<50	<50	<100	11,000
5/11/04	c	NM	NM	7,800	160	<10	170	700	720	-3	NM	8,300	<50	<50	<50	<100	11,000
6/14/04		20	5.25	110	<0.50	<0.50	1.0	6.4	3.4	35	1.45	<5,000	<50	<50	<50	<100	6,500
7/26/04		NM	NM	<50	<0.50	<0.50	<0.50	<1.0	3.2	NM	NM	<5,000	<50	<50	<50	<100	3,100
8/12/04		171	0.07	<50	<0.50	<0.50	<0.50	<1.0	0.80	117	0.06	2,100	<10	<10	<10	<20	2,700
9/10/04		180	0.08	<50	<0.50	<0.50	<0.50	<1.0	5.7	122	0.07	3,100	<13	<13	<13	<25	4,400
10/5/04		175	0.09	<50	<0.50	<0.50	<0.50	<1.0	<0.50	117	0.08	<50	<0.50	<0.50	<0.50	<1.0	7.1
11/5/04	d	117	0.05	<50	<0.50	<0.50	<0.50	<1.0	0.89	210	0.06	50	<0.50	<0.50	<0.50	<1.0	1.1
12/2/04		109	0.03	83	0.83	<0.50	<0.50	1.2	44	214	0.03	180	1.6	<0.50	66	4.5	51
1/13/05		105	0.04	1,100	26	1.2	2.10	70	630	201	0.05	1,000	25	1	1.9	68	460
2/25/05	c,f	--	2.67	24,000	350	10	820	2,200	1,300	21	2.05	680	<2.0	<2.0	2.3	58	2,500
3/8/05	g	-35	4.43	23,000	410	<10	1,100	2,300	1,300	NR	NR	--	--	--	--	--	--
4/5/05		-30	4.56	34,000	300	<10	910	2,000	1,100	135	6.53	<5,000	<50	<50	<50	<1.00	19,000
5/4/05		-59	2.40	26,000	220	7.4	790	2,100	860	-24	1.13	<2,000	<0.50	<0.50	<0.50	<1.0	7,100
6/2/05		-20	7.34	<50	<0.50	<0.50	<0.50	<1.0	3.5	-12	1.01	3500	<0.50	<0.50	<0.50	<1.0	4,000
7/7/05	i,j	142	7.42	<50	<0.50	<0.50	<0.50	<1.0	0.61	154	1.40	5000	<0.50	<0.50	<0.50	<1.0	8,900
9/23/05		16	7.77	<50	<0.50	<0.50	<0.50	<1.0	<0.50	56	1.39	<500	<5.0	<5.0	<5.0	<10	1,900
10/23/05		154	7.13	<50	<0.50	<0.50	<0.50	<1.0	0.56	191	1.59	<250	<2.5	<2.5	<2.5	<5	680
11/1/05	k	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/20/05		--	--	10000	17	29	180	840	2400	--	--	1100	0.90	<0.50	24	37	8200
3/10/06		--	--	10000	35	<0.50	470	1300	960	--	--	1200	24	<0.50	3.6	<1.0	4700
6/23/06		--	--	11000	110	<0.50	610	1600	780	--	--	1800	21	<0.50	<0.50	<1.0	1500
9/27/06		--	--	8500	22	<0.50	270	740	460	--	--	<2,000	<0.50	<0.50	<0.50	<1.0	350
12/22/06		--	--	7300	35	<0.50	370	850	210	--	--	24000	<0.50	<0.50	<0.50	<1.0	190
3/23/07		--	--	8800	28	<0.50	440	910	170	--	--	85	<0.50	<0.50	<0.50	<1.0	92
6/26/07		--	--	6300	16	<0.50	300	650	50	--	--	--	--	--	--	--	--
9/28/07		--	--	<50	<0.50	<0.50	<0.50	<1.0	1.2	--	--	50	<0.50	<0.50	<0.50	<1.0	37
12/17/07		--	--	4700	<0.50	<0.50	71	160	18	--	--	--	--	--	--	--	--
3/25/08		--	--	7400	28	<0.50	430	540	170	--	--	<50	<0.50	<0.50	<0.50	<1.0	7.3
6/12/08		--	--	4900	6.4	<0.50	170	280	16	--	--	52	<0.50	<0.50	<0.50	<1.0	9.4
9/25/08		--	--	2200	2.1	<0.50	72	110	11	--	--	65	<0.50	<0.50	<0.50	<1.0	5.6
12/30/08		--	--	3200	2.5	<0.50	100	150	8.3	--	--	130	<0.50	<0.50	<0.50	1.1	5.7
3/24/09		--	--	3500	6.8	<0.50	140	140	28	--	--	98	0.50	<0.50	<0.50	<1.0	9.2
6/23/09		--	--	740	<0.50	<0.50	17	12	8	--	--	290	1.2	<0.50	<0.50	<1.0	6.7
12/16/09		--	--	4600	10	<0.50	270	140	52	--	--	150	<0.50	<0.50	<0.50	<1.0	3.7
4/14/10		54	1.88	1500	4.8	<1.00	100	36	20	110	0.97	60	<0.50	<0.50	<0.50	<1.0	2.1
10/13/10		--	--	4600	3.0	<0.50	180	73	6	--	--	<50	<0.50	<0.50	<0.50	<1.0	3.6
5/27/11		--	--	1500	3.2	<2.50	86	14	10	--	--	<50	<0.50	<0.50	<0.50	<1.0	5.2
11/10/11		177	0.81	410	0.72	<0.50	7.1	1.4	2.4	169	2.74	<50	<0.50	<0.50	<0.50	<1.0	2.9
4/12/12		237	5.30	2700	4.7	<0.50	130	7.5	14.0	210	1.61	<50	<0.50	<0.50	<0.50	<1.0	4.7

**Definitions:**

TPHg = Total petroleum hydrocarbons as gasoline  
 MtBE = Methyl tert-butyl ether  
 µg/L = Micrograms per liter

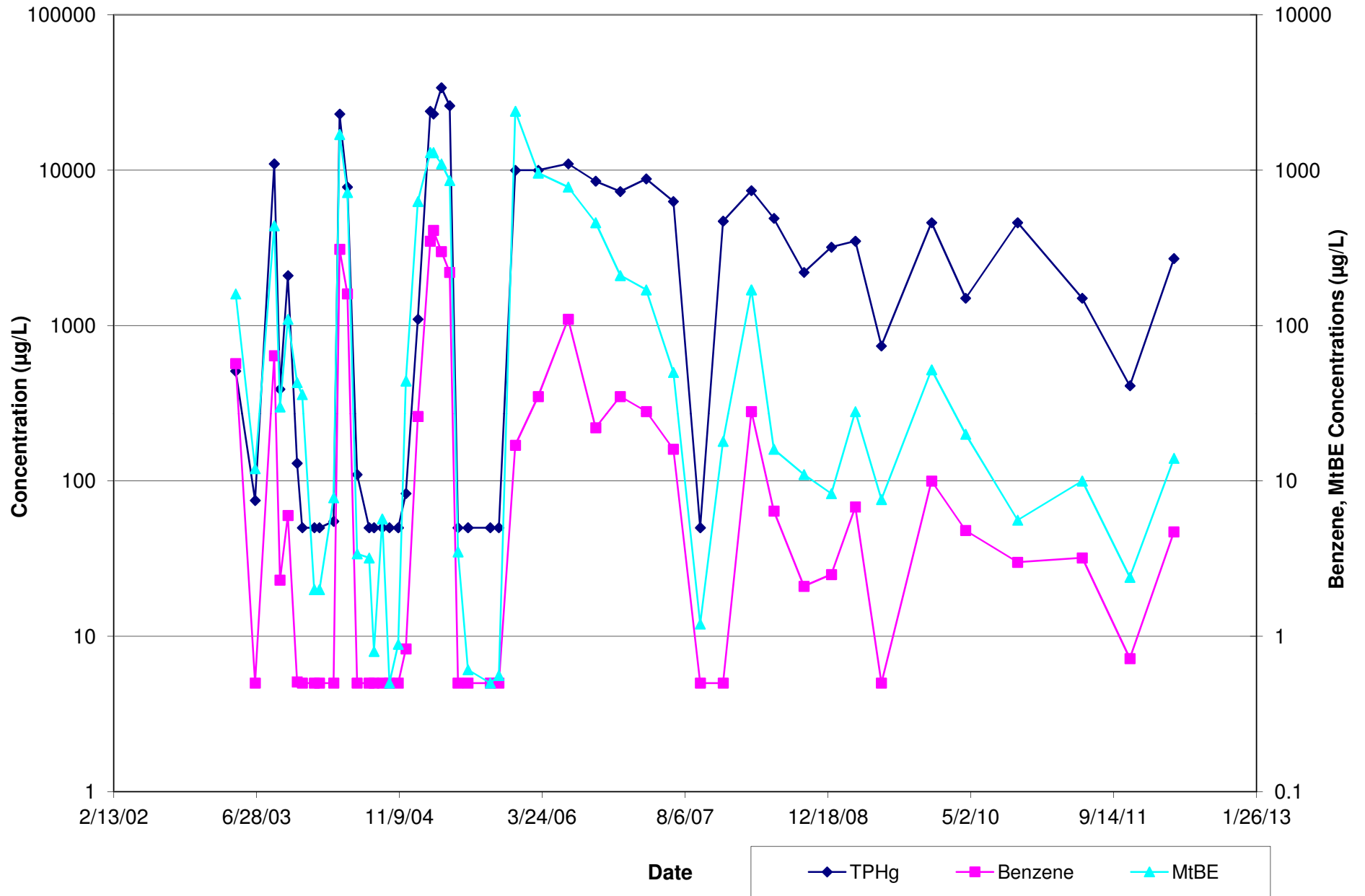
ORP = Oxidation Reduction Potential  
 DO = Dissolved Oxygen  
 mV = Millivolts  
 mg/l = Milligrams per liter

**Notes:**

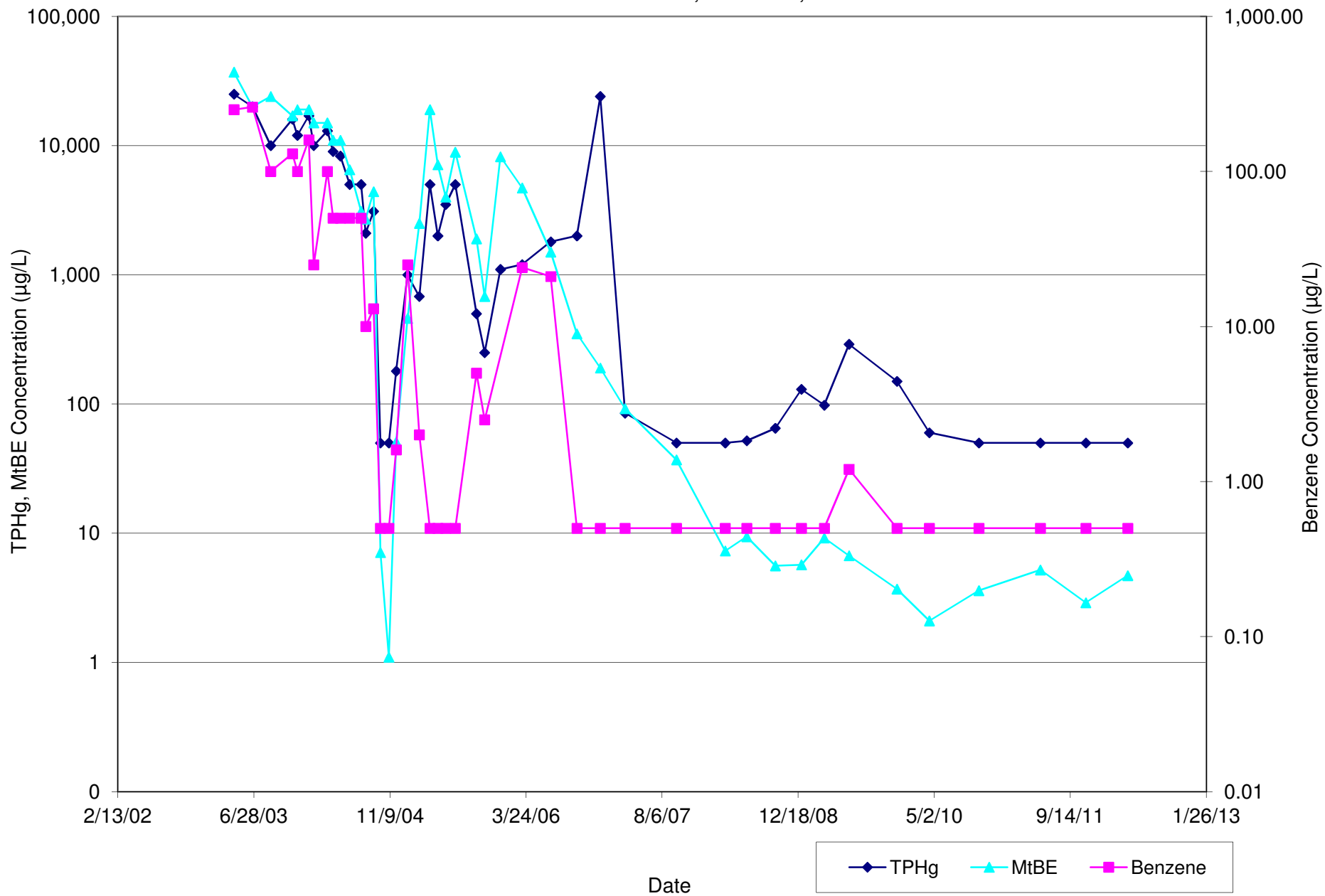
-- Data not available  
 NM Not Measured  
 a Sampled by Gettler-Ryan, Inc.  
 b Hydrocarbon in gasoline range does not match laboratory gasoline standard.  
 c ORP reading under the range  
 d Quantity of unknown hydrocarbon(s) in sample based on gasoline.  
 e Data not available at time of reporting  
 f MW-7 Estimated value of MtBE; concentration exceeded the calibration of analysis  
 g Car parked on MW-7.  
 h Data not available at time of reporting  
 i Siloxane peaks were found in the sample which are not believed to be gasoline related. If they were to be quantified as gasoline, the concentration would be 58 ug/L. (MW-1).  
 j The concentration reported reflect(s) individual or discrete unidentified peaks not matching a typical fuel pattern. (MW-1)  
 k Monthly sampling discontinued at the request of ConocoPhillips

# Graphs

**Graph 1**  
**MW-1 TPHg, Benzene, and MtBE Groundwater Concentrations**  
 76 Service Station No. 1871 (351644)  
 96 MacArthur Blvd., Oakland, California



Graph 2  
 MW-7 TPHg, Benzene, and MtBE Groundwater Concentrations  
 76 Service Station No. 1871 (351644)  
 96 MacArthur Blvd., Oakland, California



**Appendix A**  
**Field Notes**

## Ozone Injection System Data Sheet

Station No.: 1871 (UOC 351644)

City: Oakland

CRA-Tuesday-JWD

Date	Notes	Status ON/OFF	Cycles/Day	Hour Meter	Well I.D. SP-A				Well I.D. SP-BS				Well I.D. SP-BD			
					Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate
					(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)
27 Sept 12		on/off	20	47814	18		7		14		7		19		7	
28 Sept 12		on/off	20	48190	26		7		19		7		24		7	
29 Nov 12		on/off	20	49033	22		7		17		7		25		7	

Date	Well I.D. SP-C				Well I.D. SP-DS				Well I.D. SP-DD				Well I.D. SP-E			
	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate
	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)
27 Sept 12	22		7		18		7		18		7		16		7	
28 Sept 12	26		7		22		7		25		7		20		7	
29 Nov 12	20		7		20		7		24		7		20		7	

Date	Well I.D. SP-F				Well I.D. SP-G				Well I.D. SP-H				Well I.D.			
	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate	Pressure	Temp.	Run Time	Flow Rate
	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)	(psi)	(°F)	(min)	(acfm)
27 Sept 12	17		7		16		7		17		7					
28 Sept 12	23		7		24		7		20		7					
29 Nov 12	21		7		27		7		23		7					

### Ozone System Maintenance and Inspection Log

Date	Check/Repair Leaks	Check Hoses Fittings & Pipes	Check Air Filter (Document Date Replaced)	Check & Test Safety Interlock	Check Sparge Blower V-Belt Tension & Conditions	Check Controller Program	Change Blower Oil	Sparge Blower Grease Bearings	Sparge Blower Repair/Replace	Comments
27 Sept 12	OK	OK	OK	OK	N/A	OK	N/A	N/A	OK	
28 Sept 12	OK	OK	OK	OK	N/A	OK	N/A	N/A	OK	
29 Nov 12	OK	OK	OK	OK	N/A	OK	N/A	N/A	OK	

Notes:      A = System down-breaker thrown      B = Compressor Overload.      C = Ozone sensor Tripped.      D = Temp. sensor tripped.