



ENVIRONMENTAL ENGINEERING, INC  
6620 Owens Drive, Suite A • Pleasanton, CA 94588-3334  
TEL (925) 734-6400 • FAX (925) 734-6401

May 5, 2006

Mr. Robert Cave  
Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, California 94109

**RECEIVED**

*By Iopprojectop at 9:17 am, May 16, 2006*

Re: Annual Update Status at Tony's Express Auto Service located at  
3609 International Boulevard, Oakland, California  
Plant Number #12111

Dear Mr. Cave:

SOMA is submitting this annual update report to comply with BAAQMD's requirements for the SVE system, which is located at the above referenced site. Figure 1 shows the site vicinity map.

From November 17 to 23, 2005, SOMA oversaw Woodward Drilling, of Rio Vista, California, install five air sparge wells and three additional vapor extraction wells. Figure 2 shows the locations of the air sparge wells and vapor extraction wells.

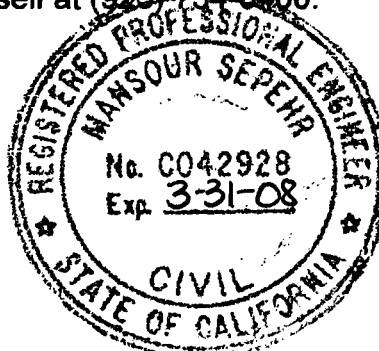
The air sparge wells were installed to inject air into the saturated formation. The newly installed vapor extraction wells, along with the existing vapor extraction wells, will be used to collect any off gases in the unsaturated zone from the air sparging wells. The block diagrams of both the SVE and air sparge systems are included as attachments.

From April 18, 2005 to April 14, 2006, approximately 30,266,656 cubic feet of impacted air has passed through the remedial system. This equates to approximately 3,455 cubic feet per hour through the system. This is well below BAAQMD's maximum of 12,900 cubic feet per hour. Table 1 shows the historical operational data.

If you have any questions or comments, please do not hesitate to call Tony Perini, Senior Project Engineer, or myself at (925) 734-6400.

Sincerely,

Mansour Sepéhr, Ph.D., P.E.  
Principal Hydrogeologist



cc: Mr. Abolghassem Razi, 3609 International Blvd, Oakland, California

Attachments



**BAY AREA AIR QUALITY  
MANAGEMENT DISTRICT**

939 ELLIS STREET  
SAN FRANCISCO, CALIFORNIA 94109  
(415) 771-6000

PLANT# 12111

INFORMATION UPDATE  
-----

Date: Apr 10, 2006

TO: Tony's Express Auto Service  
6620 Owens Drive, Ste A  
Pleasanton, CA 94588

ATTN: Tony Perini, Project Engineer

(925) 734-6400

Direct inquiries to:

Randy E Frazier  
(415) 749-4672

-----  
PLANT# 12111

Tony's Express Auto Service  
3609 International Blvd  
Oakland, CA 94601

<----- Permitted Operator

Information about certain sources of air pollution at your plant must be obtained annually. Please complete the enclosed Annual Update Forms, and return them by **May 10, 2006**, in the envelope provided.

**IMPORTANT**

-----  
Failure to provide the requested data may result in the suspension of your Permit to Operate and/or other legal action.

**PLANT CLOSED** If this plant is no longer in operation, please write "CLOSED" on the top of this sheet and send it to us in the return envelope.

**NEW OPERATOR** If the "Permitted Operator" shown above is incorrect, please mark corrections on this sheet and return it together with the COMPLETED Data Update Forms.

**ENCLOSURES**

- 1) Description of Annual Update Program,
- 2) Instructions for filling out forms,
- 3) Annual Update Forms for selected sources,
- 4) X-Forms (additional forms will be sent upon request)
- 5) Toxic Substance Checklist

Tony's Express Auto Service  
3609 International Blvd  
Oakland, CA 94601

ANNUAL DATA UPDATE FORM

S# 1 REGENERATIVE VACUUM BLOWER \*\*\*\*\*

Air (1-G7155504)

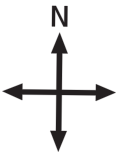
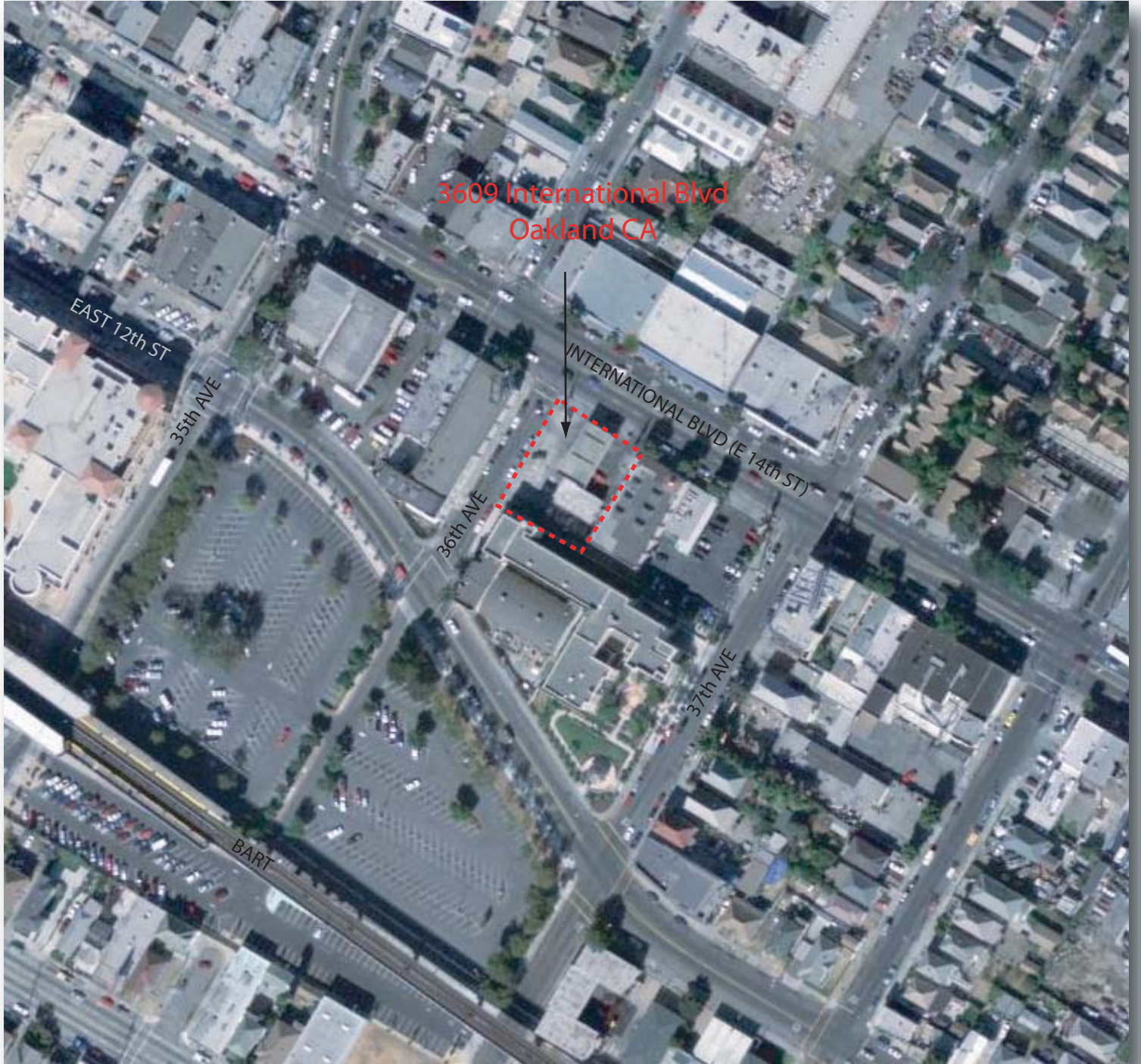
12-month throughput, cubic feet . . . . . 30,266,656 ft<sup>3</sup>

For period ending (date) . . . . . 4/14/06  
Max throughput rate: 12900 cubic feet/hr

Complete Form X, Part 2, for any other material used in this source.

[ PER 100  
4/18/05 to 4/14/06 ]

# Figures



approximate scale in feet

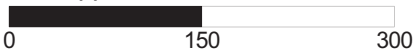
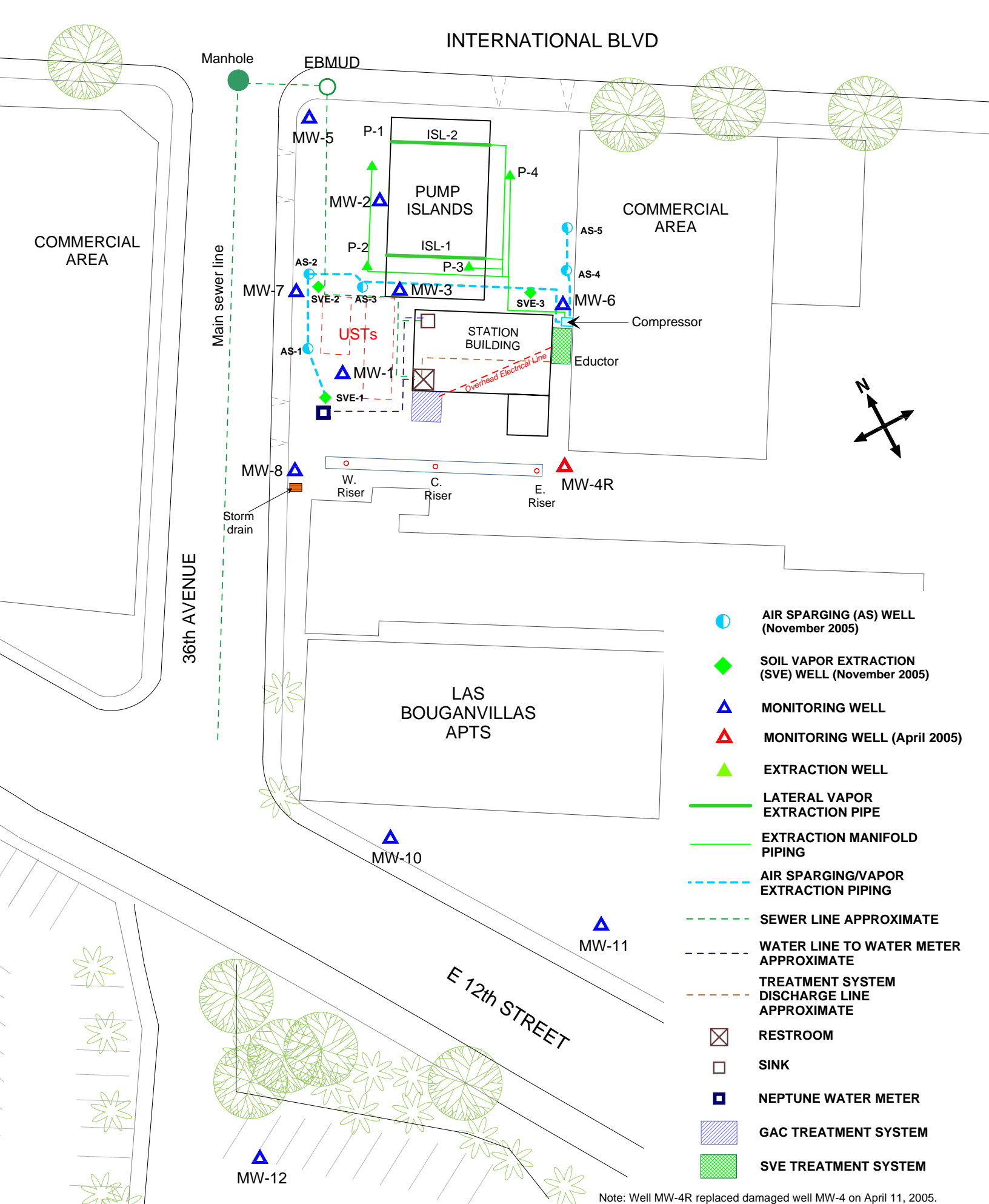


Figure 1: Site vicinity map.





- AIR SPARGING (AS) WELL (November 2005)
- SOIL VAPOR EXTRACTION (SVE) WELL (November 2005)
- MONITORING WELL
- MONITORING WELL (April 2005)
- EXTRACTION WELL
- LATERAL VAPOR EXTRACTION PIPE
- EXTRACTION MANIFOLD PIPING
- AIR SPARGING/VAPOR EXTRACTION PIPING
- SEWER LINE APPROXIMATE
- WATER LINE TO WATER METER APPROXIMATE
- TREATMENT SYSTEM DISCHARGE LINE APPROXIMATE
- RESTROOM
- SINK
- NEPTUNE WATER METER
- GAC TREATMENT SYSTEM
- SVE TREATMENT SYSTEM

Note: Well MW-4R replaced damaged well MW-4 on April 11, 2005.

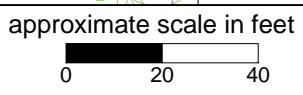


Figure 2: Site map showing locations of air sparging wells, groundwater monitoring wells, additional soil vapor wells, GAC system, & SVE system.

# TABLE

**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent					
<b>2000</b>								
7/24/2000	5:00 PM	394	0	85	0.0	0	0	0.00
7/25/2000	5:15 PM	38	2	95	24.3	3,911,768	138,225	1.35
7/26/2000	5:05 PM	207	1	80	24.0	3,260,160	115,200	6.15
7/27/2000	9:00 AM	160	5	92	16.0	2,499,456	88,320	3.64
7/28/2000	4:30 PM	141	7	87	31.5	4,653,369	164,430	5.98
7/29/2000	1:30 PM	225	8	85	21.0	3,030,930	107,100	6.21
7/30/2000	9:00 AM	226	12	85	19.5	2,814,435	99,450	5.79
7/31/2000	3:00 PM	141	5	85	30.0	4,329,900	153,000	5.56
8/1/2000	5:00 PM	135	4	80	26.0	3,531,840	124,800	4.34
8/2/2000	4:00 PM	80	4	80	23.0	3,124,320	110,400	2.28
8/3/2000	5:00 PM	60	5	85	25.0	3,608,250	127,500	1.97
8/4/2000	3:00 PM	57	4	85	22.0	3,175,260	112,200	1.65
8/5/2000	2:00 PM	97	8	87	23.0	3,397,698	120,060	3.00
8/6/2000	12:00 PM	114	8	80	22.0	2,988,480	105,600	3.10
8/7/2000	12:00 PM	93	9	85	24.0	3,463,920	122,400	2.93
8/8/2000	4:30 PM	152	10	85	16.5	2,381,445	84,150	3.30
8/10/2000	10:00 AM	173	1	85	41.5	5,989,695	211,650	9.44
8/11/2000	7:00 AM	78	4	70	21.0	2,496,060	88,200	1.77
8/12/2000	9:00 AM	100	6	70	26.0	3,090,360	109,200	2.82
8/13/2000	5:00 PM	107	9	70	34.0	4,041,240	142,800	3.94
8/14/2000	12:30 PM	122	5	70	19.5	2,317,770	81,900	2.58
8/15/2000	6:00 PM	103	12	70	17.5	2,080,050	73,500	1.95
8/16/2000	12:30 PM	112	0	70	18.5	2,198,910	77,700	2.24
8/18/2000	9:00 AM	90	0	75	44.5	5,667,075	200,250	4.65
8/21/2000	12:00 PM	74	5	80	75.0	10,188,000	360,000	6.87
8/24/2000	12:00 PM	68	13	80	72.0	9,780,480	345,600	6.06
8/27/2000	12:30 PM	68.5	2	80	72.5	9,848,400	348,000	6.15
8/31/2000	1:30 PM	52	6	80	97.0	13,176,480	465,600	6.24



**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent					
<b>2000</b>								
9/4/2000	12:30 PM	54	5	80	95.0	12,904,800	456,000	6.35
9/7/2000	12:00 PM	55	3	80	71.5	9,712,560	343,200	4.87
9/11/2000	4:30 PM <sup>2</sup>	141	0	80	100.5	13,651,920	482,400	17.54
9/14/2000	9:30 AM	56	5	80	65.0	8,829,600	312,000	4.50
9/18/2000	2:00 PM	46	9.5	80	101.5	13,787,760	487,200	5.78
9/18/2000	4:30 PM <sup>3</sup>	34	0	80	2.5	339,600	12,000	0.11
9/21/2000	4:30 PM	43	1	80	72.0	9,780,480	345,600	3.83
9/25/2000	5:30 PM	55	6	80	97.0	13,176,480	465,600	6.60
9/28/2000	9:00 AM	47.5	7.5	80	63.5	8,625,840	304,800	3.73
10/1/2000	1:00 PM	38.5	6	80	76.0	10,323,840	364,800	3.62
10/5/2000	3:00 PM <sup>4</sup>	28.5	3	80	98.0	13,312,320	470,400	3.46
10/5/2000	5:00 PM	36	0	80	2.0	271,680	9,600	0.09
10/8/2000	3:00 PM	28.5	3	80	70.0	9,508,800	336,000	2.47
10/14/2000	3:00 PM	24.5	2.5	80	144.0	19,560,960	691,200	4.37
10/17/2000	2:00 PM	36.5	3.5	80	71.0	9,644,640	340,800	3.21
10/20/2000	8:30 AM	18.5	3.5	80	66.5	9,033,360	319,200	1.52
10/25/2000	2:00 PM	38	3.7	80	125.5	17,047,920	602,400	5.90
10/29/2000	10:00 AM	35	4	80	93.0	12,633,120	446,400	4.03
11/2/2000	4:00 PM	30.5	4	80	102.0	13,855,680	489,600	3.85
11/7/2000	4:00 PM	30	6	80	120.0	16,300,800	576,000	4.46
11/19/2000	12:00 PM	92.7	5.5	80	284.0	38,578,560	1,363,200	32.57
11/24/2000	1:30 PM	25	6.5	80	121.5	16,504,560	583,200	3.76
11/29/2000	3:00 PM	14.5	3.5	80	121.5	16,504,560	583,200	2.18
12/4/2000	4:30 PM	10.7	1	80	121.5	16,504,560	583,200	1.61
12/13/2000	3:30 PM	24	3	80	263.0	35,725,920	1,262,400	7.81
12/28/2000	2:30 PM	10	6	85	359.0	51,814,470	1,830,900	4.72
<b>2001</b>								
1/4/2001 <sup>5</sup>	2:00 PM	8.7	3.7	85	167.5	24,175,275	854,250	1.92
8/8/2001	3:00 PM	217	0	85	0.5	72,165	2,550	0.14
9/6/2001	12:00 PM	85	0	85	693.0	100,020,690	3,534,300	77.45
9/13/2001	4:00 PM	186	8	85	172.0	24,824,760	877,200	42.07
9/18/2001	3:00 PM	184	9	85	119.0	17,175,270	606,900	28.79
9/21/2001 <sup>6</sup>		--	--	--	NC	NC	NC	NC

**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent					
<b>2001</b>								
10/12/01 <sup>7</sup>		--	--	--	NC	NC	NC	NC
10/23/2001	5:00 PM	114	58	87	0.5	73,863	2,610	0.08
10/25/01 <sup>4</sup>	3:00 PM	133	0	85	46.0	6,639,180	234,600	8.04
10/29/2001 <sup>8</sup>	1:20 PM	569	0	85	94.5	13,639,185	481,950	70.70
11/7/2001	3:30 PM	177	0	87	218.0	32,204,268	1,137,960	51.93
11/16/2001	3:00 PM	117	0	87	215.5	31,834,953	1,124,910	33.93
11/21/01 <sup>9</sup>	12:00 PM	85	72	87	117.0	17,283,942	610,740	13.38
<b>2002</b>								
2/15/02 <sup>10</sup>	4:30 PM	49	0	80	0.5	67,920	2,400	0.03
2/16/2002	3:45 PM	50	0	80	23.3	3,158,280	111,600	1.44
2/21/2002	4:00 PM	37	4	80	120.3	16,334,760	577,200	5.51
2/27/2002	10:30 AM	11	0	83	138.5	19,519,359	689,730	1.96
3/7/02 <sup>11</sup>	12:20 PM	10		80	194.0	26,352,960	931,200	2.40
<b>2002</b>								
6/12/2002 <sup>12</sup>	4:15 PM	53	2	75	NA	NA	NA	NA
6/17/2002	11:00 AM	28	2	80	120.0	16,306,560	576,204	4.16
6/24/2002	11:20 AM	24	3.1	80	168.3	22,866,400	808,000	5.00
<b>2002</b>								
7/5/2002	1:25 PM	20	5	80	266.0	36,133,440	1,276,800	6.58
7/11/2002	3:30 PM	26	8.0	80	146.0	19,832,640	700,800	4.70
7/23/2002	10:10 AM	28	7.5	83	282.8	39,849,089	1,408,095	10.16
8/9/2002	12:20 PM	7.5	0	80	410.3	55,728,360	1,969,200	3.81
8/15/2002 <sup>11</sup>	3:00 PM	7.0	1	80	146.5	19,900,560	703,200	1.27
8/23/2002 <sup>13</sup>	3:20 PM	NC	NC	NC	NC	NC	NC	NC
8/26/2002	11:15 AM	14.0	2.0	80	71.8	9,757,387	344,784	1.24
9/11/2002	10:10 AM	34.4	0	80	383.0	52,020,588	1,838,183	16.30
9/19/2002	10:55 AM	8.8	1.1	80	192.8	26,183,160	925,200	2.10
9/25/2002	10:30 AM	18.8	1.8	80	143.5	19,493,040	688,800	3.34

**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent					
<b>2002</b>								
10/2/2002	8:10 AM	17.1	2.5	80	165.70	22,508,688	795,360	3.51
10/9/2002		PID malfunction		80	NC	NC	NC	NC
10/16/2002	1:45 PM	17.0	4.0	80	341.50	46,389,360	1,639,200	7.18
10/24/2002	10:00 AM	16.5	6.4	80	188.25	25,571,880	903,600	3.84
11/1/2002	10:00 AM	21.1	0.0	85	192.00	27,711,360	979,200	5.33
11/6/2002	10:12 AM	PID malfunction		87	NC	NC	NC	NC
11/7/2002	11:00 AM	17.5	0.0	85	24.75	3,572,168	126,225	0.57
11/13/2002	11:30 AM	15.0	0.0	85	144.50	20,855,685	736,950	2.85
11/22/2002	2:30 PM	6.6	0.0	80	219.00	29,748,960	1,051,200	1.79
11/22/2002		system shut-down due to rainy season and low influent readings						
<b>2003</b>								
5/9/2003	10:30 AM	0.1	0.0	82	0.5	69,618	2,460	0.00
5/12/2003	10:30 AM	0.4	0.3	85	72.00	10,391,760	367,200	0.04
5/21/2003	11:00 AM	2.2	2.2	83	216.50	30,512,211	1,078,170	0.61
6/4/2003	10:30 AM	2.5	0.1	82	335.50	46,713,678	1,650,660	1.06
6/10/2003	10:30 AM	2.2	0.08	82	144.00	20,049,984	708,480	0.40
6/16/2003	12:15 PM	2.1	0.07	82	146.25	20,363,265	719,550	0.39
6/24/2003	4:55 PM	2.6	0.08	82	196.75	27,394,683	968,010	0.65
6/30/2003	11:30 AM	2.2	0.1	82	138.50	19,284,186	681,420	0.39
7/16/2003	12:00 PM	2.2	0.22	82	384.50	53,536,242	1,891,740	1.07
7/21/2003	10:50 AM	2.1	0.21	82	119.00	16,569,084	585,480	0.32
7/28/2003	11:15 AM	2.2	0.22	82	168.25	23,426,457	827,790	0.47
8/11/2003	12:15 PM	2.1	0.21	82	337.00	46,922,532	1,658,040	0.90
8/19/2003	10:05 AM	2.1	0.22	82	190.00	26,454,840	934,800	0.51
8/25/2003	11:30 AM	2.2	0.23	81	169.50	23,312,691	823,770	0.47
9/2/2003	10:50 AM	2.1	0.21	80	192.00	26,081,280	921,600	0.50
9/8/2003	2:10 PM	9.1	3.19	83	147.30	20,759,578	733,554	1.72
9/11/2003	10:00 AM	All 4 SVE carbon drums changed-out						
9/22/2003	1:30 PM	7	0.2	88	334.25	49,944,972	1,764,840	3.19

**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent					
<b>2003</b>								
10/1/2003	10:30 AM	6.5	0.2	85	213.00	30,742,290	1,086,300	1.82
10/6/2003	11:00 AM	7	0.3	85	120.50	17,391,765	614,550	1.11
10/13/2003	11:15 AM	5	0.2	85	168.25	24,283,523	858,075	1.11
10/29/2003	10:00 AM	2.4	0	85	382.75	55,242,308	1,952,025	1.21
11/3/2003	11:30 AM	3	0	85	121.50	17,536,095	619,650	0.48
11/10/2003	11:10 AM	3.5	0	85	167.67	24,199,330	855,100	0.77
11/17/2003	1:50 PM	4.1	0	85	170.70	24,637,131	870,570	0.92
11/24/2003	11:00 AM	3.8	0	85	165.20	23,843,316	842,520	0.83
system shut-down due to rainy season and low influent readings								
<b>2004</b>								
4/5/2004	1:00 PM	5.6	0.11	85	0.5	72165	2550	0.004
4/12/2004	10:30 AM	6.5	0.2	83	165.5	23,324,577	824,190	1.38
4/20/2004	12:00 PM	7.1	0.9	84	193.5	27,599,292	975,240	1.79
4/23/2004	11:00 AM	7.2	2.3	80	71	9,644,640	340,800	0.63
5/3/2004	12:00 PM	7.1	3.4	80	241	32,737,440	1,156,800	2.12
5/5/2004	11:00 PM	All 4 SVE carbon drums changed-out						
5/17/2004	12:00 PM	2.7	0.8	82	336	46,783,296	1,653,120	1.15
5/26/2004	11:00 AM	3.8	0.5	82	215	29,935,740	1,057,800	1.04
6/1/2004	1:00 PM	3.6	0.9	82	122	16,986,792	600,240	0.56
6/7/2004	11:50 AM	3.2	0	82	142.9	19,896,824	703,068	0.58
6/14/2004	11:50 AM	10.9	0	86	168	24,532,704	866,880	2.44
6/21/2004	10:50: AM	13.5	0	83	167	23,535,978	831,660	2.89
6/28/2004	11:50 AM	10.9	0.5	85	169	24,391,770	861,900	2.42
<b>2004 (continued)</b>								
7/2/2004	11:30 AM	8.7	0	85	95.8	13,826,814	488,580	1.10
7/13/2004	2:00 PM	9.1	0.22	85	266.5	38,463,945	1,359,150	3.19
7/21/2004	12:00 PM	8.9	0.5	85	190	27,422,700	969,000	2.22
7/26/2004	11:50 AM	8.5	0.4	85	119.5	17,247,435	609,450	1.34
8/2/2004	11:30 AM	4.9	0.1	85	167.8	24,218,574	855,780	1.08
8/9/2004	11:50 AM	5.6	0.2	85	168.3	24,290,739	858,330	1.24
8/16/2004	12:00 PM	6	0.4	85	168.1	24,261,873	857,310	1.33
8/24/2004	11:50 AM	6.2	1.2	85	191.9	27,696,927	978,690	1.56
8/30/2004	11:30 AM	6	0.4	85	143.66	20,734,448	732,666	1.13
9/7/2004	1:05 PM	5.5	0.8	85	193.5	27,927,855	986,850	1.40
9/13/2004	12:05 PM	5.3	0.9	85	143	20,639,190	729,300	1.00
9/20/2004	11:08 AM	7	2.9	85	167	24,103,110	851,700	1.54
9/27/2004	2:50 PM	6.5	2.1	85	171.75	24,788,678	875,925	1.47

**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)
		Influent	Effluent					
<b>2004</b>								
10/4/2004	11:30 AM	6.9	3	85	164.55	23,749,502	839,205	1.49
10/13/2004	10:30 AM	6.5	2.9	85	215	31,030,950	1,096,500	1.84
10/18/2004	2:30 PM	6	1.5	85	124	17,896,920	632,400	0.98
10/28/2004	2:00 PM	3.1	0.9	85	239.5	34,567,035	1,221,450	0.98
10/28/2004	system shut-down due to rainy season and low influent readings							
<b>2005</b>								
4/11/2005	system re-started, all four vapor phase carbon drums replaced with new carbon							
4/18/2005	10:50 AM	6.5	0.8	85	167.83	24,223,481	855,953	1.43
4/25/2005	5:30 PM	6	0.7	85	174.33	25,161,626	889,103	1.38
5/4/2005	11:20 AM	0.4	0	85	209.83	30,285,341	1,070,153	0.11
5/9/2005	11:00 AM	1	0.4	85	119.67	17,271,538	610,302	0.16
5/16/2005	10:15 AM	3	0	85	167.25	24,139,193	852,975	0.66
5/23/2005	11:05 AM	0.4	0	90	168.83	25,801,110	911,700	0.09
6/3/2005	3:30 PM	0.2	0	90	268.48	41,029,114	1,449,792	0.07
6/9/2005	3:00 PM	0.2	0	90	143.50	21,929,670	774,900	0.04
6/15/2005	2:15 PM	1	0	85	143.25	20,675,273	730,575	0.19
6/20/2005	12:00 PM	0.6	0	88	117.75	17,594,676	621,720	0.10
6/26/2005	12:00 PM	0.5	0	85	144.00	20,783,520	734,400	0.09
7/7/2005	2:45 PM	0.2	0	90	266.75	40,764,735	1,440,450	0.07
7/11/2005	3:00 PM	0.3	0	90	96.25	14,708,925	519,750	0.04
7/18/2005	1:00 PM	1	0	85	166.00	23,958,780	846,600	0.22
7/25/2005	12:00 PM	1.5	0	87	167.00	24,670,242	871,740	0.34
8/1/2005	1:30 PM	1	0	85	169.50	24,463,935	864,450	0.22
8/8/2005	11:50 AM	0.7	0	80	166.40	22,603,776	798,720	0.14
8/15/2005	1:30 PM	0.9	0	83	169.60	23,902,406	844,608	0.20
8/24/2005	12:00 PM	0.8	0	85	214.50	30,958,785	1,093,950	0.23
8/29/2005	11:45 AM	0.7	0	85	119.75	17,283,518	610,725	0.11
9/6/2005	12:15 PM	0.8	0	85	192.50	27,783,525	981,750	0.20
9/12/2005	12:10 PM	1.2	0	85	144.00	20,783,520	734,400	0.23
9/20/2005	11:30 AM	1.1	0	84	192.60	27,470,923	970,704	0.28

**Table 1**  
**Total Mass of Petroleum Hydrocarbons Removed**  
**by the Vapor Extraction System & Historical Operational Data**  
**3609 International Boulevard, Oakland, California**

Date	Time	PID (ppmv)		Flow Rate (ft <sup>3</sup> /min)	Time Elapsed (Hours)	Air Flow (Liters)	Air Flow (ft <sup>3</sup> )	Mass Removed <sup>1</sup> (Pounds)	
		Influent	Effluent						
<b>2005</b>									
10/6/2005	3:00 PM	all 4 vapor phase carbon drums replaced with new carbon drums							
10/14/2005	3:30 PM	33	5	83	192.5	27,129,795	958,650	8.16	
10/17/2005	12:00 PM	33	5	86	648.5	94,699,158	3,346,260	28.47	
11/1/2005	9:40 AM	33	7	86	333.75	48,736,845	1,722,150	14.65	
11/3/2005	3:30 PM	33	7	87	333.75	49,303,553	1,742,175	14.82	
11/9/2005	3:15 PM	all 4 vapor phase carbon drums replaced with new carbon drums							
11/14/2005	11:30 AM	0.3	0	89	260	39,291,720	1,388,400	0.11	
11/22/2005	2:40 PM	0.8	0	88	195	29,137,680	1,029,600	0.21	
11/17/06-11/23/06		3 new vapor wells installed onsite							
<b>2006</b>									
1/6/2006	10:00 AM	System shut-down due to rainy conditions							
2/22/06-3/6/06		Air Sparge and Additional SVE system installed							
4/8/06		Existing vacuum eductor, which was built and installed in 2000, was rebuilt. To reduce the noise level, foam was placed around the vacuum eductor to act as a noise suppressant							
4/14/06	2:00 PM	all 4 vapor phase carbon drums replaced with new carbon drums							
<b>Total Mass of Petroleum Hydrocarbons Removed =</b>								<b>814.20</b>	
<b>Average Daily Removal Rate (pounds / day)=</b>								<b>0.42</b>	

Notes:

- <sup>1</sup> The representative molecular weight of hydrocarbons was assumed to be 150 gram/mole and use the measured temperature of Vapor (25°C) in converting ppm-v to ppm on mass basis
- <sup>2</sup> System accidentally shut down from main box. readings taken 30 minutes after startup
- <sup>3</sup> GAC Replaced
- <sup>4</sup> GAC-1 removed, new GAC installed at effluent end
- <sup>5</sup> SVE System turned off for rainy season due to low influent concentrations
- <sup>6</sup> system down, hoses disconnected and GAC moved for replacement
- <sup>7</sup> system down for electrical repair
- <sup>8</sup> Carbon change-out of three drums. moved new effluent drum on 10/25/01 to GAC-1
- <sup>9</sup> system shut-down due to high effluent value
- <sup>10</sup> System re-started (since November 21, 2001), installed new 4-55 gallon vapor phase carbon vessels, repaired blow
- <sup>11</sup> System was shut-down due to low influent reading
- <sup>12</sup> System was restarted on 6/12/02
- <sup>13</sup> System was re-started but no readings were taken

NC: Not Calculated

Calculations

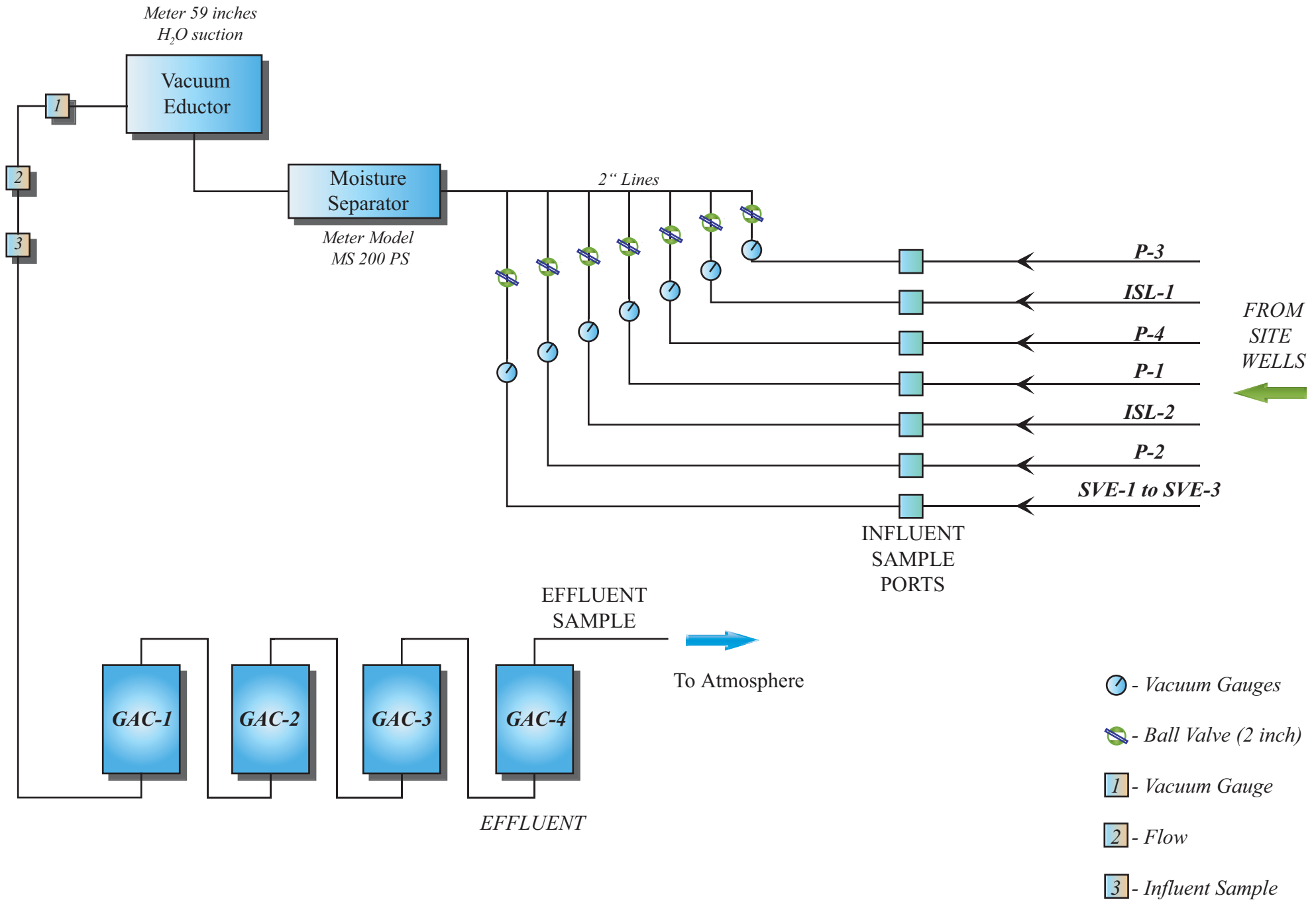
Airflow: Flowrate (ft<sup>3</sup>/min)\* 60 min \* Time Elapsed (hrs)\* 28.3 liters/ft<sup>3</sup>

Mass Removed: Time Elapsed (hrs) \* 60 min\* Flowrate (ft<sup>3</sup>/min)\* (28.3 m<sup>3</sup>/ft<sup>3</sup>)\*

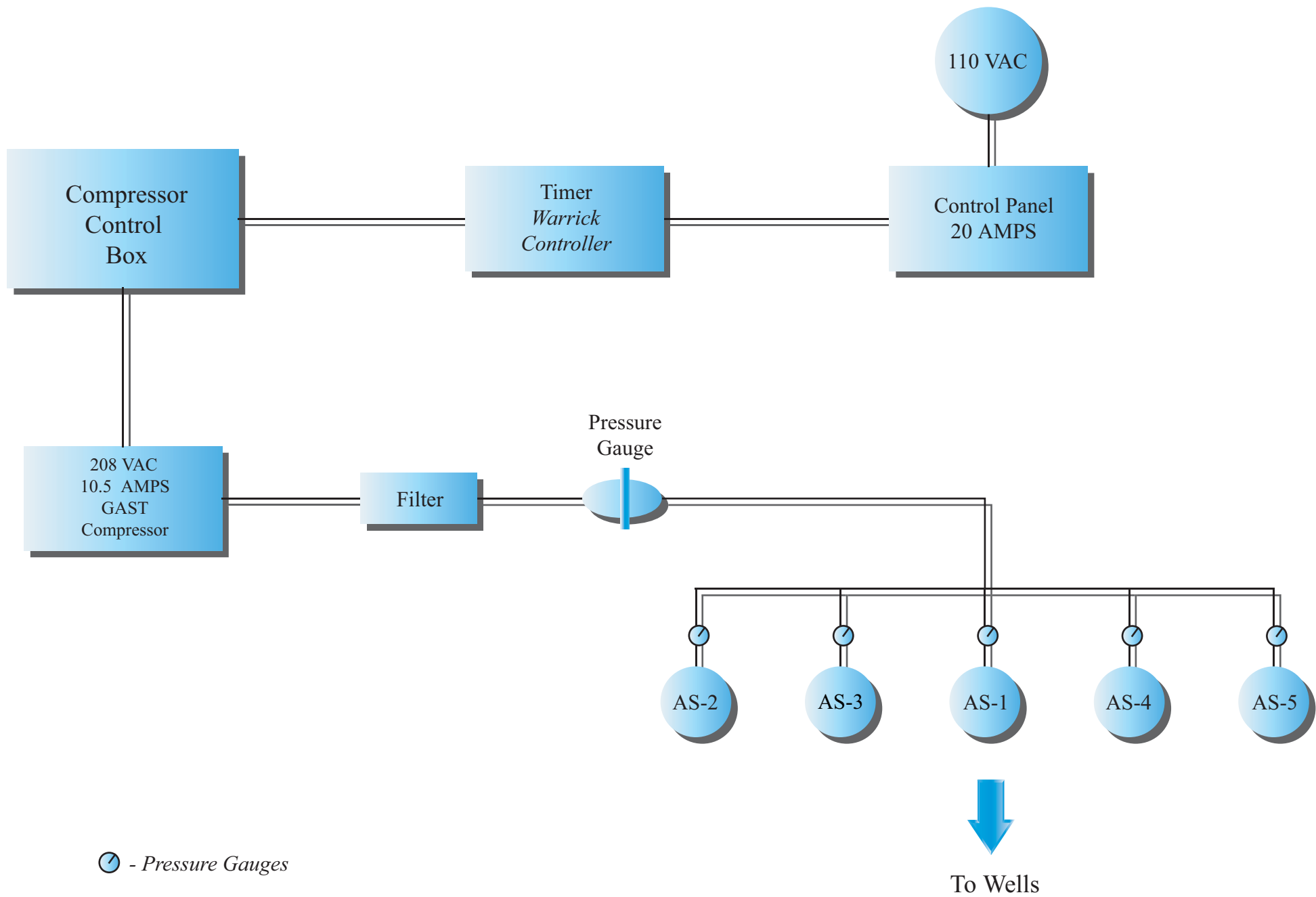
((PID reading \* (102 grams TPH-g /mole)\* (1 mole / 24.4 L))\*(1/1000 m<sup>3</sup>)) \* (1 lb/454 grams)

# Attachments





Vapor Extraction System



Block diagram of the Air Sparge System