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Alameda County  
Environmental Health

**Ultramar, Inc.**

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August 23, 2011

Mr. Jerry Wickham  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502

SUBJECT: REPORT ON SOIL VAPOR EXTRACTION TESTING  
FORMER BEACON STATION NO. 12574  
22315 REDWOOD ROAD RWQCB Case No. 01-0167  
CASTRO VALLEY, CALIFORNIA ACDEH: RO 0000355

Mr. Wickham:

Please find the enclosed report on **Soil Vapor Extraction Testing** for the above-referenced facility. Pursuant to your requests, I declare, under penalty of perjury, that the following information and/or recommendations contained in the attached report are true and correct to the best of my knowledge.

Please call if you have any questions or comments regarding this letter or the enclosed report (210) 345-4663.

Sincerely,  
ULTRAMAR INC.



C. Shay Wideman  
Director – Environmental Liability Management

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Enclosures

cc w/o encl. Mr. Ken Mateik, Horizon Environmental



# HORIZON ENVIRONMENTAL INC.

Specialists in Site Assessment, Remedial Testing, Design and Operation

August 23, 2011

Mr. Jerry Wickham  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502

Subject: **Transmittal of Report on Soil Vapor Extraction Testing**  
Former Beacon Station 12574  
22315 Redwood Road, Castro Valley, California

Mr. Wickham:

At the request of Ultramar Inc., Horizon Environmental Inc. (Horizon) is forwarding the enclosed *Report on Soil Vapor Extraction Testing* dated August 23, 2011.

Please call Horizon at 916-939-2170 if you have any questions or require additional information.

Sincerely,

**HORIZON ENVIRONMENTAL INC.**

Karen P. Liptak  
Staff Geologist

Enclosure

cc: Mr. C. Shay Wideman, Ultramar, Inc.  
Ms. Irma Salinas, Bay Area Air Quality Management District  
Mr. Allen Shin, Banya Investments LLC  
Castro Group, LLC  
EMB Group, LLC  
Mr. Paul Wilson



# HORIZON ENVIRONMENTAL INC.

Specialists in Site Assessment, Remedial Testing, Design and Operation

August 23, 2011

Mr. Jerry Wickham  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502

Subject: **Report on Soil Vapor Extraction Testing**  
Former Beacon Station No. 12574 RWQCB Case No. 01-0167  
22315 Redwood Road, Castro Valley, California ACDEH: RO0000355

Mr. Wickham:

At the request of Ultramar Inc (Ultramar), Horizon Environmental Inc., (Horizon) prepared this report of a soil vapor extraction test (VET) conducted at the subject site (Site). Horizon proposed the VET in the Vapor Extraction Testing Work Plan (Work Plan) dated April 26, 2011, which was approved by the Alameda County Environmental Health Services (ACEHS) on May 23, 2011. A copy of the ACEHS approval letter is included as Attachment A. The purpose of the testing was to evaluate the feasibility of utilizing vapor extraction methods for the remediation of gasoline hydrocarbons beneath the subject site. This VET report has been prepared in general accordance with reporting recommendations contained in the Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites dated April 16, 2004, and ACEHS guidelines.

## Site Description and Background

Former Beacon Station No. 12574 (Site) was located on the southwestern corner of the intersection of Redwood Road and Grove Way in Castro Valley, California, as shown on the Site Location Map (Figure 1). The Site is bounded by Grove Way to the north, Redwood Road to the east, a vacant office building to the south, and residential apartments to the west. Former Chevron Station #9-2960 was located at 2416 Grove Avenue, northeast of the Site and across the intersection of Grove Avenue and Redwood Road. The Chevron site is an open Fuel Leak case (RWQCB Case No. 01-0346 and ACDEH Case No. 0275).

Existing Site facilities include a 7-11 convenience store (no gasoline sales), other commercial buildings situated on the western portion of the Site property, a parking lot, and landscaping areas situated on the central and eastern portions of the Site. Prior to 1981, the site was leased and operated by Shell Oil Company (Shell) and included eight USTs located in the southern portion of the Site, six former dispenser islands, and associated former fuel distribution piping located in the northern and eastern portions of the Site. Shell transferred the lease to Ultramar, who operated a retail service station (Beacon #574) from 1981 to 1987. A history of the Site was included in Attachment A of the Work Plan.

There are currently six groundwater monitoring wells (MW-1 through MW-4, MW-5A and MW-6) associated with the Site. Wells MW-1 through MW-4 are located within the Site boundaries, while wells MW-5A and MW-6 are located offsite to the west and south of the Site. Locations of these and other pertinent Site features are shown on the Site Map (Figure 2) and the Site Area Map (Figure 3).

### **Vapor Extraction Testing (VET)**

Prior to initiating the VET, written notification was provided to the Bay Area Air Quality Management District (BAAQMD) through an e-mail dated June 27, 2011 for the short-term VET at the Site (see Attachment B). Equipment utilized for the VET included a trailer-mounted rotary blower capable of air flows up to 200 standard cubic feet per minute (scfm) at a vacuum of 80 inches of water column (WC), and two 200-pound vapor-phase, granular activated carbon (GAC) canisters connected in series for the abatement of hydrocarbon vapors. This testing equipment, along with the data collection devices, was connected to vapor extraction wells VW-2 and VW-3 for the VET.

On July 5, 2011, depths to groundwater in vapor extraction wells VW-2 and VW-3 were measured prior to the VET, and ranged between 19.45 and 19.73 feet below surface grade (bsg), respectively. Extraction well VW-2 is screened between the depths of approximately 10 to 20 feet bsg, and extraction well VW-3 is screened between the depths of approximately 15 to 20 feet bsg. The subsurface soils encountered during drilling in the unsaturated aquifer zone (depths of approximately 10 to 20 feet bsg) have been described as silty sand (SM) with some gravel in borings VW-1, VW-2 and VW-3.

The VET was performed from July 5 thru 8, 2011, and lasted for a total of approximately 65 hours. During the VET, vapor points VP-1, VP-2 and VP-3, vapor well VW-1, and monitoring wells MW-1, MW-2, MW-3, MW-4 and MW-6 were utilized as radius of influence (ROI) observation wells. During the VET, the following information was obtained initially at approximately 5 minute intervals, then at 30 minute intervals, and then hourly for the duration of the VET: vapor flow velocity and vapor temperatures utilizing a portable flow meter; vacuum readings utilizing magnehelic vacuum gauges; and vapor hydrocarbon levels utilizing a Horiba® Hydrocarbon Analyzer. Summarized results of the field data collected during the VET are presented in Table 1. The hydrocarbon vapor abatement efficiency of the two GAC canisters was monitored with the field hydrocarbon analyzer, and verified with analytical data from vapor samples collected during the VET as described below.

Magnehelic gauges were attached to the well casing tops of each of the observation wells listed above to evaluate the vacuum ROI on each well. Summarized results of the vacuum ROI field data collected during the VET are presented in Table 2. Vapor points VP-1, VP-2 and VP-3 and observation wells MW-1, MW-2 and MW-3 showed vacuum influences approximately 15 minutes after the beginning and throughout the VET. Observation well MW-4, located approximately 90 feet north of extraction well VW-2, and observation well MW-6, located approximately 75 feet south of extraction well VW-3, did not show vacuum influences throughout the VET.



## Vapor Samples

Pre-VET and Post-VET vapor samples were collected from vapor points VP-1, VP-2 and VP-3 to evaluate soil vapor concentration at these locations. The field work was performed as discussed in Horizon's Field Methods and Procedures (see Attachment B). Prior to vapor sampling, each vapor point casing was purged to remove the stagnant vapor. The volume of vapor purged from each vapor point casing was 1.5 times the calculated casing volume, or approximately 7.5 liters. Since it took approximately 5 seconds to fill a one liter Tedlar bag with vapor, each vapor point casing was purged for at least 40 seconds. After each casing was purged, vapor samples were collected in Tedlar bags. To reduce cross-contamination between samples, the tubing was removed from the sampling pump, and new tubing was used to collect the next vapor sample.

During the VET, vapor samples were collected from the influent vapor stream prior to the blower, at 2 hours, 4 hours, 8 hours and 64 hours, and one vapor sample was collected from the effluent vapor stream after exiting the GAC canisters, for laboratory analyses to verify the field readings. The vapor samples were collected in one liter Tedlar bags and were submitted under chain-of-custody documentation to a California-certified analytical laboratory for analysis of total petroleum hydrocarbons as gasoline (TPHg), volatile aromatics benzene, toluene, ethylbenzene and xylenes (BTEX), and the fuel oxygenate methyl t-butyl ether (MTBE) utilizing EPA Method 8260B. Laboratory analytical results of the vapor samples collected are summarized in Table 3. Copies of the laboratory reports and chain-of-custody records are included as Attachment C to this report.

## Analytical Results

Laboratory analytical results of the vapor samples collected before and after the VET from vapor points VP-1, VP-2 and VP-3 indicated a 98% to 99% decrease in TPHg vapor concentrations from before the VET to after the VET. No concentrations of Benzene were reported in the Pre-VET and Post-VET vapor samples from VP-1, VP-2 and VP-3.

The laboratory analytical results of the influent vapor from well VW-2 (located between the dispenser islands) indicated that TPHg vapor concentrations decreased 72% (from 7,200 to 2,000 parts per million by volume [ppmv]), and benzene vapor concentrations decreased 47% (from 14 to 7.4 ppmv) during the VET. Similarly, the laboratory analytical results of the influent vapor from well VW-3 (screened beneath the adjacent UST's excavation) indicated that TPHg vapor concentrations decreased 87% (from 18,000 to 2,400 ppmv), and benzene vapor concentrations decreased 69% (from 24 to 7.4 ppmv) during the VET. The laboratory analytical results of the combined influent vapor indicated that TPHg vapor concentrations decreased 72% (from 13,000 to 3,600 ppmv), and benzene vapor concentrations decreased 64% (from 22 ppmv to 7.9 ppmv) during the VET.

## Discussion and Conclusions

Calculated flow rates and hydrocarbon recovery data from the VET is summarized in Table 4 (wells VW-2 and VW-3 combined), Table 5 (well VW-2) and Table 6 (well VW-3). Influent hydrocarbon concentrations and hydrocarbon mass removal with time from each

VET extraction combination are shown graphically on the charts attached to each table. During the first 7½ hours of the VET when the dilution valve was open to dilute the elevated influent concentrations, the calculated influent flow rates from the two extraction wells VW-2 and VW-3 (combined prior to dilution) ranged between 33 to 40 standard cubic feet per minute (scfm) at vacuums between 30 to 50 "WC. Between 7½ and 60 hours of elapsed time during the VET, after the dilution valve was closed, the calculated influent flow rates from extraction wells VW-2 and VW-3 ranged between 73 to 169 scfm at vacuums between 60 to 80 "WC. Between 60 and 61 hours of elapsed time of the VET, the well casing caps were left off of observation wells MW-1, MW-2, MW-3 and VW-1 for approximately one hour, and the calculated influent flow rates from extraction wells VW-2 and VW-3 increased to 556 scfm at a vacuum of 64 "WC. Between 61 and 65 hours of elapsed time of the VET, the well casing caps were placed back onto the observation wells, and the calculated influent flow rates from extraction wells VW-2 and VW-3 decreased back to 113 scfm at vacuums between 60 to 62 "WC.

The conditions that a future soil vapor extraction system (SVES) would operate under were encountered between the elapsed times of 7½ and 60 hours during the VET. During this time interval, the calculated influent flow rates from wells VW-2 and VW-3 (combined) ranged between 73 to 169 scfm at vacuums between 60 to 80 "WC; from extraction well VW-2 ranged between 95 to 174 scfm at vacuums of 70 to 85 "WC; and from extraction well VW-3 ranged from 45 to 69 scfm at vacuums of 98 to 106 "WC. It is noted that the calculated influent flow rates from well VW-2 (screened between the depths of 10 and 20 feet bsg) slowly decreased during the VET, while the calculated influent flow rates from well VW-3 (screened between the depths of 15 and 20 feet bsg) remained fairly stable during the VET. As documented in the latter hours of the VET, wells MW-3, MW-4 and MW-6 can be periodically opened to allow fresh atmospheric air into the subsurface to increase influent vapor flows and "sweep" impacted subsurface vapors from beneath the Site.

Based on the calculated influent flow rates and laboratory analytical results of the vapor samples, the average calculated hydrocarbon removal rate for the extraction from wells VW-2 and VW-3 (combined) was approximately 157 pounds per day of TPHg and 0.3-pound per day of benzene; the average calculated hydrocarbon removal rate for extraction from well VW-2 was approximately 78 pounds per day of TPHg and 0.1-pound per day of benzene; and the average calculated hydrocarbon removal rate for extraction from well VW-3 was approximately 145 pounds per day of TPHg and 0.2-pound per day of benzene. Based on the calculated influent flow rates and laboratory analytical results of the vapor samples, the cumulative mass of hydrocarbon vapor remediated during the 65-hour VET was approximately 471 pounds of TPHg and 0.84-pound of benzene. The two 200-pound spent vapor-phase GAC canisters used for the abatement of hydrocarbon vapors were profiled and disposed of by thermal treatment by Enviro Supply Services of Rancho Cordova, California.

Based on the radius of influence data collected, it appears that the effective ROI in the unsaturated aquifer materials utilizing wells VW-2 and VW-3 as extraction wells would be an approximate distance of up to 60 feet of radius at 60 to 65 "WC of vacuum. The estimated vapor extraction ROI from wells VW-2 and VW-3 are shown on Figure 4. The estimated ROI for these two wells in the unsaturated aquifer materials covers the entire

impacted area beneath the Site. Furthermore, the vacuum influences measured in vapor points VP-1, VP-2 and VP-3 indicate positive extraction flow from the upper unsaturated coarse-grained soils at depths of less than 10 feet bsg, and away from the existing buildings at the Site preventing a vapor intrusion path into the onsite buildings. An additional vapor well (VW-4) can be installed between vapor points VP-2 and VP-3 to create additional positive extraction flow away from the existing buildings at the Site.


The VET results indicate that soil vapor extraction (SVE) will effectively remove gasoline hydrocarbons from subsurface soils in the unsaturated aquifer zone (depths of approximately 10 to 20 feet bsg) beneath the Site. Based on the vapor concentration levels being extracted during the VET, the most cost-effective method for treatment of the elevated gasoline vapors from beneath the site would be a SVE system equipped initially with a catalytic oxidizer unit or multiple 2,000-pound carbon units to treat or abate the extracted gasoline vapors prior to discharge to the atmosphere. The data generated in this report will be utilized in the preparation of a combined Problem Assessment Report (PAR), Site Conceptual Model (SCM), [Draft] Corrective Action Plan (CAP), and Risk-Based Corrective Action (RBCA) assessment report to be submitted to the ACEHS later in 2011.

Please call us at (916) 939-2170 if you have any questions regarding this report.

Sincerely,  
**Horizon Environmental Inc.**



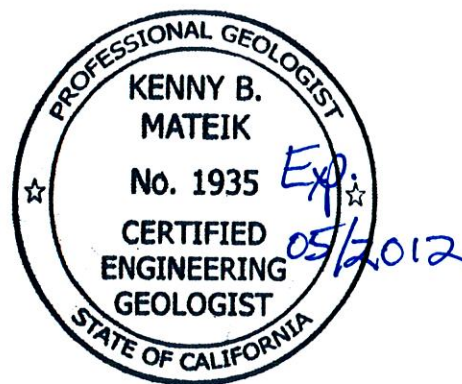
Gary Barker  
Senior Project Manager



Kenny B. Mateik  
Professional Geologist, C.E.G. No. 1935



Emil D. Kruck  
Project Geologist



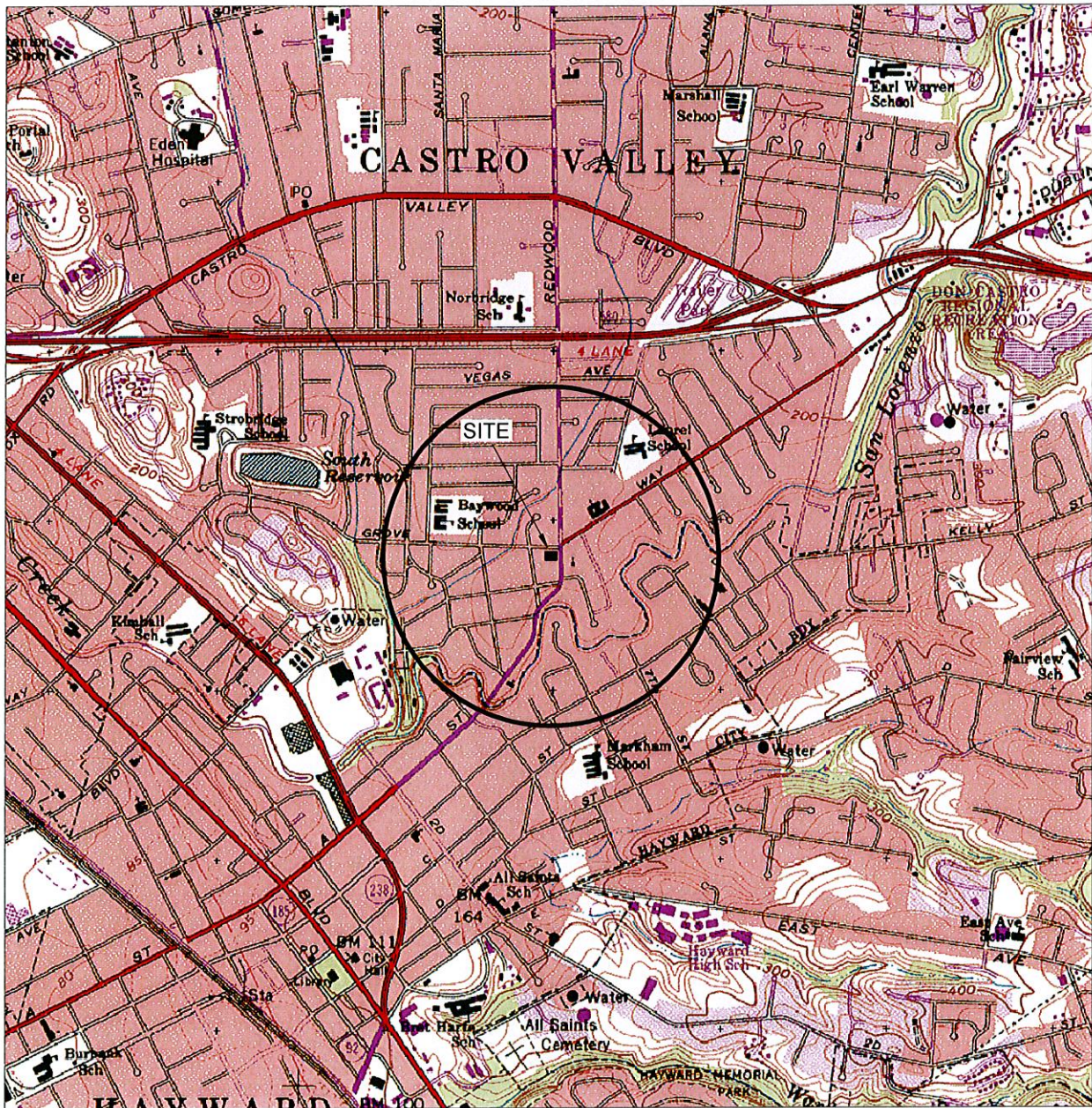
- |              |           |  |
|--------------|-----------|--|
| Attachments: | Figure 1: | Site Location Map                                    |
|              | Figure 2: | Site Map   |
|              | Figure 3: | Site Area Map  |
|              | Figure 3: | Vapor Extraction Radius of Influence Map             |
|              | Table 1:  | Vapor Extraction Test Field Data                     |
|              | Table 2:  | Vapor Extraction Test Radius of Influence Field Data |
|              | Table 3:  | Laboratory Analytical Vapor Data                     |

Table 4: Combined Hydrocarbon Recovery Data / Charts  
Table 5: VW-2 Hydrocarbon Recovery Data / Charts  
Table 6: VW-3 Hydrocarbon Recovery Data / Charts

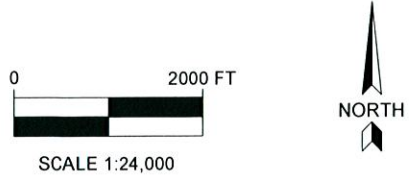
Attachment A: ACEHS Approval Letter dated May 23, 2011  
Attachment B: BAAQMD Notification e-mail dated June 27, 2011  
Horizon Field Methods and Procedures  
Attachment C: Laboratory Reports and Chain-of-Custody Record

cc: Mr. C. Shay Wideman, Ultramar, Inc.  
Ms. Irma Salinas, Bay Area Air Quality Management District  
Mr. Allen Shin, Banya Investments LLC  
Castro Group, LLC  
EMB Group, LLC  
Mr. Paul Wilson





GENERAL NOTES:  
 BASE MAP FROM U.S.G.S.  
 HAYWARD, CA.  
 7.5 MINUTE TOPOGRAPHIC  
 PHOTOREVISED 1980



HORIZON ENVIRONMENTAL INC.

Project Number: 1574.41  
 Prepared By: K. Liptak  
 Reviewed By: K. Mateik

Drawn By: M. LaCoste  
 Date: 10/7/04  
 Revised Date:

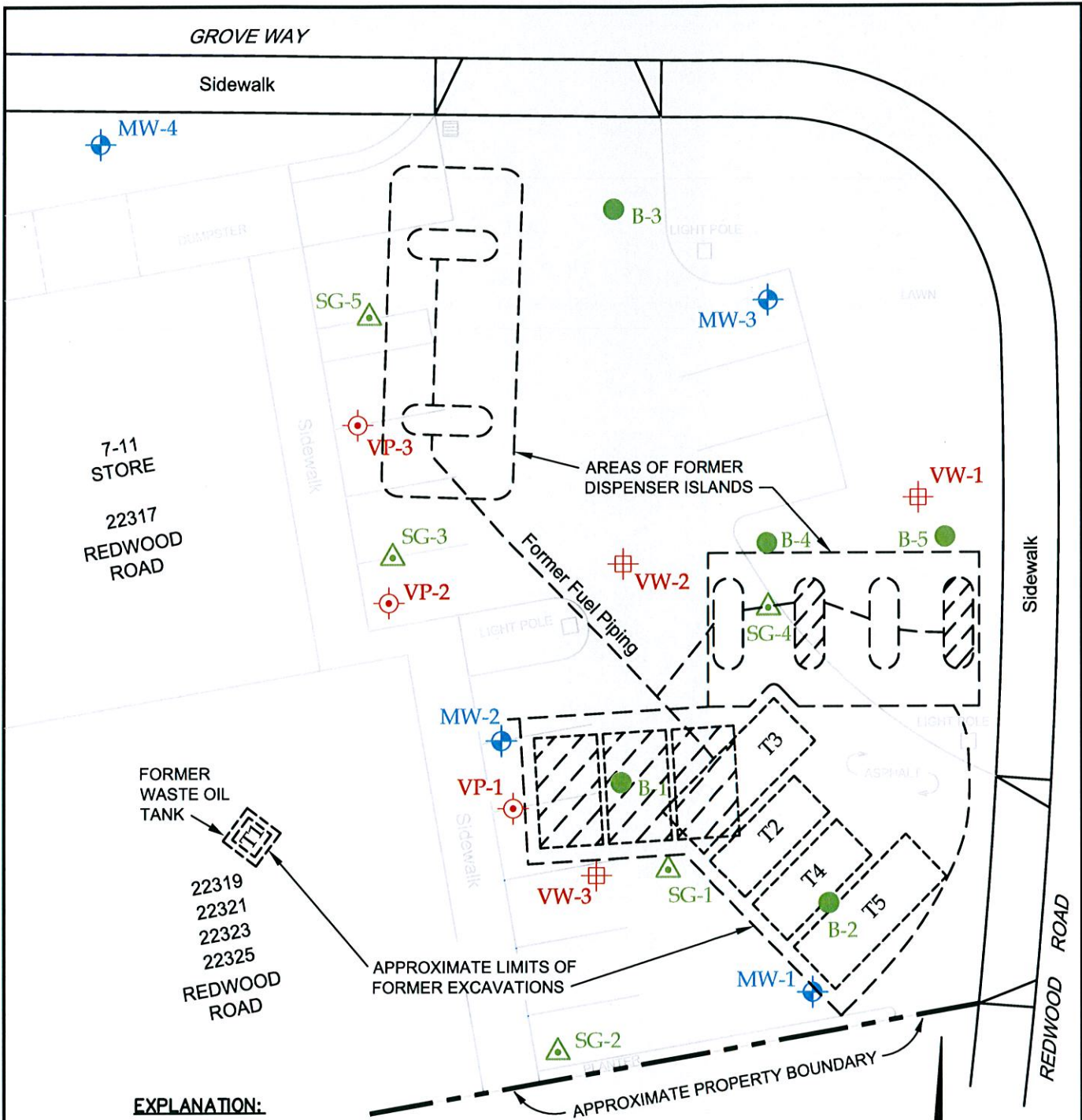
SITE LOCATION MAP

FORMER BEACON STATION NO. 12574  
 22315 REDWOOD ROAD  
 CASTRO VALLEY, CA.







FIGURE

1





**EXPLANATION:**


-  MW-6 Groundwater Monitoring Well
-  SG-7 Soil Gas Survey Sample Location
-  B-5 Boring Location
-  VW-3 Vapor Extraction Well
-  VP-3 Soil Vapor Probe
-  Former Shell USTs and Dispensers

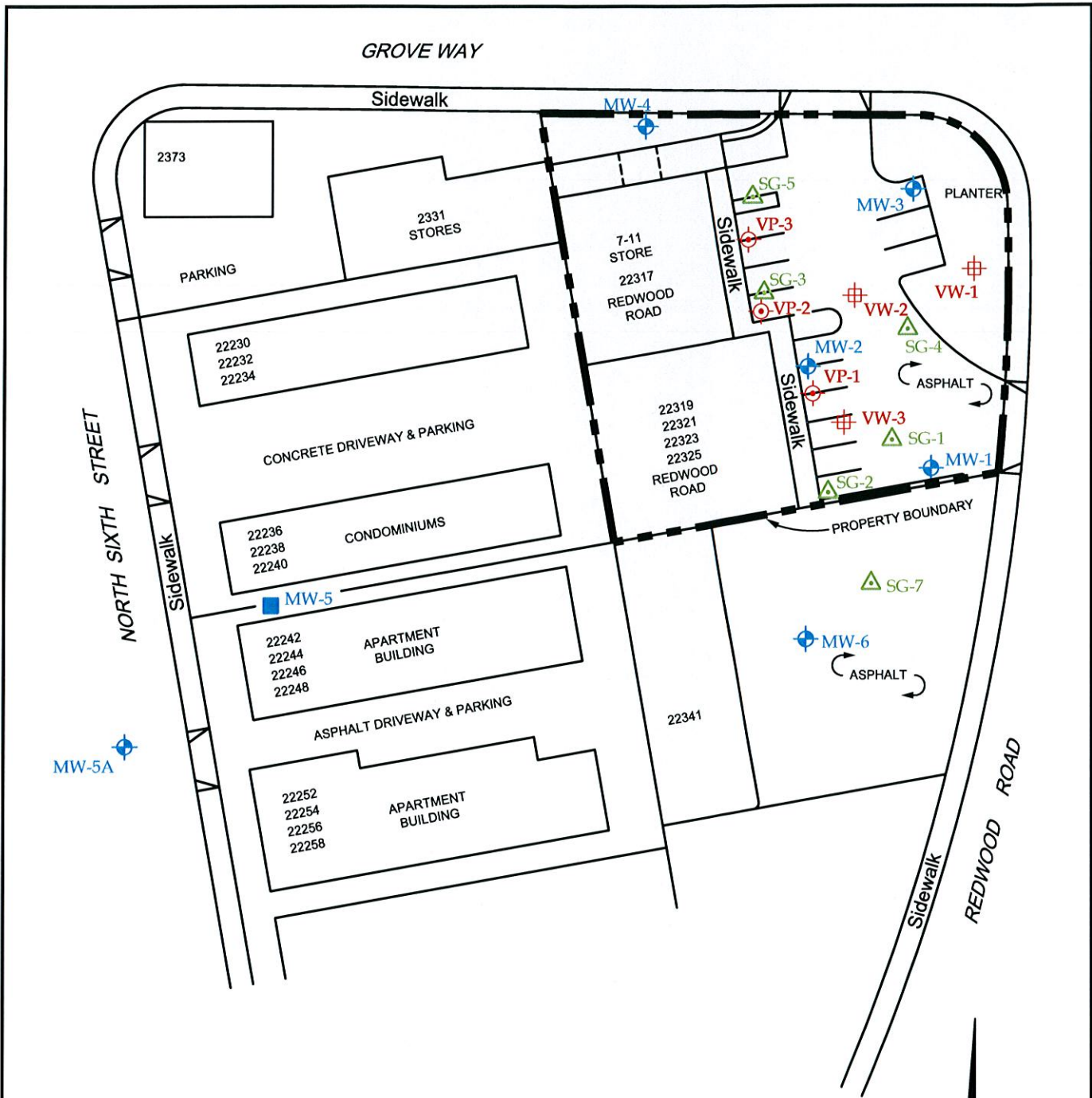
 SG-7








SCALE

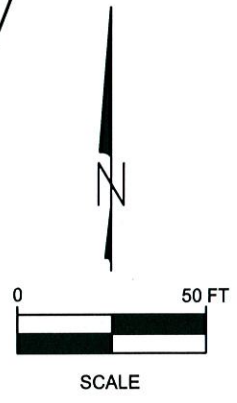
Source: Virgil Chavez Nov. 2010 Topo Survey, Shell Oil 1975 Map, and Aerial Photos

 <b>HORIZON ENVIRONMENTAL INC.</b>		<b>SITE MAP</b> FORMER BEACON STATION NO. 12574 22315 REDWOOD ROAD CASTRO VALLEY, CA.	<b>FIGURE</b>  <b>2</b>
			Project Number: 1574.13 Prepared By: E. Kruck Reviewed By: K. Mateik




**EXPLANATION:**

-  MW-6 Groundwater Monitoring Well
-  SG-7 Soil Gas Location
-  VW-3 Vapor Extraction Well
-  VP-3 Soil Vapor Probe
-  MW-5 Abandoned Monitoring Well

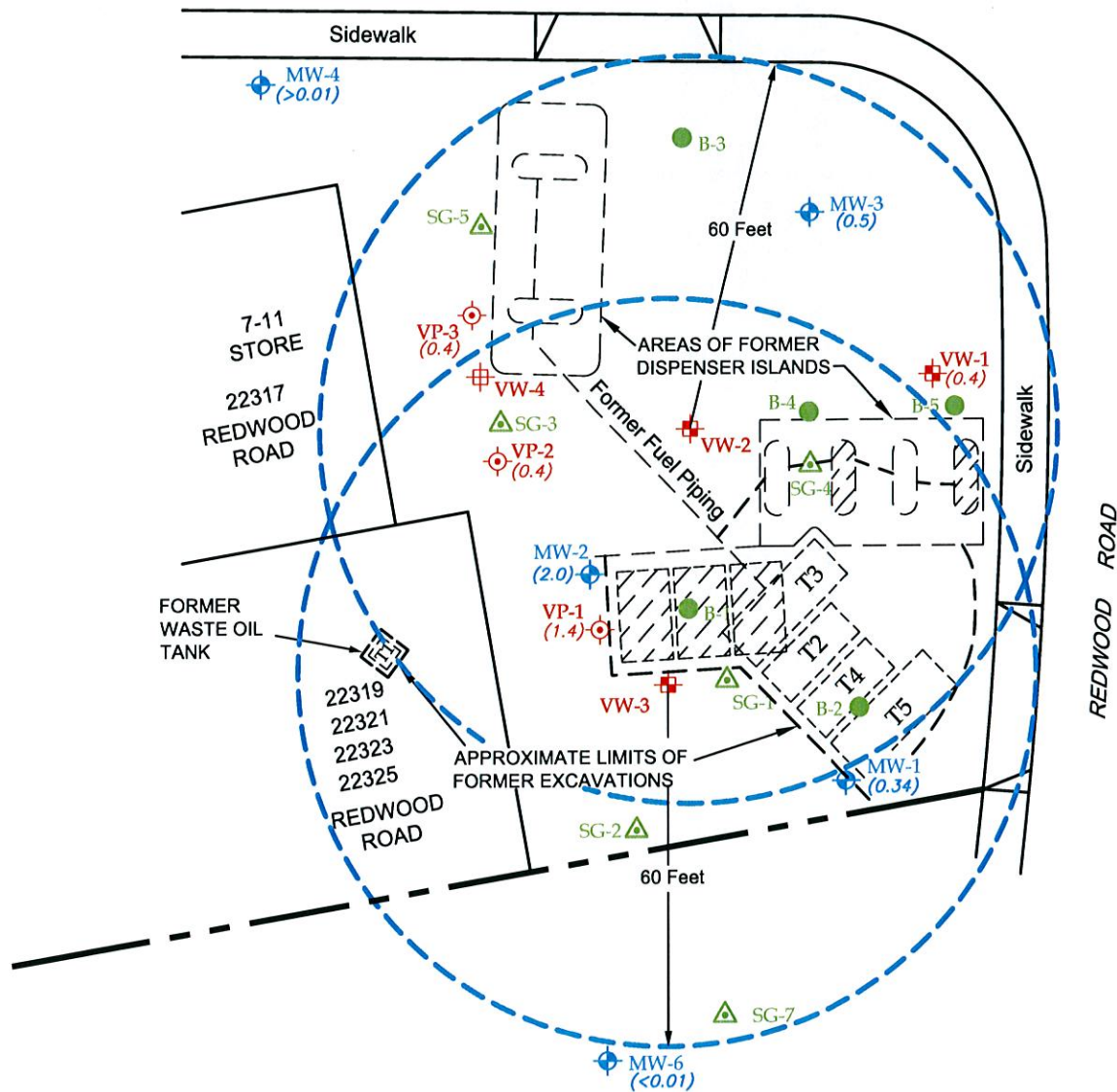


Source: Virgil Chavez Nov. 2010 Topo Survey, Shell Oil 1975 Map, and Aerial Photos

 <p><b>HORIZON ENVIRONMENTAL INC.</b></p>	<p><b>SITE AREA MAP</b></p> <p>FORMER BEACON STATION NO. 12574 22315 REDWOOD ROAD CASTRO VALLEY, CA.</p>	<p><u>FIGURE</u></p> <p><b>3</b></p>
	<p>Project Number: 1574.13 Prepared By: E. Kruck Reviewed By: K. Mateik</p>	<p>Drawn By: C. Bechtell Date: Revised Date:</p>

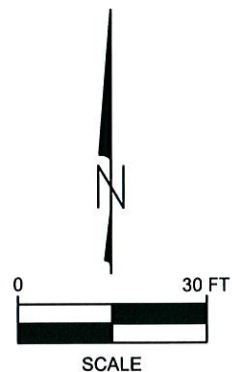


GROVE WAY



**EXPLANATION:**

- MW-6 Groundwater Monitoring Well
- SG-7 Soil Gas Survey Sample Location
- B-5 Boring Location
- VW-3 Vapor Extraction Well
- VP-3 Soil Vapor Probe
- Former Shell USTs and Dispensers
- Area of Vacuum Influence During VET
- Vacuum Influence Measured in Inches Water Column After 65 Hours of VET
- Proposed Additional Vapor Extraction Well



Source: Virgil Chavez Nov. 2010 Topo Survey and Aerial Photos



Project Number: 1574.13  
 Prepared By: E. Kruck  
 Reviewed By: K. Mateik

Drawn By: C. Bechtell  
 Date:  
 Revised Date:

VAPOR EXTRACTION RADIUS  
 OF INFLUENCE MAP  
 FORMER BEACON STATION NO. 12574  
 22315 REDWOOD ROAD  
 CASTRO VALLEY, CA.

FIGURE

4



**Table 1 - Vapor Extraction Test Field Data  
Former Beacon Station No. 12574  
22315 Redwood Road  
Castro Valley, California**

Extraction Well No.	Clock Time	Elapsed Time	TOTAL INFLUENT STREAM				VW-2 INFLUENT STREAM				VW-3 INFLUENT STREAM				EFFLUENT STREAM		
			Velocity (fpm)	Temp. (Degrees F)	Vacuum (inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	Vacuum (inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	Vacuum (inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	PID Reading (ppm)
<b>7/5/2011</b>	16:30	START															
	16:35	5 minutes	746	91	37	22,810											93
	16:40	10 minutes	843	91	30	22,640											100
<b>VW-2 (10' - 20' screen interval )</b>	16:45	15 minutes	772	91	30	21,360											106
	17:00	30 minutes	780	91	31	21,950			30	11,740			30	25,500			99
	17:30	60 minutes	715	89	30	19,810	1,609	90	28	17,030	2,174	93	31	23,350	5,153	141	101
	18:00	90 minutes	806	89	30	19,510	1,658	88	30	15,240	1,568	89	30	22,110	6,020	138	109
	18:30	120 minutes	776	89	30	17,420	1,766	89	30	14,070	1,764	88	30	21,400	5,895	140	89
	19:00	150 minutes	821	88	30	17,010	1,641	89	30	13,820	1,689	88	30	20,980	6,098	138	101
<b>VW-3 (15' - 20' screen interval )</b>	19:30	180 minutes	710	85	30	17,643	1,700	86	30	12,760	1,640	84	30	19,610	6,147	137	86
	20:00	210 minutes	680	83	30	16,170	1,672	82	30	12,280	1,714	82	30	19,130	5,922	135	102
	20:30	240 minutes	764	81	30	15,480	1,611	81	30	11,420	1,625	81	30	16,800	6,113	135	100
	21:00	270 minutes	748	80	30	15,611	1,665	80	30	11,270	1,657	80	30	15,880	5,775	134	99
	21:30	300 minutes	702	80	30	14,890	1,630	80	30	11,090	1,604	80	30	15,650	5,826	135	100
	22:00	5.5 hours	dilution closed 75%														
	22:30	6 hours	1,070	77	50	12,010	3,577	78	51	7,840	2,640	77	60	13,120	6,284	138	79
	23:30	7 hours	1,114	76	49	5,820	3,615	76	52	4,850	2,593	75	62	10,810	4,877	137	100
	0:00	7.5 hours	dilution closed 100%														
<b>7/6/2011</b>	0:30	8 hours	1,493	73	80	4,060	2,894	73	85	1,890	1,187	73	98	7,210	4,655	151	64
	1:30	9 hours	2,608	73	74	2,990	3,027	71	80	2,440	1,060	70	100	5,430	5,958	147	93
	2:30	10 hours	1,815	68	72	2,540	2,987	69	76	2,230	1,128	68	104	4,440	6,133	150	70
	3:30	11 hours	2,609	67	72	2,330	2,647	69	78	1,522	1,144	69	102	5,640	5,367	144	64
	4:30	12 hours	2,559	69	70	2,240	2,981	68	76	2,020	1,120	67	106	4,290	5,732	143	55
	5:30	13 hours	2,397	63	70	2,160	3,366	66	78	1,902	1,071	66	105	3,840	5,611	145	60
	6:30	14 hours	2,764	62	68	2,140	3,327	67	74	1,968	1,058	66	104	3,800	5,350	140	82
	7:30	15 hours	2,845	72	66	2,190	3,560	71	72	2,030	1,324	71	105	3,990	5,581	144	54
	8:30	16 hours	2,772	73	67	2,170	3,524	73	76	1,950	1,285	72	102	3,940	5,610	142	61
	9:30	17 hours	2,605	80	66	2,220	3,442	81	75	1,930	1,314	80	101	3,810	5,584	143	65
	10:30	18 hours	2,450	87	66	2,340	3,581	86	74	2,020	1,341	86	100	3,680	5,660	144	72
	11:30	19 hours	2,597	90	65	2,200	3,547	90	75	1,910	1,294	90	101	3,630	5,693	146	71

**Table 1 - Vapor Extraction Test Field Data  
Former Beacon Station No. 12574  
22315 Redwood Road  
Castro Valley, California**

Extraction Well No. DATE	Clock Time	Elapsed Time	TOTAL INFLUENT STREAM				VW-2 INFLUENT STREAM				VW-3 INFLUENT STREAM				EFFLUENT STREAM			
			Velocity (fpm)	Temp. (Degrees F)	Vacuum (Inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	Vacuum (Inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	Vacuum (Inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	PID Reading (ppm)	
7/6/2011	12:30	20 hours	2,462	91	65	2,260	3,235	92	74	2,090	1,146	91	102	3,560	5,520	150	82	
	13:30	21 hours	2,481	91	66	2,220	3,181	94	72	2,040	1,189	91	101	3,600	5,587	158	94	
	14:30	22 hours	2,398	93	65	2,190	2,990	95	72	2,020	1,095	92	103	3,590	5,478	163	100	
	15:30	23 hours	2,356	93	66	2,240	2,876	95	72	2,030	1,146	93	102	3,510	5,412	164	101	
	16:30	24 hours	2,378	92	65	2,210	2,991	93	70	2,180	1,378	92	102	3,580	5,877	166	97	
	17:30	25 hours	2,624	84	65	2,100	2,278	83	70	2,020	1,075	83	99	3,270	5,399	150	99	
	18:30	26 hours	2,607	82	63	2,060	2,504	83	70	1,989	1,222	82	104	2,910	5,192	154	77	
	19:30	27 hours	2,680	77	64	2,020	2,389	78	70	1,963	1,234	78	104	2,800	5,280	153	102	
	20:30	28 hours	2,407	75	64	2,050	2,200	76	70	1,810	1,091	78	105	3,470	5,524	146	90	
	21:30	29 hours	2,566	72	63	1,972	2,881	72	71	1,956	1,240	74	106	3,000	5,745	143	103	
	22:30	30 hours	2,790	70	63	2,030	2,465	70	72	1,954	1,188	68	106	2,600	5,516	140	98	
23:30	31 hours	2,620	70	64	2,090	2,259	69	72	1,976	1,130	68	106	2,780	5,290	142	104		
7/7/2011	0:30	32 hours	2,437	69	63	2,010	2,288	68	72	1,930	1,209	67	104	2,660	5,456	144	85	
	1:30	33 hours	2,548	68	63	2,070	2,216	66	72	1,911	1,238	65	102	2,610	5,490	143	110	
	2:30	34 hours	2,491	66	64	1,996	2,174	65	72	1,947	1,214	65	101	2,570	5,310	143	234	
	3:30	35 hours	2,562	64	64	1,971	2,120	63	71	1,892	1,259	64	101	2,640	5,421	142	318	
	VW-2 ( 10' - 20' screen interval )	4:30	36 hours	2,587	63	63	1,958	2,168	63	72	1,877	1,237	63	100	2,600	5,400	141	358
	5:30	37 hours	2,640	63	64	1,933	2,042	62	72	1,855	1,282	62	101	2,610	5,470	140	344	
	6:30	38 hours	2,631	63	63	2,013	2,084	63	72	1,888	1,256	63	100	2,597	5,519	140	381	
	7:30	39 hours	2,954	64	65	1,878	2,387	64	72	1,750	1,031	69	100	2,570	4,960	151	231	
	8:30	40 hours	2,640	75	62	1,992	2,270	77	70	1,775	1,303	73	100	2,490	6,081	144	457	
	9:30	41 hours	1,947	81	62	1,961	1,555	81	70	1,752	1,072	76	100	2,450	4,756	166	256	
	VW-3 ( 15' - 20' screen interval )	10:30	42 hours	3,120	92	62	1,961	2,197	90	70	1,781	1,022	81	100	2,430	4,850	175	478
	11:30	43 hours	1,987	91	62	1,966	1,555	91	70	1,774	1,011	88	100	2,350	8,900	155	510	
	12:30	44 hours	2,400	100	62	1,936	2,116	100	70	1,769	1,013	96	100	2,430	4,778	148	412	
	13:30	45 hours	2,876	94	62	1,924	2,141	96	70	1,731	1,026	93	100	2,396	4,950	138	449	
14:30	46 hours	2,984	94	60	1,869	2,804	94	70	1,750	1,058	87	100	2,300	4,973	173	225		
15:30	47 hours	2,440	87	60	1,943	1,982	88	70	1,745	1,088	85	100	2,180	5,387	176	458		

**Table 1 - Vapor Extraction Test Field Data  
Former Beacon Station No. 12574  
22315 Redwood Road  
Castro Valley, California**

Extraction Well No. DATE	Clock Time	Elapsed Time	TOTAL INFLUENT STREAM				VW-2 INFLUENT STREAM				VW-3 INFLUENT STREAM				EFFLUENT STREAM		
			Velocity (fpm)	Temp. (Degrees F)	Vacuum (inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	Vacuum (inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	Vacuum (inches of WC)	PID Reading (ppm)	Velocity (fpm)	Temp. (Degrees F)	PID Reading (ppm)
7/7/2011  VW-2 ( 10' - 20' screen interval )	16:30	48 hours	2,343	84	60	1,864	1,915	84	70	1,814	952	81	100	2,360	5,198	150	449
	17:30	49 hours	2,139	83	60	1,837	1,939	83	70	1,740	1,408	83	100	2,260	5,178	151	445
	18:30	50 hours	2,261	82	60	1,885	2,003	83	70	1,760	1,094	82	100	2,290	5,061	150	433
	19:30	51 hours	2,487	77	60	1,840	1,982	76	70	1,800	997	76	100	2,250	5,011	147	451
	20:30	52 hours	2,594	74	60	1,894	1,956	73	70	1,733	1,022	73	100	2,280	5,148	144	428
	21:30	53 hours	2,507	74	60	1,821	2,080	73	70	1,748	1,087	72	100	2,140	5,075	140	437
	22:30	54 hours	2,462	73	60	1,840	2,043	72	70	1,730	953	72	100	2,200	5,196	137	466
23:30	55 hours	2,853	71	60	1,810	2,670	70	70	1,684	1,083	71	100	2,180	4,944	136	523	
7/8/2011  VW-3 ( 15' - 20' screen interval )	0:30	56 hours	2,791	68	60	1,729	2,556	70	70	1,596	1,046	69	100	2,020	5,116	137	587
	1:30	57 hours	2,560	66	60	1,734	2,691	68	70	1,573	987	66	100	2,160	5,093	137	533
	2:30	58 hours	2,412	65	60	1,717	2,400	65	70	1,667	1,098	64	100	2,090	5,051	136	571
	3:30	59 hours	2,756	64	60	1,730	2,373	63	70	1,532	1,160	64	100	1,928	5,096	137	605
	4:30	60 hours	3,369	60	60	1,635	2,357	61	70	1,541	1,368	60	100	2,240	4,768	147	214
	5:30	61 hours	11,054	57	64	1,431	9,325	56	70	1,450	1,070	57	100	2,060	4,534	139	392
	6:30	62 hours	5,335	69	62	1,734	6,733	68	70	1,606	947	56	100	2,020	6,505	135	455
	7:30	63 hours	5,477	62	60	1,723	3,271	62	70	1,600	1,067	64	100	2,120	5,338	139	596
	8:30	64 hours	5,347	74	60	1,680	1,530	75	70	1,547	984	71	100	2,020	5,868	143	755
	9:30	65 hours	2,357	80	60	1,603	1,396	82	70	1,443	1,398	82	100	2,130	4,917	158	340
		END	OF	TEST			END	OF	TEST		END	OF	TEST		END	OF	

**Notes:**

ppm = parts per million  
fpm = feet per minute

WC = water column  
F = degrees Fahrenheit

**TABLE 2**  
**VET Radius of Influence Field Data**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

		<b>WELL #:</b>	<b>VP-1</b>	<b>VP-2</b>	<b>VP-3</b>	<b>MW-1</b>	<b>MW-2</b>	<b>MW-3</b>	<b>VW-1</b>	
		<b>Screened Interval</b>	5' - 8'	4.5' - 7.5'	4' - 8'	10' - 30'	10' - 30'	10' - 30'	10' - 20'	
		<b>Distance to VW-2</b>	40'	40'	47'	63'	30'	44'	47'	
<b>Date</b>	<b>Elapsed</b>	<b>Distance to VW-3</b>	17'	48'	73'	39'	22'	84'	70'	
<b>Time</b>	<b>Time</b>	<b>Vacuum Influence</b>	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	
7/5/2011 16:30	<b>START</b>	<b>VW-2</b> <b>( 10' - 20'</b> <b>screen</b> <b>interval )</b>	--	--	--	--	--	--	--	
16:35	5 minutes		0.11	0.02	0.00	0.03	0.31	0.05		
16:40	10 minutes		0.14	0.06	0.01	0.04	0.38	0.06		
16:45	15 minutes		0.14	0.03	0.01	0.03	0.35	0.04		
17:00	30 minutes		0.14	0.03	0.01	0.03	0.34	0.04		
17:30	60 minutes		0.14	0.04	0.01	0.03	0.36	0.04		
18:00	90 minutes		0.14	0.03	0.02	0.03	0.35	0.03		
18:30	120 minutes		0.14	0.03	0.02	0.04	0.32	0.04		
19:00	150 minutes		<b>VW-3</b> <b>( 15' - 20'</b> <b>screen</b> <b>interval )</b>	0.14	0.03	0.02	0.04	0.35	0.04	
20:00	210 minutes			0.14	0.03	0.02	0.03	0.36	0.04	
21:30	300 minutes	0.14		0.04	0.02	0.04	0.35	0.04	0.06	
22:30	6 hours	0.40		0.15	0.02	0.14	0.82	0.18	0.18	
23:30	7 hours	0.43		0.17	0.03	0.17	0.90	0.21	0.20	
7/6/2011 0:30	8 hours	0.76		0.22	0.03	0.18	1.3	0.30	0.42	
1:30	9 hours	0.80		0.24	0.03	0.22	1.4	0.34	0.40	
2:30	10 hours	0.85		0.32	0.04	0.22	1.3	0.36	0.44	
3:30	11 hours	0.85		0.36	0.04	0.26	1.3	0.37	0.44	
4:30	12 hours	0.98		0.34	0.02	0.28	1.5	0.42	0.42	
5:30	13 hours	0.82	0.40	0.03	0.33	1.5	0.38	0.44		
6:30	14 hours	0.85	0.43	0.01	0.24	1.5	0.40	0.44		
7:30	15 hours	0.68	0.40	0.02	0.26	1.4	0.38	0.43		
8:30	16 hours	0.72	0.40	0.02	0.28	1.4	0.38	0.44		
9:30	17 hours	0.72	0.40	0.02	0.29	1.4	0.40	0.43		
10:30	18 hours	0.71	0.40	0.02	0.28	1.5	0.40	0.44		



**TABLE 2**  
**VET Radius of Influence Field Data**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

		<b>WELL #:</b>	<b>VP-1</b>	<b>VP-2</b>	<b>VP-3</b>	<b>MW-1</b>	<b>MW-2</b>	<b>MW-3</b>	<b>VW-1</b>
		<b>Screened Interval</b>	5' - 8'	4.5' - 7.5'	4' - 8'	10' - 30'	10' - 30'	10' - 30'	10' - 20'
		<b>Distance to VW-2</b>	40'	40'	47'	63'	30'	44'	47'
<b>Date</b>	<b>Elapsed</b>	<b>Distance to VW-3</b>	17'	48'	73'	39'	22'	84'	70'
<b>Time</b>	<b>Time</b>	<b>Vacuum Influence</b>	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)
11:30	19 hours	<b>VW-2</b> <b>( 10'- 20'</b> <b>screen</b> <b>interval )</b>	0.72	0.40	0.02	0.29	1.4	0.40	0.44
12:30	20 hours		0.96	0.47	0.03	0.30	1.6	0.43	0.47
13:30	21 hours		1.10	0.59	0.03	0.34	1.8	0.46	0.49
14:30	22 hours		1.15	0.68	0.04	0.35	1.9	0.47	0.50
15:30	23 hours		1.16	0.66	0.04	0.35	1.9	0.46	0.50
16:30	24 hours		1.20	0.68	0.04	0.36	2.0	0.48	0.52
17:30	25 hours		1.1	0.60	0.04	0.33	1.85	0.46	0.50
18:30	26 hours		1.15	0.60	0.04	0.36	1.9	0.45	0.48
19:30	27 hours		1.2	0.64	0.03	0.35	1.85	0.48	0.47
20:30	28 hours		1.3	0.57	0.03	0.38	2.0	0.46	0.42
21:30	29 hours	1.2	0.60	0.03	0.36	2.0	0.48	0.50	
22:30	30 hours	nm	nm	nm	nm	nm	nm	nm	
23:30	31 hours	<b>VW-3</b> <b>( 15'- 20'</b> <b>screen</b> <b>interval )</b>	1.1	0.51	0.01	0.26	1.65	0.43	0.48
7/7/2011 0:30	32 hours		1.2	0.60	0.03	0.35	1.9	0.48	0.47
1:30	33 hours		1.3	0.59	0.03	0.34	1.9	0.47	0.48
2:30	34 hours		1.2	0.59	0.02	0.34	1.9	0.47	0.48
3:30	35 hours		1.2	0.58	0.03	0.35	2.0	0.48	0.49
4:30	36 hours		1.3	0.60	0.03	0.34	2.0	0.48	0.51
5:30	37 hours		1.2	0.58	0.03	0.34	2.0	0.47	0.53
6:30	38 hours		1.2	0.60	0.03	0.34	2.0	0.48	0.50
7:30	39 hours		1.1	0.63	0.02	0.34	2.0	0.46	0.54
8:30	40 hours		1.3	0.80	0.02	0.34	2.0	0.50	0.60
9:30	41 hours	1.1	0.60	0.02	0.40	1.9	0.50	0.60	
10:30	42 hours	1.2	0.50	0.02	0.40	1.9	0.50	0.60	
11:30	43 hours	1.2	0.60	0.02	0.40	2.0	0.50	0.60	
12:30	44 hours	1.4	0.60	0.02	0.40	1.9	0.50	0.55	

**TABLE 2**  
**VET Radius of Influence Field Data**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

		<b>WELL #:</b>	<b>VP-1</b>	<b>VP-2</b>	<b>VP-3</b>	<b>MW-1</b>	<b>MW-2</b>	<b>MW-3</b>	<b>VW-1</b>
		Screened Interval	5' - 8'	4.5' - 7.5'	4' - 8'	10' - 30'	10' - 30'	10' - 30'	10' - 20'
		Distance to VW-2	40'	40'	47'	63'	30'	44'	47'
<b>Date</b>	<b>Elapsed</b>	Distance to VW-3	17'	48'	73'	39'	22'	84'	70'
<b>Time</b>	<b>Time</b>	Vacuum Influence	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)	(" WC)
13:30	45 hours	<b>VW-2</b> <b>( 10'- 20'</b> <b>screen</b> <b>interval )</b>	1.4	0.60	0.02	0.35	2.0	0.40	0.50
14:30	46 hours		1.2	0.50	0.02	0.37	1.8	0.42	0.50
15:30	47 hours		1.4	0.50	0.02	0.35	2.0	0.40	0.50
16:30	48 hours		1.4	0.50	0.02	0.40	1.9	0.40	0.50
17:30	49 hours		1.4	0.63	0.02	0.34	2.2	0.54	0.50
18:30	50 hours		1.4	0.60	0.02	0.35	2.0	0.50	0.52
19:30	51 hours		1.4	0.62	0.02	0.35	2.0	0.50	0.50
20:30	52 hours		1.4	0.62	0.02	0.35	2.0	0.52	0.50
21:30	53 hours		1.3	0.60	0.02	0.35	2.0	0.50	0.52
22:30	54 hours		1.4	0.60	0.02	0.35	2.0	0.50	0.50
23:30	55 hours		1.4	0.60	0.02	0.35	2.0	0.51	0.52
7/8/2011 0:30	56 hours		1.3	0.60	0.03	0.36	2.0	0.51	0.51
1:30	57 hours		1.4	0.60	0.02	0.35	2.0	0.51	0.50
2:30	58 hours		1.4	0.60	0.01	0.36	2.0	0.51	0.50
3:30	59 hours		<b>VW-3</b> <b>( 15'- 20'</b> <b>screen</b> <b>interval )</b>	1.4	0.60	0.02	0.36	2.0	0.50
4:30	60 hours	1.4		0.30	0.00	0.12	0.6	0.09	0.10
5:30	61 hours	1.4		0.50	0.02	0.30	2.0	0.50	0.50
6:30	62 hours	1.2		0.40	0.02	0.60	1.9	0.50	0.50
7:30	63 hours	1.4		0.48	0.02	0.34	2.0	0.50	0.38
8:30	64 hours	1.4		0.50	0.02	0.34	2.0	0.50	0.40
9:30	65 hours	1.4		0.40	0.04	0.34	2.0	0.50	0.40
	<b>END</b>	<b>OF</b>		<b>TEST</b>					

Notes:

" WC = vacuum influence measured in inches of water column

Screened intervals are depths in feet below surface grade

40' = distance measured in feet

**Table 3 - VET Laboratory Analytical Vapor Data  
Former Beacon Station No. 12574  
22315 Redwood Road  
Castro Valley, California**

Sample Location	Sample Name	Date Collected	Elapsed Time (hours)	TPHg ppmv	Benzene ppmv	Toluene ppmv	Ethylbenz. ppmv	Xylenes ppmv	MTBE ppmv
Vapor Points Pre-VET	VP-1	07/05/11	0	320	<0.060	<0.050	<0.050	0.078	<0.10
	VP-2	07/05/11	0	1,900	<0.30	<0.25	14	2.0	<0.25
	VP-3	07/05/11	0	310	<0.050	<0.050	0.091	0.055	<0.10
VET	VW-2	07/05/11	2	7,200	14	6.2	6.2	8.6	<0.40
	VW-3	07/05/11	2	18,000	24	<0.25	20	3.8	<2.5
	VET-INF	07/05/11	2	13,000	22	5.4	12	5.8	<2.0
VET	VW-2	07/05/11	4	7,400	20	8.9	8.7	11	<4.0
	VW-3	07/05/11	4	14,000	25	<2.5	17	4.5	<2.5
	VET-INF	07/05/11	4	9,300	20	5.1	10	6.3	<2.0
VET	VW-2	07/06/11	8	1,800	2.5	1.1	4.9	5.5	<0.30
	VW-3	07/06/11	8	7,300	14	1.3	17	4.6	<1.5
	VET-INF	07/06/11	8	3,600	7.9	3.0	8.1	8.4	<0.50
VET	VW-2	07/08/11	64	2,000	7.4	4.9	9.2	18	<0.70
	VW-3	07/08/11	64	2,400	7.4	2.4	7.9	7.6	<0.40
	VET-EFF	07/08/11	64	340	0.12	<0.050	0.21	0.3	<0.10
Vapor Points Post-VET	VP-1	07/08/11	65	5.9	<0.050	<0.050	<0.050	<0.050	<0.10
	VP-2	07/08/11	65	5.6	<0.050	<0.050	<0.050	<0.050	<0.10
	VP-3	07/08/11	65	5.9	<0.050	<0.050	<0.050	0.070	<0.10

Notes: TPHg = Total Petroleum Hydrocarbons as gasoline  
MTBE = Methyl-t-butyl ether

ppmv = parts per million vapor

All samples analyzed by EPA Method 8260B

**TABLE 4**  
**Combined Hydrocarbon Recovery Data**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point			Vapor Parameters		Field-Based HC Recovery Data		Analytical-Based HC Recovery Data					
	Elapsed Time	Elapsed Time	Influent		HC Removal	Cumulative	Influent		Cumulative	Influent		Cumulative
			Flow	Influent HC	Rate	Mass	TPHg	Rate	Mass	Benzene	Rate	Mass
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)
7/5/2011  Combined Influent from Wells VW-2 and VW-3	START											
	0.1	5	35.2	22,810	284.7	1.0						
	0.2	10	39.8	22,640	319.3	2.1						
	0.3	15	36.4	21,360	275.9	3.1						
	0.5	30	36.8	21,950	286.4	6.0						
	1.0	60	33.9	19,810	237.8	11.0						
	1.5	90	38.2	19,510	264.0	16.5						
	2.0	120	36.8	17,420	227.0	21.2	<b>13,000</b>	169.4	14.0	<b>22</b>	0.24	0.020
	2.5	150	39.0	17,010	234.9	26.1						
	3.0	180	33.9	17,643	211.9	30.5						
	3.5	210	32.6	16,170	186.7	34.4						
	4.0	240	36.7	15,480	201.5	38.6	<b>9,300</b>	121.1	26.6	<b>20</b>	0.21	0.038
	4.5	270	36.0	15,611	199.3	42.8						
	5	300	33.8	14,890	178.4	46.5						
	6	360	51.8	12,010	220.6	55.7						
	7	420	54.1	5,820	111.5	60.3						
8	480	72.9	4,060	104.8	64.7	<b>3,600</b>	93.0	49.8	<b>7.9</b>	0.17	0.069	
9	540	127.3	2,990	134.9	70.3							
10	600	89.4	2,540	80.5	73.7							
7/6/2011	11	660	128.8	2,330	106.3	78.1						
	12	720	125.8	2,240	99.9	82.3						
	13	780	119.2	2,160	91.3	86.1						
	14	840	137.7	2,140	104.5	90.4						
	15	900	139.1	2,190	108.0	94.9						
	16	960	135.3	2,170	104.0	99.3						

**TABLE 4  
 Combined Hydrocarbon Recovery Data  
 Former Beacon Station No. 12574  
 Castro Valley, California**

Extraction Point			Vapor Parameters		Field-Based HC Recovery Data		Analytical-Based HC Recovery Data					
	Elapsed Time	Elapsed Time	Influent		HC Removal Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)
7/6/2011  Combined Influent from Wells VW-2 and VW-3	17	1,020	125.5	2,220	98.7	103.4						
	18	1,080	116.5	2,340	96.6	107.4						
	19	1,140	122.8	2,200	95.8	111.4						
	20	1,200	116.2	2,260	93.1	115.3						
	21	1,260	117.1	2,220	92.1	119.1						
	22	1,320	112.8	2,190	87.5	122.7						
	23	1,380	110.8	2,240	88.0	126.4						
	24	1,440	112.1	2,210	87.8	130.1						
	25	1,500	125.5	2,100	93.4	134.0						
	26	1,560	125.1	2,060	91.3	137.8						
	27	1,620	129.8	2,020	92.9	141.6						
	28	1,680	117.0	2,050	85.0	145.2						
	29	1,740	125.5	1,972	87.7	148.8						
	30	1,800	136.9	2,030	98.5	152.9						
7/7/2011	31	1,860	128.6	2,090	95.2	156.9						
	32	1,920	119.8	2,010	85.4	160.5						
	33	1,980	125.5	2,070	92.1	164.3						
	34	2,040	123.2	1,996	87.1	167.9						
	35	2,100	127.2	1,971	88.8	171.6						
	36	2,160	128.7	1,958	89.3	175.4						
	37	2,220	131.3	1,933	90.0	179.1						
	38	2,280	130.9	2,013	93.4	183.0						
	39	2,340	146.6	1,878	97.6	187.1						
	40	2,400	128.4	1,992	90.6	190.8						
	41	2,460	93.6	1,961	65.1	193.6						
	42	2,520	147.0	1,961	102.2	197.8						

**TABLE 4**  
**Combined Hydrocarbon Recovery Data**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point			Vapor Parameters		Field-Based HC Recovery Data		Analytical-Based HC Recovery Data					
	Elapsed Time	Elapsed Time	Influent		HC Removal Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)
7/7/2011  Combined Influent from Wells VW-2 and VW-3	43	2,580	93.8	1,966	65.4	200.5						
	44	2,640	111.5	1,936	76.5	203.7						
	45	2,700	135.0	1,924	92.1	207.6						
	46	2,760	140.1	1,869	92.8	211.4						
	47	2,820	116.0	1,943	79.9	214.7						
	48	2,880	112.0	1,864	74.0	217.8						
	49	2,940	102.5	1,837	66.7	220.6						
	50	3,000	108.5	1,885	72.5	223.6						
	51	3,060	120.5	1,840	78.6	226.9						
	52	3,120	126.4	1,894	84.8	230.4						
	53	3,180	122.1	1,821	78.8	233.7						
	54	3,240	120.2	1,840	78.4	237.0						
	55	3,300	139.8	1,810	89.7	240.7						
7/8/2011	56	3,360	137.5	1,729	84.3	244.2						
	57	3,420	126.6	1,734	77.8	247.5						
	58	3,480	119.5	1,717	72.7	250.5						
	59	3,540	136.8	1,730	83.9	254.0						
	60	3,600	168.5	1,635	97.7	258.1						
	61	3,660	556.2	1,431	282.1	269.8						
	62	3,720	262.3	1,734	161.2	276.5						
	63	3,780	272.9	1,723	166.7	283.5						
	64	3,840	260.5	1,680	155.1	289.9						
	65	3,900	113.5	1,603	64.5	292.6						
END OF TEST						293			470			0.84

Notes:

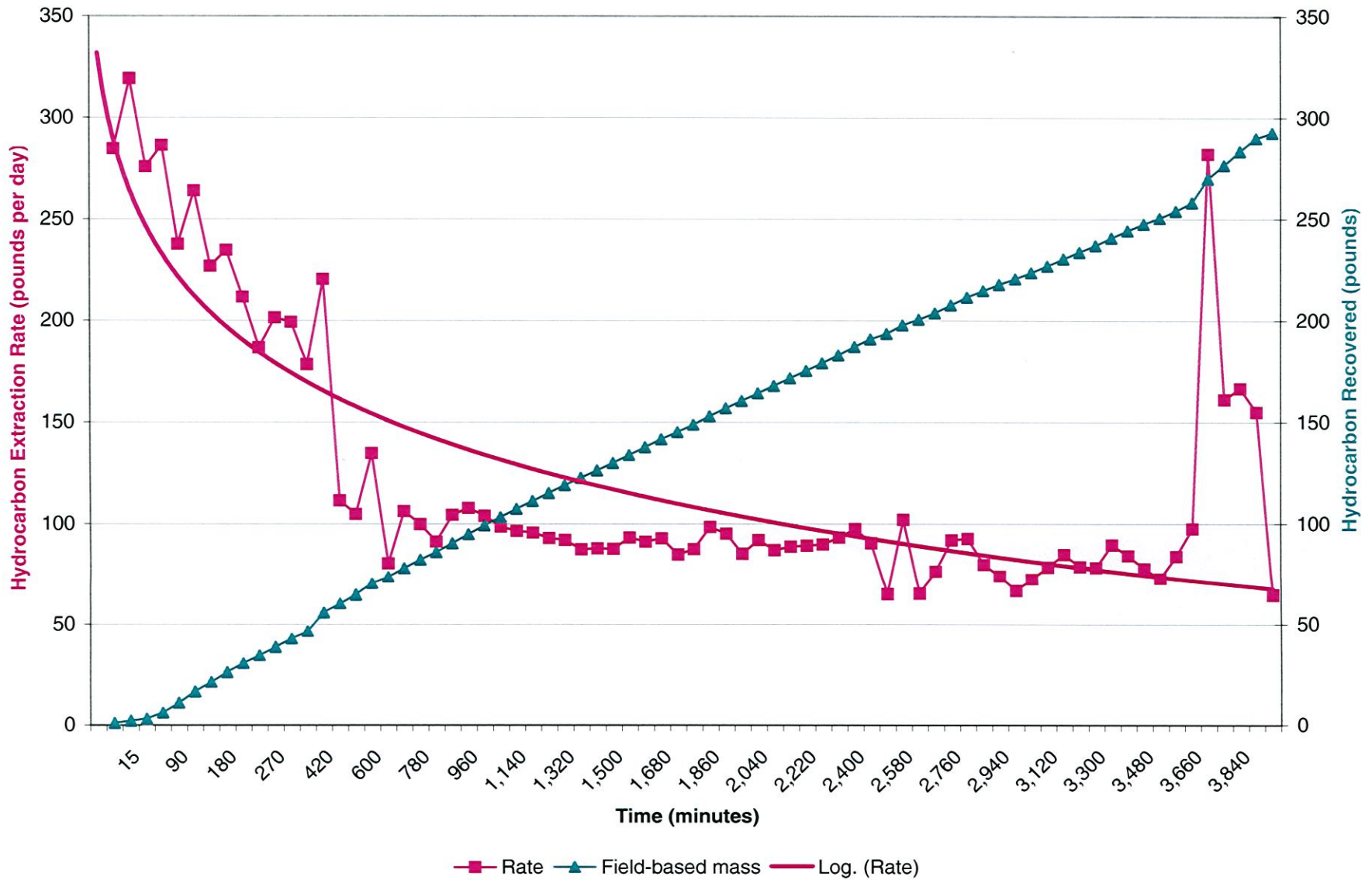
min = minutes    min = minutes  
scfm = standard cubic feet per minute  
ppm = parts per million

ppmv = parts per million by volume  
lbs = pounds  
HC = Hydrocarbons

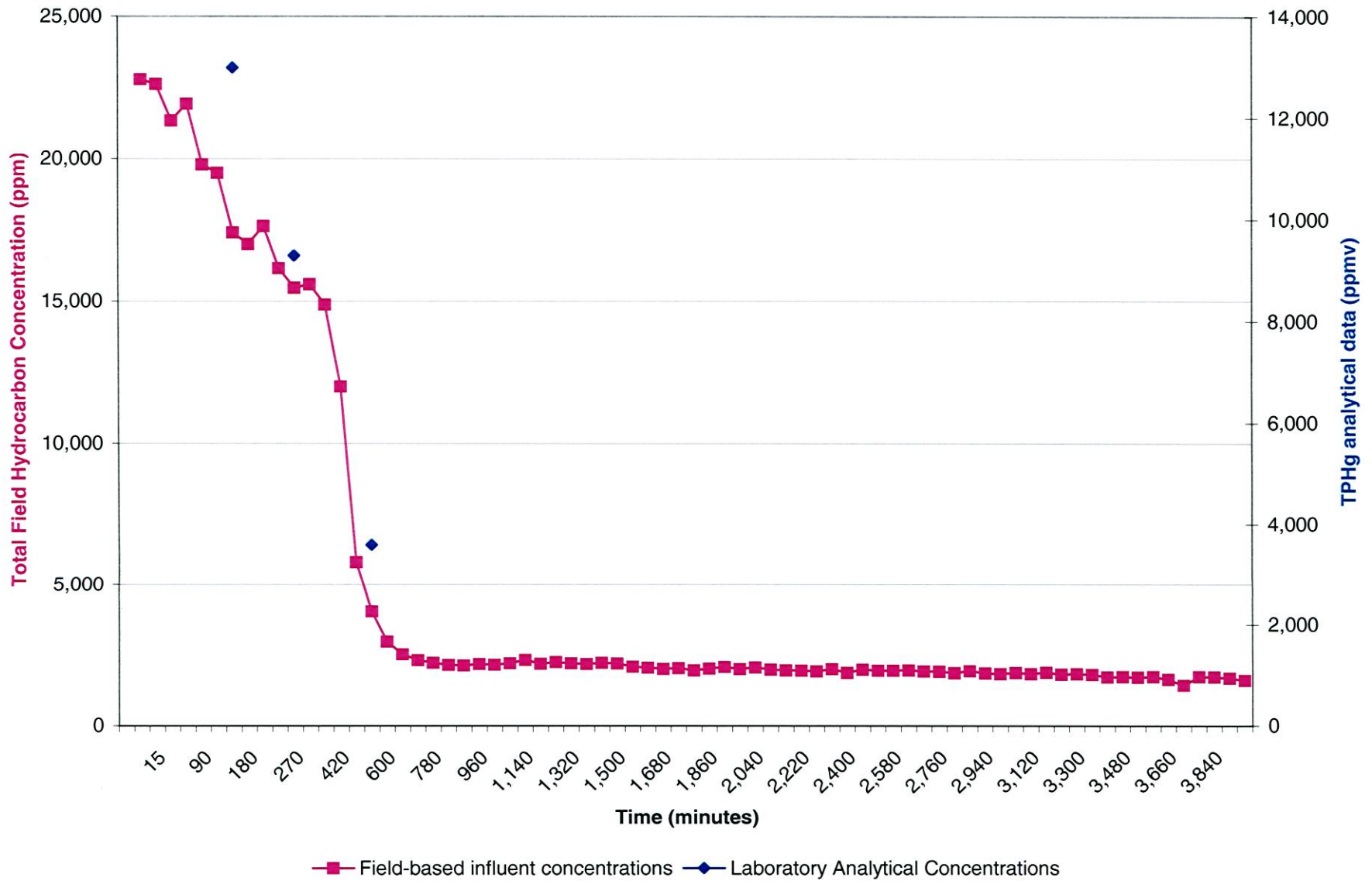
Laboratory analytical concentrations in **BOLD**.



**TABLE 4**  
**Hydrocarbon Mass Removal from VW-2 and VW-3 vs. Time**



**TABLE 4**  
**Influent Hydrocarbon Concentrations from VW-2 and VW-3 vs. Time**



**TABLE 5**  
**Hydrocarbon Recovery Data from VW-2**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point			Vapor Parameters		Field-Based HC Recovery Data		Analytical-Based HC Recovery Data					
	Elapsed Time	Elapsed Time	Influent		Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)
7/5/2011       <b>VW-2</b>	START											
	0.1	5										
	0.2	10										
	0.3	15										
	0.5	30										
	1.0	60	76.2	17,030	460.1	9.6						
	1.5	90	78.6	15,240	424.3	18.4						
	2.0	120	83.7	14,070	417.2	27.1	<b>7,200</b>	213.5	12.7	<b>14</b>	0.34	0.020
	2.5	150	77.9	13,820	381.5	35.1						
	3.0	180	81.1	12,760	366.9	42.7						
	3.5	210	80.1	12,280	348.6	50.0						
	4.0	240	77.5	11,420	313.5	56.5	<b>7,400</b>	203.1	29.6	<b>20</b>	0.45	0.050
	4.5	270	80.2	11,270	320.3	63.2						
	5	300	78.5	11,090	308.6	69.6						
	6	360	173.3	7,840	481.4	89.7						
	7	420	175.4	4,850	301.6	102.2						
	8	480	141.2	1,890	94.6	106.2	<b>1,800</b>	90.1	80.1	<b>2.5</b>	0.10	0.158
9	540	147.7	2,440	127.7	111.5							
10	600	147.2	2,230	116.3	116.3							
7/6/2011     <b>VW-2</b>	11	660	130.7	1,522	70.5	119.3						
	12	720	146.6	2,020	104.9	123.6						
	13	780	167.4	1,902	112.9	128.4						
	14	840	165.8	1,968	115.6	133.2						
	15	900	174.1	2,030	125.2	138.4						
	16	960	172.0	1,950	118.9	143.3						

**TABLE 5**  
**Hydrocarbon Recovery Data from VW-2**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point			Vapor Parameters		Field-Based HC Recovery Data		Analytical-Based HC Recovery Data					
	Elapsed Time	Elapsed Time	Influent		Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)
7/6/2011	17	1,020	165.8	1,930	113.4	148.1						
	18	1,080	170.3	2,020	121.9	153.1						
	19	1,140	167.7	1,910	113.6	157.9						
	20	1,200	152.7	2,090	113.1	162.6						
	21	1,260	150.2	2,040	108.6	167.1						
	22	1,320	140.6	2,020	100.7	171.3						
	23	1,380	135.3	2,030	97.3	175.4						
	24	1,440	140.9	2,180	108.9	179.9						
	25	1,500	108.9	2,020	78.0	183.2						
	26	1,560	120.2	1,989	84.7	186.7						
	27	1,620	115.7	1,963	80.5	190.0						
	28	1,680	107.0	1,810	68.6	192.9						
	29	1,740	140.9	1,956	97.7	197.0						
	30	1,800	121.0	1,954	83.8	200.5						
7/7/2011	31	1,860	110.9	1,976	77.6	203.7						
	32	1,920	112.5	1,930	77.0	206.9						
	33	1,980	109.2	1,911	73.9	210.0						
	34	2,040	107.5	1,947	74.2	213.1						
	35	2,100	105.2	1,892	70.6	216.0						
	36	2,160	107.8	1,877	71.7	219.0						
VW-2	37	2,220	101.6	1,855	66.8	221.8						
	38	2,280	103.7	1,888	69.4	224.7						
	39	2,340	118.5	1,750	73.5	227.7						
	40	2,400	110.4	1,775	69.4	230.6						
	41	2,460	74.8	1,752	46.4	232.6						
	42	2,520	103.5	1,781	65.3	235.3						

**TABLE 5**  
**Hydrocarbon Recovery Data from VW-2**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point			Vapor Parameters		Field-Based HC Recovery Data		Analytical-Based HC Recovery Data						
	Elapsed Time	Elapsed Time	Influent		Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass	
			Flow	Influent HC			TPHg	Rate		Benzene	Rate		
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	
7/7/2011	43	2,580	73.4	1,774	46.2	237.2							
	44	2,640	98.3	1,769	61.6	239.8							
	45	2,700	100.5	1,731	61.7	242.3							
	46	2,760	131.7	1,750	81.7	245.7							
	47	2,820	94.2	1,745	58.3	248.2							
	48	2,880	91.6	1,814	58.9	250.6							
	49	2,940	92.9	1,740	57.3	253.0							
	50	3,000	96.1	1,760	60.0	255.5							
	51	3,060	96.0	1,800	61.2	258.1							
	52	3,120	95.3	1,733	58.5	260.5							
	53	3,180	101.3	1,748	62.8	263.1							
	54	3,240	99.7	1,730	61.1	265.7							
	55	3,300	130.8	1,684	78.1	268.9							
7/8/2011	56	3,360	125.9	1,596	71.2	271.9							
	57	3,420	133.1	1,573	74.2	275.0							
	VW-2	58	3,480	118.9	1,667	70.3	277.9						
		59	3,540	117.8	1,532	64.0	280.6						
		60	3,600	117.9	1,541	64.4	283.2						
		61	3,660	469.2	1,450	241.1	293.3						
		62	3,720	331.1	1,606	188.4	301.1						
		63	3,780	163.0	1,600	92.4	305.0						
		64	3,840	74.5	1,547	40.9	306.7	<b>2,000</b>	52.8	277.2	<b>7.4</b>	0.16	0.387
		65	3,900	67.2	1,443	34.4	308.1						
END OF TEST					308			279			0.39		

Notes:

min = minutes min = minutes

scfm = standard scfm = standard cubic feet per minute

ppm = parts per ppm = parts per million

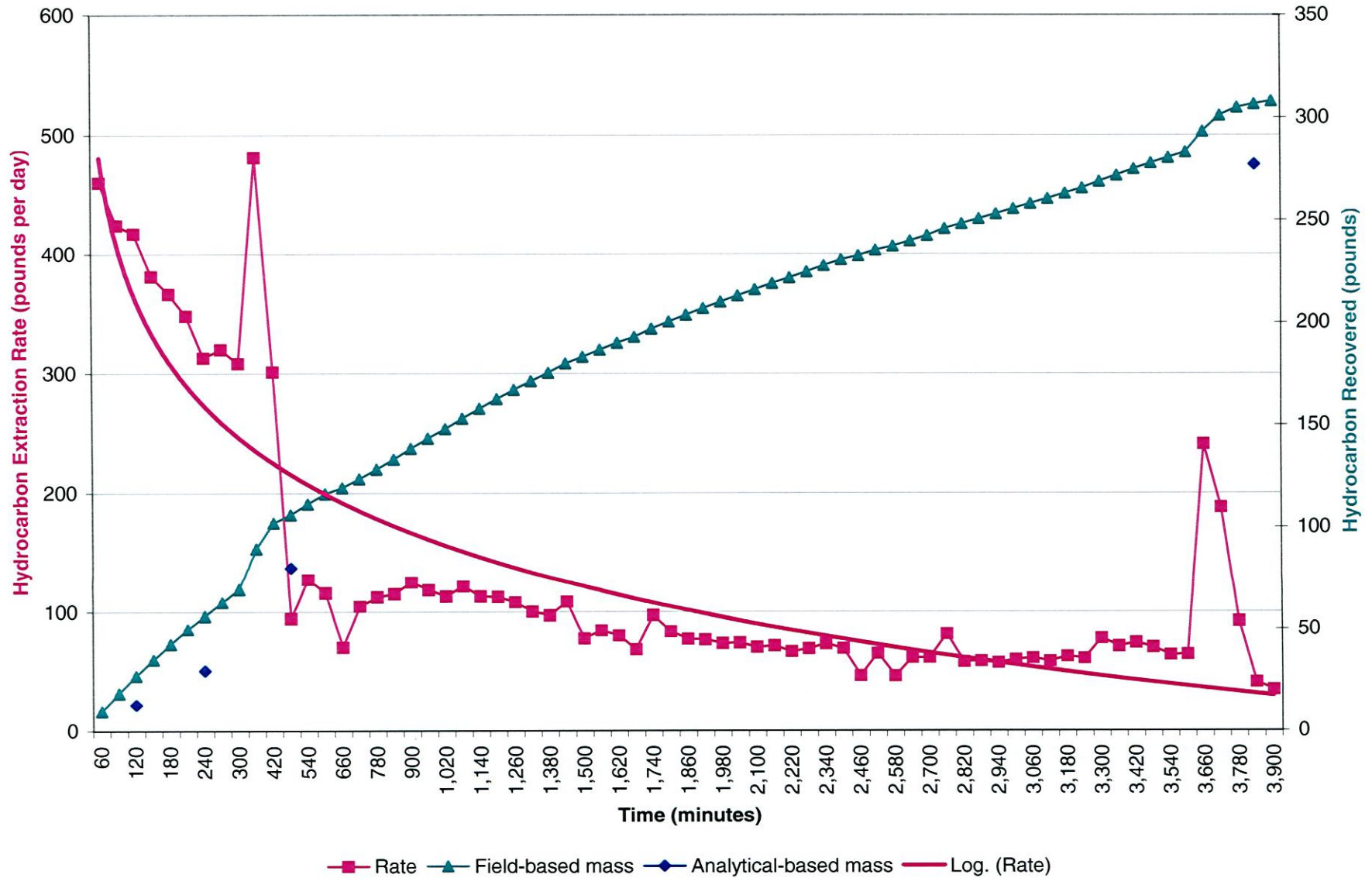
ppmv = parts per million by volume

lbs = pounds

HC = Hydrocarbons

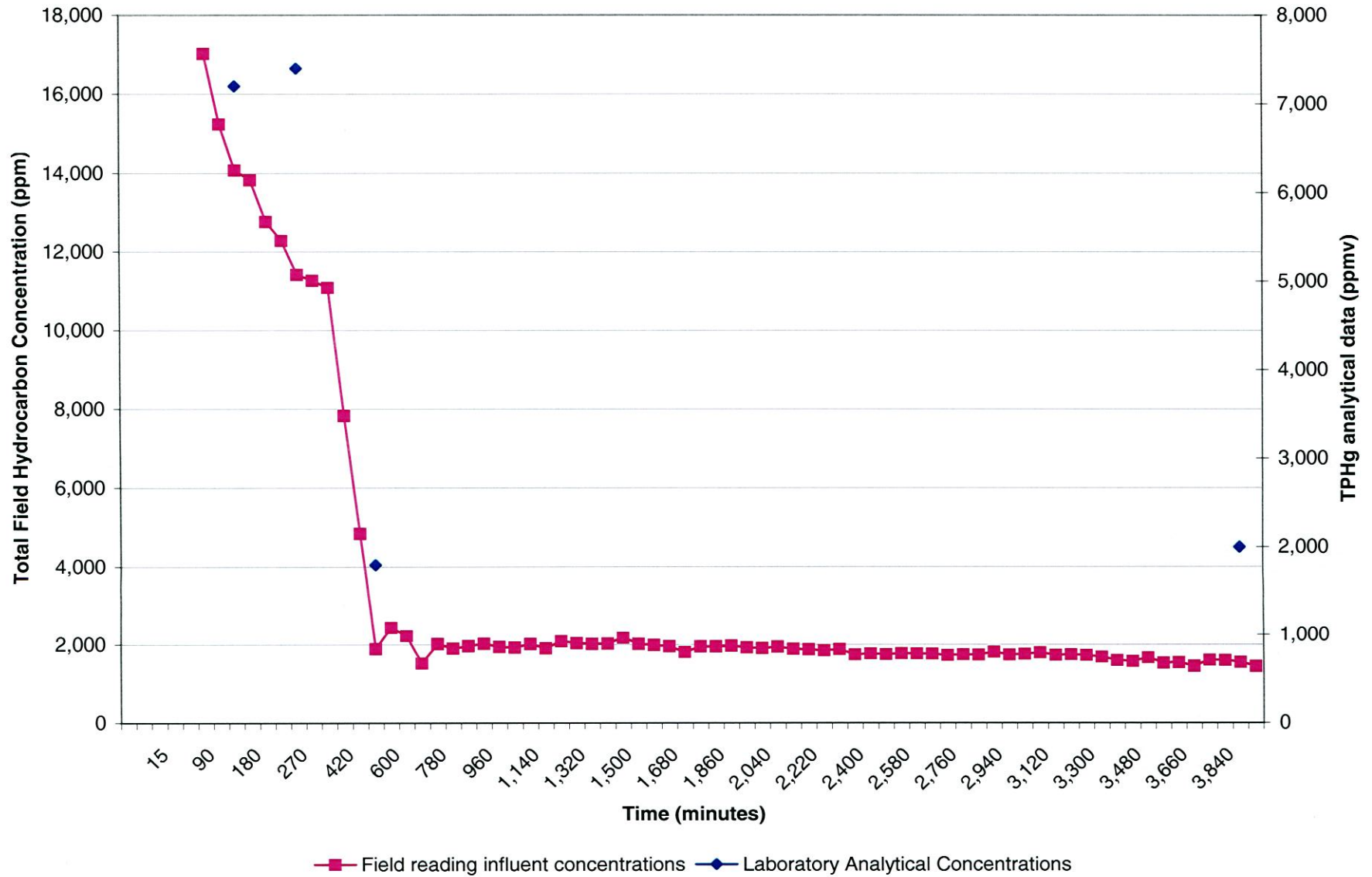
Laboratory analytical concentrations in **BOLD**.

**TABLE 5**  
**Hydrocarbon Mass Removal from VW-2 vs. Time**





### Influent Hydrocarbon Concentrations from VW-2 vs. Time



**TABLE 6**  
**Hydrocarbon Recovery Data from VW-3**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point			Vapor Parameters		Field-based HC Recovery Data		Analytical-based HC Recovery Data					
	Elapsed Time	Elapsed Time	Influent		Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
	(hours)	(min)	(scfm)	(ppm)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)	(ppmv)	(lbs / day)	(lbs)
7/5/2011     <b>VW-3</b>	START		0	0	0	0	0	0	0	0	0	0
	0.1	5	--	--	--	--						
	0.2	10	--	--	--	--						
	0.3	15	--	--	--	--						
	0.5	30	--	--	--	--						
	1.0	60	102.3	23,350	846.2	17.6						
	1.5	90	74.3	22,110	582.1	29.8						
	2.0	120	83.7	21,400	635.0	43.0	<b>18,000</b>	534.1	34.6	<b>24</b>	0.58	0.038
	2.5	150	80.2	20,980	596.1	55.4						
	3.0	180	78.4	19,610	545.0	66.8						
	3.5	210	82.3	19,130	557.7	78.4						
	4.0	240	78.1	16,800	465.2	88.1	<b>14,000</b>	387.7	74.7	<b>25</b>	0.57	0.085
	4.5	270	79.8	15,880	449.2	97.4						
	5	300	77.3	15,650	428.5	106.4						
	6	360	127.9	13,120	594.6	131.1						
	7	420	126.1	10,810	483.0	151.3						
	8	480	57.9	7,210	148.0	157.4	<b>7,300</b>	149.9	149.7	<b>14</b>	0.24	0.176
	9	540	52.0	5,430	100.1	161.6						
	10	600	55.6	4,440	87.4	165.2						
	11	660	56.3	5,640	112.4	169.9						
7/6/2011   <b>VW-3</b>	12	720	55.3	4,290	84.1	173.4						
	13	780	53.0	3,840	72.1	176.4						
	14	840	52.3	3,800	70.5	179.4						
	15	900	64.9	3,990	91.7	183.2						
	16	960	62.8	3,940	87.7	186.8						

**TABLE 6**  
**Hydrocarbon Recovery Data from VW-3**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point	Elapsed Time	Elapsed Time	Vapor Parameters		Field-based HC Recovery Data		Analytical-based HC Recovery Data					
			Influent		Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
7/6/2011	17	1,020	63.3	3,810	85.5	190.4						
	18	1,080	63.9	3,680	83.3	193.9						
	19	1,140	61.2	3,630	78.7	197.2						
	20	1,200	54.1	3,560	68.3	200.0						
	21	1,260	56.1	3,600	71.6	203.0						
	22	1,320	51.6	3,590	65.6	205.7						
	23	1,380	53.9	3,510	67.1	208.5						
	24	1,440	64.9	3,580	82.4	211.9						
	25	1,500	51.5	3,270	59.7	214.4						
	26	1,560	58.6	2,910	60.5	217.0						
	27	1,620	59.7	2,800	59.2	219.4						
	28	1,680	52.7	3,470	64.9	222.1						
	29	1,740	60.4	3,000	64.2	224.8						
	30	1,800	58.5	2,600	53.9	227.0						
7/7/2011	31	1,860	55.7	2,780	54.9	229.3						
	32	1,920	59.7	2,660	56.3	231.7						
	33	1,980	61.3	2,610	56.7	234.0						
	34	2,040	60.2	2,570	54.8	236.3						
	35	2,100	62.5	2,640	58.5	238.8						
	36	2,160	61.5	2,600	56.7	241.1						
VW-3	37	2,220	63.9	2,610	59.1	243.6						
	38	2,280	62.5	2,597	57.5	246.0						
	39	2,340	50.7	2,570	46.2	247.9						
	40	2,400	63.6	2,490	56.1	250.2						
	41	2,460	52.0	2,450	45.2	252.1						
	42	2,520	49.1	2,430	42.3	253.9						

**TABLE 6**  
**Hydrocarbon Recovery Data from VW-3**  
**Former Beacon Station No. 12574**  
**Castro Valley, California**

Extraction Point	Elapsed Time	Elapsed Time	Vapor Parameters		Field-based HC Recovery Data		Analytical-based HC Recovery Data					
			Influent		Rate	Cumulative Mass	Influent		Cumulative Mass	Influent		Cumulative Mass
			Flow	Influent HC			TPHg	Rate		Benzene	Rate	
7/7/2011	43	2,580	48.0	2,350	40.0	255.6						
	44	2,640	47.4	2,430	40.8	257.3						
	45	2,700	48.3	2,396	41.0	259.0						
	46	2,760	50.3	2,300	41.0	260.7						
	47	2,820	51.9	2,180	40.1	262.3						
	48	2,880	45.8	2,360	38.3	263.9						
	49	2,940	67.4	2,260	54.0	266.2						
	50	3,000	52.5	2,290	42.6	268.0						
	51	3,060	48.4	2,250	38.6	269.6						
	52	3,120	49.9	2,280	40.3	271.3						
	53	3,180	53.2	2,140	40.3	272.9						
	54	3,240	46.6	2,200	36.3	274.4						
	55	3,300	53.1	2,180	41.0	276.2						
7/8/2011 VW-3	56	3,360	51.4	2,020	36.8	277.7						
	57	3,420	48.8	2,160	37.4	279.2						
	58	3,480	54.5	2,090	40.4	280.9						
	59	3,540	57.6	1,928	39.3	282.6						
	60	3,600	68.4	2,240	54.3	284.8						
	61	3,660	53.8	2,060	39.3	286.5						
	62	3,720	47.7	2,020	34.2	287.9						
	63	3,780	53.0	2,120	39.8	289.5						
	64	3,840	48.2	2,020	34.5	291.0	<b>2,400</b>	<b>41.0</b>	<b>481.6</b>	<b>7.4</b>	<b>0.10</b>	<b>0.699</b>
	65	3,900	67.1	2,130	50.6	293.1						
END OF TEST						293			484			0.71

Notes:

min = minutes    min = minutes

scfm = standard scfm = standard cubic feet per minute

ppm = parts per million    ppm = parts per million

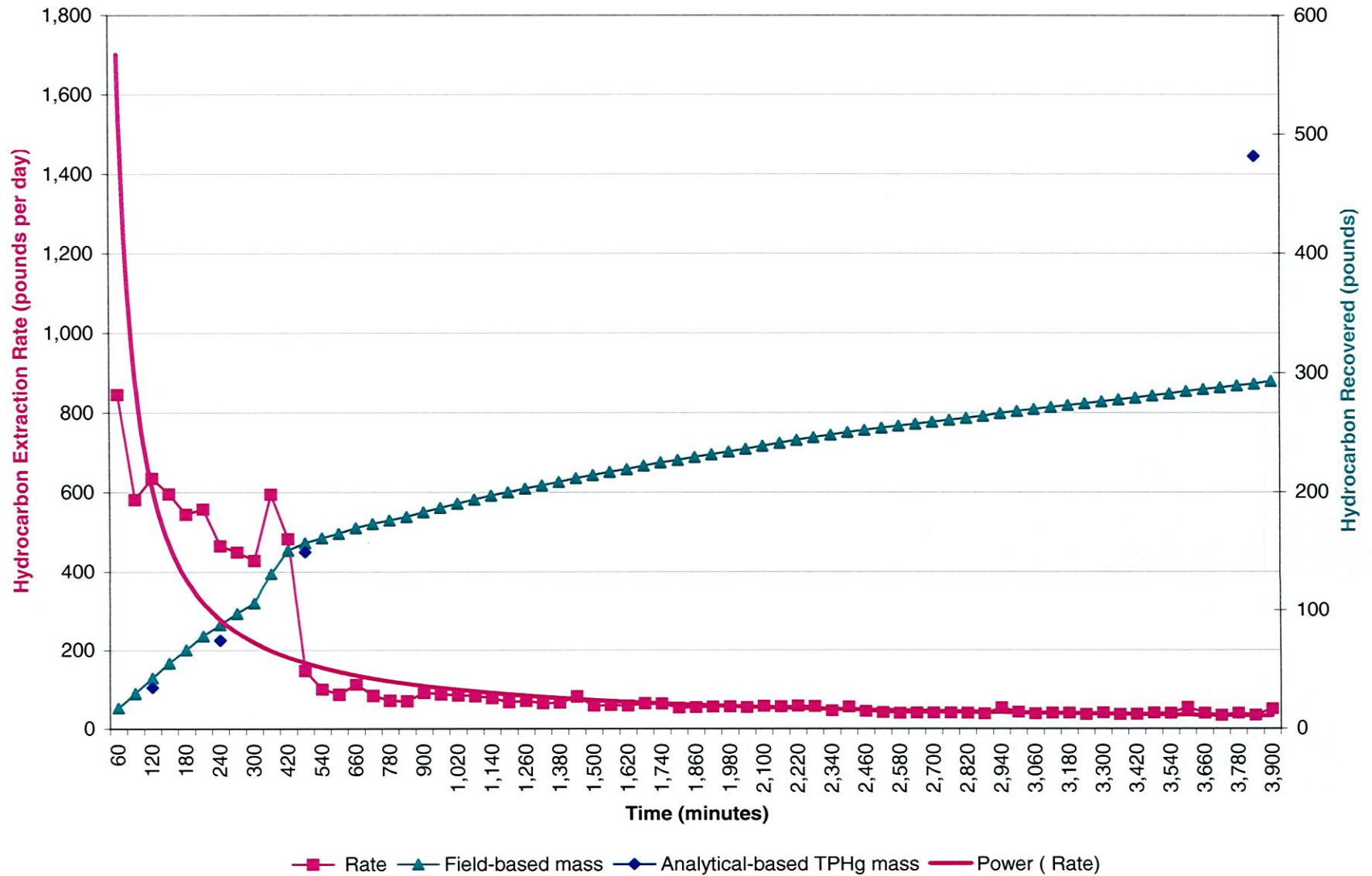
ppmv = parts per million by volume

lbs = pounds

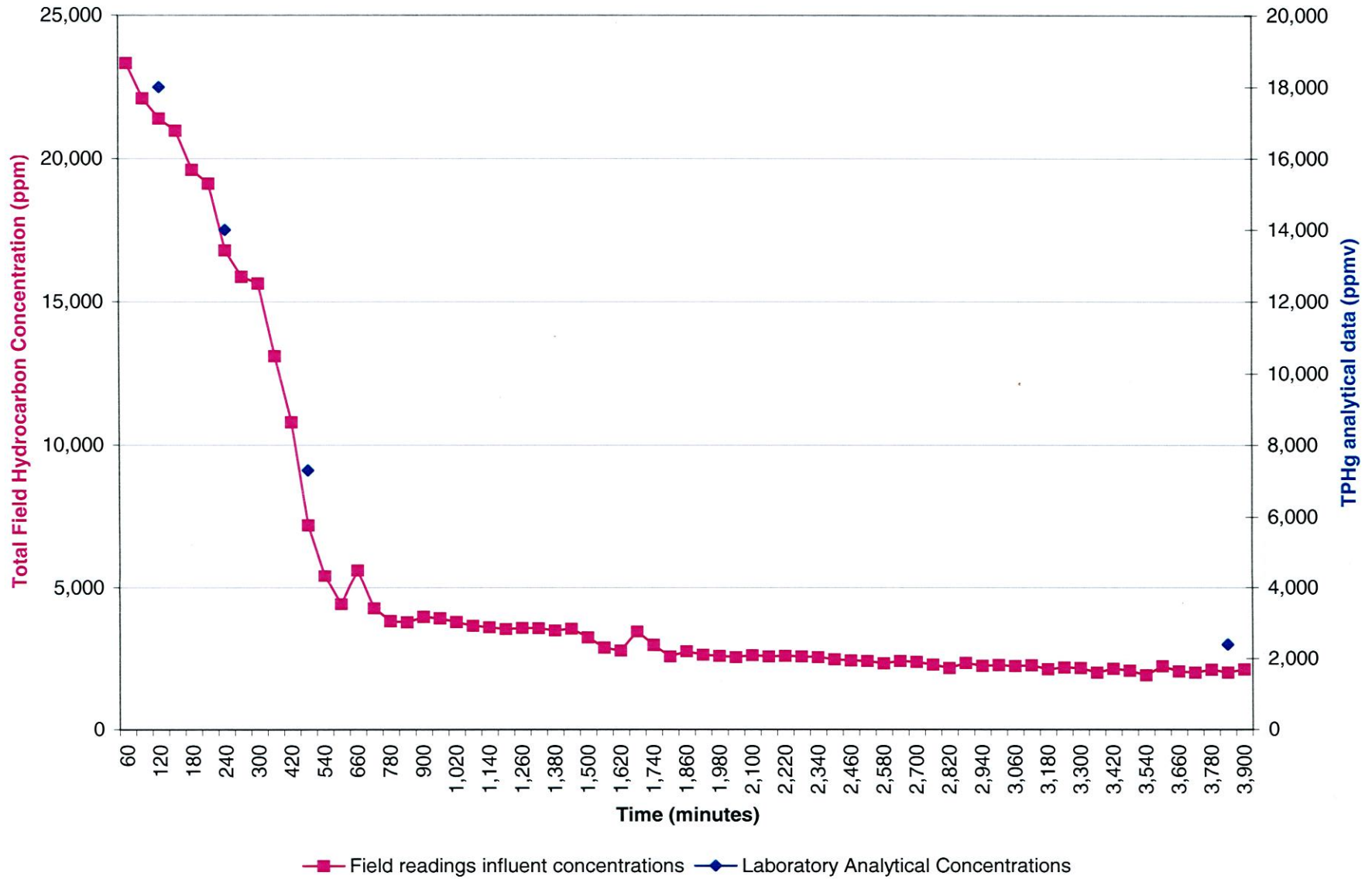
HC = Hydrocarbons

Laboratory analytical concentrations in **BOLD**.

**TABLE 6**  
**Hydrocarbon Mass Removal from VW-3 vs. Time**



**TABLE 6**  
**Influent Hydrocarbon Concentrations from VW-3 vs. Time**







ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
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May 23, 2011

Mr. C. Shay Wideman  
Ultramar, Inc.  
One Valero Way  
San Antonio, TX 78249-1616

Castro Group LLC  
2021 Francisco Street  
Berkeley, CA 94709-2213

Ms. Mary Moore  
EMB Group LLC & Mary Moore  
Re Trust 611 Marlin Court  
Redwood City, CA 94065-1214

Mr. Allen Shin  
Banya Investments LLC  
3011 Cabrillo Avenue  
San Ramon, CA 94583

Mr. Paul Wilson  
1238 Stanyan Street  
San Francisco, CA 94117

Subject: Work Plan Approval for Fuel Leak Case No. RO0000355 and GeoTracker Global ID T0600100155, Beacon #12574, 22315 Redwood Road, Castro Valley, CA 94546

Dear Mr. Wideman, Castro Group LLC, Ms. Moore, Mr. Shin, and Mr. Wilson:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site including the recently submitted document entitled, "*Vapor Extraction Testing Work Plan, Former Beacon Station No. 12574, 22315 Redwood Road, Castro Valley, CA,*" dated April 26, 2011 (Work Plan). The Work Plan, which was prepared on your behalf by Horizon Environmental, Inc., presents plans for conducting a maximum 5-day pilot test to evaluate soil vapor extraction as a potential remedial technology for the site.

The proposed scope of work is acceptable and may be implemented as proposed. We request that you perform the proposed work and send us the reports described below.

#### **TECHNICAL REPORT REQUEST**

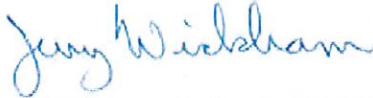
Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **September 7, 2011** – Soil Vapor Extraction Pilot Test Report
- **October 19, 2011** – Third Quarter 2011, Semi-Annual Groundwater Monitoring Report
- **April 21, 2012** – First Quarter 2012, Semi-Annual Groundwater Monitoring Report

Responsible Parties  
RO0000355  
May 23, 2011  
Page 2

If you have any questions, please call me at 510-567-6791 or send me an electronic mail message at [jerry.wickham@acgov.org](mailto:jerry.wickham@acgov.org).

Sincerely,



Digitally signed by Jerry Wickham  
DN: cn=Jerry Wickham, o=Alameda County  
Environmental Health, ou,  
email=jerry.wickham@acgov.org, c=US  
Date: 2011.05.24 08:08:10 -07'00'

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297  
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Gary Barker, Horizon Environmental, Inc., 4970 Windplay Drive, #C5, El Dorado Hills, CA 95762  
(Sent via E-mail to: [gbarker@horizonenvironmental.net](mailto:gbarker@horizonenvironmental.net))

Kenny Mateik, Horizon Environmental, Inc., 4970 Windplay Drive, #C5, El Dorado Hills, CA 95762  
(Sent via E-mail to: [kmateik@horizonenvironmental.net](mailto:kmateik@horizonenvironmental.net))

Robert Ehlers, Valero, 685 West Third Street, Hanford, CA 93230

Donna Drogos, ACEH (Sent via E-mail to: [donna.drogos@acgov.org](mailto:donna.drogos@acgov.org))  
Jerry Wickham, ACEH (Sent via E-mail to: [jerry.wickham@acgov.org](mailto:jerry.wickham@acgov.org))

GeoTracker, eFile



## Attachment 1

### Responsible Party(ies) Legal Requirements / Obligations

#### REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements ([http://www.waterboards.ca.gov/water\\_issues/programs/ust/electronic\\_submittal/](http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

#### UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

#### AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

## Ken Mateik

---

**From:** Emil Kruck  
**Sent:** Monday, June 27, 2011 3:40 PM  
**To:** 'Irma Salinas'; 'jislamovich@baaqmd.gov'; 'jstromberg@baaqmd.gov'  
**Cc:** Ken Mateik; Gary Barker  
**Subject:** Former Beacon Station12574, 22315 Redwood road, Cstro Valley - Notification of Vapor Extraction Testing  
**Importance:** High  
**Attachments:** 1574-2011 SITE MAP.pdf

Hello Irma, Joseph, Janet

Horizon is notifying you of our intent to conduct a short-duration Vapor Extraction Test (VET) at the subject location starting on Tuesday, July 5, 2011 for less than five days as approved by the Alameda County EHD on May 23, 2011. Horizon intends to use a 200 cfm-rated blower to extract soil vapor from two vapor extraction wells and abate the extracted vapors through two 200 pounds vapor-phase granular activated carbon drums. Attached is a Site Map for your reference. If you have any questions, please contact me.

Emil D. Kruck  
Project Geologist  
**HORIZON ENVIRONMENTAL INC.**  
4970 Windplay Drive, Suite 5  
El Dorado Hills, California 95762  
Phone: (916) 939-2170  
Fax:: (916) 939-2172

# HORIZON ENVIRONMENTAL INC. FIELD METHODS AND PROCEDURES

The following sections describe field methods and procedures that are utilized by Horizon Environmental Inc. (Horizon) in performance of applicable project tasks.

## **1.0 HEALTH AND SAFETY PLAN**

Fieldwork performed by Horizon and subcontractors at the site will be conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP will be at the site and available for reference by appropriate parties during work at the site.

## **2.0 LOCATING UNDERGROUND UTILITIES**

Prior to commencement of subsurface work, the location of underground utilities will be researched with the assistance of Underground Service Alert (USA). USA will contact the owners of the various utilities in the vicinity of the site to have the utility owners mark the locations of their underground utilities.

## **3.0 GROUNDWATER DEPTH EVALUATION**

Depth to groundwater in wells will be measured to the nearest 0.01-foot using an electronic hand-held water level indicator. The tip of the probe will be examined to evaluate whether a separate-phase hydrocarbon (SPH) sheen is present.

## **4.0 VAPOR WELL PURGING AND SAMPLING**

Prior to vapor purging and sampling, the top cap or well plug will be replaced with a slip cap equipped with a threaded sample port in each vapor well casing. A valve will be installed in the threaded sample port in the slip cap for purging and vapor sampling. An air sampling pump and tubing will be connected to the valve, which will then be opened for vapor purging and the collection of vapor samples. The volume of vapor present in the vapor well casing will be calculated by multiplying the total depth of the well casing (or the depth to groundwater) by Pi (3.143) times the radius of the well casing (usually 2 inches) squared.

$$\begin{aligned}\text{Casing volume (in cubic inches)} &= (\text{depth of casing}) \times (\text{Pi}) \times (\text{radius of casing})^2 \\ &= 96 \text{ inches} \times 3.143 \times 1 \text{ inch}^2 = 302 \text{ inches}^3\end{aligned}$$

$$\begin{aligned}\text{Casing volume (in cubic feet)} &= \text{divide the volume in cubic inches by 1728} \\ &= 302 / 1728 = 0.175 \text{ cubic feet}\end{aligned}$$

The volume of vapor to be purged from each well casing will be 1½ times the calculated casing volume. As the vapor is purged from each well casing with an air sampling pump, it will be monitored with a flow meter and a photo-ionization detector (PID) or comparable device to observe the hydrocarbon concentrations. After each casing has been sufficiently purged, vapor samples will be collected in Tedlar bags or Summa canisters. To reduce cross-contamination between samples, the tubing will be removed from the sampling pump, and new tubing will be used to collect the next vapor sample. Vapor samples collected



from vapor extraction wells during vapor extraction tests (VETs) will be collected from the Influent and Effluent locations of the vacuum blower manifold.

Sample labels will contain the following information: job number; sample date; time of sample collection; and a sample number unique to that sample. The vapor samples will be transported to the lab and analyzed by a California-certified laboratory. A Chain-of-Custody form will be completed to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them will relinquish the samples by signing the Chain-of-Custody form and noting the time. The Sample Control Officer at the laboratory will then verify the sample integrity and confirm that the sample was collected in the proper container, and that there is an adequate volume for analysis. The vapor samples will be analyzed within the EPA-specified holding time for the requested analyses.



## Laboratory Results

Ken Mateik  
Horizon Environmental  
4970 Windplay Drive, Suite 5  
El Dorado Hills, CA 95762

Subject : 3 Vapor Samples  
Project Name : Former Beacon 12574  
Project Number : 1574.22  
P.O. Number : W0110544

Dear Mr. Mateik,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Joel Kiff

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VP-1**

Matrix : Air

Lab Number : 78046-01

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	< 0.060	0.060	ppmv	EPA 8260B	07/08/11 01:02
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 01:02
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 01:02
<b>Total Xylenes (ppmv)</b>	<b>0.078</b>	0.050	ppmv	EPA 8260B	07/08/11 01:02
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 01:02
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 01:02
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 01:02
<b>Total Xylenes</b>	<b>0.34</b>	0.20	mg/m3	EPA 8260B	07/08/11 01:02
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/08/11 01:02
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 01:02
<b>TPH as Gasoline (ppmv)</b>	<b>320</b>	5.0	ppmv	EPA 8260B	07/08/11 01:02
<b>TPH as Gasoline</b>	<b>1200</b>	20	mg/m3	EPA 8260B	07/08/11 01:02
1,2-Dichloroethane-d4 (Surr)	99.5		% Recovery	EPA 8260B	07/08/11 01:02
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	07/08/11 01:02

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VP-2**

Matrix : Air

Lab Number : 78046-02

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	< 0.30	0.30	ppmv	EPA 8260B	07/07/11 22:39
Toluene (ppmv)	< 0.25	0.25	ppmv	EPA 8260B	07/07/11 22:39
<b>Ethylbenzene (ppmv)</b>	<b>14</b>	0.20	ppmv	EPA 8260B	07/07/11 22:39
<b>Total Xylenes (ppmv)</b>	<b>2.0</b>	0.20	ppmv	EPA 8260B	07/07/11 22:39
Benzene	< 0.90	0.90	mg/m3	EPA 8260B	07/07/11 22:39
Toluene	< 0.90	0.90	mg/m3	EPA 8260B	07/07/11 22:39
<b>Ethylbenzene</b>	<b>63</b>	0.90	mg/m3	EPA 8260B	07/07/11 22:39
<b>Total Xylenes</b>	<b>9.0</b>	0.90	mg/m3	EPA 8260B	07/07/11 22:39
Methyl-t-butyl ether (ppmv)	< 0.25	0.25	ppmv	EPA 8260B	07/07/11 22:39
Methyl-t-butyl ether (MTBE)	< 0.90	0.90	mg/m3	EPA 8260B	07/07/11 22:39
<b>TPH as Gasoline (ppmv)</b>	<b>1900</b>	25	ppmv	EPA 8260B	07/07/11 22:39
<b>TPH as Gasoline</b>	<b>7500</b>	90	mg/m3	EPA 8260B	07/07/11 22:39
1,2-Dichloroethane-d4 (Surr)	98.3		% Recovery	EPA 8260B	07/07/11 22:39
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	07/07/11 22:39



Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VP-3**

Matrix : Air

Lab Number : 78046-03

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/11 21:18
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/11 21:18
<b>Ethylbenzene (ppmv)</b>	<b>0.091</b>	0.050	ppmv	EPA 8260B	07/07/11 21:18
<b>Total Xylenes (ppmv)</b>	<b>0.055</b>	0.050	ppmv	EPA 8260B	07/07/11 21:18
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/11 21:18
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/11 21:18
<b>Ethylbenzene</b>	<b>0.40</b>	0.20	mg/m3	EPA 8260B	07/07/11 21:18
<b>Total Xylenes</b>	<b>0.24</b>	0.20	mg/m3	EPA 8260B	07/07/11 21:18
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/11 21:18
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/11 21:18
<b>TPH as Gasoline (ppmv)</b>	<b>310</b>	5.0	ppmv	EPA 8260B	07/07/11 21:18
<b>TPH as Gasoline</b>	<b>1200</b>	20	mg/m3	EPA 8260B	07/07/11 21:18
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	07/07/11 21:18
Toluene - d8 (Surr)	97.0		% Recovery	EPA 8260B	07/07/11 21:18



Report Number : 78046  
 Date : 07/13/2011

**QC Report : Method Blank Data**  
**Project Name : Former Beacon 12574**  
**Project Number : 1574.22**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed	Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011	Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011	TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011	TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	07/07/2011	1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	07/07/2011
Toluene - d8 (Surr)	99.9		%	EPA 8260B	07/07/2011	Toluene - d8 (Surr)	99.9		%	EPA 8260B	07/07/2011
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011	Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011	TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011	TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011
1,2-Dichloroethane-d4 (Surr)	99.6		%	EPA 8260B	07/07/2011	1,2-Dichloroethane-d4 (Surr)	99.6		%	EPA 8260B	07/07/2011
Toluene - d8 (Surr)	99.3		%	EPA 8260B	07/07/2011	Toluene - d8 (Surr)	99.3		%	EPA 8260B	07/07/2011







## Laboratory Results

Ken Mateik  
Horizon Environmental  
4970 Windplay Drive, Suite 5  
El Dorado Hills, CA 95762

Subject : 9 Vapor Samples  
Project Name : Former Beacon 12574  
Project Number : 1574.22  
P.O. Number : W0110544

Dear Mr. Mateik,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Joel Kiff

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW-2**

Matrix : Air

Lab Number : 78047-01

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>14</b>	0.40	ppmv	EPA 8260B	07/07/11 12:22
<b>Toluene (ppmv)</b>	<b>6.2</b>	0.40	ppmv	EPA 8260B	07/07/11 12:22
<b>Ethylbenzene (ppmv)</b>	<b>6.2</b>	0.30	ppmv	EPA 8260B	07/07/11 12:22
<b>Total Xylenes (ppmv)</b>	<b>8.6</b>	0.30	ppmv	EPA 8260B	07/07/11 12:22
<b>Benzene</b>	<b>45</b>	1.5	mg/m3	EPA 8260B	07/07/11 12:22
<b>Toluene</b>	<b>24</b>	1.5	mg/m3	EPA 8260B	07/07/11 12:22
<b>Ethylbenzene</b>	<b>28</b>	1.5	mg/m3	EPA 8260B	07/07/11 12:22
<b>Total Xylenes</b>	<b>38</b>	1.5	mg/m3	EPA 8260B	07/07/11 12:22
Methyl-t-butyl ether (ppmv)	< 0.40	0.40	ppmv	EPA 8260B	07/07/11 12:22
Methyl-t-butyl ether (MTBE)	< 1.5	1.5	mg/m3	EPA 8260B	07/07/11 12:22
<b>TPH as Gasoline (ppmv)</b>	<b>7200</b>	100	ppmv	EPA 8260B	07/07/11 15:14
<b>TPH as Gasoline</b>	<b>28000</b>	400	mg/m3	EPA 8260B	07/07/11 15:14
1,2-Dichloroethane-d4 (Surr)	82.6		% Recovery	EPA 8260B	07/07/11 12:22
Toluene - d8 (Surr)	82.7		% Recovery	EPA 8260B	07/07/11 12:22



Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW-3**

Matrix : Air

Lab Number : 78047-02

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>24</b>	3.0	ppmv	EPA 8260B	07/07/11 21:27
Toluene (ppmv)	< 2.5	2.5	ppmv	EPA 8260B	07/07/11 21:27
<b>Ethylbenzene (ppmv)</b>	<b>20</b>	2.0	ppmv	EPA 8260B	07/07/11 21:27
<b>Total Xylenes (ppmv)</b>	<b>3.8</b>	2.0	ppmv	EPA 8260B	07/07/11 21:27
<b>Benzene</b>	<b>77</b>	9.0	mg/m3	EPA 8260B	07/07/11 21:27
Toluene	< 9.0	9.0	mg/m3	EPA 8260B	07/07/11 21:27
<b>Ethylbenzene</b>	<b>89</b>	9.0	mg/m3	EPA 8260B	07/07/11 21:27
<b>Total Xylenes</b>	<b>17</b>	9.0	mg/m3	EPA 8260B	07/07/11 21:27
Methyl-t-butyl ether (ppmv)	< 2.5	2.5	ppmv	EPA 8260B	07/07/11 21:27
Methyl-t-butyl ether (MTBE)	< 9.0	9.0	mg/m3	EPA 8260B	07/07/11 21:27
<b>TPH as Gasoline (ppmv)</b>	<b>18000</b>	250	ppmv	EPA 8260B	07/07/11 21:27
<b>TPH as Gasoline</b>	<b>72000</b>	900	mg/m3	EPA 8260B	07/07/11 21:27
1,2-Dichloroethane-d4 (Surr)	90.2		% Recovery	EPA 8260B	07/07/11 21:27
Toluene - d8 (Surr)	91.2		% Recovery	EPA 8260B	07/07/11 21:27

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VES-INF**

Matrix : Air

Lab Number : 78047-03

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>22</b>	2.0	ppmv	EPA 8260B	07/07/11 23:39
<b>Toluene (ppmv)</b>	<b>5.4</b>	2.0	ppmv	EPA 8260B	07/07/11 23:39
<b>Ethylbenzene (ppmv)</b>	<b>12</b>	1.5	ppmv	EPA 8260B	07/07/11 23:39
<b>Total Xylenes (ppmv)</b>	<b>5.8</b>	1.5	ppmv	EPA 8260B	07/07/11 23:39
<b>Benzene</b>	<b>72</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:39
<b>Toluene</b>	<b>21</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:39
<b>Ethylbenzene</b>	<b>54</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:39
<b>Total Xylenes</b>	<b>25</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:39
Methyl-t-butyl ether (ppmv)	< 2.0	2.0	ppmv	EPA 8260B	07/07/11 23:39
Methyl-t-butyl ether (MTBE)	< 7.0	7.0	mg/m3	EPA 8260B	07/07/11 23:39
<b>TPH as Gasoline (ppmv)</b>	<b>13000</b>	200	ppmv	EPA 8260B	07/07/11 23:39
<b>TPH as Gasoline</b>	<b>50000</b>	700	mg/m3	EPA 8260B	07/07/11 23:39
1,2-Dichloroethane-d4 (Surr)	88.8		% Recovery	EPA 8260B	07/07/11 23:39
Toluene - d8 (Surr)	89.6		% Recovery	EPA 8260B	07/07/11 23:39

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW-2**

Matrix : Air

Lab Number : 78047-04

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>20</b>	1.5	ppmv	EPA 8260B	07/08/11 01:52
<b>Toluene (ppmv)</b>	<b>8.9</b>	1.0	ppmv	EPA 8260B	07/08/11 01:52
<b>Ethylbenzene (ppmv)</b>	<b>8.7</b>	0.90	ppmv	EPA 8260B	07/08/11 01:52
<b>Total Xylenes (ppmv)</b>	<b>11</b>	0.90	ppmv	EPA 8260B	07/08/11 01:52
<b>Benzene</b>	<b>63</b>	4.0	mg/m3	EPA 8260B	07/08/11 01:52
<b>Toluene</b>	<b>34</b>	4.0	mg/m3	EPA 8260B	07/08/11 01:52
<b>Ethylbenzene</b>	<b>38</b>	4.0	mg/m3	EPA 8260B	07/08/11 01:52
<b>Total Xylenes</b>	<b>48</b>	4.0	mg/m3	EPA 8260B	07/08/11 01:52
Methyl-t-butyl ether (ppmv)	< 1.0	1.0	ppmv	EPA 8260B	07/08/11 01:52
Methyl-t-butyl ether (MTBE)	< 4.0	4.0	mg/m3	EPA 8260B	07/08/11 01:52
<b>TPH as Gasoline (ppmv)</b>	<b>7400</b>	100	ppmv	EPA 8260B	07/08/11 01:52
<b>TPH as Gasoline</b>	<b>29000</b>	400	mg/m3	EPA 8260B	07/08/11 01:52
1,2-Dichloroethane-d4 (Surr)	90.7		% Recovery	EPA 8260B	07/08/11 01:52
Toluene - d8 (Surr)	91.2		% Recovery	EPA 8260B	07/08/11 01:52

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW-3**

Matrix : Air

Lab Number : 78047-05

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>25</b>	3.0	ppmv	EPA 8260B	07/07/11 23:22
Toluene (ppmv)	< 2.5	2.5	ppmv	EPA 8260B	07/07/11 23:22
<b>Ethylbenzene (ppmv)</b>	<b>17</b>	2.0	ppmv	EPA 8260B	07/07/11 23:22
<b>Total Xylenes (ppmv)</b>	<b>4.5</b>	2.0	ppmv	EPA 8260B	07/07/11 23:22
<b>Benzene</b>	<b>80</b>	9.0	mg/m3	EPA 8260B	07/07/11 23:22
Toluene	< 9.0	9.0	mg/m3	EPA 8260B	07/07/11 23:22
<b>Ethylbenzene</b>	<b>76</b>	9.0	mg/m3	EPA 8260B	07/07/11 23:22
<b>Total Xylenes</b>	<b>20</b>	9.0	mg/m3	EPA 8260B	07/07/11 23:22
Methyl-t-butyl ether (ppmv)	< 2.5	2.5	ppmv	EPA 8260B	07/07/11 23:22
Methyl-t-butyl ether (MTBE)	< 9.0	9.0	mg/m3	EPA 8260B	07/07/11 23:22
<b>TPH as Gasoline (ppmv)</b>	<b>14000</b>	250	ppmv	EPA 8260B	07/07/11 23:22
<b>TPH as Gasoline</b>	<b>55000</b>	900	mg/m3	EPA 8260B	07/07/11 23:22
1,2-Dichloroethane-d4 (Surr)	93.4		% Recovery	EPA 8260B	07/07/11 23:22
Toluene - d8 (Surr)	93.6		% Recovery	EPA 8260B	07/07/11 23:22



Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VES-INF**

Matrix : Air

Lab Number : 78047-06

Sample Date :07/05/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>20</b>	2.0	ppmv	EPA 8260B	07/07/11 23:58
<b>Toluene (ppmv)</b>	<b>5.1</b>	2.0	ppmv	EPA 8260B	07/07/11 23:58
<b>Ethylbenzene (ppmv)</b>	<b>10</b>	1.5	ppmv	EPA 8260B	07/07/11 23:58
<b>Total Xylenes (ppmv)</b>	<b>6.3</b>	1.5	ppmv	EPA 8260B	07/07/11 23:58
<b>Benzene</b>	<b>63</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:58
<b>Toluene</b>	<b>20</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:58
<b>Ethylbenzene</b>	<b>45</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:58
<b>Total Xylenes</b>	<b>28</b>	7.0	mg/m3	EPA 8260B	07/07/11 23:58
Methyl-t-butyl ether (ppmv)	< 2.0	2.0	ppmv	EPA 8260B	07/07/11 23:58
Methyl-t-butyl ether (MTBE)	< 7.0	7.0	mg/m3	EPA 8260B	07/07/11 23:58
<b>TPH as Gasoline (ppmv)</b>	<b>9300</b>	200	ppmv	EPA 8260B	07/07/11 23:58
<b>TPH as Gasoline</b>	<b>36000</b>	700	mg/m3	EPA 8260B	07/07/11 23:58
1,2-Dichloroethane-d4 (Surr)	95.2		% Recovery	EPA 8260B	07/07/11 23:58
Toluene - d8 (Surr)	95.0		% Recovery	EPA 8260B	07/07/11 23:58



Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW2**

Matrix : Air

Lab Number : 78047-07

Sample Date :07/06/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>2.5</b>	0.40	ppmv	EPA 8260B	07/08/11 02:25
<b>Toluene (ppmv)</b>	<b>1.1</b>	0.30	ppmv	EPA 8260B	07/08/11 02:25
<b>Ethylbenzene (ppmv)</b>	<b>4.9</b>	0.25	ppmv	EPA 8260B	07/08/11 02:25
<b>Total Xylenes (ppmv)</b>	<b>5.5</b>	0.25	ppmv	EPA 8260B	07/08/11 02:25
<b>Benzene</b>	<b>8.0</b>	1.0	mg/m3	EPA 8260B	07/08/11 02:25
<b>Toluene</b>	<b>4.4</b>	1.0	mg/m3	EPA 8260B	07/08/11 02:25
<b>Ethylbenzene</b>	<b>22</b>	1.0	mg/m3	EPA 8260B	07/08/11 02:25
<b>Total Xylenes</b>	<b>24</b>	1.0	mg/m3	EPA 8260B	07/08/11 02:25
Methyl-t-butyl ether (ppmv)	< 0.30	0.30	ppmv	EPA 8260B	07/08/11 02:25
Methyl-t-butyl ether (MTBE)	< 1.0	1.0	mg/m3	EPA 8260B	07/08/11 02:25
<b>TPH as Gasoline (ppmv)</b>	<b>1800</b>	30	ppmv	EPA 8260B	07/08/11 02:25
<b>TPH as Gasoline</b>	<b>7300</b>	100	mg/m3	EPA 8260B	07/08/11 02:25
1,2-Dichloroethane-d4 (Surr)	98.1		% Recovery	EPA 8260B	07/08/11 02:25
Toluene - d8 (Surr)	96.1		% Recovery	EPA 8260B	07/08/11 02:25

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW3**

Matrix : Air

Lab Number : 78047-08

Sample Date :07/06/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>14</b>	1.5	ppmv	EPA 8260B	07/08/11 01:48
<b>Toluene (ppmv)</b>	<b>1.3</b>	1.0	ppmv	EPA 8260B	07/08/11 01:48
<b>Ethylbenzene (ppmv)</b>	<b>17</b>	1.0	ppmv	EPA 8260B	07/08/11 01:48
<b>Total Xylenes (ppmv)</b>	<b>4.6</b>	1.0	ppmv	EPA 8260B	07/08/11 01:48
<b>Benzene</b>	<b>45</b>	5.0	mg/m3	EPA 8260B	07/08/11 01:48
Toluene	< 5.0	5.0	mg/m3	EPA 8260B	07/08/11 01:48
<b>Ethylbenzene</b>	<b>75</b>	5.0	mg/m3	EPA 8260B	07/08/11 01:48
<b>Total Xylenes</b>	<b>20</b>	5.0	mg/m3	EPA 8260B	07/08/11 01:48
Methyl-t-butyl ether (ppmv)	< 1.5	1.5	ppmv	EPA 8260B	07/08/11 01:48
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	mg/m3	EPA 8260B	07/08/11 01:48
<b>TPH as Gasoline (ppmv)</b>	<b>7300</b>	100	ppmv	EPA 8260B	07/08/11 01:48
<b>TPH as Gasoline</b>	<b>29000</b>	500	mg/m3	EPA 8260B	07/08/11 01:48
1,2-Dichloroethane-d4 (Surr)	94.7		% Recovery	EPA 8260B	07/08/11 01:48
Toluene - d8 (Surr)	93.7		% Recovery	EPA 8260B	07/08/11 01:48

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VES-INF**

Matrix : Air

Lab Number : 78047-09

Sample Date :07/06/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>7.9</b>	0.60	ppmv	EPA 8260B	07/08/11 01:37
<b>Toluene (ppmv)</b>	<b>3.0</b>	0.50	ppmv	EPA 8260B	07/08/11 01:37
<b>Ethylbenzene (ppmv)</b>	<b>8.1</b>	0.40	ppmv	EPA 8260B	07/08/11 01:37
<b>Total Xylenes (ppmv)</b>	<b>8.4</b>	0.40	ppmv	EPA 8260B	07/08/11 01:37
<b>Benzene</b>	<b>26</b>	2.0	mg/m3	EPA 8260B	07/08/11 01:37
<b>Toluene</b>	<b>11</b>	2.0	mg/m3	EPA 8260B	07/08/11 01:37
<b>Ethylbenzene</b>	<b>36</b>	2.0	mg/m3	EPA 8260B	07/08/11 01:37
<b>Total Xylenes</b>	<b>37</b>	2.0	mg/m3	EPA 8260B	07/08/11 01:37
Methyl-t-butyl ether (ppmv)	< 0.50	0.50	ppmv	EPA 8260B	07/08/11 01:37
Methyl-t-butyl ether (MTBE)	< 2.0	2.0	mg/m3	EPA 8260B	07/08/11 01:37
<b>TPH as Gasoline (ppmv)</b>	<b>3600</b>	50	ppmv	EPA 8260B	07/08/11 01:37
<b>TPH as Gasoline</b>	<b>14000</b>	200	mg/m3	EPA 8260B	07/08/11 01:37
1,2-Dichloroethane-d4 (Surr)	92.9		% Recovery	EPA 8260B	07/08/11 01:37
Toluene - d8 (Surr)	94.6		% Recovery	EPA 8260B	07/08/11 01:37

## QC Report : Method Blank Data

Project Name : Former Beacon 12574

Project Number : 1574.22

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed	Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011	Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011	1,2-Dichloroethane-d4 (Surr)	98.2		%	EPA 8260B	07/07/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011	Toluene - d8 (Surr)	99.5		%	EPA 8260B	07/07/2011
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	07/07/2011						
Toluene - d8 (Surr)	99.9		%	EPA 8260B	07/07/2011						
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011	Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011	Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
						Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/07/2011	Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/07/2011	TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/07/2011	1,2-Dichloroethane-d4 (Surr)	99.6		%	EPA 8260B	07/07/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/07/2011	Toluene - d8 (Surr)	99.3		%	EPA 8260B	07/07/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/07/2011						
1,2-Dichloroethane-d4 (Surr)	99.3		%	EPA 8260B	07/07/2011						
Toluene - d8 (Surr)	101		%	EPA 8260B	07/07/2011						



2795 2nd Street Suite 300  
 Davis, CA 95616  
 Lab: 530.297.4800  
 Fax: 530.297.4802

SRG # / Lab No. 78047

Page 1 of 1

Project Contact (Hardcopy or PDF To): **KEN MATEIK** California EDF Report?  Yes  No Chain-of-Custody Record and Analysis Request

Company / Address: **Horizon Environmental** Sampling Company Log Code: **HEIE**  
 4970 Windplay Drive, Suite 5, El Dorado Hills, CA 95762

Phone #: **916 - 939 - 2170** Fax #: **916 - 939 - 2172** Global ID: **T0600100155**

Project #: **1574.22** P.O. #: **W0110544** EDF Deliverable To (Email Address): **kiffanalytical.com**

Project Name: **Former Beacon 12574** Sampler Signature: *Craig Roth*

Project Address:  
**22315 Redwood Road**  
**Castro Valley, CA 94546**

Sample Designation	Sampling		Container				Preservative				Matrix		
	Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO <sub>3</sub>	None	Ice	Water	Soil

Sample Designation	Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO <sub>3</sub>	None	Ice	Water	Soil	AIR
VW-2	7-5-11	1825					1			X				X
VW-3	7-5-11	1828					1			X				X
VES-INF	7-5-11	1832					1			X				X
VW-2	7-5-11	2030					1			X				X
VW-3	7-5-11	2033					1			X				X
VES-INF	7-5-11	2037					1			X				X
VW2	7-6-11	0038					1			X				X
VW3	7-6-11	0034					1			X				X
VES-INF	7-6-11	0030					1			X				X

Analysis Request														TAT		
MTBE (EPA 8260B)	MTBE (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (EPA 8260B)	7 Oxygenates (EPA 8260B)	Lead Scav (1,2 DCA & 1,2 EDB-EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	Total Lead (EPA 6010)	W.E.T. Lead (STLC)		<input type="checkbox"/> 12 hr	For Lab Use Only
														<input type="checkbox"/> 24 hr		
														<input type="checkbox"/> 48hr		
														<input type="checkbox"/> 72 hr		
														<input checked="" type="checkbox"/> 1 wk		

Relinquished by: <i>Craig Roth</i>	Date 7/6/11	Time 1100	Received by: <i>Brandon Schloegel</i>	Remarks: <b>VET VAPOR DATA</b>			
Relinquished by: <i>Brandon Schloegel</i>	Date 7/6/11	Time 1200	Received by: _____	Bill to: <b>ULTRAMAR Inc.</b> Attention: <b>Mr. C. Shay Wideman</b>			
Relinquished by: _____	Date 070711	Time 0950	Received by laboratory: <i>Alexander Kiff Analytical</i>	For Lab Use Only: <b>Sample Receipt</b>			
		Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
							Yes / No

Distribution: White - Lab; Copy - Originator  
 Rev 051805

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**SAMPLE RECEIPT CHECKLIST**

SRG#: 78047 Date: 070711

Project ID: Former Beacon 12574

Method of Receipt:  Courier  Over-the-counter  Shipper

**COC Inspection**

Is COC present?  Yes  No

Custody seals on shipping container?  Intact  Broken  Not present  N/A

Is COC Signed by Relinquisher?  Yes  No Dated?  Yes  No

Is sampler name legibly indicated on COC?  Yes  No

Is analysis or hold requested for all samples  Yes  No

Is the turnaround time indicated on COC?  Yes  No

Is COC free of whiteout and uninitialed cross-outs?  Yes  No, Whiteout  No, Cross-outs

**Sample Inspection**

Coolant Present:  Yes  No (includes water)

Temperature °C \_\_\_\_\_ Therm. ID# \_\_\_\_\_ Initial \_\_\_\_\_ Date/Time \_\_\_\_\_  N/A

Are there custody seals on sample containers?  Intact  Broken  Not present

Do containers match COC?  Yes  No  No, COC lists absent sample(s)  No, Extra sample(s) present

Are there samples matrices other than soil, water, air or carbon?  Yes  No

Are any sample containers broken, leaking or damaged?  Yes  No

Are preservatives indicated?  Yes, on sample containers  Yes, on COC  Not indicated  N/A

Are preservatives correct for analyses requested?  Yes  No  N/A

Are samples within holding time for analyses requested?  Yes  No

Are the correct sample containers used for the analyses requested?  Yes  No

Is there sufficient sample to perform testing?  Yes  No

Does any sample contain product, have strong odor or are otherwise suspected to be hot?  Yes  No

Receipt Details

Matrix AR Container type Tedlar # of containers received 9

Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_

Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_

Date and Time Sample Put into Temp Storage Date: 070711 Time: 0950

**Quicklog**

Are the Sample ID's indicated:  On COC  On sample container(s)  On Both  Not indicated

If Sample ID's are listed on both COC and containers, do they all match?  Yes  No  N/A

Is the Project ID indicated:  On COC  On sample container(s)  On Both  Not indicated

If project ID is listed on both COC and containers, do they all match?  Yes  No  N/A

Are the sample collection dates indicated:  On COC  On sample container(s)  On Both  Not indicated

If collection dates are listed on both COC and containers, do they all match?  Yes  No  N/A

Are the sample collection times indicated:  On COC  On sample container(s)  On Both  Not indicated

If collection times are listed on both COC and containers, do they all match?  Yes  No  N/A

COMMENTS: Sample 07 has very little air. say 070711 0950

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## Laboratory Results

Ken Mateik  
Horizon Environmental  
4970 Windplay Drive, Suite 5  
El Dorado Hills, CA 95762

Subject : 6 Vapor Samples  
Project Name : Former Beacon 12574  
Project Number : 1574.22  
P.O. Number : W0110544

Dear Mr. Mateik,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Joel Kiff

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VP-1**

Matrix : Air

Lab Number : 78067-01

Sample Date :07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 17:36
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 17:36
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 17:36
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 17:36
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 17:36
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 17:36
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 17:36
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 17:36
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/08/11 17:36
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 17:36
<b>TPH as Gasoline (ppmv)</b>	<b>5.9</b>	5.0	ppmv	EPA 8260B	07/08/11 17:36
<b>TPH as Gasoline</b>	<b>23</b>	20	mg/m3	EPA 8260B	07/08/11 17:36
1,2-Dichloroethane-d4 (Surr)	99.3		% Recovery	EPA 8260B	07/08/11 17:36
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	07/08/11 17:36

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VP-2**

Matrix : Air

Lab Number : 78067-02

Sample Date :07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/11 00:37
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/11 00:37
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/11 00:37
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/11 00:37
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:37
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:37
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:37
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:37
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/09/11 00:37
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:37
<b>TPH as Gasoline (ppmv)</b>	<b>5.6</b>	5.0	ppmv	EPA 8260B	07/09/11 00:37
<b>TPH as Gasoline</b>	<b>22</b>	20	mg/m3	EPA 8260B	07/09/11 00:37
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	07/09/11 00:37
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	07/09/11 00:37



Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VP-3**

Matrix : Air

Lab Number : 78067-03

Sample Date :07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 18:31
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 18:31
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/11 18:31
<b>Total Xylenes (ppmv)</b>	<b>0.070</b>	0.050	ppmv	EPA 8260B	07/08/11 18:31
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 18:31
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 18:31
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 18:31
<b>Total Xylenes</b>	<b>0.31</b>	0.20	mg/m3	EPA 8260B	07/08/11 18:31
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/08/11 18:31
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/08/11 18:31
<b>TPH as Gasoline (ppmv)</b>	<b>5.9</b>	5.0	ppmv	EPA 8260B	07/08/11 18:31
<b>TPH as Gasoline</b>	<b>23</b>	20	mg/m3	EPA 8260B	07/08/11 18:31
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	07/08/11 18:31
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	07/08/11 18:31



Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VET-EFF**

Matrix : Air

Lab Number : 78067-04

Sample Date :07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>0.12</b>	0.060	ppmv	EPA 8260B	07/09/11 00:04
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/11 00:04
<b>Ethylbenzene (ppmv)</b>	<b>0.21</b>	0.050	ppmv	EPA 8260B	07/09/11 00:04
<b>Total Xylenes (ppmv)</b>	<b>0.30</b>	0.050	ppmv	EPA 8260B	07/09/11 00:04
<b>Benzene</b>	<b>0.38</b>	0.20	mg/m3	EPA 8260B	07/09/11 00:04
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:04
<b>Ethylbenzene</b>	<b>0.94</b>	0.20	mg/m3	EPA 8260B	07/09/11 00:04
<b>Total Xylenes</b>	<b>1.3</b>	0.20	mg/m3	EPA 8260B	07/09/11 00:04
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/09/11 00:04
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/09/11 00:04
<b>TPH as Gasoline (ppmv)</b>	<b>340</b>	5.0	ppmv	EPA 8260B	07/09/11 00:04
<b>TPH as Gasoline</b>	<b>1300</b>	20	mg/m3	EPA 8260B	07/09/11 00:04
1,2-Dichloroethane-d4 (Surr)	89.2		% Recovery	EPA 8260B	07/09/11 00:04
Toluene - d8 (Surr)	89.2		% Recovery	EPA 8260B	07/09/11 00:04

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW-2**

Matrix : Air

Lab Number : 78067-05

Sample Date :07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>7.4</b>	0.20	ppmv	EPA 8260B	07/09/11 00:37
<b>Toluene (ppmv)</b>	<b>4.9</b>	0.20	ppmv	EPA 8260B	07/09/11 00:37
<b>Ethylbenzene (ppmv)</b>	<b>9.2</b>	0.15	ppmv	EPA 8260B	07/09/11 00:37
<b>Total Xylenes (ppmv)</b>	<b>18</b>	0.15	ppmv	EPA 8260B	07/09/11 00:37
<b>Benzene</b>	<b>24</b>	0.70	mg/m3	EPA 8260B	07/09/11 00:37
<b>Toluene</b>	<b>19</b>	0.70	mg/m3	EPA 8260B	07/09/11 00:37
<b>Ethylbenzene</b>	<b>41</b>	0.70	mg/m3	EPA 8260B	07/09/11 00:37
<b>Total Xylenes</b>	<b>78</b>	0.70	mg/m3	EPA 8260B	07/09/11 00:37
Methyl-t-butyl ether (ppmv)	< 0.20	0.20	ppmv	EPA 8260B	07/09/11 00:37
Methyl-t-butyl ether (MTBE)	< 0.70	0.70	mg/m3	EPA 8260B	07/09/11 00:37
<b>TPH as Gasoline (ppmv)</b>	<b>2000</b>	40	ppmv	EPA 8260B	07/09/11 01:32
<b>TPH as Gasoline</b>	<b>8000</b>	150	mg/m3	EPA 8260B	07/09/11 01:32
1,2-Dichloroethane-d4 (Surr)	91.1		% Recovery	EPA 8260B	07/09/11 00:37
Toluene - d8 (Surr)	85.5		% Recovery	EPA 8260B	07/09/11 00:37

Project Name : **Former Beacon 12574**

Project Number : **1574.22**

Sample : **VW-3**

Matrix : Air

Lab Number : 78067-06

Sample Date :07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene (ppmv)</b>	<b>7.4</b>	0.40	ppmv	EPA 8260B	07/09/11 00:58
<b>Toluene (ppmv)</b>	<b>2.4</b>	0.40	ppmv	EPA 8260B	07/09/11 00:58
<b>Ethylbenzene (ppmv)</b>	<b>7.9</b>	0.30	ppmv	EPA 8260B	07/09/11 00:58
<b>Total Xylenes (ppmv)</b>	<b>7.6</b>	0.30	ppmv	EPA 8260B	07/09/11 00:58
<b>Benzene</b>	<b>24</b>	1.5	mg/m3	EPA 8260B	07/09/11 00:58
<b>Toluene</b>	<b>9.0</b>	1.5	mg/m3	EPA 8260B	07/09/11 00:58
<b>Ethylbenzene</b>	<b>35</b>	1.5	mg/m3	EPA 8260B	07/09/11 00:58
<b>Total Xylenes</b>	<b>34</b>	1.5	mg/m3	EPA 8260B	07/09/11 00:58
Methyl-t-butyl ether (ppmv)	< 0.40	0.40	ppmv	EPA 8260B	07/09/11 00:58
Methyl-t-butyl ether (MTBE)	< 1.5	1.5	mg/m3	EPA 8260B	07/09/11 00:58
<b>TPH as Gasoline (ppmv)</b>	<b>2400</b>	40	ppmv	EPA 8260B	07/09/11 00:58
<b>TPH as Gasoline</b>	<b>9300</b>	150	mg/m3	EPA 8260B	07/09/11 00:58
1,2-Dichloroethane-d4 (Surr)	91.6		% Recovery	EPA 8260B	07/09/11 00:58
Toluene - d8 (Surr)	93.2		% Recovery	EPA 8260B	07/09/11 00:58

## QC Report : Method Blank Data

Project Name : Former Beacon 12574

Project Number : 1574.22

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/08/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/08/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/08/2011
1,2-Dichloroethane-d4 (Surr)	97.0		%	EPA 8260B	07/08/2011
Toluene - d8 (Surr)	99.8		%	EPA 8260B	07/08/2011
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/08/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/08/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/08/2011
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	07/08/2011
Toluene - d8 (Surr)	100		%	EPA 8260B	07/08/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/08/2011
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/08/2011
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/08/2011
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/08/2011
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/08/2011
1,2-Dichloroethane-d4 (Surr)	99.2		%	EPA 8260B	07/08/2011
Toluene - d8 (Surr)	99.3		%	EPA 8260B	07/08/2011

Project Contact (Hardcopy or PDF To): **KEN MATEIK**

California EDF Report?  Yes  No

Company / Address: **Horizon Environmental**  
 4970 Windplay Drive, Suite 5, El Dorado Hills, CA 95762

Sampling Company Log Code: **HEIE**

Phone #: **916 - 939 - 2170** Fax #: **916 - 939 - 2172**

Global ID: **T0600100155**

Project #: **1574.22** P.O. #: **W0110544**

EDF Deliverable To (Email Address): **kiffanalytical.com**

Project Name: **Former Beacon 12574**

Sampler Signature: *Samuel D. Kreck (EDK)*

Chain-of-Custody Record and Analysis Request														TAT	For Lab Use Only		
Analysis Request														<input type="checkbox"/> 12 hr <input type="checkbox"/> 24 hr <input type="checkbox"/> 48hr <input type="checkbox"/> 72 hr <input checked="" type="checkbox"/> 1 wk			
MTBE (EPA 8260B) per EPA 8021 level @ 5.0 ppb	MTBE (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (EPA 8260B)	7 Oxygenates (EPA 8260B)	Lead Scav(1,2 DCA & 1,2 EDB-EPA 8260B)	Volatlie Halocarbons(EPA 8260B)	Volatlie Organics Full List (EPA 8260B)	Volatlie Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	Total Lead (EPA 6010)	W.E.T. Lead (STLC)				
VP-1	X	X	X													1 wk	01
VP-2	X	X	X													1 wk	02
VP-3	X	X	X													1 wk	03
VET-EFF	X	X	X													1 wk	04
VW-2	X	X	X													1 wk	05
VW-3	X	X	X													1 wk	06

Sample Designation	Sampling		Container					Preservative				Matrix		
	Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO <sub>3</sub>	None	Ice	Water	Soil	AIR
VP-1	7/8/11	9:44					1			X				X
VP-2		9:50					1			X				X
VP-3		9:55					1			X				X
VET-EFF		9:28					1			X				X
VW-2		9:20					1			X				X
VW-3		9:24					1			X				X

Relinquished by: <i>Samuel D. Kreck</i>	Date: 7/8/11	Time: 13:32	Received by: _____	Remarks: <b>POST-VET</b>  Bill to: <b>ULTRAMAR Inc.</b> Attention: <b>Mr. C. Shay Wideman</b>
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	
Relinquished by: _____	Date: 070811	Time: 1332	Received by Laboratory: <i>[Signature]</i> Kiff Analytical	

For Lab Use Only: Sample Receipt					
Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

Page 9 of 10



**SAMPLE RECEIPT CHECKLIST**

RECEIVER  
LJR  
Initials

SRG#: 78067 Date: 070811

Project ID: Former Beacon 12574

Method of Receipt:  Courier  Over-the-counter  Shipper

**COC Inspection**

Is COC present?  Yes  No  
 Custody seals on shipping container?  Intact  Broken  Not present  N/A  
 Is COC Signed by Relinquisher?  Yes  No Dated?  Yes  No  
 Is sampler name legibly indicated on COC?  Yes  No  
 Is analysis or hold requested for all samples  Yes  No  
 Is the turnaround time indicated on COC?  Yes  No  
 Is COC free of whiteout and uninitialed cross-outs?  Yes  No, Whiteout  No, Cross-outs

**Sample Inspection**

Coolant Present:  Yes  No (includes water)  
 Temperature °C \_\_\_\_\_ Therm. ID# \_\_\_\_\_ Initial \_\_\_\_\_ Date/Time \_\_\_\_\_  N/A  
 Are there custody seals on sample containers?  Intact  Broken  Not present  
 Do containers match COC?  Yes  No  No, COC lists absent sample(s)  No, Extra sample(s) present  
 Are there samples matrices other than soil, water, air or carbon?  Yes  No  
 Are any sample containers broken, leaking or damaged?  Yes  No  
 Are preservatives indicated?  Yes, on sample containers  Yes, on COC  Not indicated  N/A  
 Are preservatives correct for analyses requested?  Yes  No  N/A  
 Are samples within holding time for analyses requested?  Yes  No  
 Are the correct sample containers used for the analyses requested?  Yes  No  
 Is there sufficient sample to perform testing?  Yes  No  
 Does any sample contain product, have strong odor or are otherwise suspected to be hot?  Yes  No

**Receipt Details**

Matrix AK Container type tedlar # of containers received 6  
 Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_  
 Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_  
 Date and Time Sample Put into Temp Storage Date: 070811 Time: 1332

**Quicklog**

Are the Sample ID's indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If Sample ID's are listed on both COC and containers, do they all match?  Yes  No  N/A  
 Is the Project ID indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If project ID is listed on both COC and containers, do they all match?  Yes  No  N/A  
 Are the sample collection dates indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If collection dates are listed on both COC and containers, do they all match?  Yes  No  N/A  
 Are the sample collection times indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If collection times are listed on both COC and containers, do they all match?  Yes  No  N/A

COMMENTS: Project # on labels for -01 is 1754.22, on -03 it is 1752.22.  
On all other labels it matches the COC. MAS 070811 1421