



September 5, 1991

Mr. Charles Carmel
ARCO Petroleum Products
P.O. Box 5811
San Mateo, California 94402

**SUBJECT: LETTER REPORT
LIMITED SOIL PERFORMANCE TEST
ARCO FACILITY NO. 2185
9800 EAST 14TH STREET
OAKLAND, CALIFORNIA**

Dear Mr. Carmel:

Roux Associates (Roux) performed a Limited Soil Performance Test (LSPT) on June 6, 1991, at ARCO Products Company (ARCO) Facility No. 2185 located at 9800 East 14th Street, Oakland, California (Site, Figure 1).

PURPOSE:

This test was done to determine whether the subsurface conditions at the Site would be amenable to soil venting/vacuum extraction techniques, should the need arise.

METHOD:

The method used to determine if the subsurface is amenable to a soil venting/vacuum extraction process is to apply a vacuum to one well and measure any influence at another well over time and distance. In this limited soil performance test, the distance was fixed by well location. Once vacuum was applied to the extraction well, the amount of vacuum, extraction air flow and influence at the test well was recorded at regular intervals until the extraction vacuum and the extraction air flow maximized. Test vacuum pressures were used to establish a capture radius relative to the extraction vacuum and air flow.

The equipment used for this test included:

- 1) Thompson Vacuum Pump - 6 SCFM air flow @ 0 PSIG Vacuum
- 2) Magnahelic Gauge - 0 - 2 inches water
- 3) Magnahelic Gauge - 0 - 10 inches water

Vapor well VW-2 was used as the extraction well and vapor well VW-1 was used to determine influence. The attached Site Plan (Figure 2) shows the locations of these wells. Also attached are soil boring logs and well construction diagrams for vapor wells VW-1 and VW-2.

Data obtained during the test is provided in Table 1.

RESULTS:

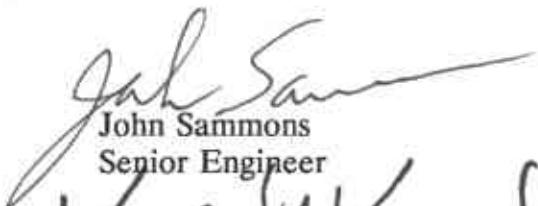
Extraction vacuum stabilized at five inches of Mercury after 10 minutes of operation at 210 standard cubic feet per hour of air flow from the subsurface. No vacuum pressure was detected at the test well indicating that, at the extraction vacuum and extraction air flows obtained, sufficient air could not be moved through the subsurface environment to achieve a capture radius of 21 feet. The soils at this Site, as shown in the vapor extraction well logs, consist entirely of silty clay and clayey silt with low permeabilities.

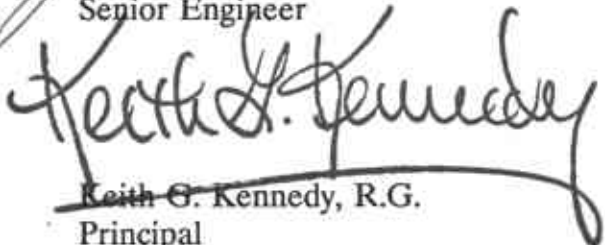
CONCLUSIONS:

The results of this LSPT indicate that, at the screened depth of the vapor wells, the subsurface at this Site is not amenable to soil venting/vacuum extraction remediation techniques.

Roux appreciates the opportunity to do this work. If you have any questions, please call Dr. John Sammons at (415) 370-2275.

Sincerely,
ROUX ASSOCIATES


John Sammons
Senior Engineer


Keith G. Kennedy, R.G.
Principal

Environmental Manager
California Registered Geologist No. 4903

Attachments: Table 1. Limited Soil Performance Test Data
 Figure 1. Location of Site
 Figure 2. Site Plan
 Vapor Extraction Well Logs (2)

Table 1. Limited Soil Performance Test Data
ARCO Facility No. 2185
9800 East 14th Street
Oakland, California

Date of test: 6/6/91
 Extraction Well No: VW-2
 Influence Well No: VW-1
 Distance between wells: 21 feet
 Duration of test: 60 minutes

Time	Extraction Vacuum inches mercury	Extraction Air Flow S.D.F.H. ⁽¹⁾	Test Vacuum inches water
			Start
1105	5	210	0
1115	5	210	0
1125	5	210	0
1135	5	210	0
1145	5	210	0
1155	5	210	0
1205	5	210	0
			Finish

⁽¹⁾ Standard Cubic Feet per Hour



SOURCE:

USGS 7.5 MINUTE QUADRANGLE
SAN LEANDRO, CALIFORNIA 1968

TITLE:

LOCATION OF SITE

ARCO FACILITY NO. 2185

PREPARED FOR:

ARCO PRODUCTS COMPANY

ROUX ROUX ASSOCIATES, INC. ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY:	T.R.	DATE:	05/91	FIGURE 1
	PREPARED BY:	R.P.	SCALE:	AS SHOWN	
	PROJECT MANAGER:	B.T.	REVISION:	0	
	PROJECT NO.	A102W01			

98th AVENUE

PLANTER

PLANTER

□ □ □

PUMP ISLANDS

□ □ □

UNDERGROUND STORAGE TANKS

B3

B4

B1

B2

PLANTER

ARCO AM/PM
MINI MART

VW-1

VW-2

TRASH BIN

PLANTER



EAST 14th STREET







EXPLANATION


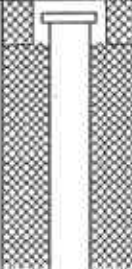

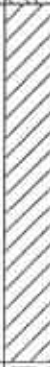
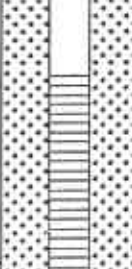
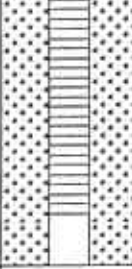


- B3 SOIL BORING LOCATION AND DESIGNATION
- VW-1 VAPOR EXTRACTION WELL LOCATION AND DESIGNATION





SOURCE:





MAP MODIFIED FROM BLUEPRINT PROVIDED BY BARGHAUSEN CONSULTING ENGINEERS (1986)

TITLE:				SITE PLAN	
ARCO FACILITY NO. 2185					
PREPARED FOR:				ARCO PRODUCTS COMPANY	
 ROUX ASSOCIATES, INC. ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY:	T.R.	DATE:	05/91	FIGURE
	PREPARED BY:	R.P.	SCALE:	AS SHOWN	
	PROJECT MANAGER:	B.T.	REVISION:	0	
	PROJECT NO.	A102W01			
					2

Project: ARCO 2185 9800 East 14th Street, Oakland		Log of Well No. VW-1		
Date Started: 5/14/91	Total Depth: 10.0-ft	Casing Elev: 25 feet	GW ATD:ft/ft	
Date Completed: 5/14/91	Perforation: 0.020 Slot PVC			from 10 feet To 4.8 feet
Logged By: Jonathan Florez Checked By: T. R.	Pack: # 3 Sand Pack			from 10 feet To 4 feet
Drilling Co: Gregg Drilling Driller:	Seal: Bentonite			from 4 feet To 3 feet
Drilling Method: HSA	Cement/Bentonite Grout			from 3 feet To 0 feet
Drilling Equipment: Mobile B-61	Casing: 2-inch diameter PVC		Drill Bit Diameter: 6.5	
		Sampler: N/A		

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sample	Blow Counts	OVM (ppm)	REMARKS
	Mottled olive-black silty CLAY and gravel fill.						
		CL					
5	Black silty CLAY, trace coarse sand.						
		ML					
	Medium brown clayey SILT, trace fine sand, no odor.						
10							
15							

Project: ARCO 2185 9800 East 14th Street, Oakland		Log of Well No. VW-2		
Date Started: 5/14/91	Total Depth: 10.0-ft	Casing Elev: 25 feet	GW ATD:ft/ft	
Date Completed: 5/14/91	Perforation: 0.020 Slot PVC			from 10 feet To 4.2 feet
Logged By: Jonathan Florez Checked By: T. R.	Pack: #3 Sand Pack			from 10 feet To 4 feet
Drilling Co: Gregg Drilling Driller:	Seal: Bentonite			from 4 feet To 3 feet
Drilling Method: HSA	Cement/Bentonite Grout			from 3 feet To 0 feet
Drilling Equipment: Mobile B-61	Casing: 2-inch diameter PVC		Drill Bit Diameter: 6.5	
	Sampler: N/A			

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sample	Blow Counts	OVM (ppm)	REMARKS
0	Coarse sand, little gravel fill.						
4.2	Black silty CLAY, trace fine sand.	CL					
5	Light brown to black silty CLAY, trace fine sand, no odor.	CL					
10							
15							