

#276



PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

REC'D OCT 6 1 1992

September 29, 1992  
Project 330-40.03

Mr. Michael Whelan  
ARCO Products Company  
P.O. Box 5811  
San Mateo, California 94402

Re: ARCO Service Station 276 Off Site  
10600 MacArthur Boulevard  
Oakland, California

Dear Mr. Whelan:

Pacific Environmental Group, Inc. (PACIFIC), on behalf of ARCO Products Company (ARCO), presents this summary of the operation of the catalytic oxidation (Cat-Ox) unit located at the above referenced site. Included is a discussion of the results of the Tedlar bag sample analysis for the period of operation between July 6 and August 3, 1992.

The Cat-Ox unit was sampled on August 3, 1992. Tedlar bag samples were obtained from the influent and effluent vapor streams, and the well field. These samples were analyzed for total volatile hydrocarbons calculated as gasoline (TVH-g), and its components: benzene, toluene, ethylbenzene, and xylenes (BTEX compounds).

The influent vapor samples indicated a TVH-g concentration of 12 micrograms per liter (ug/L), and effluent TVH-g concentrations of <5.0 ug/L. The influent and effluent vapor samples indicated benzene concentrations of 0.17 and <0.05 ug/L, respectively. Soil vapor extraction data is presented in Table 1. Certified analytical reports and chain-of-custody documents are attached.

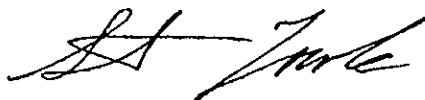
The Cat-Ox system operated at a flow rate of 500 cubic feet per minute (cfm), with a well field vacuum pressure of 4 inches of mercury. The extraction rate between July 6 and August 3, 1992 was approximately 0.38 pounds per day for TVH-g and 0.00 pounds per day for benzene (Table 1). The system did not experience any

down time during this period. Beginning in October 1992 all operation and maintenance will be performed by Resna Industries, Inc.

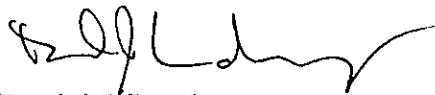
If you have any questions, please call.

Sincerely,

**Pacific Environmental Group, Inc.**



Steven E. Towle  
Staff Scientist



Daniel J. Landry  
Project Engineer

Attachments: Table 1 - Soil Vapor Extraction Data Evaluation  
Certified Analytical Results  
Chain-of-Custody Documentation

cc: Mr. Chris Winsor, ARCO Products Company  
Mr. Barney Chan, Alameda County Environmental Health Department  
Mr. Alex Saschin, Bay Area Air Quality Management District

Table 1  
Soil Vapor Extraction Data Evaluation

ARCO Service Station 276 Off site  
10600 MacArthur Boulevard  
Oakland, California

Sample Date	t (days)	td (days)	TVH-g (ug/L)	Benzene (ug/L)	Sample Flow Rate (scfm)	Well Flow Rate (scfm)	TVH-g (lb/day)	Benzene (lb/day)	Hours of Operation	TVH-g Net (lb)	Benzene Net (lb)	TVH-g Total (lb)	Benzene Total (lb)
06/12/91	0	0	0	0.1	500	25	0.00	0.00	0.0	0.0	0.0	0.0	0.0
06/19/91	7	0	140	2.8	500	25	3.15	0.06	168.0	22.1	0.9	22.1	0.9
07/11/91	22	0	140	4.0	500	25	6.30	0.15	528.0	138.6	4.0	160.7	4.8
08/22/91	42	0	130	3.4	500	25	6.08	0.17	1008.0	255.2	6.4	415.8	11.3
09/05/91	14	0	86	3.2	500	25	4.86	0.15	336.0	68.0	2.0	483.8	13.3
11/22/91	78	48	130	2.5	500	25	4.86	0.13	720.0	145.8	3.4	629.6	16.7
12/06/91	14	2	35	0.5	500	25	3.71	0.07	288.0	44.6	0.3	674.2	16.9
12/20/91	14	0	32	0.4	500	25	1.51	0.02	336.0	21.1	0.3	695.3	17.2
01/03/92	14	0	7.5	0.1	500	25	0.89	0.01	336.0	12.4	0.1	707.7	17.2
01/17/92	14	0	6	0.1	500	25	0.30	0.00	336.0	4.3	0.0	712.0	17.3
02/03/92	17	0	7.5	0.1	500	25	0.30	0.00	408.0	5.2	0.1	717.2	17.4
02/18/92	15	0	6	0.1	500	25	0.30	0.00	360.0	4.6	0.0	721.7	17.4
03/02/92	13	13	9.7	0.1	500	25	0.35	0.00	0.0	0.0	0.0	721.7	17.4
03/17/92	15	0	6	0.1	500	25	0.35	0.00	360.0	5.3	0.0	727.0	17.4
03/31/92	14	8	6	0.1	500	25	0.27	0.00	144.0	1.6	0.0	728.6	17.5
04/27/92	27	6	6	0.1	500	25	0.27	0.00	504.0	5.7	0.1	734.3	17.5
05/11/92	14	8	8.2	0.1	500	25	0.32	0.00	144.0	1.9	0.0	736.2	17.5
05/27/92	16	16	0	0.0	500	25	0.18	0.00	0.0	0.0	0.0	736.2	17.5
06/08/92	12	12	7.8	0.2	500	25	0.18	0.00	0.0	0.0	0.0	736.2	17.5
06/24/92	16	4	6.5	0.1	500	25	0.32	0.01	288.0	3.9	0.0	740.1	17.6
07/06/92	12	0	5	0.1	500	25	0.26	0.00	288.0	3.1	0.0	743.2	17.6
08/03/92	28	0	12	0.2	500	25	0.38	0.00	672.0	10.7	0.2	753.9	17.8
<b>TOTAL POUNDS REMOVED:</b>												<b>753.9</b>	<b>17.8</b>
<b>TOTAL GALLONS REMOVED:</b>												<b>113.0</b>	
<b>TOTAL HOURS OF OPERATION:</b>									<b>7224</b>				
<b>% OF OPERABLE HOURS:</b>									<b>72%</b>				
t = time of period since last sampling													
td = down time during period since last sampling													
TVH-g = total volatile hydrocarbons (calculated as gasoline)													
ug/L = micrograms per liter													
scfm = standard cubic feet per minute													
lb/day = pounds per day													
Net = net pounds removed during period													
Total = total pounds removed to date													



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group  
620 Contra Costa Blvd., #209  
Pleasant Hill, CA 94523  
Attention: Scott Plisle

Client Project ID: #276-90-2A / Arco #0276  
Sample Matrix: Air  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 208-0057

Sampled: Aug 3, 1992  
Received: Aug 4, 1992  
Reported: Aug 6, 1992

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 208-0057 Well Field	Sample I.D. 208-0058 INFL	Sample I.D. 208-0059 EFFL
Purgeable Hydrocarbons	5.0	160	12	N.D.
Benzene	0.05	2.6	0.17	N.D.
Toluene	0.05	0.77	0.17	0.11
Ethyl Benzene	0.05	0.21	N.D.	0.065
Total Xylenes	0.05	1.0	N.D.	0.34

Chromatogram Pattern: Gasoline Non-Gasoline Mixture (<C7)

### Quality Control Data

Report Limit Multiplication Factor:	2.0	1.0	1.0
Date Analyzed:	8/4/92	8/4/92	8/4/92
Instrument Identification:	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	115	110	106

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

2080057.PEG <1>



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group  
620 Contra Costa Blvd., #209  
Pleasant Hill, CA 94523  
Attention: Scott Pisle

Client Project ID: #276-90-2A / Arco #0276

QC Sample Group: 2080057-59

Reported: Aug 6, 1992

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	A.T.	A.T.	A.T.	A.T.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 4, 1992	Aug 4, 1992	Aug 4, 1992	Aug 4, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	4.0	4.0	4.0	12
Conc. Matrix Spike:	4.3	4.4	4.5	14
Matrix Spike % Recovery:	108	110	112	117
Conc. Matrix Spike Dup.:	4.2	4.3	4.3	14
Matrix Spike Duplicate % Recovery:	105	108	108	117
Relative % Difference:	2.3	2.3	4.6	0.0

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

2080057.PEG <2>

**ARCO Products Company**

Division of Atlantic Richfield Company

**Task Order No.**

**Chain of Custody**

ARCO Facility no. <span style="margin-left: 50px;">0276</span>	City (Facility) <span style="margin-left: 50px;">Rt.</span>	Project manager (Consultant) <span style="margin-left: 50px;">[ ]</span>	Laboratory name
ARCO engineer <span style="margin-left: 50px;">[ ]</span>	Telephone no. (ARCO)	Telephone no. (Consultant)	Contract number
Consultant name		Address (Consultant)	

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA 1632/8020/8015	TPH Modified 8015 Gas <input type="checkbox"/> Diesel <input type="checkbox"/>	Oil and Grease 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/>	TPH EPA 418.1/SMS509E	EPA 601/8010	EPA 62/8240	EPA 625/8270	TCUP Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	Semi Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	CMM Metals EPA 601/8000 TTL <input type="checkbox"/> STLC <input type="checkbox"/>	Lead Org./DHS Lead EPA 7420/7421 <input type="checkbox"/>	Method of shipment		
			Soil	Water	Other	ice	Acid																	
		1			X																			
		1			X																			
		1			X																			

Condition of sample:	Temperature received:	Priority Rush 1 Business Day <input type="checkbox"/>
Relinquished by sampler <span style="margin-left: 20px;">Date</span>	Time <span style="margin-left: 20px;">Received by</span>	Rush 2 Business Days <input type="checkbox"/>
<span style="margin-left: 100px;">8:43 AM</span>	<span style="margin-left: 100px;">[ ]</span>	Expedited 5 Business Days <input type="checkbox"/>
Relinquished by <span style="margin-left: 20px;">Date</span>	Time <span style="margin-left: 20px;">Received by</span>	Standard 10 Business Days <input type="checkbox"/>
Relinquished by <span style="margin-left: 20px;">Date</span>	Time <span style="margin-left: 20px;">Received by laboratory</span>	Date <span style="margin-left: 20px;">Time</span>

Identification

Project # 330-40.03  
Job # 276  
Site Address: 10600 MacArthur Blvd, Oakland, CA  
County: Alameda  
Project Manager: Dan Landry  
Requestor: John M.  
Client: ARCO  
Client P.O.C.: C. Carmel  
Date of request: 10/15/91

Project Type

- 1st Time visit
Quarterly
Monthly
Semi-Monthly
Weekly
One time event
Other:

Ideal field date(s): Monday, every 2 weeks

Prefield Contacts/Permits

- Cal Trans
County
City
Private
Multi-Consultant Scheduling
Date(s):

Site Safety

Concerns

Field Tasks

- System Sampling, System Start-up, System Repair, System Modification, System Resample, System Shut-down, Tank Pull, Soil Sampling, Subcontractor Observation, SPH Bailing, Report required for: ARCO monthly, Data summary required for:

Sample/use FID according to the following schedule:

Table with columns for site names (e.g., 2000, 1000, INFL, EFFL), FID frequency (M, S/M), and Bag Sample (Gas/BTEX) frequency (M, S/M, M). Includes handwritten notes: 'M=monthly, first visit of the month' and 'S/M=every 2 weeks (each site visit)'.

(Please attach: Site Map, Process and Instrumentation Diagram, Site Safety Plan, Well logs, Other information as appropriate)

Budgeted hours: Actual hours; On-Site: Mob-de-Mob:

Comments, remarks, etc. from Field Staff (include problems encountered and out-of-scope work)

Multiple horizontal lines for handwritten comments and remarks.

Completed by: Date: Checked by: PITS Update:

Name: Scott Pisle

Date/Time: 5/3/92 12:00

Soil Vapor Extraction System Measurements

1. Natural gas meter
2. Flame voltage
3. Natural gas pressure (psi)
4. Vacuum pressure from well field (inches of Hg)
5. Applied pressure to Anguil unit (psi)
6. Flow rate to Anguil unit
7. Inlet temperature
8. Outlet temperature
9. FID readings (ppm)

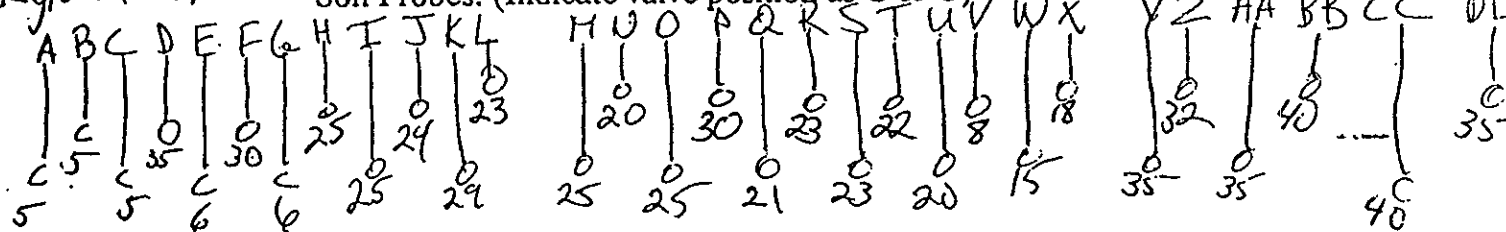
9546  
 18.0  
 0.2 ps.  
 4 in Hg  
 175 ps.  
 230 Scfm.  
 625  
 619

Ambient Background 4 ppm

Well Field  
 INFL 16.5 ppm.  
 EFFL 6.5 ppm.  
5 ppm.

Background 5 ppm

Soil Probes: (Indicate valve position as C or O)



10. Inspect/replace dilution intake filter (initials)
11. Check all piping and gas shutoff valves for leaks (initials)
12. Check all wiring and disconnects (initials)
13. Sweep enclosure (initials)

SP  
 SP  
 SP  
 SP

Comments System operating when I arrived.

Distribute a copy of this form to the project supervisor and file the original in the project file.