

March 28, 1994 SCI 838.001

APA Fund Ltd. c/o Mr. Nicholas Molnar 1904 Franklin Street, Suite 501 Oakland, California 94612

Quarterly Groundwater Monitoring Sampling Event - March 1994 2801 MacArthur Boulevard Oakland, California

Dear Mr. Molnar:

This letter presents quarterly groundwater monitoring results for the referenced site. Monitoring services were provided by Subsurface Consultants, Inc. (SCI) on behalf of the A.P.A. Fund Limited. Groundwater monitoring has been performed in accordance with the workplan by Streamborn dated January 31, 1992. The monitoring was required by the Alameda County Health Care Services Agency (ACHCSA), due to an underground gasoline tank release. The location of the site is shown on Plate 1.

Groundwater Sampling

On March 7, 1994 Wells M2, M3 and M4 and Piezometer P2 were purged In general, the groundwater monitoring event consisted of (1) measuring groundwater levels using an electric well sounder, (2) measuring free product thicknesses, (3) purging water from each well until pH, conductivity and temperature had stabilized (approximately 3 well volumes), and (4) after the wells had recovered to at least 50 percent of their initial level, sampling the wells with new disposable samplers. Those wells/piezometers that recharged very slowly (P2, M2 and M4) were purged dry, allowed to recharge for 4 hours, purged dry again and sampled when the wells had recharged sufficiently to submerge the sampler. A summary of groundwater purging and sampling information is presented in Table 1. The samples were retained in containers pre-cleaned by the supplier in accordance with EPA protocol. containers were placed in an ice filled cooler and remained iced until delivery to the analytical laboratory. Chain-of-Custody documents accompanied the samples to the laboratory. Purge water is stored on-site in 55-gallon steel drums.

Subsurface Consultants, Inc.

Mr. Nicholas Molnar APA Fund Ltd. SCI 838.001 March 28, 1994 Page 2

Analytical Testing

Analytical testing was performed by Curtis & Tompkins, Ltd., a laboratory certified by the State of California Department of Health Services for hazardous waste and water testing. A sample from each well was analyzed for the following:

- 1. Total petroleum hydrocarbons, as gasoline (TPH-gas), ample preparation and analysis using EPA Methods 5030 (purge and trap) and 8015 modified (gas chromatograph coupled to a flame ionization detector), and
- 2. Aromatic hydrocarbons, sample preparation and analysis using EPA Methods 5030 and 8020 (gas chromatograph coupled to a photoionization detector).

A summary of the current and previous analytical test results are presented in Table 2. The groundwater level data generated to date are presented in Table 3. Well sampling forms, analytical test reports, and Chain-of-Custody documents are attached. All sampling events prior to May 17, 1993 were conducted by Streamborn, the previous environmental consultant.

Conclusions

The groundwater level data indicates that the regional groundwater flow direction is toward the south-southeast at a gradient of approximately 6 percent. This groundwater flow direction and gradient generally remain consistent with previous measurements.

In general, the analytical results indicate that elevated concentrations of gasoline and BTXE remain in groundwater. The highest concentrations of gasoline/BTXE have been detected in Wells P2 and M2. Gasoline was not detected at concentrations above laboratory reporting limits in Well M3. No free product was measured in any of the wells. However, a slight sheen was observed in Piezometer P2 and a petroleum hydrocarbon odor was observed in Piezometer P2 and Wells M2 and M4.

Mr. Nicholas Molnar APA Fund Ltd. SCI 838.001 March 28, 1994 Page 3

In accordance with our monitoring plan, the next monitoring event will occur during June 1994. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Marianne F. Watada

Marianne Wortada

Project Engineer

James P. Bowers

Geotechnical Engineer 157 (expires 3/31/95)

MFW:JPB:sld

Attachments: Table 1 - Groundwater Purging and Sampling

Information

Table 2 - Hydrocarbon Concentrations in Groundwater

Table 3 - Groundwater Elevation Data

Plate 1 - Site Plan Well Sampling Forms Analytical Test Reports Chain-of-Custody Records

4 copies submitted

cc: Ms. Aniko Molnar

1920 Main Street, Suite 400 Irvine, California 92714

Table 1
Groundwater Purging and Sampling Information

<u>Location</u>	Date	Conductivity (umho/cm)	рĦ	Temperature °C	Sample Method	Purged (gallons)	Well Volumes <u>Removed</u>	Comments
P2	12/13/93	1130	8.7	20.0	Bailer	18	6 ¹	Clear with sheen and hydrocarbon odor
M2	12/13/93	1700	6.9	19.0	Bailer	20	8 ¹	Clear with hydrocarbon odor
М3	12/13/93	350	7.0	20.0	Bailer	10	4	Semi-clear
M4	12/13/93	1300	7.0	21.0	Bailer	16	8 ¹	Clear with hydrocarbon odor

Slow recharge well - purged dry, allowed to recharge for 4 hours, purged dry again, sampled when the wells had recharged sufficiently to submerge the bailer.

Table 2 Hydrocarbon Concentrations in Groundwater

Sample Location	Sample Date	TPH1	Benzene	<u>Toluene</u>	Ethyl- <u>benzene</u>	Xylenes
P1	01/16/92	6700	500	4.4	80	40
	03/09/93	5600	1100	29	63	120
P2	11/06/90	33000^{2}	4700	2100	380	630
	01/16/92	99000	6500	12000	2000	16000
	03/09/93	70000	5900	11000	2100	12000
	05/17/93	87000	6600	13000	2200	13000
	08/17/93	80000	5800	12000	2000	12000
	12/13/93	100000	5600	12000	2200	14000
	03/07/94	77000	5100	11000	2000	12000
Р3	08/17/93	900	180	65	10	93
M2	05/07/91	16000	1300	950	170	890
	01/16/92	22000	960	570	370	1800
	03/09/93	27000	1100	970	490	1400
	05/17/93	17000	1200	770	480	1300
	08/17/93	20000	1700	910	540	1400
	12/13/93	51000	2200	1400	700	2600
	03/07/94	28000	1400	900	640	1800
МЗ	05/17/93	<50	<0.5	<0.5	<0.5	<0.5
	08/17/93	<50	<0.5	<0.5	<0.5	<0.5
	12/13/93	<50	<0.5	<0.5	<0.5	<0.5
	03/07/94	<50	<0.5	<0.5	<0.5	<0.5
M4	05/17/93	7500	1200	230	11	350
	08/17/93	13000	3000	330	130	700
	12/13/93	11000	2700	190	90	360
	03/07/94	3800	980	33	49	140

TPH = Total petroleum hydrocarbons, as gasoline All concentrations are reported in micrograms per liter (ug/l)

Table 3 Groundwater Elevation Data

<u>well</u>	TOC ¹ Elevation	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
M1	1000.00	10/24/90	36.1	963.9
PLL	1000.00	10/25/90	36.1	963.9
		$10/23/90^2$ $11/02/90^2$	36.4	963.6
		11/02/90	36.8	963.2
		11/16/90	36.8	963.2
		11/23/90	36.9	963.1
		11/23/90	37.0	963.0
		12/05/90	37.2	963.0
			35.8	964.2
		03/18/91	32.4	967.6
		03/29/91	31.9	968.1
		04/03/91	31.6	968.4
		04/09/91	31.2	968.8
		04/16/91	31.1	968.9
		04/18/91 04/30/91	31.1	968.9
			31.2	968.8
		05/07/91		964.5
		01/23/92	35.5	
		03/09/93	29.1	970.9
		06/01/93	27.5	972.9
		12/13/93	33.9	966.1
		03/07/94	30.0	970.0
M2	999.6	04/30/91	31.1 ³	968.5 ³
		05/07/91	31.3^{3}	968.3 ³
		01/16/92	35.1 ³	964.5^{3}
		03/09/93	33.6^{3}	966.0
		05/17/93	27.2^{3}	972.4
		06/01/93	27.6 ³	972.0
		08/17/93	30.4^{3}	969.2
		12/13/93	34.0^{3}	965.6
		03/07/94	30.1 ³	969.5
М3	992.8	05/17/93	22.2	970.6
		06/01/93	23.3	969.5
		08/17/93	25.0	967.8
		12/13/93	25.8	967.0
		03/07/94	23.1	969.7
M4	999.6	05/17/93	33.83	965.8
		06/01/93	32.5 ³	967.1
		08/17/93	33.9^{3}	965.7
		12/13/93	36.8 ³	962.8
		03/07/94	33.0^{3}	966.6

Table 3.
Groundwater Elevation Data (Cont.)

Well	TOC ¹ Elevation	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
P1	999.6	10/24/90	37.9	961.7
T. T.	333.0	10/25/90	38.0	961.6
		$11/02/90^2$	38.4	961.2
		11/02/90	38.7	960.9
		11/16/90	38.3	961.3
		11/23/90	38.1	961.5
		11/28/90	38.3	961.3
		12/05/90	38.2	961.4
		03/18/91	37.8	961.8
		03/29/91	36.9	962.7
		04/03/91	36.8	962.8
		04/09/91	36.9	962.7
		04/16/91	36.7	962.9
		04/18/91	36.8	962.8
		04/30/91	36.3	963.3
		05/07/91	36.2	963.4
		01/16/92	36.6 ³	963.0^{3}
		03/09/93	32.8	966.8
		06/01/93	30.0^{3}	969.6
		12/13/93	33.7^{3}	965.9
		03/07/94	32.6	967.0
P2	007.0	10/24/00	41 1	056.7
P Z	997.8	10/24/90	41.1	956.7
		10/25/90	40.6	957.2
		$11/02/90^2$	38.4	959.4
		11/06/90	37.0	960.8
		11/16/90	37.4 35.9	960.4
		11/23/90	35.4 ³	961.9
		11/28/90	35.0 ³	962.4 ³
		12/05/90		962.8 ³
		03/18/91	31.4^3	966.4^3
		03/29/91	28.2^{3}	969.6^{3}
		04/03/91	26.8 ³ 26.5 ³	971.0^{3}
		04/09/91		971.3 ³
		04/16/91	26.5^3	971.3^3
		04/18/91	26.5 ³	971.3^{3}
		04/30/91	26.7^3	971.1^{3}
		05/07/91	27.0^{3}	970.8 ³
		01/16/92	33.7^3	964.1 ³
		03/09/93	23.6 ³	974.2
		05/17/93	23.7^{3}	974.1
		06/01/93	24.4^{3}	973.4
		08/17/93	28.3 ³	969.5
		12/13/93	31.0^3	966.8
		03/07/94	25.4 ³	972.4

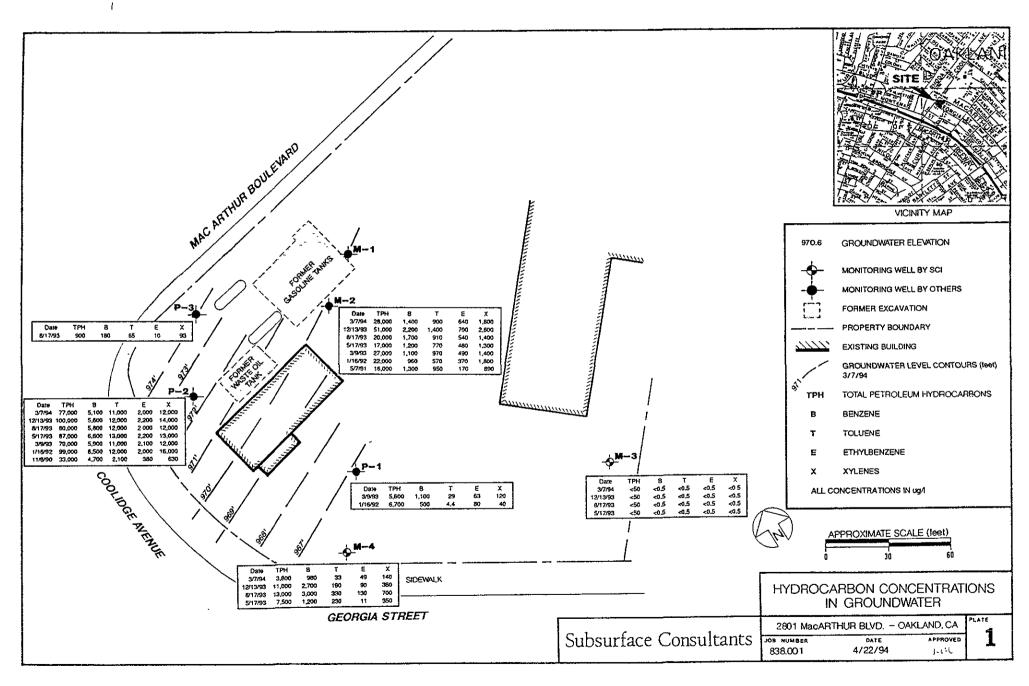
Table 3.
Groundwater Elevation Data (Cont.)

Well	TOC1 <u>Elevation</u>	<u>Date</u>	Groundwater Depth (feet)	Groundwater Elevation (feet)
P3	999.1	03/29/91	24.7	974.4
		04/03/91	25.1	974.0
		04/09/91	25.9	973.2
		04/16/91	26.2	972.9
		04/18/91	26.2	972.9
		04/30/91	26.8	972.3
		05/07/91	27.4	971.7
		01/23/92	32.5	966.6
		03/09/93	24.8	974.3
		06/04/93	23.9	975.2
		08/17/93	28.5^{3}	970.6
		12/13/93	29.3^{3}	969.8
		03/07/94	25.0^{3}	974.1

Elevations relative to site-specific datum. Temporary Bench Mark No. 1, top of concrete at west corner of northernmost pump island. Assumed elevation = 1,000.00 feet.

An interface probe was used to discern whether free product was present - free product was not detected with the probe.

A petroleum odor and/or coating was observed on the water level probe.



Containers Used 3
40 ml liter pint

Subsurface Consultants 2801 MACARTHUR BLVD - OAKLAND, CA
JOB NUMBER DATE APPROVED 838.001

WELL SA	MPLING FORM
Project Name: APA FUND	Well Number: M2
Job No.: 838.001	
Sampled By: F.V	Date: <u>3-7-94</u>
TOC Elevation:	Weather: Sunny
Depth to Casing Bottom (below TOC) Depth to Groundwater (below TOC) Feet of Water in Well Depth to Groundwater When 80% Recovered Casing Volume (feet of water x Casing DIA 2 x 0.040) Depth Measurement Method Tape & Past	feet () () () () () () () () () () () () ()
Purge Method Disposible bailer	
	Conductivity micromhos/cm) Salinity S% Comments mi/s Clar slight
6 6.99 19.0 8 6-92 19.0 10 6.89 19.0 Total Gallions Purged	1700 — 11 1700 — 11 1700 — 11 1700 — 11 + 8 more gallons before Simplify allons
Depth to Groundwater Before Sampling (below TOC	c) <u>39.05</u> feet
Sampling Method Disposible bails	ęr
Containers Used 3 life 40 ml life	iter pint
Subsurface Consultants	2801 MACARTHUR BLVD - OAKLAND, CA B NUMBER DATE APPROVED 338.001

Wi	ELL SAMPLI	ING FORM	ı		
Project Name: APA FUND		Well Numi	ber: <u>M3</u>)	
Job No.: 838.001			ing Diameter:	2	inch
Sampled By: FV			3-7-94		
TOC Elevation:			Sunny		
	}				
Depth to Casing Bottom (below TOC)	39.86	<u></u>			_ feet
Depth to Groundwater (below TOC)	23110				_ feet
Feet of Water in Well	16.76				- feet
Depth to Groundwater When 80% Recove	ered 2	6,45		· · · · · · · · · · · · · · · · · · ·	_ feet
Casing Volume (feet of water x Casing DIA	A ² x 0.0408) _		2.74		gallons
Depth Measurement Method Ta				Other	
Free Product					
Purge Method Disposible bo		Manage Management			
FIEL	_D MEASURI				
Gallons Removed pH Temp		luctivity nhos/cm)	Salinity S%	Comr	ments
2 6.99 19.	5 3	50		<u>Clear</u>	1
7.48 19	$\frac{0}{\sqrt{2}}$	2 <u>0</u>		<u>Semi-K</u>	ilan
<u>6</u> 7.02 20	0,0 35	20 CO		11	
8 1.03 20 10 7.01 20.	$\frac{0}{0}$ $\frac{3}{3}$	<u>50</u> 50		1(
		<u>/ </u>			
Total Gallons Purged		011			gallons
Depth to Groundwater Before Sampling (b		26.4	. J		feet
Sampling Method DISPOSIBLE	bailer				
Containers Used 3	liter		pint		
40 ml	liter		hur		
		MACADTIU.	JR BLVD - OAKLA	/ND CA	PLATE
ubsurface Consulta	nts 2801	MACAHIMU	IL DEAD - OWVEY	AND, CA	

838.001

WELL SAMPLING FORM

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants 171 12th Street Suite 201 Oakland, CA 94608

Date: 15-MAR-94 Lab Job Number: 114652 Project ID: 838.001

Location: A.P.A. Fund

Reviewed by:

Reviewed by:

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Berkeley

Los Angeles



LABORATORY NUMBER: 114652

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 838.001 LOCATION: A.P.A. FUND DATE SAMPLED: 03/07/94
DATE RECEIVED: 03/08/94
DATE ANALYZED: 03/10/94
DATE REPORTED: 03/15/94

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
114652-001 114652-003	P-2 M-3	77,000 ND(50)	5,100 ND(0.5)	11,000 ND(0.5)	2,000 ND(0.5)	12,000 ND(0.5)
METHOD BLAN	K	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/	QC	SUMMARY
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224	
RPD, %	<1
RECOVERY, %	100



LABORATORY NUMBER: 114652

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 838.001 LOCATION: A.P.A. FUND DATE SAMPLED: 03/07/94
DATE RECEIVED: 03/08/94
DATE ANALYZED: 03/12/94
DATE REPORTED: 03/15/94

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE	ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
114652-002 114652-004	M-2 M-4		28,000 3,800	1,400 980	900	640 49	1,800 140
METHOD BLAN	ĸ		ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

RPD, % 1 RECOVERY, % 98

CHAIN OF CUSTODY FORM	CHAIN OF CUSTODY FORM								
PROJECT NAME: A.P.A. Fund									
JOB NUMBER: 337.001	LAB: _C	Jurtis + Tompkins							
PROJECT CONTACT: Marianne			_						
SAMPLED BY: FERNANDO	RLEZ neques	STED BY: M. Watada							
OAMI LLO DI			 검						
N	ATHIX CONTAINERS	METHOD PRESERVED SAMPLING DATE	1 1 1						
LABORATORY SAMPLE			_						
1.D. NUMBER NUMBER SAMPLE	WASIE AIR LITER TUBE	SAMPLING DATE SAMPLING DATE SAMPLING DATE TIME DAY YEAR TIME	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1						
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-3 M-3 X		X X 03 07 9 F							
-4 M-4 X		X X 030794	- - ^ - - - -						
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CHAIN OF CUS	TODY RECORD	COMMENTS & NOTES:							
HELEASED BY: (91guaturo) DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME							
3-8-94 10:40	Many plessan 31	18/9y 10:41 an							
RELEASED BY: (Signature) DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME							
RELEASED BY: (Signature) . DATE / TIME	NECEIVED BY: (Signaturo)	DATE/TIME	~						
			Consultants, Inc.						
RELEASED BY: (Signature) DATE / TIME	RECEIVED BY: (Signaturo)	DATE / TIME 171 12TH STREET, SUITE 20 (510) 268-0461	01, OAKLAND, CALIFORNIA 94607 • FAX: 510-268-0137						