A.P.A. Fund, Ltd.
1904 Franklin Street
Suite 501
Oakland, CA 94612

April 27, 1993

Mr. Thomas Peacock
Alameda County Health Care Services Agency
Department of Environmental Health
UST Local Oversight Group
80 Swan Way Room 200
Oakland, CA 94621

RE: 2801 MacArthur Blvd., Oakland, CA
STID 23

Dear Mr. Peacock:

Enclosed is the most recent groundwater monitoring report for the above referenced project. Groundwater sampling was performed by Streamborn on March 9, 1993.

As I recently informed you by telephone, we have retained Subsurface Consultants, Inc. to perform the next phase of field work. The field work was scheduled for April 27 and 28, 1993 and is being performed in accordance with the approved work plan by Streamborn dated January 31, 1992. Upon receipt and evaluation of the data, we will be submitting a report summarizing the results of the filed activities.

If you have any questions please call me at (714) 675-1267.

Sincerely,

Aniko R. Molnar

Aniko R. Molnar

cc: Rich Hiett, RWQCB
Gil Jensen, Alameda County District Attorney's Office
(w/out enclosure)
Raymond Yu

STREAMBORN

510/528-4234
Fax 528-2613

A.P.A. Fund Limited
c/o Nicholas Molnar
Califrance Corporation
1904 Franklin Street
Oakland CA 94612

6 April 1993

Project No. P26

Data Submittal - Groundwater Monitoring
Former Service Station
2801 MacArthur Boulevard
Oakland CA

Dear Mr. Molnar:

Attached is our data submittal documenting analytical results of groundwater sampling performed on 9 March 1993 for piezometers P1 and P2, and monitoring well M2 (Figures 1 and 2).

This submittal includes the following updated tables:

- Table 1 presents a chronology of environmental activities.
- Table 2 summarizes groundwater elevation measurements.
- Table 3 includes groundwater purging and sampling information.
- Table 4 contains analytical results of groundwater sampling.

Analytical results revealed elevated concentrations of total petroleum hydrocarbons as gasoline and benzene, toluene, ethylbenzene, and xylenes.

The direction of groundwater gradient is presented in Figure 3.

The standard operating procedures we employed are contained in Attachment 1. The groundwater sampling forms are contained in Attachment 2, the chain-of-custody form is presented in Attachment 3, and the laboratory data sheet is contained in Attachment 4. Purge water generated prior to sampling was containerized in a 55-gallon drum and stored onsite.

We appreciate the opportunity to serve A.P.A. Fund Limited. Please call with any questions.

Sincerely,

STREAMBORN

Colette M. Shelly
Environmental Scientist

Attachments

Mail: P.O. Box 9504, Berkeley CA 94709-0504

Office: 900 SantaFe Avenue, Albany CA 94706

Table 1

Chronology

Date	Performed By	Field Activity
May 1989	Riedel	Three underground gasoline tanks removed from a single excavation; verification soil sampling conducted.
12 June 1989	Riedel	Drilling and soil sampling of boring B1.
3 July 1989	Riedel	Underground waste oil tank and associated petroleum-stained soil removed, verification soil sampling conducted.
13 and 14 July and 25, 28, and 30 August 1989	Riedel	Drilling and soil sampling of borings B2 through B9.
18 October 1990	Streamborn	Drilling and soil sampling of borings B10 and B11. Measurement of water levels.
19 October 1990	Streamborn	Drilling and soil sampling of P1. Partial drilling and soil sampling of P2. Completion of P1 as a piezometer. Surveying of ground surface at B10, B11, P1, and P2. Measurement of water levels.
20 October 1990	Streamborn	Complete drilling and soil sampling of P2. Partial completion of P2 as a piezometer. Drilling, soil sampling, and partial completion of M1 as a monitoring well. Measurement of water levels.
21 October 1990	Streamborn	Completion of M1 and P2. Grouting of B10 and B11. Measurement of water levels.
25 October 1990	Streamborn	Surveying of measuring points for M1, P1, and P2. Measurement of water levels.
26 October 1990	Streamborn	Measurement of water levels. Bailing of P1, P2, and M1 to allow recovery and verification of water levels.
2 November 1990	Streamborn	Measurement of water levels. Monitoring for floating product at P1, P2, and M1 using an interface probe (no product detected).
6 November 1990	Streamborn	Development and sampling of P2.
16 November 1990	Streamborn	Measurement of water levels.
23 November 1990	Streamborn	Measurement of water levels.
28 November 1990	Streamborn	Measurement of water levels.
5 December 1990	Streamborn	Measurement of water levels.
18 March 1991	Streamborn	Drilling, soil sampling, and completion of P3 as a piezometer. Measurement of water levels.
29 March 1991	Streamborn	Measurement of water levels.
3 April 1991	Streamborn	Measurement of water levels.
9 April 1991	Streamborn	Measurement of water levels.
16 April 1991	Streamborn	Measurement of water levels.
18 April 1991	Streamborn	Drilling, soil sampling, and completion of M2 as a monitoring well. Measurement of water levels.
30 April 1991	Streamborn	Development of M2. Measurement of water levels.
7 May 1991	Streamborn	Purging and sampling of M2. Measurement of water levels.
16 January 1992	Streamborn	Measurement of water levels, purging and sampling of P1, P2, and M2.
23 January 1992	Streamborn	Measurement of water levels.
9 March 1993	Streamborn	Measurement of water levels, purging and sampling of P1, P2, and M2.

General Notes

(a) Riedel = Riedel Environmental Services, Richmond CA.

(b) Streamborn = Streamborn, Berkeley CA.

Table 2

Groundwater Elevation Measurements

Location	B10		B11		M1		M2		P1		P2		P3	
Measuring Point	Ground Surface-N Side, Elevation 998.6		Ground Surface-N Side, Elevation 997.8		Top of PVC Casing-N Side, Elevation 1,000.0 (Ground Surface-N Side, Elevation 1,000.3)		Top of PVC Casing-N Side, Elevation 999.6 (Ground Surface-N Side, Elevation 999.9)		Top of PVC Casing-N Side, Elevation 999.6 (Ground Surface-N Side, Elevation 999.8)		Top of PVC Casing-N Side, Elevation 997.8 (Ground Surface-N Side, Elevation 998.1)		Top of PVC Casing-N Side, Elevation 999.1 (Ground Surface-N Side, Elevation 999.3)	
	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
Intercepted Interval	0.0 to 50.0	948.6 to 998.6	0.0 to 51.5	946.3 to 997.8	32.5 to 45.9	954.4 to 967.8	35 to 45	954.9 to 964.9	27.5 to 38.8	961.0 to 972.3	33 to 43	955.1 to 965.1	35 to 45	964.3 to 954.3
18 October 1990 (18:45 hrs)	45.6	953	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
19 October 1990 (10:00 hrs)	37.8	960.8	32.0	965.8	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
19 October 1990 (13:20 hrs)	37.2	961.4	31.6	966.2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
20 October 1990 (8:00 hrs)	35.0	963.8	32.2	965.6	NM	NM	NM	NM	38.0 (1)	961.8	NM	NM	NM	NM
21 October 1990 (9:00 hrs)	34.5	964.1	32.4	965.4	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
24 October 1990	NM	NM	NM	NM	36.1	963.9	NM	NM	37.9	961.7	41.1	956.7	NM	NM
25 October 1990	NM	NM	NM	NM	36.1	963.9	NM	NM	38.0	961.6	40.6	957.2	NM	NM
2 November 1990 (2)	NM	NM	NM	NM	36.4	963.6	NM	NM	38.4	961.2	38.4	959.4	NM	NM
6 November 1990	NM	NM	NM	NM	36.8	963.2	NM	NM	38.7	960.9	37.0	960.8	NM	NM
16 November 1990	NM	NM	NM	NM	36.8	963.2	NM	NM	38.3	961.3	37.4	960.4	NM	NM
23 November 1990	NM	NM	NM	NM	36.9	963.1	NM	NM	38.1	961.5	35.9	961.9	NM	NM
28 November 1990	NM	NM	NM	NM	37.0	963.0	NM	NM	38.3	961.3	35.4 (3)	962.4	NM	NM
5 December 1990	NM	NM	NM	NM	37.2	962.8	NM	NM	38.2	961.4	35.0 (3)	962.8	NM	NM
18 March 1991	NM	NM	NM	NM	35.8	964.2	NM	NM	37.8	961.8	31.4 (3)	966.4	NM	NM
29 March 1991	NM	NM	NM	NM	32.4	967.6	NM	NM	36.9	962.7	28.2 (3)	969.6	24.7	974.4
3 April 1991	NM	NM	NM	NM	31.9	968.1	NM	NM	36.8	962.8	26.8 (3)	971.0	25.1	974.0
9 April 1991	NM	NM	NM	NM	31.6	968.4	NM	NM	36.9	962.7	26.5 (3)	971.3	25.9	973.2
16 April 1991	NM	NM	NM	NM	31.2	968.8	NM	NM	36.7	962.9	26.5 (3)	971.3	26.2	972.9
18 April 1991	NM	NM	NM	NM	31.1	968.9	NM	NM	36.8	962.8	26.5 (3)	971.3	26.2	972.9
30 April 1991	NM	NM	NM	NM	31.1	968.9	31.1 (3)	968.5	36.3	963.3	26.7 (3)	971.1	26.8	972.3
7 May 1991	NM	NM	NM	NM	31.2	968.8	31.3 (3)	968.3	36.2	963.4	27.0 (3)	970.8	27.4	971.7
16 January 1992	NM	NM	NM	NM	NM	NM	35.1 (3)	964.5	36.6 (3)	963.0	33.7 (3)	964.1	NM	NM
23 January 1992	NM	NM	NM	NM	35.5	964.5	NS	NS	NS	NS	NS	NS	32.5	966.6
9 March 1993	NM	NM	NM	NM	29.1 (4)	970.9	33.6 (3)(4)	966.0	32.8	966.8	23.6 (3)	974.2	24.8 (4)	974.3
Most recent total depth	NM	NM	NM	NM	44.3	955.7	44.9	954.7	38.8	960.8	42.2	955.6	45.1	954.0

General Notes

(a) Measurements in units of feet.

(b) 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.

(c) NM = not measured.

(d) NS = groundwater level not stabilized due to recent purging (16 January 1992).

(e) For borings B10 and B11, water levels measured relative to ground surface. The remaining water levels measured relative to casing, except as footnoted.

Footnotes

(1) Measured relative to ground surface prior to surveying of PVC casing.

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

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

(4) Upon opening the well, a pressurized headspace was observed. Water level was recorded fifteen minutes after opening.

Table 3

Groundwater Purging and Sampling Information

Location	Sample Designation	Sample Date	Sample Time	Type of Sample	Specific Conductance (µmho/cm² at field temperature)	pH	Temperature (degrees F)	Dissolved Oxygen (% saturation)	Purge Method	Purge Duration (minutes)	Volume Purged (gallons)	Static Casing Volumes Removed	Comments
P1	P1 (9 MARCH 93)	9 March 1993	10:00	Grab (bailer)	1,900	7.2	68	18	Bailer	35	3	±3	Translucent, colorless
P2	P2 (9 MARCH 93)	9 March 1993	11:15	Grab (bailer)	1,000	11.8	77	23	Bailer	60	9	±3	Translucent, colorless. Elevated pH measurement reflects the effect of grout seal abutting the base of the filter-pack. Oily yellow spots of product were initially observed in purge water.
M2	M2 (9 MARCH 93)	9 March 1993	12:20	Grab (bailer)	1,900	6.9	77	17	Bailer	35	6	±3	Translucent, colorless.

Table 4

Results of Groundwater Analyses

Sample Location	Sample Designation	Sample Date	Sample Collection Method	Total Petroleum Hydrocarbons As Gasoline (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Xylenes (µg/l)	Comments
P1	16Jan92P1	16 January 1992	Purge and Sample with Bailer	6,700	500	4.4	80	40	
P1	P1 (9 MARCH 93)	9 March 1993	Purge and Sample with Bailer	5,600	1,100	29	63	120	
P2	P2	6 November 1990	Purge and Sample with Bailer	33,000	4,700	2,100	380	630	Elevated specific conductance and pH were measured during sampling reflecting the effect of grout seal abutting the base of the filter-pack.
P2	16Jan92P2	16 January 1992	Purge and Sample with Bailer	99,000	6,500	12,000	2,000	16,000	Elevated pH and partially elevated specific conductance measured during sampling relecting the effect of grout seal abutting the base of the filter-pack. Approximately 1/16-inch of product was initially observed in bailer and a product sheen was observed in the sample container.
P2	P2 (9 MARCH 93)	9 March 1993	Purge and Sample with Bailer	70,000	5,900	11,000	2,100	12,000	Elevated pH measured during sampling, relecting the effect of grout seal abutting the base of the filter-pack. Oily yellow spots of product were initially observed in purge water.
M2	M2-GW1	7 May 1991	Purge and Sample with Bailer	16,000	1,300	950	170	890	
M2	16Jan92M2	16 January 1992	Purge and Sample with Bailer	22,000	960	570	370	1,800	
M2	M2 (9 MARCH 93)	9 March 1993	Purge and Sample with Bailer	27,000	1,100	970	490	1,400	

General Note

(a) Laboratory analyses by Chromalab, San Ramon CA

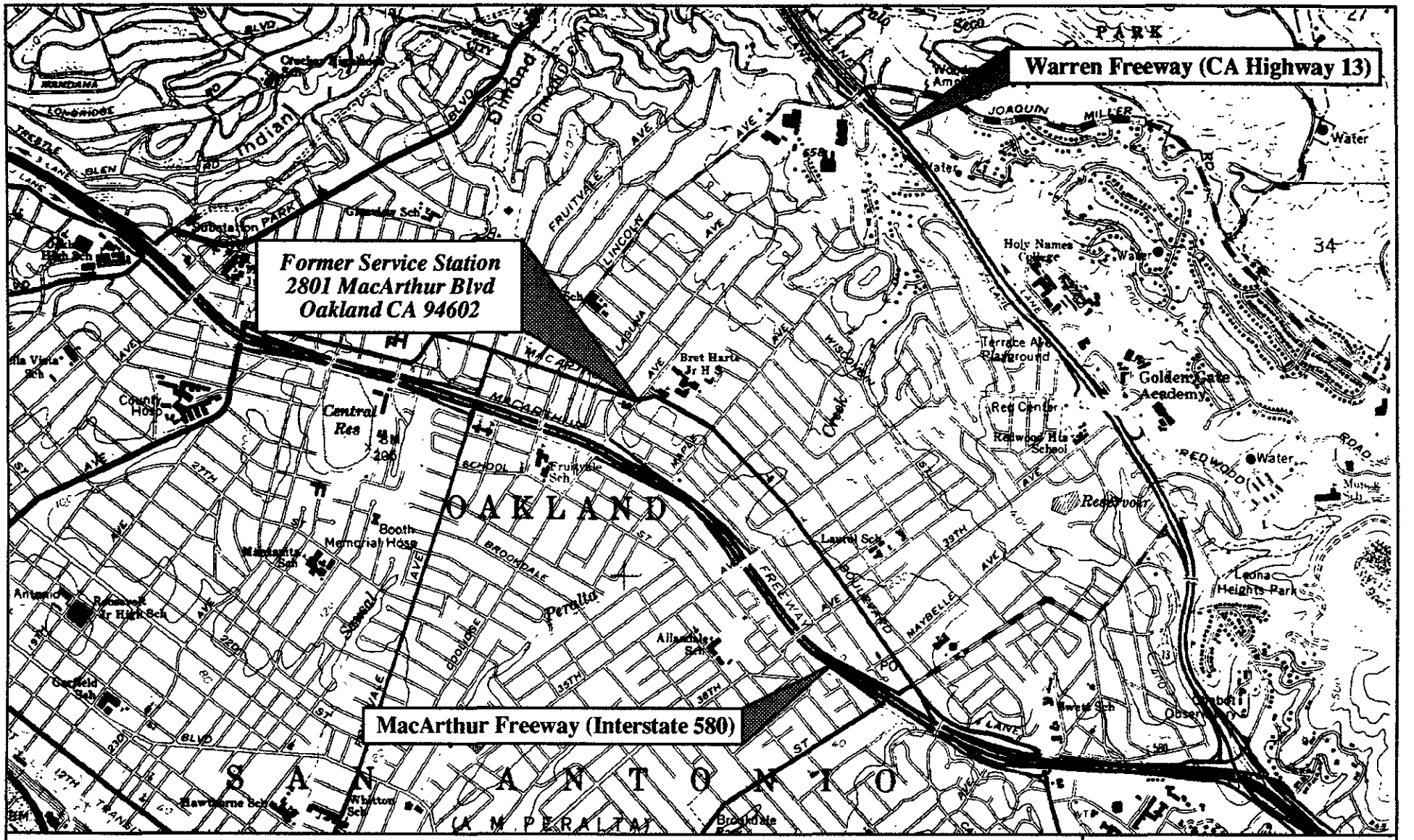

Figure 1

Location Map

2801 MacArthur Boulevard
Oakland CA

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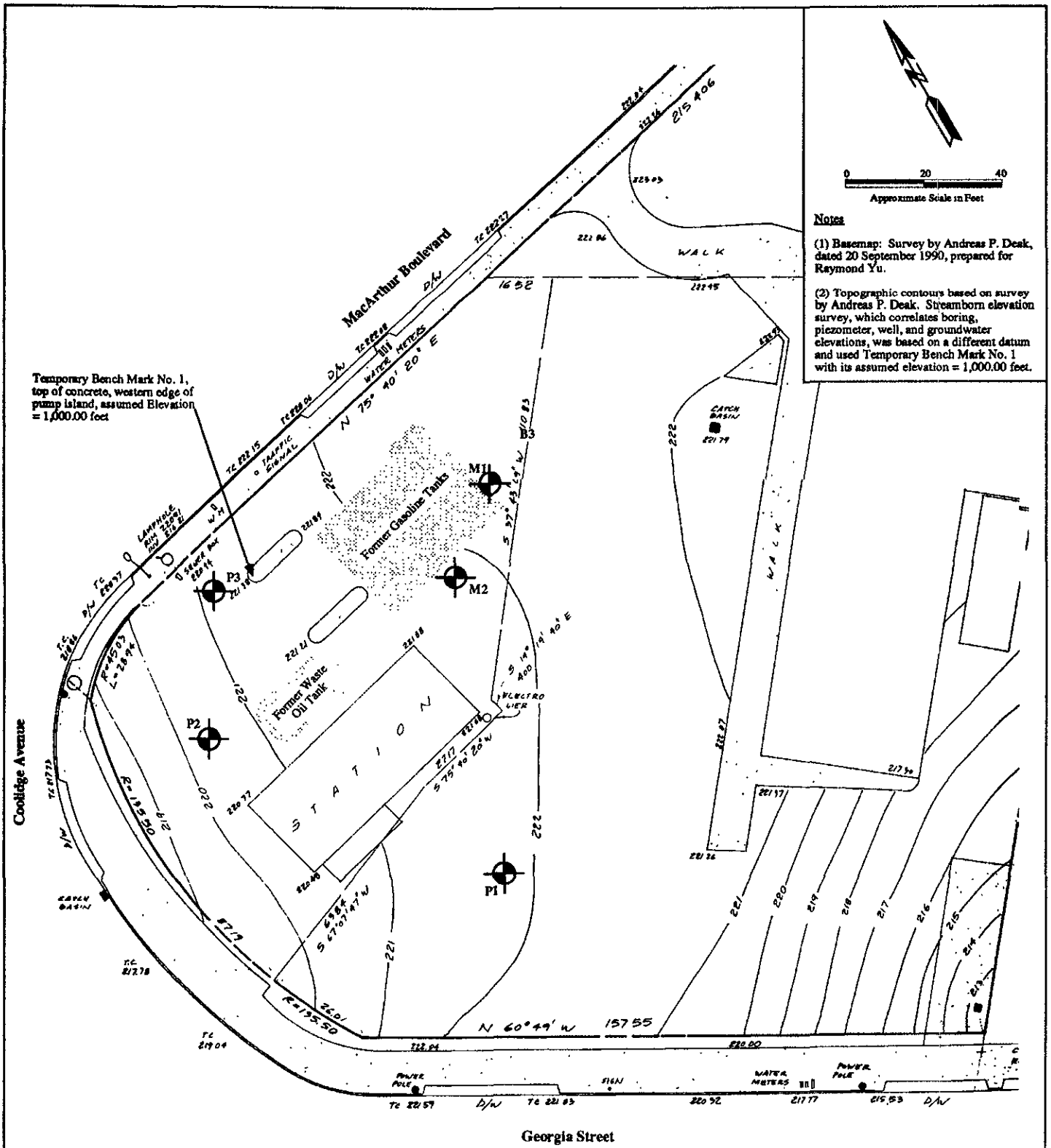

Notes

(1) Basemap: Survey by Andreas P. Deak, dated 20 September 1990, prepared for Raymond Yu.

(2) Topographic contours based on survey by Andreas P. Deak. Streamborn elevation survey, which correlates boring, piezometer, well, and groundwater elevations, was based on a different datum and used Temporary Bench Mark No. 1 with its assumed elevation = 1,000.00 feet.

Legend

M2 Piezometer/Monitoring Well

Former Excavation

Figure 2

Piezometer/Well Locations

2801 MacArthur Boulevard Oakland CA

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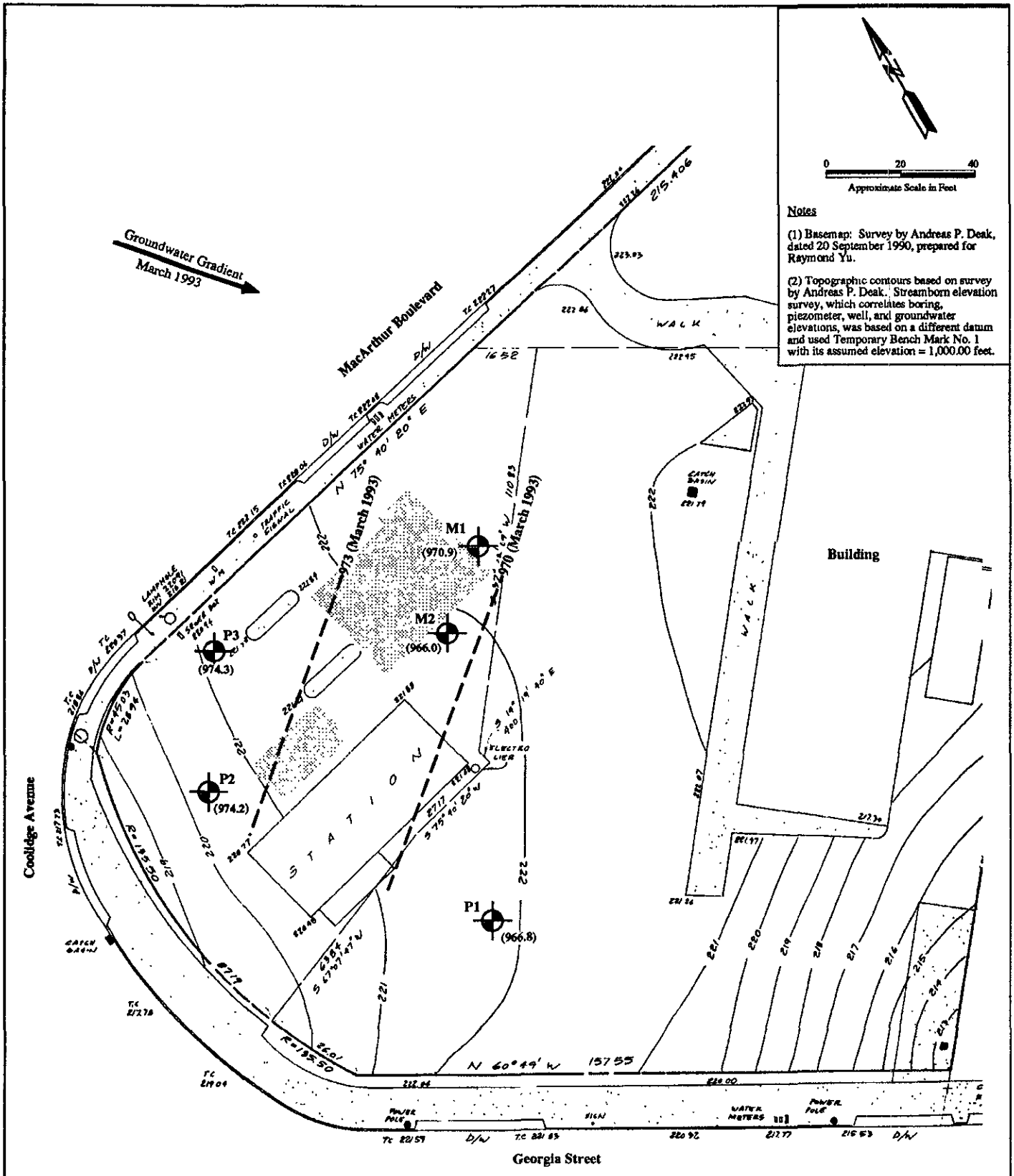

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(2) Topographic contours based on survey by Andreas P. Deak. Streamborn elevation survey, which correlates boring, piezometer, well, and groundwater elevations, was based on a different datum and used Temporary Bench Mark No. 1 with its assumed elevation = 1,000.00 feet.

Legend

M2 (966.3) — Piezometer/Monitoring Well and Measured Groundwater Elevation (feet)

970 (March 1993) — Groundwater Elevation Contour and Date of Measurement (feet, elevation datum corresponds to Temporary Bench Mark No. 1)

Former Excavation

NOTE: Measurement at M2 was not used in interpreting the direction of groundwater gradient.

Figure 3

Groundwater Elevations (March 1993)

2801 MacArthur Boulevard Oakland CA

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ATTACHMENT 1

Standard Operating Procedure

STANDARD OPERATING PROCEDURE (SOP) 16A
WELL PURGING AND SAMPLING ASSOCIATED WITH UNDERGROUND TANK RELEASES

1.0 INTRODUCTION AND SUMMARY

This SOP describes procedures to purge and sample wells that have been properly installed and developed for the investigation of potential or confirmed releases from underground tanks. Typically, this SOP will be used for sampling monitoring wells with 2- or 4-inch diameter casing. The sampling described herein is appropriate for groundwater analyses typically required for underground tank release investigations, including: volatile and semivolatile organic compounds. For newly installed and developed wells, the purging and sampling described in this SOP is typically performed at least 7 days after well development to allow ambient groundwater conditions to re-establish in the vicinity of the well.

The procedures described in this SOP should be modified for domestic wells or wells with dedicated sampling equipment. The procedures should also be modified if product is observed in the well.

Typical well sampling and purging activities include decontaminating the purging and sampling equipment, purging the stagnant water from the well casing and filter pack by pumping or bailing, measuring field parameters and volume of evacuated groundwater during purging, terminating the purging process when field parameters stabilize, collecting groundwater samples by pumping or bailing, and labeling and preserving the collected samples.

2.0 EQUIPMENT AND MATERIALS

- Water sampling log
- Buckets and bristle brushes for decontamination
- Low residue, organic free soap such as Liquinox or Alconox
- If sampling is to be performed for metals, dilute (10%) reagent-grade nitric acid (for decontamination)
- Tap water (for decontamination)
- Distilled water (for decontamination and potential quality control blank samples)
- Cooler with ice (do not use blue ice or dry ice)
- Ziplock bags of size to accommodate sample containers
- Steel, 55-gallon, open-top drums, DOT 17H
- Field organic vapor monitor. The make, model, and calibration information of the field organic vapor monitor (including compound and concentration of calibration gas) should be documented.
- Laboratory-cleaned containers of proper type and size for the analytical parameters (refer to Table 1)
- Glass beaker, ±250 milliliter for measurement of field parameters. A similar flow-through cell may also be used.
- Water level meter

- pH, temperature, and specific conductivity instruments, including pH and specific conductivity standards approximating or spanning the natural groundwater parameters. Oxidation-reduction potential (ORP) or dissolved oxygen meters may also be required.
- Purging equipment consisting of the following:

  PVC, Teflon, or stainless steel bailer with dedicated or new bailer rope.
- Sampling device consisting of the following:

  Teflon or stainless steel bailer with dedicated or new bailer rope. If samples are collected for volatile organic compound analysis, bailer should also be fitted with bottom-emptying device.

As specified in the Site Safety Plan, additional safety and personnel decontamination equipment and materials may be needed.

3.0 TYPICAL PROCEDURES

The following procedures are intended to cover the majority of purging and sampling conditions. However, normal field practice requires re-evaluation of these procedures and implementation of alternate procedures upon encountering unusual or unexpected conditions. Deviations from the following procedures may be expected and should be documented.

1. Remove top cap and perform field organic vapor monitoring of well casing. Also observe odor. Record measurement and observation on water sampling log.
2. Measure static water level and total depth and compare to historic measurements. Re-measure if discrepancies are noted with historic data. Document observations of product, if appropriate. Calculate volume of standing water in casing. Water quality samples are not generally considered representative in the presence of product. Accordingly, it may be appropriate to abandon sampling efforts if product is discovered.
3. Decontaminate purging and sampling equipment.
4. Begin purging and if possible, adjust purge rate to expose as little of the screened interval as possible (subject to reasonable time constraints). Record the following observations on the water sampling log at the beginning of purge, periodically during purge, and during sampling:
   - Purge volume and time
   - pH, temperature, and specific conductivity
   - Turbidity (clarity and color)
   - Approximate drawdown and well yield during purge
   - Whether well was purged dry
   - Other observations (such as presence of product) as appropriate
5. Terminate purging when one of the following conditions is observed:

   Quick Recharge Wells: Stabilized field parameters and at least 3 casing volumes of standing water have been removed - ready for sampling. If field parameters have not stabilized after removal of 5 casing volumes of

standing water, terminate purging anyway. Wells should be allowed to recover to at least 1/2 the original standing water depth prior to sampling.

Slow Recharge Wells: Wells that are initially purged dry, and do not recover to 1/2 the original standing water depth within 4 hours, should be purged dry again and then sampled when sufficient recovery has occurred to sample. Generally, 1-foot of recovery may be considered sufficient recovery.

6. If recharge has submerged the entire screened interval, sample from mid-depth of screened interval. Otherwise, sample from mid-depth of water column at time of sampling.
7. Fill sample containers directly and preserve according to the requirements of Table 1. Containers should generally filled to capacity. Containers for volatile organic compound analysis should be filled from the bottom using a bottom-emptying device fitted into the bailer. Containers for volatile organic compound analysis should not have headspace.
8. Label sample containers, place in ziplock bag, and place on ice in cooler.
9. Log samples onto chain-of-custody form and maintain sample custody until shipped to or picked up by laboratory.
10. Containerize purge water and excess sample in steel drum(s). Label drum(s) with hazardous waste label, contents, and well number from which waste originated.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality control samples are not mandatory. Optional quality control samples may include:

- Duplicate samples at a frequency of 1 per 10 natural samples.
- Cross-contamination blank (also known as a sampler rinsate blank) at a frequency of 1 per 10 natural samples. Cross-contamination blanks are prepared by passing deionized water over and through decontaminated sampling equipment (including sample filter if used).
- If volatile organic compound analyses are specified, travel blanks should also be included at a frequency of 1 per day of sampling.
- Standard reference materials and natural matrix spikes.

Meters for measurement of field parameters should be calibrated at least once per day. Calibration standards should generally approximate or span natural groundwater characteristics. Recalibration may be appropriate if unusual measurements are noticed.

5.0 DOCUMENTATION

The following information should be collected prior to sampling and taken into the field for reference:

- Well completion schematic
- Summary of historic water level, total depth, and field parameter measurements

Observations, measurements, and other documentation of the purging and sampling effort should be recorded on the following:

- *Daily Report*
- Field Notebook
- Water Sampling Log
- Chain-of-Custody

Documentation should include any deviations from this SOP, as well as documentation of the containerization and disposition/disposal of investigation-derived waste.

6.0 DECONTAMINATION

Prior to sampling each well, down-well equipment and equipment that will contact the sample (except sample containers) should be decontaminated according to the following procedure:

- Wash with soap
- Rinse with tap water
- Double rinse with distilled water

Prior to leaving the site, purging and sampling equipment should be cleaned.

7.0 INVESTIGATION-DERIVED WASTE

Purge water and excess sample should be containerized in steel drums. Drums should be labeled with hazardous waste labels, including: Generator's name and accumulation date. Wastes from different wells may be combined, but wastes that are anticipated to contain chemicals should not be mixed with waste that is believed to be uncontaminated.

Decontamination wastewater may be discharged to the sanitary sewer (preferred) or at the ground surface (acceptable).

8.0 SAFETY

Primary chemical hazards during well purging and sampling are associated with inhalation and dermal exposure. Acids used for decontamination and sample preservation may also present chemical hazards. Primary protection against inhalation exposure includes avoidance and respiratory protection. Primary protection against dermal exposure includes avoidance and splash protection and gloves. Special chemical hazards may be associated with the presence of product, if discovered during sampling.

Other specific site safety guidance is provided in the Site Safety Plan.

9.0 REFERENCES

Aller, L., T.W. Bennett, G. Hackett, R.J. Petty, J.H. Lehr, H. Sedoris, and D.M. Nielsen, 1989. Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells. National Water Well Association, Dublin, OH. 1989.

U.S. Environmental Protection Agency, 1989a. A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001, OSWER Directive 9355.0-14. USEPA, Office of Emergency and Remedial Response, Washington, DC. December 1989.

Table 1

Sampling and Preservation for Groundwater Samples

Parameter	Analytical Method	Container	Preservation	Maximum Holding Time
Purgeable Halocarbons by GC	EPA 8010	Two 40-ml glass vials	Place on ice in a cooler (Cool to 4° C)	14 days after collection
Purgeable Aromatics by GC (including Benzene, Toluene, Ethylbenzene, and Xylenes)	EPA 8020	Two 40-ml glass vials	Place on ice in a cooler (Cool to 4° C)	14 days after collection
Volatile Organic Compounds by GC/MS	EPA 8240	Two 40-ml glass vials	Place on ice in a cooler (Cool to 4° C)	14 days after collection
Semivolatile Organic Compounds by GC/MS (Base/Neutral/Acid Extractable Organics)	EPA 8270	Two 1-liter amber glass bottles	Place on ice in a cooler (Cool to 4° C)	Extract 7 days after collection Analyze 40 days after extraction
Total Petroleum Hydrocarbons as Motor Oil	Extract by EPA 3510 and analyze by GCFID	Two 1-liter amber glass bottles	Place on ice in a cooler (Cool to 4° C)	Extract 7 days after collection Analyze 7 days after extraction
Total Petroleum Hydrocarbons as Diesel	Extract by EPA 3510 and analyze by GCFID	Two 1-liter amber glass bottles	Place on ice in a cooler (Cool to 4° C)	Extract 7 days after collection Analyze 7 days after extraction
Total Petroleum Hydrocarbons as Gasoline	Extract by EPA 5030 and analyze by GCFID	Two 40-ml glass vials	Place on ice in a cooler (Cool to 4° C)	Extract 7 days after collection Analyze 7 days after extraction
Oil & Grease	SM 5520	One 1-liter amber glass bottles	Place on ice in a cooler (Cool to 4° C)	28 days after collection

ATTACHMENT 2

Groundwater Sampling Forms

STREAMBORN MONITORING WELL PURGE DATA

Project Name/Number:	2801 MacArthur Blvd / P12	Logged By:	Colette Shelly
Property Location:	2801 MacArthur Blvd, Oakland CA	Date:	9 March 1993
Well Number:	P1	Sample Type:	Water
Sampling Equipment:	Bailer	Depth to Water:	32.77
Measuring Point:	Top of Casing, North	Total Depth:	38.75
Free Product:	none	Odor:	
Comments:		Sample Number:	P1 (9 March 93)

Note obstructions, well damage, or other compromising features under comments. Record depths in feet.

Total Depth (feet)	-	Depth to Water (feet)	x	0.16 gallons/foot for 2-inch well 0.65 gallons/foot for 4-inch well 1.47 gallons/foot for 6-inch well	=	Casing Volume (gallons)
38.75	-	32.77	x	0.16	=	1

Purge Volume	Time	pH	SC	T	Turbidity	Color	Purged Dry?	% O2 DO	Comments
0	915	7.2	1930	66.0	clear	—	NO	21	Start purge
1	935	7.3	1922	66.9	translucent	—	NO	20	
2	940	7.2	1900	68.2	translucent	—	NO	19	
3	950	7.2	1910	68.0	translucent	—	NO	18	
									Collect sample 10:00

Note observations of odor and sheen, plus other observations of contamination under comments. Record purge volume in gallons. Record SC in µmhos/cm2. Record T in degrees Fahrenheit. Record turbidity as clear, translucent, opaque, cloudy, or turbid.

STREAMBORN MONITORING WELL PURGE DATA

Project Name/Number:	2801 MacArthur Blvd / P12	Logged By:	Colette Shelly
Property Location:	2801 MacArthur Blvd, Oakland CA	Date:	9 March 1993
Well Number:	P2	Sample Type:	Water
Sampling Equipment:	Bailer	Depth to Water:	23.58
Measuring Point:	Top of Casing, North	Total Depth:	42.22
Free Product:	sheen on purge water	Odor:	slight petroleum odor
Comments:		Sample Number:	P2 (9 March 93)

Note obstructions, well damage, or other compromising features under comments. Record depths in feet.

Total Depth (feet)	-	Depth to Water (feet)	x	0.16 gallons/foot for 2-inch well 0.65 gallons/foot for 4-inch well 1.47 gallons/foot for 6-inch well	=	Casing Volume (gallons)
42.2	-	23.6	x	0.16	=	3

Purge Volume	Time	pH	SC	T	Turbidity	Color	Purged Dry?	% O2 DO	Comments
0	1010	11.3	755	71.6	clear	—	NO	22	Start purge
3	1025	11.4	690	75.2	translucent	—	NO	20	
6	1050	11.7	900	78.8	translucent	—	NO	21	
9	1110	11.8	1010	77.0	translucent	—	NO	23	
									Collect sample 1115

Note observations of odor and sheen, plus other observations of contamination under comments. Record purge volume in gallons. Record SC in µmhos/cm2. Record T in degrees Fahrenheit. Record turbidity as clear, translucent, opaque, cloudy, or turbid.

STREAMBORN MONITORING WELL PURGE DATA

Project Name/Number:	2801 MacArthur Blvd / P12	Logged By:	Colette Shelly
Property Location:	2801 MacArthur Blvd, Oakland CA	Date:	9 March 1993
Well Number:	P3	Sample Type:	Water
Sampling Equipment:	Bailer	Depth to Water:	24.82
Measuring Point:	Top of Casing, North	Total Depth:	45.09
Free Product:	None observed	Odor:	None
Comments:	Pressurized headspace	Sample Number:	NOT SAMPLED

Note obstructions, well damage, or other compromising features under comments. Record depths in feet.

Total Depth (feet)	-	Depth to Water (feet)	x	0.16 gallons/foot for 2-inch well 0.65 gallons/foot for 4-inch well 1.47 gallons/foot for 6-inch well	=	Casing Volume (gallons)
	-		x	0.16	=	

Purge Volume	Time	pH	SC	T	Turbidity	Color	Purged Dry?	Comments
0								Start purge
			NOT					
					SAMPLED			
								Collect sample

Note observations of odor and sheen, plus other observations of contamination under comments. Record purge volume in gallons. Record SC in µmhos/cm^2. Record T in degrees Fahrenheit. Record turbidity as clear, translucent, opaque, cloudy, or turbid.

STREAMBORN MONITORING WELL PURGE DATA

Project Name/Number:	2801 MacArthur Blvd / P12	Logged By:	Colette Shelly
Property Location:	2801 MacArthur Blvd, Oakland CA	Date:	9 March 1993
Well Number:	M1	Sample Type:	Water
Sampling Equipment:	Bailer	Depth to Water:	29.14
Measuring Point:	Top of Casing, North	Total Depth:	44.32
Free Product:	None observed.	Odor:	None
Comments:	Pressurized headspace	Sample Number:	NOT SAMPLED

Note obstructions, well damage, or other compromising features under comments. Record depths in feet.

Total Depth (feet)	-	Depth to Water (feet)	x	0.16 gallons/foot for 2-inch well 0.65 gallons/foot for 4-inch well 1.47 gallons/foot for 6-inch well	=	Casing Volume (gallons)
	-		x	0.16	=	

Purge Volume	Time	pH	SC	T	Turbidity	Color	Purged Dry?	Comments
0								*Start purge*
			NOT					
					SAMPLED			
								Collect ~~sample~~

Note observations of odor and sheen, plus other observations of contamination under comments. Record purge volume in gallons. Record SC in µmhos/cm^2. Record T in degrees Fahrenheit. Record turbidity as clear, translucent, opaque, cloudy, or turbid.

STREAMBORN MONITORING WELL PURGE DATA

Project Name/Number:	2801 MacArthur Blvd / P12	Logged By:	Colette Shelly
Property Location:	2801 MacArthur Blvd, Oakland CA	Date:	9 March 1993
Well Number:	M2	Sample Type:	Water
Sampling Equipment:	Bailer	Depth to Water:	33.63
Measuring Point:	Top of Casing, North	Total Depth:	44.93
Free Product:	None	Odor:	petroleum odor
Comments:	pressurized, cap popped off top of casing when loosened.	Sample Number:	M2 (9 March 93)

Note obstructions, well damage, or other compromising features under comments. Record depths in feet.

Total Depth (feet)	-	Depth to Water (feet)	x	0.16 gallons/foot for 2-inch well 0.65 gallons/foot for 4-inch well 1.47 gallons/foot for 6-inch well	=	Casing Volume (gallons)
44.9	-	33.6	x	0.16	=	1.8

Purge Volume	Time	pH	SC	T	Turbidity	Color	Purged Dry?	% O2 D.O.	Comments
0	1140	6.9	1730	73.4	clear	—	NO	18	Start purge
2	1155	7.0	1790	77.0	clear	—	NO	19	
4	1205	6.9	1860	80.6	translucent	—	NO	18	
6	1215	6.9	1900	77.0	translucent	—	NO	17	
									Collect sample 1220

Note observations of odor and sheen, plus other observations of contamination under comments. Record purge volume in gallons. Record SC in µmhos/cm2. Record T in degrees Fahrenheit. Record turbidity as clear, translucent, opaque, cloudy, or turbid.

ATTACHMENT 3

Chain-of-Custody Form

CHROMALAB FILE # 395121
ORDER #

STREAMBORN CHAIN-OF-CUSTODY FORI

10754

Project Name: 2801 MacArthur Boulevard	Project Location: 2801 MacArthur Boulevard	Project Number: P12
Sampler: Colette Shelly	Laboratory: Chromalab	Laboratory Number:

Sample Designation	Date	Time	Matrix			Type		Number of Containers	Type of Containers	Preservative	Filtration	Turnaround			Analyses						Sampler Comments	Laboratory Comments
			Soil	Water	Vapor	Grab	Composite					48-Hour	5-Working Days	10-Working Days	Oil & Grease	TPH-Diesel	TPH-Gasoline/BTEX	BTEX	CAM Total Metals			
(9 March 93) P1	9 March 1993	1000		X		X		4	40-ml VOA					X			X					
(9 March 93) P2	9 March 1993	1115		X		X		4	40-ml VOA					X			X					
(9 March 93) M2	9 March 1993	1220		X		X		4	40-ml VOA					X			X					

Note: Sampler and laboratory to observe preservative, condition, integrity, etc. of samples and record (under "Comments") any exceptions from standard protocols.

Relinquished By: Colette Shelly	Received By:	Date:	Time:
Relinquished By:	Received By:	Date:	Time:

STREAMBORN Mail: P.O. Box 9504, Berkeley CA 94709-0504 Office: 900 Santa Fe Ave, Albany CA 94706 510/528-4234 Fax: 528-2613

ATTACHMENT 4

Laboratory Data Sheet

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

March 24, 1993 ChromaLab File No.: 0393121

STREAMBORN

Attn: Collette Shelly

RE: Three water samples for Gasoline and BTEX analysis

Project Name: 2801 MACARTHUR BOULEVARD
Project Number: P12
Date Sampled: Mar. 9, 1993 Date Submitted: Mar. 10, 1993
Date Analyzed: Mar. 18, 1993

RESULTS:

Sample I.D.	Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
P1	5600	1100	29	63	120
P2	70000	5900	11000	2100	12000
M2	27000	1100	970	490	1400
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	112%	100%	99%	102%	103%
DUP SPIKE RECOVERY	----	100%	100%	102%	102%
DETECTION LIMIT	50	0.5	0.5	0.5	0.5
METHOD OF ANALYSIS	5030/8015	602	602	602	602

ChromaLab, Inc.

Billy Thach
Analytical Chemist

Eric Tam
Laboratory Director

cc

2239 Omega Road,#1 • San Ramon, California 94583
(510) 831-1788 • Facsimile (510) 831-8798
Federal ID #68-0140157