File No. 8-90-421-SI

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QUARTERLY GROUNDWATER MONITORING AND SAMPLING AT PLAZA CAR WASH LOCATED AT 400 SAN PABLO AVENUE ALBANY, CALIFORNIA FEBRUARY 13, 1992

PREPARED FOR:
KAMUR INDUSTRIES
2351 SHORE LINE DRIVE
ALAMEDA, CALIFORNIA 94501

BY:
SOIL TECH ENGINEERING, INC.
298 BROKAW ROAD
SANTA CLARA, CALIFORNIA 95050

SOIL TECH ENGINEERING, INC.

File No. 8-90-421-SI

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SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers
298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

February 13, 1992

File No. 8-90-421-SI

Kamur Industries
2351 Shoreline Drive
Alameda, California 94501

ATTENTION: MR. MURRAY STEVENS

SUBJECT: QUARTERLY GROUNDWATER MONITORING AND SAMPLING FOR KAMUR INDUSTRIES AT PLAZA CAR WASH Located at 400 San Pablo Avenue, in Albany, California

Dear Mr. Stevens:

This report presents the results of the third quarterly groundwater monitoring and sampling conducted by Soil Tech Engineering, Inc. (STE), on January 20, 1992, at the subject site (Figure 1). **This report also includes a proposed interim shallow groundwater remediation plan.**

BACKGROUND:

Currently there are four monitoring wells (MW-2, MW-3, STMW-1 and STMW-2) located on-site and one well OTMW-5 is off-site (See Figure 2). Wells STMW-1 and STMW-2 were installed by STE, wells MW-2 and MW-3 were installed by previous consultant, and the off-site well OTMW-5 was installed by other consultant. This quarterly well monitoring and sampling was conducted in accordance with STE's

recommendations made in "Report of Supplemental Subsurface Investigations", dated May 14, 1991. During this quarter's reporting period, the following field activities were performed:

- Monitored the depth to water in all shallow groundwater wells.
- Purged each monitoring well prior to sampling.
- Submitted water samples to a state-certified laboratory to be analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) and for aromatic hydrocarbons: Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX).
- Reviewed results and prepared a report of the investigation.

GROUNDWATER MONITORING:

On January 20, 1992, STE staff monitored the four on-site wells and one off-site well to measure water depth and check for the presence of free floating petroleum product (FFP) and/or petroleum odor. Table 1 summarizes the depth to groundwater measurements and observations made. Static groundwater levels were at depths of 4.6 to 5.88 feet beneath ground surface during the recent sampling event. The groundwater elevation data showed the direction of the groundwater flow, based on January 1992 measurements, to be north to northwest (Figure 2), which has been consistent flow observed in previous sampling events.

Light sheen was noted in wells STMW-1 and MW-3 only. After purging the wells, no sheen was observed.

GROUNDWATER SAMPLING:

Following groundwater monitoring, each well was purged at least four well volumes and sampled in accordance with STE's Standard Operating Procedures (see Appendix "B"), which follow state and local guidelines for sampling monitoring wells. The samples were submitted for analysis to a California State-Certified laboratory, accompanied by chain-of-custody. The samples were analyzed for TPHg and for BTEX per modified EPA Methods 5030/8025 and 602.

ANALYTICAL RESULTS:

All wells continued to show the presence of petroleum hydrocarbon constituents analyzed. TPHg ranged from 0.09 milligrams per liter (mg/L) in well OTMW-5 to a maximum of 510 mg/L in well MW-3; Benzene ranged from 0.0007 mg/L in well OTMW-5 to 27 mg/L in well MW-3; Toluene concentration ranged from 0.0007 to 27 mg/L; Ethylbenzene ranged from below detection limits to a maximum of 5.8 mg/L; and Xylenes ranged from 0.011 to 46 mg/L, respectively.

The analytical results are presented in Table 2. The chain-of-custody records and certified analytical report are included in Appendix "C".

DISCUSSION:

A comparison of the recent analytical results with the November 1991 results showed an increase in TPHg concentrations in wells STMW-1 (2.05 to 4.6 mg/L); STMW-2 (2.4 to 14 mg/L) and MW-3 (102.7 to 510 mg/L). Wells MW-2 and OTMW-5 showed a substantial decrease in TPHg levels.

Benzene concentrations decreased in this quarter in all wells. The off-site well OTMW-5 showed a considerable decrease (0.1 to 0.0007 mg/L) in Benzene level. Toluene and Total Xylenes levels also decreased in wells STMW-1, STMW-2, MW-2 and OTMW-5, except in well MW-3, which showed a moderate increase. TPHg and BTEX levels increased in well MW-3.

The migration of the dissolved hydrocarbons moved laterally towards the westerly corner of the property (i.e. near well MW-3), which is down-gradient from the removed source of contamination.

RECOMMENDATION:

Based on the information gathered at this site, and a request made by the Alameda County Environmental Health Department (ACEHD) to initiate a remediation of the shallow groundwater, **we recommend an Interim Remedial Measure (IRM).**

The proposed IRM will make use of the existing 8-inch sump located on Adam Street near the storm drain. The sump was installed by Riedel Environmental Consulting Firm in October 1989

for Kamur Industries. The sump consists of an 8-inch diameter PVC pipe with total depth of approximately 8 feet below ground surface, and with perforations in the lower 5.5 feet (see attached Plate 4). The end of the pipe is sealed with a cap. The excavation around the pipe is backfilled with 3/4-inch crushed rock to within approximately 4-inch of the ground surface. The drain rock is covered with a concrete slab and asphalt pavement.

The reason we recommended use of the existing off-site sump because in October 1991, PG&E installed a new large gas line running parallel and towards the car wash side of the storm drain. We felt that these trenches will act as a collector for polluted groundwater, thus a submersible pump installed in the sump will remove impacted groundwater for treatment before it enters the storm drain.

The extracted groundwater removed from the proposed Adam Street sump will be pumped to a treatment system designed to reduce the hydrocarbons levels acceptable for landscape irrigation and/or discharge to the storm drain.

The treatment system will use three stages of removal: Pumping unit with two 2,000 gallons containment, liquid phase activated carbon and 1,000 gallons collection tank for irrigation and/or discharge into a storm drain (i.e. permitted discharge).

The activated carbon treatment system will be designed with two stages of carbon container in series, each of the two stages will be adequate to treat the entire water stream. An effluent monitoring program will be instituted to assure that the treatment system performs properly, and all water discharged meets the NPDES permit requirements. A process flow chart diagram is shown in Figure 3.

All necessary permit, required to install and operate the proposed IRM treatment system will be obtained such as City permit, a NPDES discharge permit from the Regional Water Quality Control Board (RWQCB).

We recommend a meeting with AEHD and RWQCB to discuss our proposal prior to construction of the proposed IRM.

SCHEDULE:

The duration of the project is estimated as follows:

- Submittal of IRM plan to regulatory agencies -- week 0
- Acceptance of plan by ACEHD and RWQCB -- week 2 to 3
- Apply for all required discharge permit (NPDES) -- week 4
- Begin installation of groundwater treatment system -- week 5

- Complete site construction -- week 8
- Receive NPDES discharge permit -- week 32
- Begin system operation -- week 34

The estimated above schedule assumes that all required permits can be obtained in a timely manner. Any delays imposed by the various regulatory agencies will affect the start-up date.

The work plan, design of treatment unit and permit application process will be initiated promptly upon acceptance of the proposed recommendation by State and Local regulatory agencies.

LIMITATIONS:

This report and the associated work have been provided in accordance with the general principles and practices currently employed in the environmental consulting profession. The contents of this report reflect the conditions of the site at this particular time. The findings of this report are based on:

1) The observations of field personnel.

2) The results of laboratory analyses performed by a state-certified laboratory.

It is possible that variations in the soil and groundwater could exist beyond the points explored in this investigation. Also, changes in groundwater conditions of a property can occur with the passage of time due to variations in rainfall, temperature, regional water usage and other natural processes or the works of man on this property or adjacent properties.

The services that STE provided have been in accordance with generally accepted environmental professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. This report is not meant to represent a legal opinion. No other warranty, expressed or implied, is made.

This report and proposed IRM will be submitted to ACEHD and RWQCB with your approval.

If you have any questions or require additional information, please feel free to contact our office at your convenience.

Sincerely,

SOIL TECH ENGINEERING, INC.

FRANK HAMEDI-FARD
GENERAL MANAGER

LAWRENCE KOO, P. E.
C. E. #34928

TABLE 1
GROUNDWATER MONITORING DATA
(Measured in Feet)

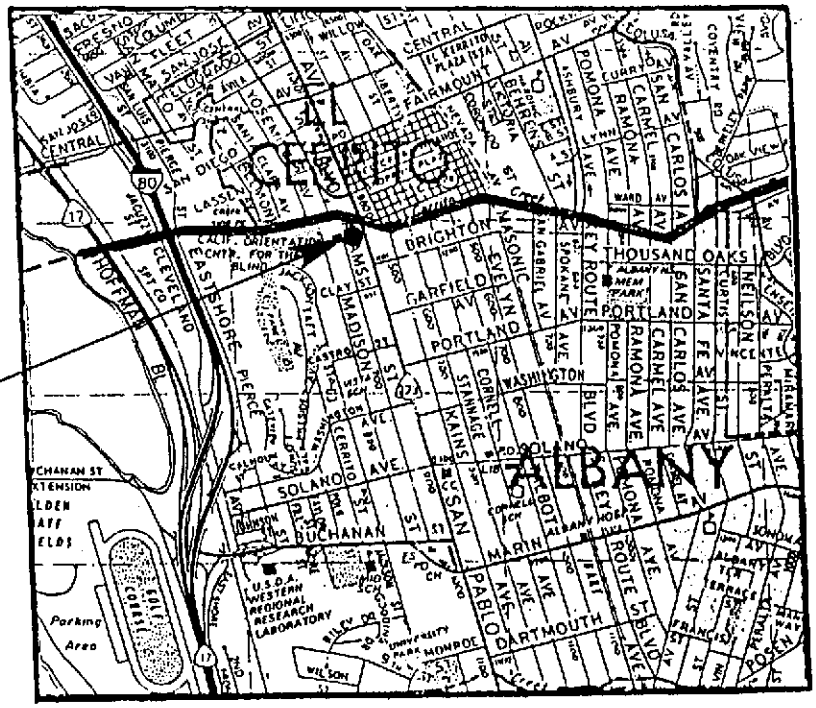
Well No./ (Elevation)	Date	Depth-to Water	Groundwater Elevation	FFP Thickness	Petroleum Odor
STMW-1	3/11/91	5.29	95.33	None	None
(100.62)	7/03/91	5.83	94.79	None	Mild
	11/04/91	5.83	94.79	None	Mild
	1/20/92	5.79	94.83	L. Sheen	Mild
STMW-2	3/11/91	5.25	95.38	None	None
(100.63)	7/03/91	4.75	95.88	None	Mild
	11/04/91	5.92	94.71	None	Mild
	1/20/92	5.88	94.75	None	Mild
MW-2	3/11/91	4.29	95.07	None	Mild
(99.36)	7/03/91	5.83	93.53	None	Strong
	11/04/91	4.79	94.57	None	Mild
	1/20/92	4.60	94.76	None	Mild
MW-3	3/11/91	4.67	95.42	Trace	Moderate
(100.09)	7/03/91	5.75	94.34	Trace	Mild
	11/04/91	5.67	94.42	Trace	Strong
	1/20/92	5.54	94.55	L. Sheen	Strong
OTMW-5	3/11/91	5.02	95.85	None	Mild
(100.87)	7/03/91	5.75	95.12	None	Mild
	11/04/91	5.77	95.10	None	Mild
	1/20/92	5.58	95.29	None	Mild

L. Sheen = Light Sheen
FFP = Free Floating Product

TABLE 2
WATER ANALYTICAL RESULTS
IN
MILLIGRAMS PER LITER (mg/L)

Well No.	Date	TPHg	B	T	E	X
STMW-1	3/13/91	0.85	0.1	0.007	ND	0.15
	7/03/91	5.1	1.8	0.5	0.095	0.56
	11/04/91	2.05	0.76	0.054	ND	0.056
	1/20/92	4.6	0.59	0.036	ND	0.19
STMW-2	3/13/91	0.17	0.001	0.0017	ND	0.028
	7/03/91	1.8	0.64	0.048	0.044	0.094
	11/04/91	2.14	1.00	0.057	0.003	0.019
	1/20/92	14	0.12	0.0006	0.0006	0.08
MW-2	3/13/91	25.0	2.6	4.4	ND	5.8
	7/03/91	21.0	2.8	3.2	ND	4.3
	11/04/91	3.58	1.7	0.119	0.009	0.056
	1/20/92	0.38	0.38	0.0013	ND	0.034
MW-3	3/13/91	47.0	9.1	9.9	0.27	8.11
	7/03/91	40.0	12.0	4.5	1.2	4.0
	11/04/91	102.7	38.8	19.1	3.2	8.3
	1/20/92	510	27	27	5.8	46
OTMW-5	3/13/91	0.12	0.046	0.012	0.001	0.004
	7/03/91	0.81	0.32	0.043	0.016	0.043
	11/04/91	0.97	0.100	0.019	0.005	0.013
	1/20/92	0.09	0.0007	0.0007	ND	0.011

TPHg = Total Petroleum Hydrocarbons as gasoline
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
ND = Not Detected (Below Detection Limit)



Site Location

THOMAS BROS. MAP 1982 EDITION
ALAMEDA COUNTY

PAGE 1 D2

Figure 1

N

STORM DRAIN PIPE

SUMP CATCH BASIN

FENCE

MW-3

NORGE CLEANER

C.EL. 100.09
W.EL. 94.42

C.EL. 99.36
W.EL. 94.57

MW-2

APPROXIMATE DIRECTION OF GROUND WATER FLOW AS 1-20-92

STMW-5

PAINT STORE

CAR WASH

C.EL. 100.87
W.EL. 95.10

STMW-1

LANDSCAPING AREA

SIDEWALK SLAB

GRASS AREA & TREES

EL CERRITO - CREEK

EL 100.00

ELEC. POLE

D.WAY

STMW-2

C.EL. 100.62
W.EL. 94.79

C.EL. 100.63
W.EL. 94.71

STREET FLOW LINE

SAN PABLO AVE.

DIRECTION OF GROUND WATER FLOW

400 SAN PABLO AVE. ' ALBANY CA

1"≡30'	PROJECT NO 8-90-421-SI	FIG-2
DRAWN BY N.A.		1-20-92

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298 BROKAW RD SANTA CLARA CA 95050

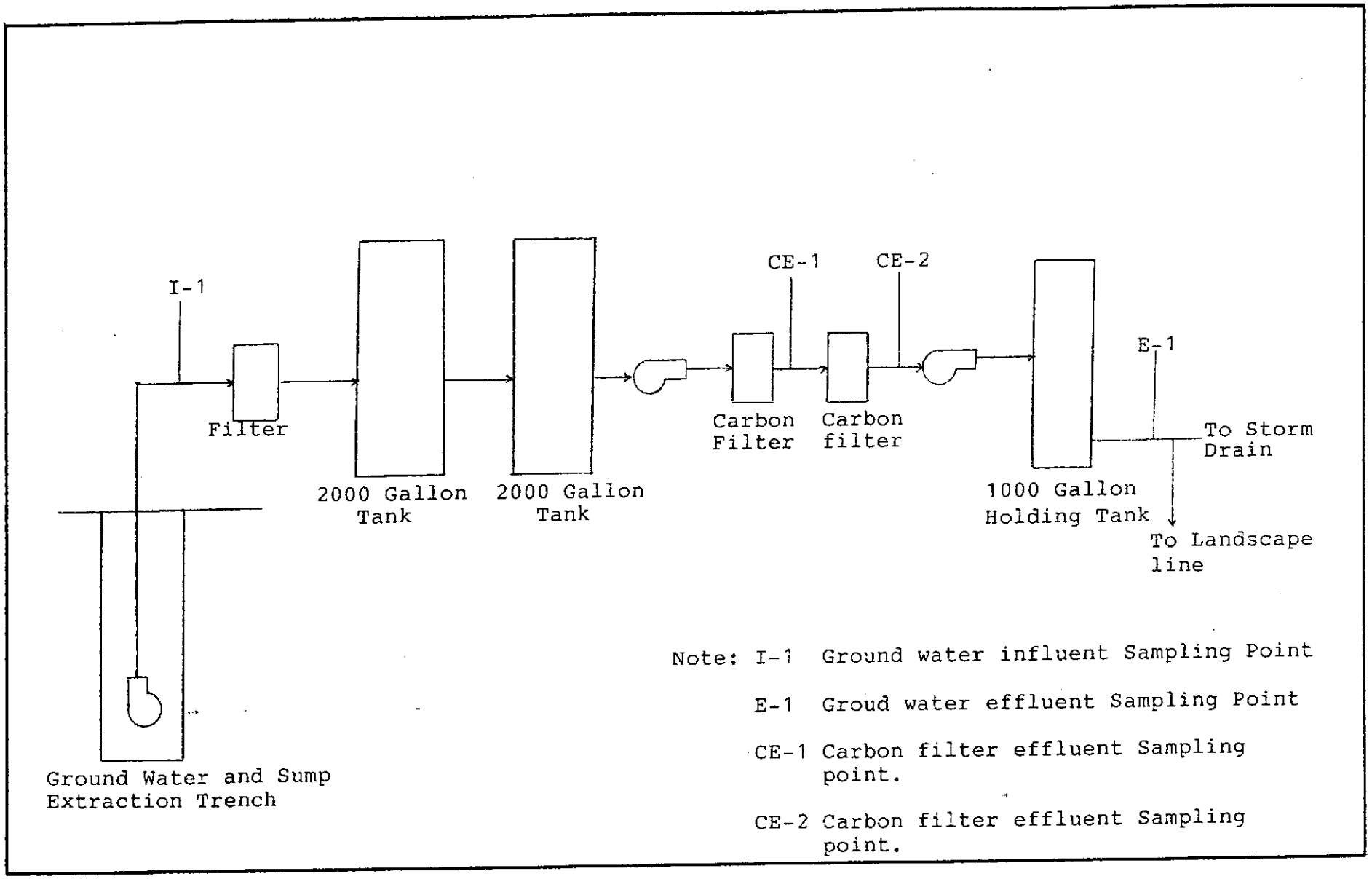
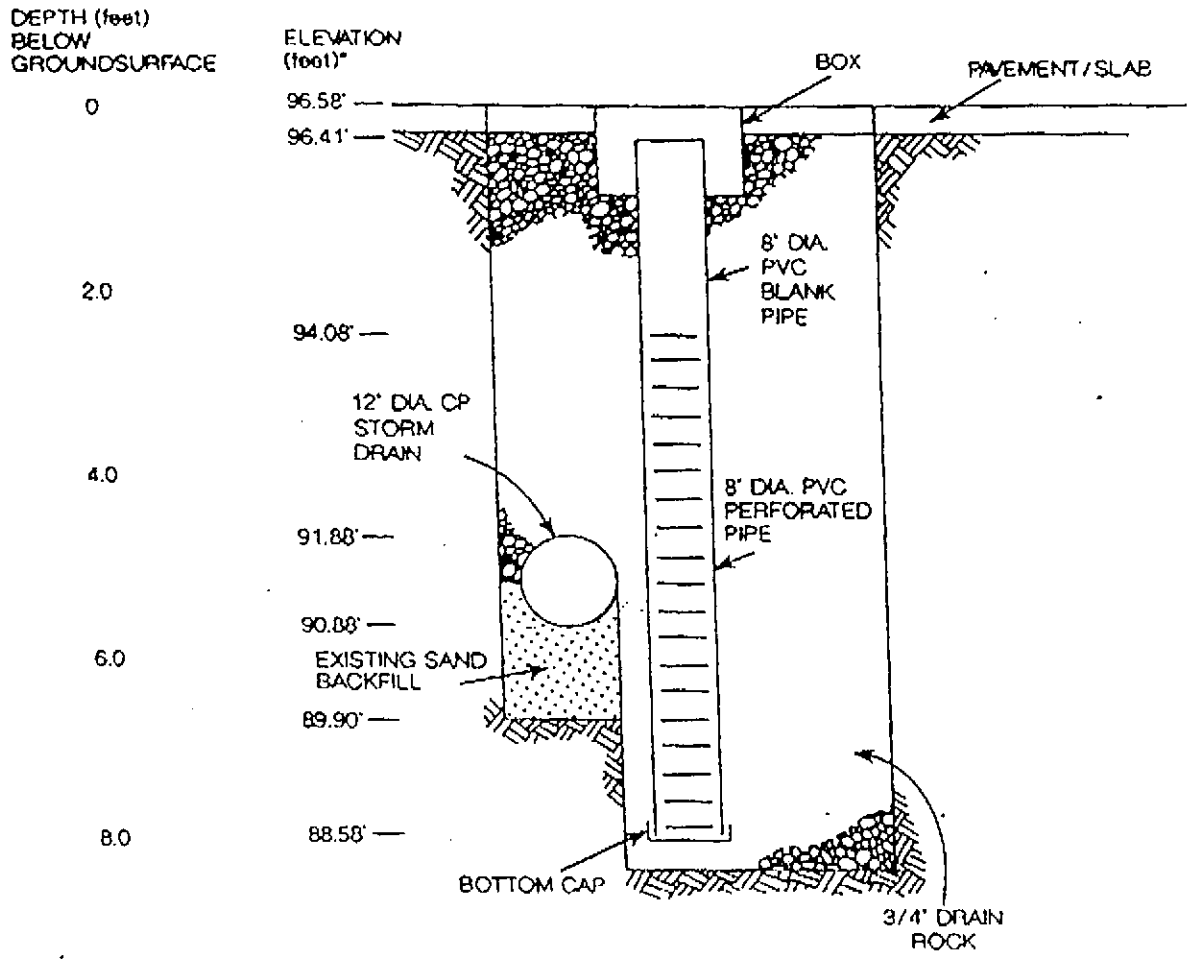


FIGURE 3 - IRM TREATMENT FLOW CHART DIAGRAM

KAMUR INDUSTRIES - PLAZA CAR WASH
400 SAN PABLO AVENUE, ALBANY, CA



*BASED UPON ASSUMED ELEVATION DATUM. SEE SITE PLAN

APPROXIMATE SCALE (feet)

0 2 4

SUMP DETAIL

PLAZA CAR WASH – ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	11/3/89	

PLATE 4

GROUNDWATER SAMPLING

Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc...) was cleaned by pumping TSP water solution followed by distilled water.

Prior to purging, the well "Water Sampling Field Survey Forms" were filled out (depth to water and total depth of water column were measured and recorded). The well was then bailed or pumped to remove four to ten well volumes or until the discharged water temperature, conductivity and pH stabilized. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample was collected when the water level in the well recovered to 80% of its static level.

Forty milliliter (ml.), glass volatile organic analysis (VOA) vials with Teflon septa were used as sample containers. The groundwater sample was decanted into each VOA vial in such a manner that there was a meniscus at the top. The cap was quickly placed over the top of the vial and securely tightened. The VOA vial was then inverted and tapped to see if air bubbles were present. If none were present, the sample was labeled and refrigerated for delivery under chain-of-custody to the laboratory. The label information would include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

January 29, 1992 ChromaLab File No.: 0192160

SOIL TECH ENGINEERING

Attn: Noori Ameli

RE: Five water samples for Gasoline/BTEX analysis

Project Name: 400SAN PABLO AVE. ALBANY
Project Number: 8-90-421
Date Sampled: Jan. 20, 1992 Date Submitted: Jan. 21, 1992
Date Extracted: Jan. 27, 1992 Date Analyzed: Jan. 27, 1992

RESULTS:

Sample I.D.	Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
STMW-1	4600	590	36	N.D.	190
STMW-2	14000	120	0.6	0.6	80
MW-2	380	38	1.3	N.D.	34
MW-3	510000	27000	27000	5800	46000
OTMW-5	90	0.7	0.7	N.D.	11
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY*	----	63%	61%	53%	81%
DUP. SPIKE RECOVERY*	----	56%	56%	45%	78%
DETECTION LIMIT	50	0.5	0.5	0.5	0.5
METHOD OF ANALYSIS	5030/8015	602	602	602	602

* Matrix interference found in sample OTMW-5

ChromaLab, Inc.

Mary Cappelli
Analytical Chemist

Eric Tam
Laboratory Director

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

CHAIN OF CUSTODY RECORD

Chromalab

PROJ. NO. 8-90-421-

NAME 400 San Pablo Ave. Albany

SAMPLERS: (Signature)

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	ANALYSES REQUESTED TPHG/BTEXX	REMARKS
1	1/20/92	13:30		✓	STMW-1	2	✓	
2	1/20/92	13:45		✓	STMW-2	2	✓	
3	1/20/92	14:15		✓	MW-2	2	✓	
4	1/20/92	14:45		✓	MW-3	2	✓	
5	1/20/92	15:15		✓	OTMW-5	2	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Receive by: (Signature)
Diego Vaquero	1/21/92 11:40				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			1/21/92 11:40	N. T. A	

SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

CHAIN OF CUSTODY RECORD

Chromalab

PROJ. NO.	NAME
8-90-421-	400 San Pablo Ave. Albany

SAMPLERS: (Signature) A. Arvin

CHROMALAB FILE # 192160
ORDER # 5172

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	ANALYSES REQUESTED @ TPHG/BTEXX
1	1/20/92	13:30		✓	STMW-1	2	✓
2	1/20/92	13:45		✓	STMW-2	2	✓
3	1/20/92	14:15		✓	MW-2	2	✓
4	1/20/92	14:45		✓	MW-3	2	✓
5	1/20/92	15:15		✓	OTMW-5	2	✓

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Receive by: (Signature)
Dieu Nguyen	1/21/92 11:40				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			1/21/92 11:40	N. T. A	

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