Brown and Caldwell
Consultants

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September 11, 1990

Mr. Bob Wenning
Engineering Manager
James River Corporation
Flexible Packaging Plant
2101 Williams Street
San Leandro, California 94577

11-42-5081-04

Subject: **Results of Off-site Groundwater Survey,**
James River Corporation, Flexible Packaging Plant
San Leandro, California

Dear Mr. Wenning:

On July 2, and 3, 1990, Western Geo-Engineers (WEGE), as a subcontractor to Brown and Caldwell Consultants (BCC), conducted an off-site groundwater survey near your facility at 2101 Williams Street, San Leandro, California. The work was performed under the terms and conditions of our agreement for engineering services dated December 8, 1988, and your P.O. No. SL 5642-E. **The survey was performed to investigate whether chlorinated hydrocarbons identified in wells along James River's up-gradient property boundary were present up-gradient from your site.** This letter presents a description of methods and analytical procedures employed during the survey, and the results of the survey. A copy of the WEGE report submitted to BCC is included as Attachment A.

Field Methods

Eighteen sampling locations were proposed in Brown and Caldwell's April 6, 1990 work plan as part of the Phase II work. These sampling locations were verbally approved by Mr. Larry Seto of the Alameda County Health Agency (County). Twelve of the proposed locations were located on the Southern Pacific Railroad (SP) right-of-way located immediately northeast of the James River property. A site access permit was negotiated between SP and James River prior to initiation of the work. A copy of the access permit is included as Attachment B. County personnel, contacted prior to initiation of the work, indicated that permits for the sampling probes were not required.

Sampling probes were hydraulically driven at fourteen of the eighteen locations. Four proposed locations were inaccessible due to SP permit restrictions and/or underground utilities (Figure 1). The sampling probes consist of a 1-inch diameter, 20-foot long steel rod advanced to a depth of 20 feet and then removed from the ground. A silicon sampling tube was then inserted to the bottom of the hole. The portion of the tube remaining above ground was inserted, through a rubber stopper, into a glass volatile organic analysis (VOA) vial. A syringe was attached to the VOA vial through a second opening in the rubber stopper. The syringe was then pumped to produce a vacuum in the sampling tube. A groundwater sample sufficient to fill the VOA vial two-thirds full was then drawn into the vial. The stopper was removed and the vial immediately capped and placed in the WEGE portable laboratory. All holes were backfilled with powdered bentonite.

Prior to analysis, the groundwater samples were heated to about 90 degrees Farenheit in a water bath for approximately 5 to 10 minutes to drive volatile constituents into the headspace of the VOA. A headspace sample was collected in a syringe and injected directly into a photoionization detector (PID) for analysis.

The sample preparation and analytical procedure used for the field analyses is not an EPA-approved method for laboratory analysis for chlorinated hydrocarbons. While the results of these analyses are considered to be a reliable indication that the compounds analyzed are present in the groundwater, quantification of the concentrations of compounds is not considered to be accurate. Thus, the results reported here are not indicative of concentrations that may be present in groundwater underlying the up-gradient area surveyed. However, relative differences between results reported here do indicate relative differences of concentrations in different groundwater samples.

Survey Results

Sampling locations are shown on Figure 1. Sample locations GS-1 through GS-9 are located on the SP right-of-way. Sample locations GS-10 through GS-14 are located on James River property, adjacent to the up-gradient property line. Due to difficulty in advancing the silicon sampling tube, groundwater samples could not be collected at locations GS-2, GS-6, and GS-14.

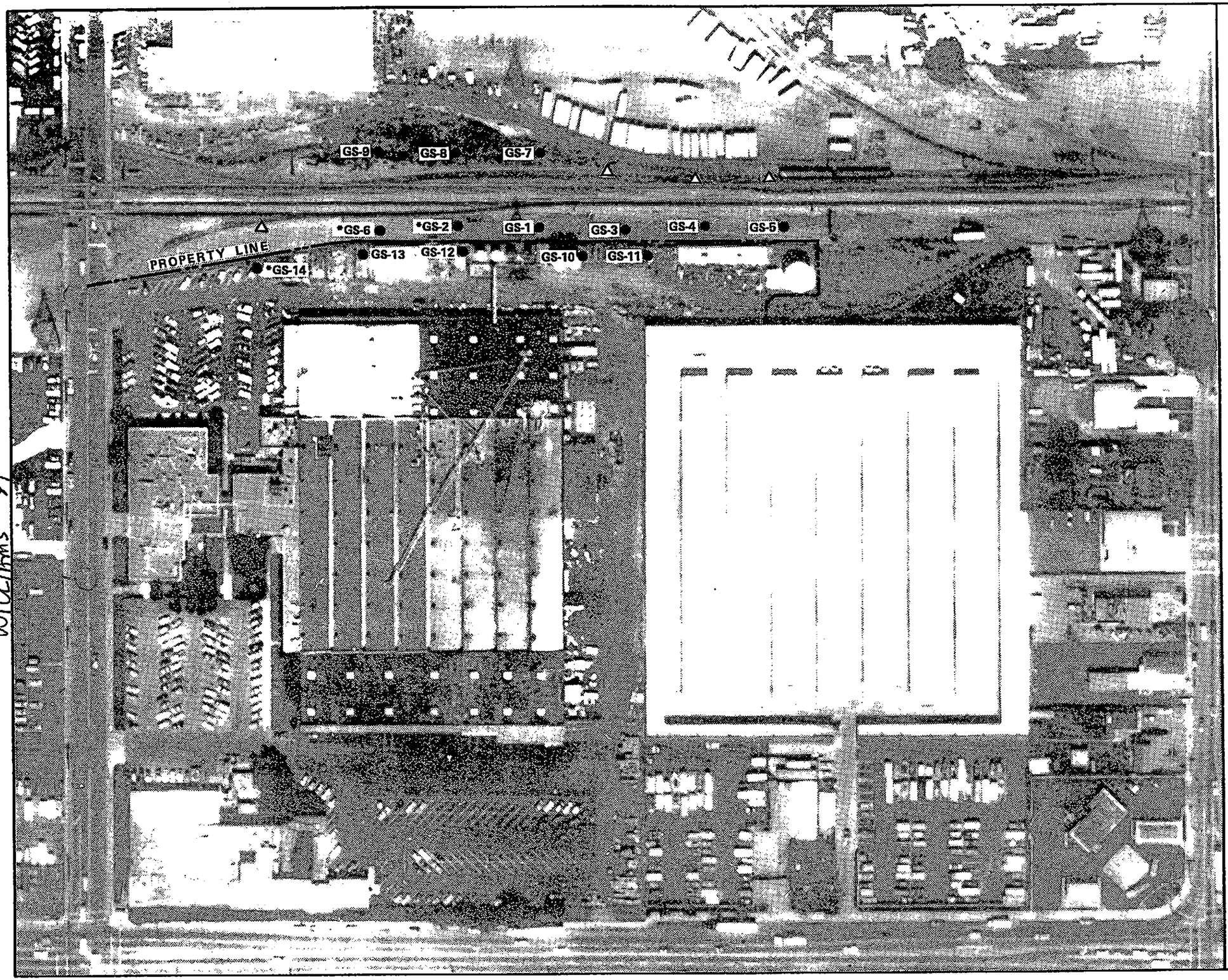
Results of the PID analyses are summarized in Table 1. Figures 2, 3, and 4 present the results for the compounds dichloroethene (DCE), trichloroethene (TCE), and perchloroethene or tetrachloroethene (PCE), respectively. Results indicate that the highest levels of both DCE and PCE

Table 1. Results of Groundwater Analyses, micrograms per liter.

Sample I.D.	TCE	PCE	DCE
GS-1	4.0	12.7	6.2
GS-2	unable to collect sample		
GS-3	1.2	4.5	112.0
GS-4	16.2	9.9	156.0
GS-5	6.8	7.1	16.9
GS-6	unable to collect sample		
GS-7	1.0	<1.0	<1.0
GS-8	1.7	<1.0	<1.0
GS-9	176.0	5.8	2.2
GS-10	<1.0	<1.0	<1.0
GS-11	3.6	<1.0	1.8
GS-12	2.5	7.2	6.9
GS-13	1.0	16.2	1.4
GS-14	unable to collect sample		
GS-9*	160	3	3 (cis-1,2) 2 (trans-1,2)

< indicates compound not detected at limits noted.

* Groundwater sample analyzed at BCA.
DCE results reported for individual isomers.



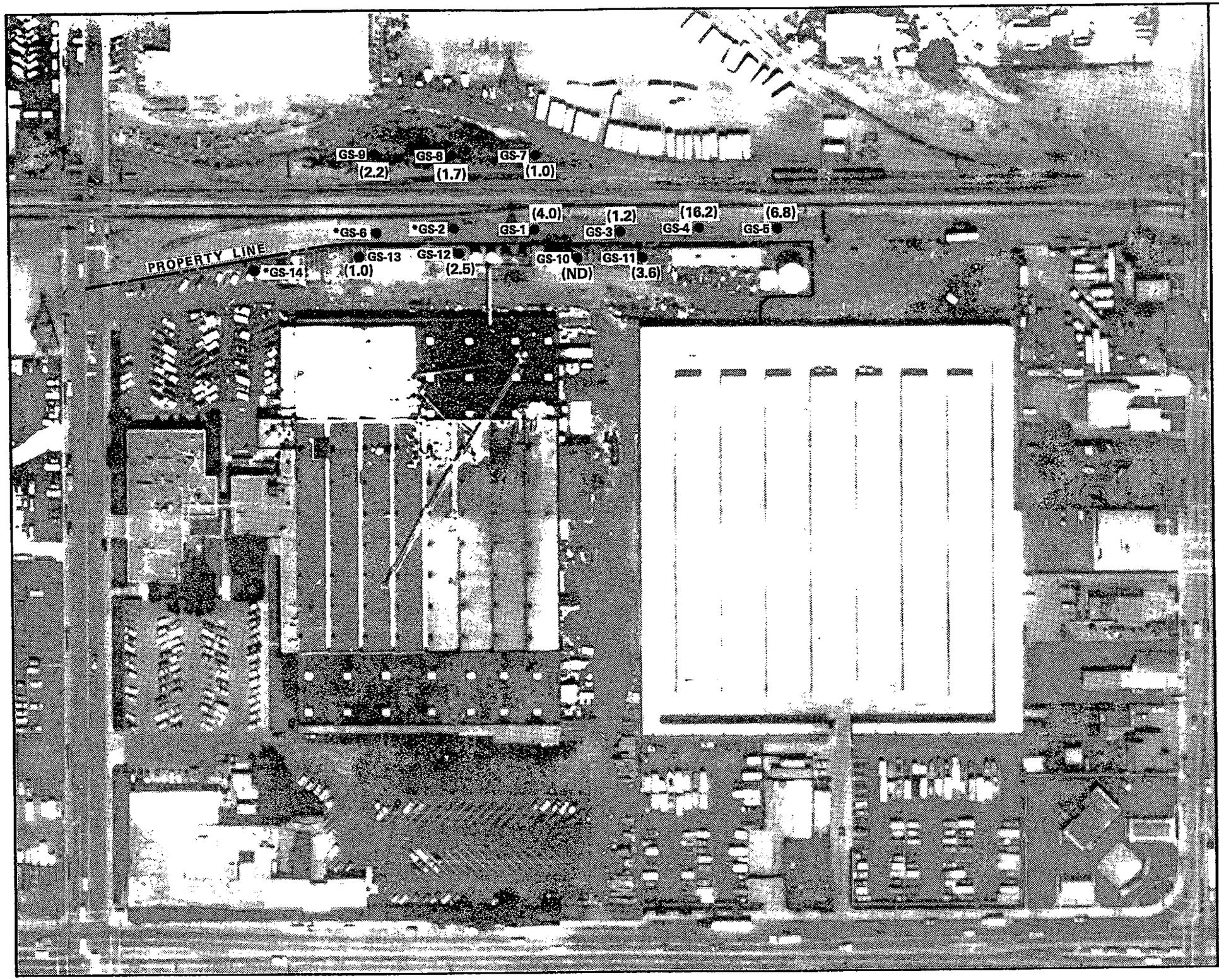
N

0 50 100
SCALE IN FEET
(APPROXIMATE)

LEGEND:

- ● GROUNDWATER SURVEY SAMPLING LOCATION
- △ INACCESSIBLE SAMPLING LOCATION

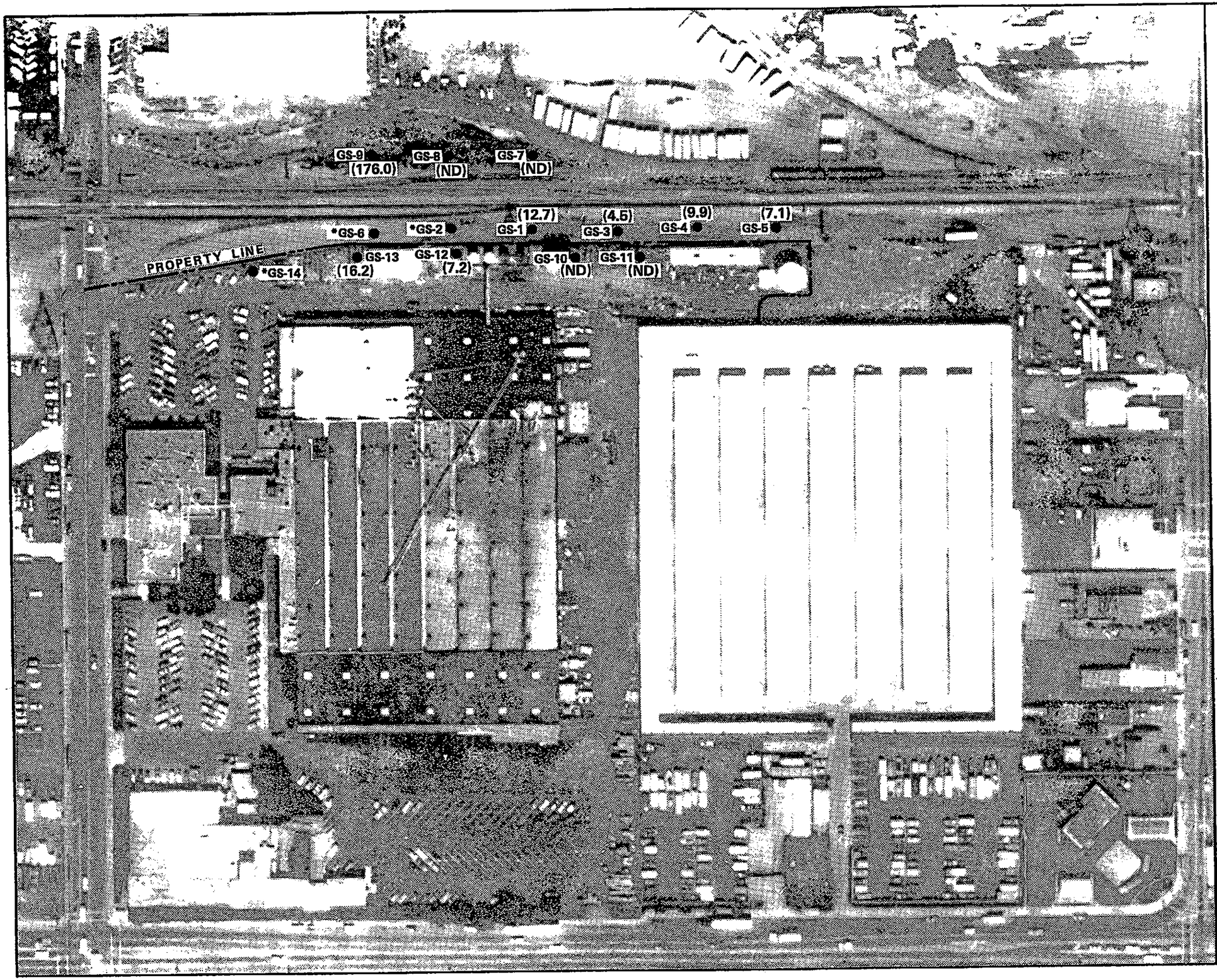
Figure 1 Groundwater Survey Sampling Locations, James River Flexible Packaging Plant, San Leandro, California



LEGEND

- **(4.0)** RESULT OF PID ANALYSIS OF HEADSPACE SAMPLE, parts per billon
- **GS-1** SAMPLING LOCATION
- ***** UNABLE TO COLLECT SAMPLE
- **ND** NOT DETECTED BY HEADSPACE ANALYTICAL METHOD

Figure 2 Distribution of DCE in Groundwater Survey Samples, James River Flexible Packaging Plant, San Leandro, California



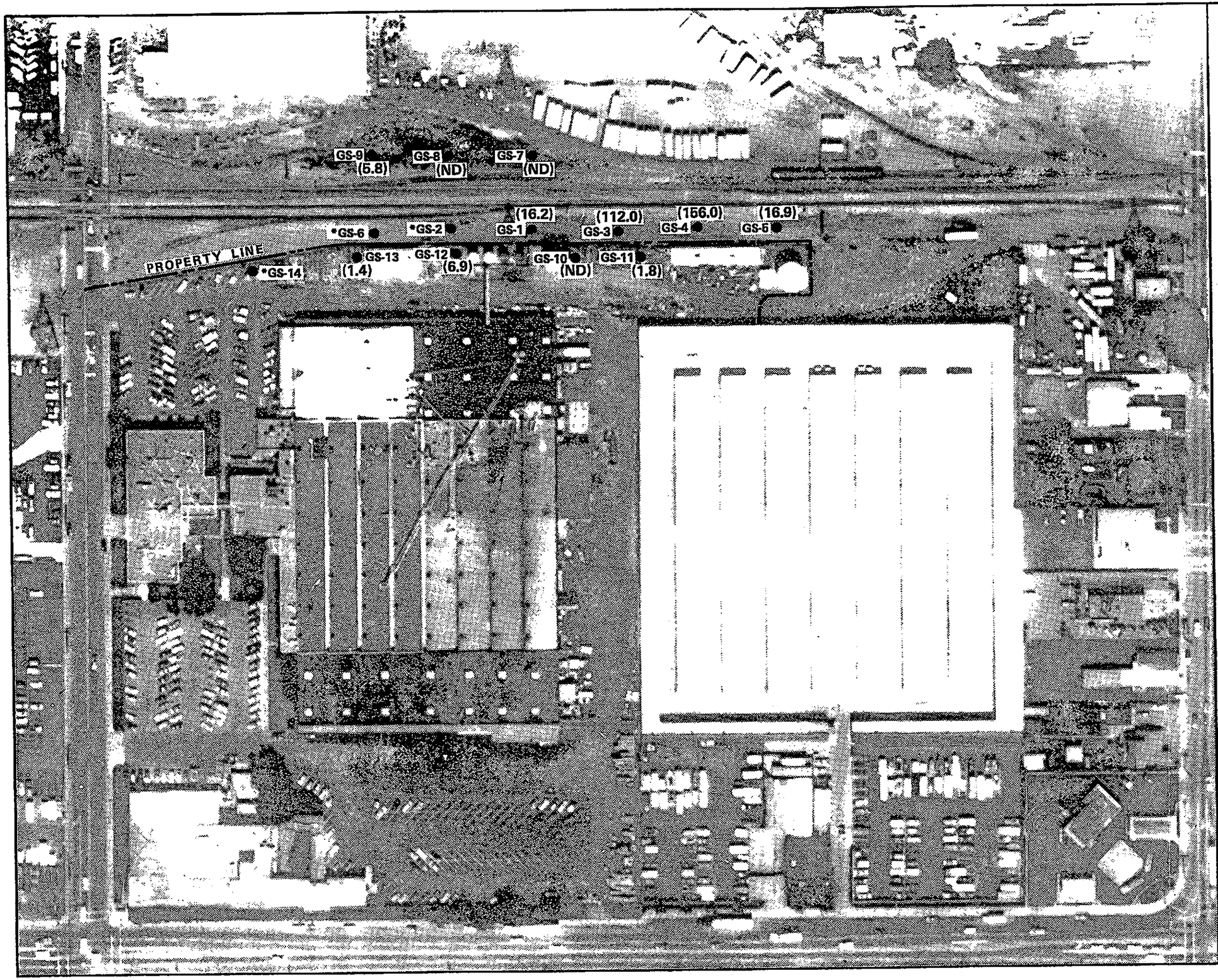
N

0 50 100
SCALE IN FEET
(APPROXIMATE)

LEGEND

- **(4.0)** RESULT OF PID ANALYSIS OF HEADSPACE SAMPLE, parts per billon
- **GS-1** SAMPLING LOCATION
- ***** UNABLE TO COLLECT SAMPLE
- **ND** NOT DETECTED BY HEADSPACE ANALYTICAL METHOD

Figure 3 Distribution of TCE in Groundwater Survey Samples, James River Flexible Packaging Plant, San Leandro, California



N

0 50 100
SCALE IN FEET
(APPROXIMATE)

LEGEND

(4.0) RESULT OF PID ANALYSIS OF HEADSPACE SAMPLE, parts per billion

GS-1 SAMPLING LOCATION

* UNABLE TO COLLECT SAMPLE

ND NOT DETECTED BY HEADSPACE ANALYTICAL METHOD

Figure 4 Distribution of PCE in Groundwater Survey Samples, James River Flexible Packaging Plant, San Leandro, California

are present at sampling location GS-4, which is 30 feet up-gradient from the James River property line. The highest result for TCE was present at sampling location GS-9, located approximately 100 feet up-gradient of the James River property line.

To confirm the TCE result at GS-9, an additional sample was collected at this location and submitted to Brown and Caldwell Analytical (BCA) in Emeryville, California. The VOA vial was filled such that no headspace was present and stored on ice until delivery to BCA. The sample was analyzed for purgeable priority pollutants by EPA method 8240. A copy of the BCA analytical report is included as Attachment C.

Analytical results for the groundwater sample are included in Table 1. TCE was identified at a concentration of 160 micrograms per liter (ug/l), PCE at a concentration of 3 ug/l and DCE isomers at a total concentration of 5 ug/l. These results correlate well with results for the PID analysis of sample GS-9.

Conclusions and Recommendations

Based on the results of the survey and a confirmatory analysis at a state-certified laboratory, chlorinated hydrocarbons are present in groundwater up-gradient of the James River Flexible Packaging Plant. We suggest that a copy of this report be transmitted to the Regional Water Quality Control Board with a request that the history of chlorinated solvent use by up-gradient property owners be investigated.

We appreciate this opportunity to be of continued service to you. Please call should you have questions or comments regarding this report.

Very truly yours

BROWN AND CALDWELL

Donna Courington

Donna Courington
Project Manager

DLC:dc
Attachments

ATTACHMENT A

WESTERN GEO-ENGINEERS REPORT

-WEGE-
WESTERN GE0-ENGINEERS
CALIF. CONTRACTOR # 513657 A CORPORATION
REGISTERED GEOLOGISTS

Proj. Sec. 34 , T2S; R3W; MDB&M

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JULY 19, 1990

FOR
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Jack E. Napper
Registered Geologist #3037

PROJECT
JAMES RIVER
FLEXIBLE PACKAGING PLANT
2101 WILLIAMS STREET
SAN LEANDRO, CALIFORNIA

Roy Butler
Geologist

Map source	AAA, USGS, WEGE	
Date	07/02/90	07/03/90
Geologist	ROY BUTLER	ROY BUTLER
Crew Total	3	3
Mob hours	5:30-8:15 HR = 2.75 HRS	
Hours (site)	8:15-17:00 = 8.75 HRS	7:00-14:15HR = 7.25 HRS
Demob Hours		14:15-18:00 - .5LUNCH = 3.25HRS
Unit#	3A	3A
Equipment	PID CHROMTOGRAPH, FID , FID CHROMATOGRAPH	
	RIG 2	
Steel size(s)	1/2" TO 5/8"	SAME
Bit size	9/16" T0 3/4"	SAME
Tube size	1/4"	1/4"
Weather	CLEAR	CLEAR
Temperature	85	85
Barom. Press	--	--
Total ft. drilled	195	160
Sample		
# holes	9	6
# sites	7	5
# vapor	0	0
# liquid	7	5
# soil	0	0
# chromat	11	6
# FID	11	7
# IR	0	0
# cert. soil	0	0
# cert. liq.	0	1

METHODS; EQUIPMENT; DATA, Etc., QA&QC; NOTES: See Appendixes A through E.

-WEGE-
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LOCATION

The study site is the eastern edge of the James River Flexible Packaging Plant and the adjoining Southern Pacific Railroad right of way. The Plant is located at 2101 Williams Street east of the intersection of DoLittle Road, San Leandro, California. The site is in projected Sec. 34; T2S; R3W; MDB&M at approximately 20 feet above sea level.

PURPOSE and PROCEDURE

To determine the extent of ground water contamination associated with the above mentioned site.

A series of small holes were to be drilled to ground water along the railroad tracks and along the eastern edge of the Plant compound; water samples obtained from these holes were to be collected and analyzed for organic solvents.

SAMPLING PROCEDURE- SOIL PROBE SURVEY

During a Soil Probe Survey (SPS) a number of holes are drilled at selected locations in order to determine solvent contamination at certain soil depths and locations.

The holes are drilled by driving a 5/8" steel rod into the ground using an electric jack hammer. After the rod has been driven to the desired sample depth, the rod is removed using a hydraulic puller, and a vapor and a soil sample are then taken.

The vapor sample is gathered by placing a steel tube into the hole, pulling a known volume of air to evacuate the tube and then taking the vapor sample with a 1 cc syringe. The sample is then injected into a FID analyzer where a Total Volatile Organics (TVO) value is obtained. After the vapor sample has been taken the soil sample is collected.

A steel sampler with an inner plunger and a 3/8" by 2" brass sleeve fitted to the end is used to gather a small (1 to 4 grams) soil plug of the relatively undisturbed soil from the base of the hole. The sample is placed into a 40 ml VOA Vial. The soil is examined under the Ultraviolet (U.V.) scope in order to determine if any petroleum fluorescence is visible in the sample. The sample is then weighed, placed into a hot water bath and allowed to come to equilibrium. After the sample has reached equilibrium, a headspace sample is obtained and injected into a FID (flame ionizing detector) chromatograph which produces a chromatogram of the sample. The resulting chromatogram is compared with standard chromatograms to determine the levels of the volatile organics present.

If water is encountered, it is sampled by lowering 1/4" tubing into the hole and pulling the sample to the surface, under a vacuum. The sample is collected in a 40 ml VOA Vial. The water is then examined under the U.V. scope in order to determine if any petroleum fluorescence is visible in the sample. The sample is then placed into a hot water bath and allowed to come to equilibrium. After the sample has reached equilibrium, a sample of the headspace is taken and injected into a calibrated FID chromatograph; the resulting chromatograms are examined for volatile organics.

SCOPE

The Wege Soil Probe Survey by Roy Butler, Geologist, with two helpers took place on July 2 and 3, 1990. The survey was over seen by Donna Courington of Brown and Caldwell Consultants.

Over the course of the two days a total of 15 holes were drilled to collect samples of ground water. Samples were successfully collected from 12 of the holes (see table 1). One of the samples was collected for the Brown and Caldwell laboratory. The remaining samples along with a sample from monitor well W-5, were analyzed in the WEGE portable laboratory. Headspace analysis was performed on the samples with a FID chromatograph. The levels of chlorinated hydrocarbons encountered in most samples were near the lower detection limits of the FID detector; therefore, with the exception of sample from W-5, the samples were reanalyzed with a Photovac 10S50 PID chromatograph. The PID detector has a much greater sensitivity to the chlorinated hydrocarbons; PID detection limit for TCE = 1 ppb, while the FID detection limit for TCE = 40 ppb. (see table 1 for results).

TABLE 1, RESULTS SOIL PROBE SURVEY WATER SAMPLES.
JAMES RIVER FLEXIABLE PACKAGING PLANT
2101 WILLIAMS STREET
SAN LEANDRO, CALIFORNIA

HOLE	DEPTH	DATE	ACETONE	CH3CL PPM	DCE PPB	TCE PPB	PCE PPB	TOL PPB
GS-1	20	07/02/90	4	<0.01	4.0	12.7	6.2	<10
GS-2	20	07/02/90	COULD NOT COLLECT SAMPLE					
GS-3	20	07/02/90	<1.0	<0.01	1.2	4.5	112.0	<10
GS-4	15	07/02/90	<1.0	<0.01	16.2	9.9	156.0	<10
GS-5	20	07/02/90	<1.0	<0.01	6.8	7.1	16.9	<10
GS-6	20	07/02/90	COULD NOT COLLECT SAMPLE					
GS-7	20	07/02/90	<1.0	<0.01	1.0	<1.0	<1.0	<10
GS-8	20	07/02/90	<1.0	<0.01	1.7	<1.0	<1.0	<10
GS-9	20	07/02/90	<1.0	<0.01	2.2	176.0	5.8	<10
GS-10	20	07/03/90	<1.0	200.00	<1.0	<1.0	<1.0	<10
GS-11	20	07/03/90	<1.0	1.86	3.6	<1.0	1.8	<10
GS-12	20	07/03/90	<1.0	<0.01	2.5	7.2	6.9	<10
GS-13	20	07/03/90	<1.0	<0.01	1.0	16.2	1.4	<10
GS-14	20	07/03/90	COULD NOT COLLECT SAMPLE					
GS-9A	20	07/03/90	COLLECT SAMPLE FOR B&C LAB					
W-5	--	07/03/90	<1.0	242.30	<1.0	939.0	144.0	<10

CH3Cl = Chloromethane = Methyl Chloride, values approximate.
We do not carry standard for Methyl Chloride in lab.
peak values are compared to Methylene Chloride
DCE = Dichloroethylene
TCE = Trichloroethylene
PCE = Tetrachloroethylene
TOL = Toluene
PPM = parts per million = milligrams/liter
PPB = parts per billion = micrograms/liter

-WEGE-
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APPENDIX A

EQUIPMENT (General 5-10-89)

Western Geo-Engineers laboratory units are specially equipped with a WEGE PRCD chromatograph; an FID analyzer and/or chromatograph; a PID chromatograph; an analyze (methane sensitive); at least one type of handheld vapor or vapor/oxygen screening detector, (depending on field situations); a computer with plotter and/or printer; a microscope; liquid test kit (resistivity, pH, chloride, nitrate, calcium, fluorescence, H2S and hydrocarbons or other organic vapors by headspace, etc.); soil or core test kit (lithology, headspace, pH, fluorescence, sieve analysis, etc.); misc. gas, soil and water collecting, sampling and storing material/equipment; a refrigerator; an air conditioner and heater; weather indicating equipment (thermometer, relative humidity meter, barometer, wind speed, and wind direction); surveying equipment (a transit, tripod, rod, chain, Brunton compass, and other miscellaneous equipment); a very stable 6.5 KW electric generator; four or more types and or sizes of "drill steel" both solid and tubular; several sizes and types of "bits" and stablizers (to maintain straight holes), x-over adapters to facilitate the use of combination "drill strings"; several sizes of conductor casing to prevent surface caving; three or four (five or six types for special problem areas) types and sizes of drilling devices ranging from hand drivers, electric hammers, vibrators, electric rotary drills, augers (hand and power) and combinations of all devices; several types of pulling equipment including hammer (pounder), cable (or rope), tripod, mechanical and hydraulic hand jacks, and gasoline or electric powered hydraulic ram pullers; fire extinguisher(s); cleaning sterilizing, and sanitizing equipment and material; spare parts, supplies, and tools; and other related equipment.

APPENDIX B

METHODS (General 5-10-89)

The special driving bars ("drill steel") are used to "drill" or to open holes to the needed diameter, usually 5/16" to less than 1 inch. Holes are usually driven to a predetermined level, most commonly between five and ten feet. The driving bar is either pulled from the hole and a sampling tube lowered, or the vapors are sampled through the driving bar with a special tubing and packer set.

Core samples of the soil are taken after the vapor sample has been taken; if maximum lithology data are required, the entire hole may be cored (in small segments one after another). The hole is then

driven/"drilled" to the next sample interval (depth) where the sampling process is repeated. Core samples are cut at each sample depth, which are usually collected on even increments to "total" depth. Deeper holes are usually sampled at five or ten foot intervals. The cores for analysis are cut and retrieved, then within seconds, are pressed into vials and capped. Normally the cores are untouched, even by the clean disposable gloves of the geologist or operator. The core sleeves for the certified laboratory are labeled and placed in a freezer or cooler and frozen. The cores are examined and noted for later stratigraphic mapping procedures as well as UV identification of "product" or "contaminant" both before and after the "solvent" dissolution and headspace stabilization process. When "undisturbed" soil samples are required the hole diameter must be enlarged before driving the core barrel.

Liquid samples (water or product) when available, are collected from the holes for on-site analysis by "headspace" methods. They may be sent to other labs for independent verification. Probes may be temporarily implanted as part of a complete hydrogeologic study. Permanent monitor wells may also be installed at this time.

Hole sites are mapped by transit and chain or by Brunton and chain methods, depending upon time allotted and accuracy required. Methods used for providing the hole vary with the depth, material being penetrated, moisture content, and purpose of the survey. These methods include: rotary, pounding, hammering, vibrating, pressing, and vacuum drilling; each usually is of greater benefit than the others under certain given circumstances and several methods are usually used on each project.

Vapor samples are screened with an FID or a PRCD or a PID analyzer to obtain a preliminary TVO (Total Volatile Organics) value before running the samples through the calibrated chromatograph(s) to determine the composition and concentration of the vapors found in the pore spaces in the soil. See APPENDIX D on Quality and Quantity Control. Some equipment can only be used once. This equipment is discarded if liquid product or high concentrations of product vapor are encountered. If contaminated, solid metal parts are sterilized before using them again. See APPENDIX D on Quality and Quantity Control.

After all data is obtained from a test hole, the hole is destroyed by filling with dry bentonite from bottom to within to 12 inches of surface, then finished with neat cement, grout, blacktop or clean native soil, whichever is appropriate for the existing surface. Neat cement is used, from bottom to top in some California counties.

APPENDIX C

DATA GATHERING AND PRESENTATION (General 5-10-89)

The hole locations (and base map data points if map is not furnished by the client) are surveyed, calculated and entered into the computer. Sample data is logged and entered into the computer as it is gathered, so that a current shaded contour map can be generated and/or plotted at any time during the survey. Having an up-to-date "contour" map helps to show the geologist where additional data points (holes) are needed.

Figures 1 and 2 are usually street or road location maps and USGS topographic maps (if available). Figure 3 is usually the actual site plan map showing test hole locations and depths. Figure 4 (etc.) is (are) stacked 3-D picture(s) of the surface map and each of the level maps to help the visulization of total plume. One or more cross sections may be presented, if warranted, to show additional information for otherwise hard to visulize data. A contour map of the groundwater level or the potentiometric surface may be included if sufficient data is available.

The Table(s) list the data points, water or product levels, vapor values, and headspace values, etc. when available.

The next set of Figures are hand drawn contours of the concentration values for the TVO/TPH (Total Volatile Organic/Total Petroleum Hydrocarbons) and for each of the compounds of interest, which were detected. There is a separate map for each of the above for all sub-surface depth levels surveyed. A computer drawn and shaded "contour" map is furnished showing the machine version of all of the above mentioned hand drawn contour maps.

The shaded contour maps are drawn by the computer using a quadranting variation of the inverse sum of the distance method, to find the average value for each location. This method takes the closest test hole in each quadrant (ie.: northeast, northwest, southeast and southwest), and finds an average value for the point being contoured. The method assumes no false zeros and therefore will bring a high value to the edge of the map if there is no data to stop it.

In the field, data is entered into the computer as the study progresses. A current picture of the project is always available, with the capability to generate shaded contour maps on demand. This allows for quick field evaluation and for the most productive placement of the next test holes.

A copy of each of the intermediate computer shaded contour maps is given to the client's field representative, on site, at the end of the field study, so that plans may be altered or remedial work planned or started immediately.

The next section usually consists of copies of the chromatograms for reference use, if needed. These are followed by a copy of the field notes (work sheets); a copy of the DWR 188 (Water Well Driller's Report) and the Appendices A, B, C, and D (Equipment, Methods, Data Gathering and Presentation, Quality and Quantity Control, respectively).

APPENDIX D

QUALITY - QUANTITY CONTROL (General 5-10-89)

Analytical laboratory standards are maintained. Field and laboratory methods are standardized to provide maximum accuracy and repeatability.

Fresh calibrant is made daily and injected into the chromatograph(s) and detector(s) at regular intervals. Calibration "checks" are made before the first samples are analyzed. Ambient air samples and blank samples (syringe blanks or internal blank(s) are run when warranted to check background quality. Syringes, needles, and sampling tubes, are new and of the disposable type and are not re-used. VOA vials, bottles, and other glassware are pre-cleaned to EPA protocols; brass sample sleeves are either cleaned to EPA protocol or steam cleaned. Other sampling equipment is either discarded or sanitized, if when gathering a sample, it comes in contact with a higher than background contaminant concentration level. Disposable sanitized rubber or plastic gloves are discarded after coming into contact with equipment or samples of higher than background contamination levels.

If solid metal parts become contaminated, they are heated and burned with a propane torch, (to sterilize them by vaporizing any product(s) before using them again. Metal "core" sampling, drilling, liquid sampling, or gas sampling equipment is sanitized on location by burning with a propane torch to remove any volatile organic contaminants. Metal tubing or hollow piping, etc. is harder to clean, as the entire inner space must be heated to remove any vapors. Circulating soap and water through the pipe, rinsing with live steam and drying with ultra clean air works well but cannot be done easily in the field. Therefore, this equipment is steam cleaned, and soap and water washed, rinsed, steamed and dried, (off location at night or between jobs). Enough sampling equipment is available so that if "live" or high concentration samples are encountered, new (sterilized) equipment can be used. All new or used pipe and tubing is sterilized and tested for contamination before it is used or re-used.

Quantity values of compounds of interest are determined by regularly re-calibrating the instruments with "known standards" in the general concentration ranges of the actual samples involved, to guarantee the linearity of the instruments. Core samples are weighed, dissolved, and allowed to reach equilibrium before the "headspace" samples are analyzed and values recorded. Water samples with headspace are also allowed to reach equilibrium, before being analyzed in the chromatograph(s). Occasionally, soil samples are collected (with as little headspace as possible) from varying depths to be sent in Volatile Organic Analysis (VOA) vials, (previously sterilized to U.S. Environmental Protection Agency standards) to Certified Analytical Laboratories for confirmation and verification of WEGE's previously reported results.

-WEGE-

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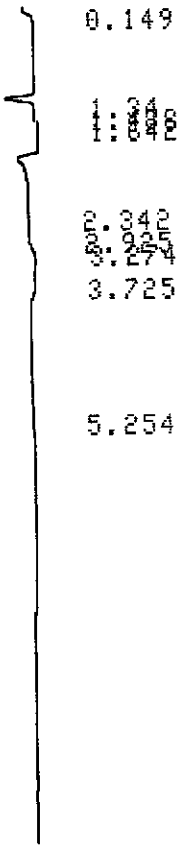
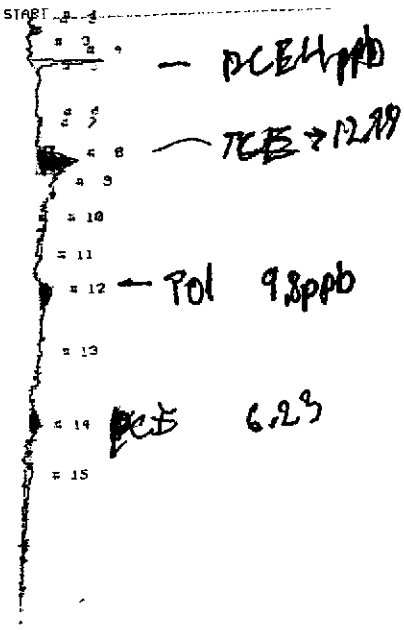
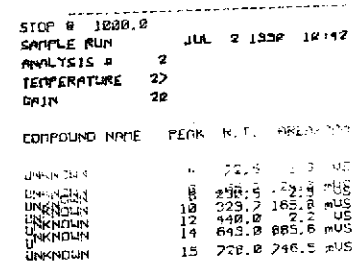
APPENDIX E
WEGE
FID
&
PID
CHROMATOGRAMS

James River = JR

GS1





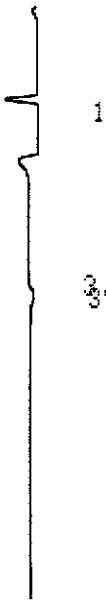


CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 8

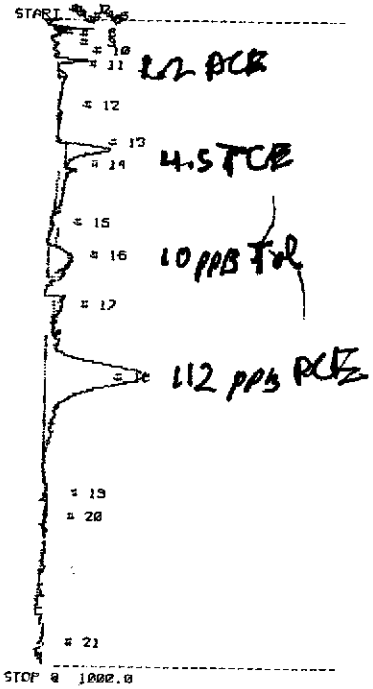
FILE U
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	0.149	1761				
2	1.34	4744				
3	1.488	2413	V			
4	1.642	589	V			
5	2.342	7897				
6	2.925	2580	V	3	0.0688	TCE
7	3.274	3803	V	—	4.4	
8	3.725	1787	V	4	0.0591	PCE
9	5.254	346				
	TOTAL	25919			0.1278	

JR



GC3



CHROMATOGRAM 1 MEMORIZED

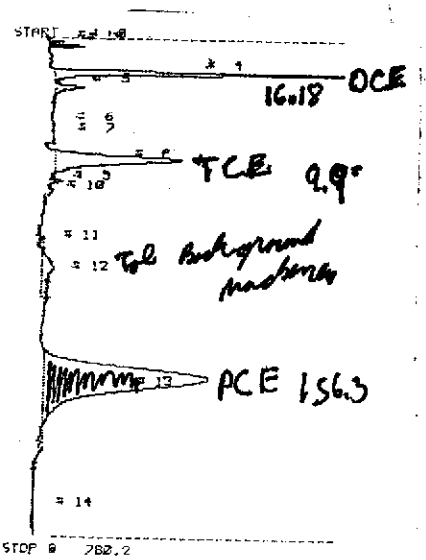
CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 15

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.311	3174				
2	3.342	261				
3	3.745	1123	V	4	0.0371	PCE
	TOTAL	4558			0.0371	

CHROMATOGRAM 101 MEMORIZED

JR

GS-4



STOP @ 780.2
SAMPLE RUN JUL 2 1990 13:11
ANALYSIS # @
TEMPERATURE 30
BAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	3	23.1	134.4 mVS	
UNKNOWN	4	66.7	5.0 VS	— OCE
UNKNOWN	5	91.3	559.2 mVS	
UNKNOWN	8	208.4	6.2 VS	— TCE
UNKNOWN	9	242.9	273.5 mVS	
UNKNOWN	10	258.3	142.1 mVS	
UNKNOWN	12	381.7	1.7 VS	— Tol PCE
UNKNOWN	13	559.1	22.2 VS	

CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0

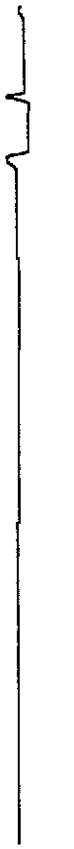
FILE 0
METHOD 44

REPORT NO 17

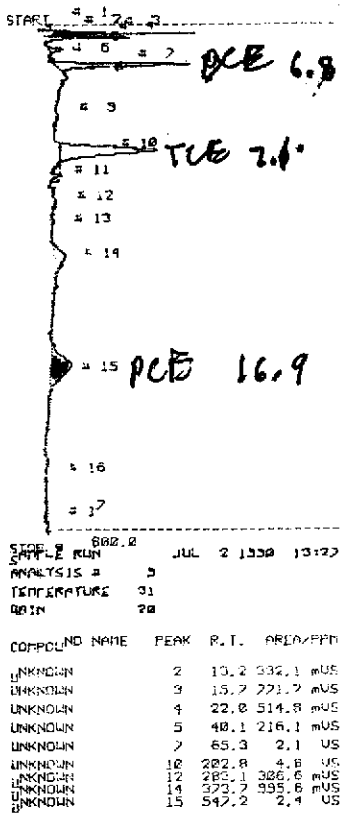
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.3	2353				
2	3.04	313		3	0.0083	TCE
3	3.737	1537		4	0.0508	PCE
	TOTAL	4202			0.0591	

JR



GS-5



CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 19

FILE 0
METHOD 44
SAMPLE WT 100

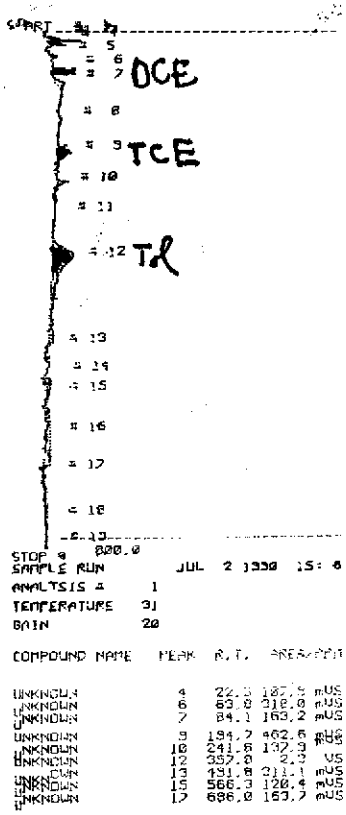
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.289	2355				
	TOTAL	2355			0	

CHROMATOGRAM 101 MEMORIZED

JR

GS-7

1.313
1.472



CHROMATOGRAM 1 MEMORIZED

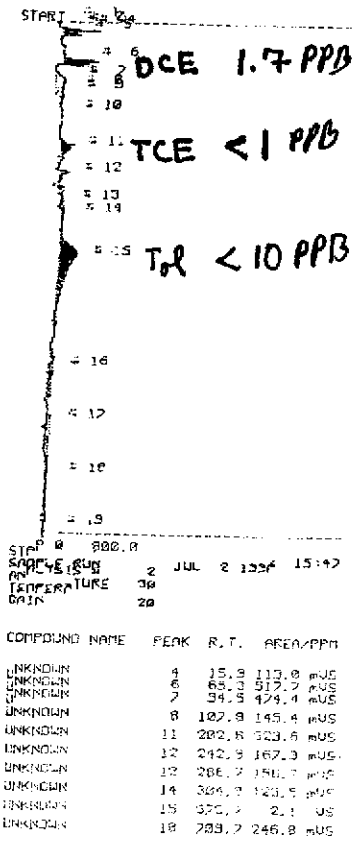
CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 21

FILE 0
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.313	3459				
2	1.472	1748	V			
	TOTAL	5207			0	

JR

GSB



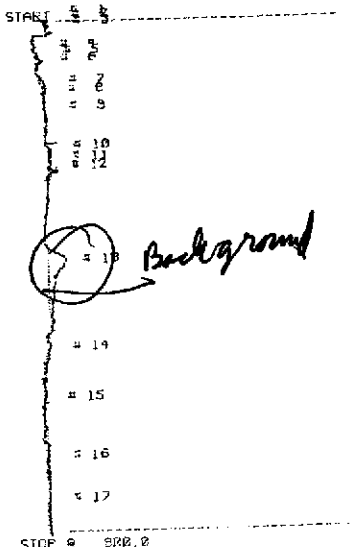
CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC

CHANNEL NO	1	FILE	0
SAMPLE NO	0	METHOD	44
REPORT NO	23	SAMPLE WT	100

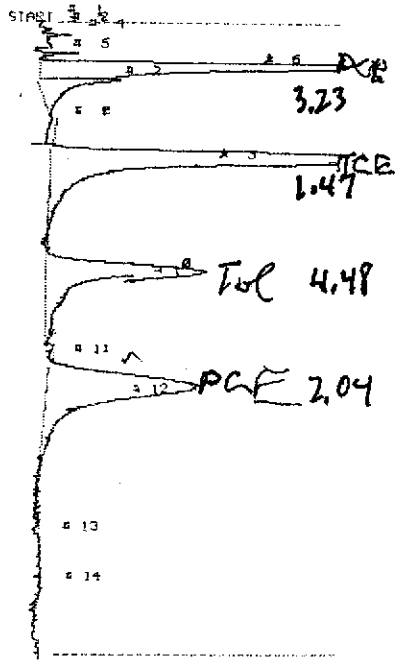
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.292	4561				
2	1.508	886	V			
3	3.382	458				— Benzene
	TOTAL	5905			0	

PHOTOVAC



STOP @ 980.0
SAMPLE RUN JUL 2 1990 12:52
ANALYSIS # 6
TEMPERATURE 30
GAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	7	110.8	185.6 mVS
UNKNOWN	10	388.4	3.2 VS
UNKNOWN	13	758.8	199.3 mVS



STOP @ 1080.4
SAMPLE RUN JUL 2 1990 11:35
ANALYSIS # 4
TEMPERATURE 25
GAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	4	22.9	194.9 mVS	
UNKNOWN	5	52.4	571.2 mVS	
UNKNOWN	6	63.9	36.4 VS	DCE
UNKNOWN	7	94.1	4.1 VS	
UNKNOWN	8	215.2	91.3 VS	TCE
UNKNOWN	10	403.2	18.3 VS	Tol
UNKNOWN	12	596.6	21.3 VS	PCE
UNKNOWN	14	888.6	192.9 mVS	

7.04

PHOTOVAC

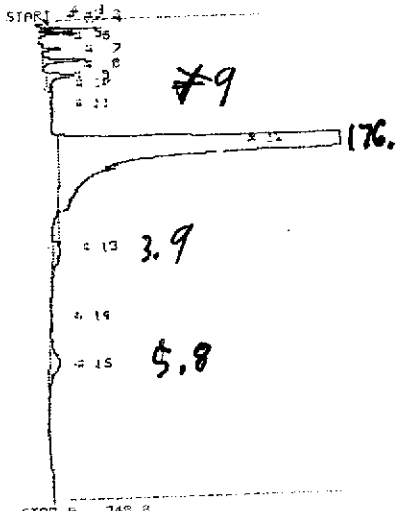
START # 1

STOP @ 12.0
SAMPLE RUN JUL 2 1990 12:55
ANALYSIS # 2
TEMPERATURE 30
GAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/PPM

PHOTOVAC

JR



CHROMATOGRAM 1 MEMORIZED

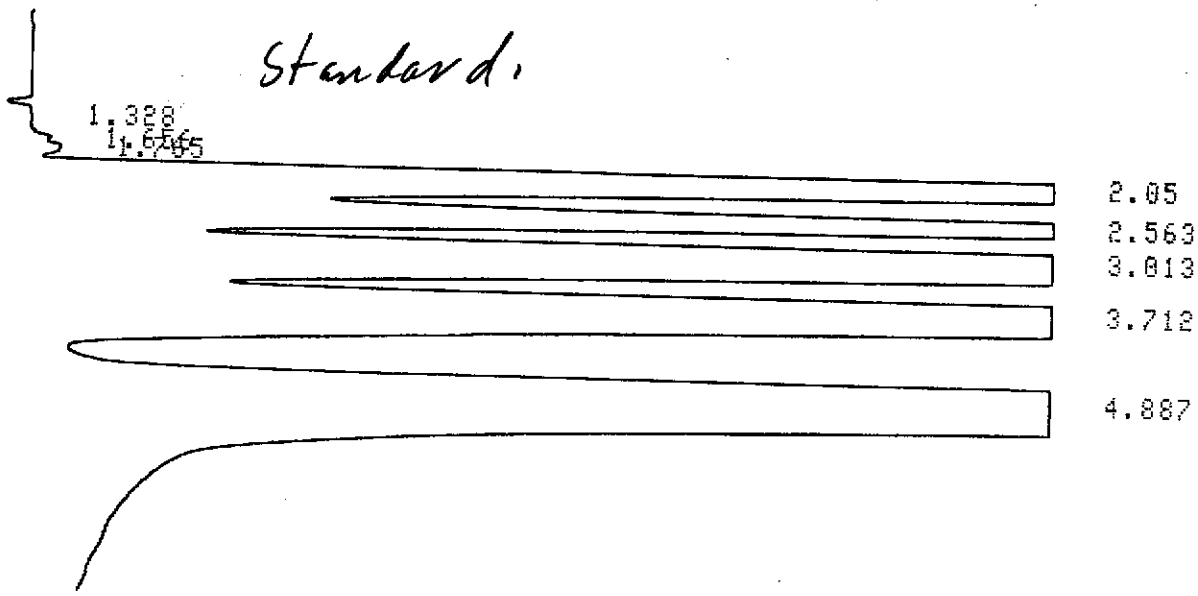
CR501 CHROMATOPAC

CHANNEL NO	1	FILE	0
SAMPLE NO	0	METHOD	44
REPORT NO	26	SAMPLE WT	100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	0.173	796				
2	0.467	361	V			
3	1.294	3701				
4	1.458	1679	V			
5	3.028	3992		3	0.1064	TCE
6	3.4	447	V			
7	3.733	474	V	4	0.0157	PCE
	TOTAL	11450			0.1221	

JR

Standard.



CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 8

FILE 0
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.328	5131				
2	1.656	8305	V			
3	1.765	8172	V			
4	2.05	4132015	V	1	118	DCE
5	2.563	1189461	V	2	126	DCM
6	3.013	3154634	V	3	138	TCE
7	3.712	2094245	V	4	150	PCE
8	4.887	5760821	V	5	62	TOL
	TOTAL	16352782			613.9998	

JR

0.155

1.723

1.211

2.283

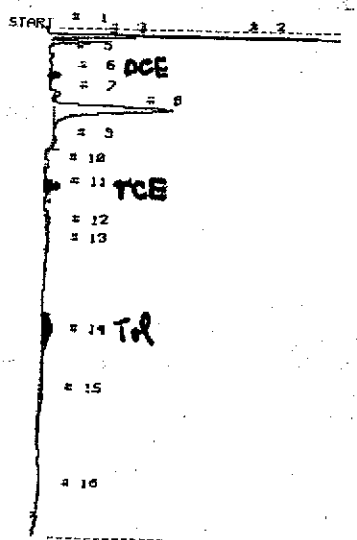
GS-10

CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 11

FILE 0
METHOD 44
SAMPLE WT 100

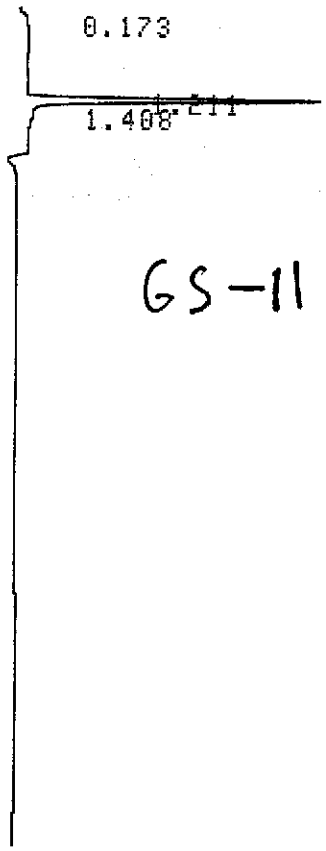
PKNO	TIME	AREA	MK	IDNO	CONC
1	0.155	891			
2	1.211	1959447	S	CH_3Cl	202.00.
3	1.723	3234	T		
4	2.283	3071			
	TOTAL	1966643			0



STOP @ 292.8
SAMPLE RUN JUL 3 1330 18:11
ANALYSIS # 2
TEMPERATURE 24
GAIN 28

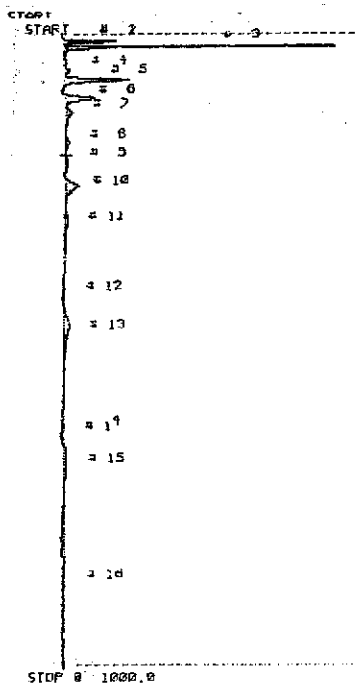
COMPOUND NAME	PEAK	R.T.	AREA/PPB	
UNKNOWN	2	12.5	2.2	US
UNKNOWN	3	16.2	341.6	mUS
UNKNOWN	4	23.5	584.9	mUS
UNKNOWN	6	27.7	138.2	mUS
UNKNOWN	7	108.3	181.9	mUS
UNKNOWN	8	131.3	4.5	US
UNKNOWN	9	182.3	165.8	mUS
UNKNOWN	11	257.2	485.9	mUS
UNKNOWN	12	312.1	153.6	mUS
UNKNOWN	14	487.6	1.1	US

JR



1.86 % CH_3Cl

GS-11



SAMPLE RUN JUL 3 1330 11:10
ANALYSIS # 3
TEMPERATURE 25
GAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.1	102.5 mUS
UNKNOWN	2	21.8	127.5 mUS
UNKNOWN	5	25.2	1.1 US
UNKNOWN	6	105.6	664.1 mUS
UNKNOWN	7	127.7	159.6 mUS
UNKNOWN	10	248.4	526.2 mUS
UNKNOWN	11	302.3	142.5 mUS
UNKNOWN	13	421.2	675.1 mUS
UNKNOWN	15	688.9	882.4 mUS

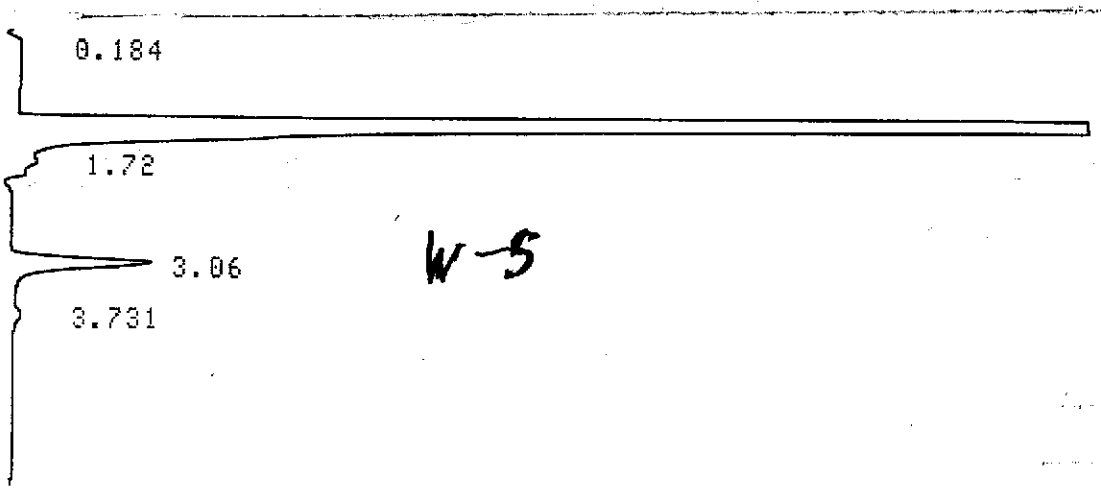
CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 15

FIL
MET
SAM

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	0.173	1483				
2	1.211	18160	S			
3	1.408	178	T			
	TOTAL	19821			0	

JR



W-5

CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 19

FILE 0
METHOD 44
SAMPLE WT 100

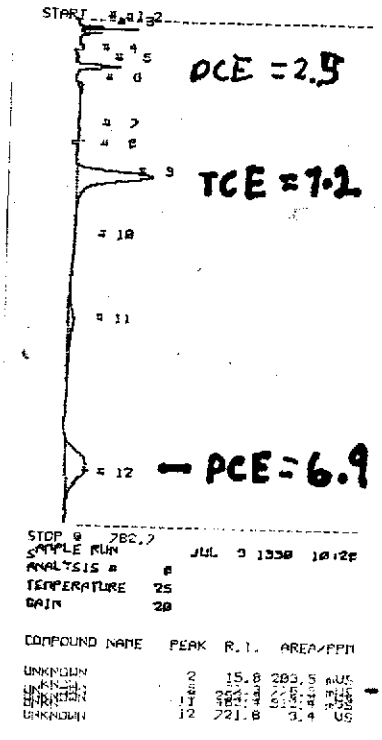
PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	0.184	2639				
2	1.215	2422979	S			
3	1.72	656	T			
4	3.06	21457		3	0.9386	TCE
5	3.731	2003	V	4	0.1435	PCE
	TOTAL	2449734			1.0821	

JR

GS-12

3.02

3.708



STOP @ 782.7
SAMPLE RUN JUL 3 1990 10:28
ANALYSIS # 8
TEMPERATURE 25
GAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	15.8	203.5 BV
[illegible]	[illegible]	[illegible]	[illegible]
UNKNOWN	12	721.8	3.4 VB

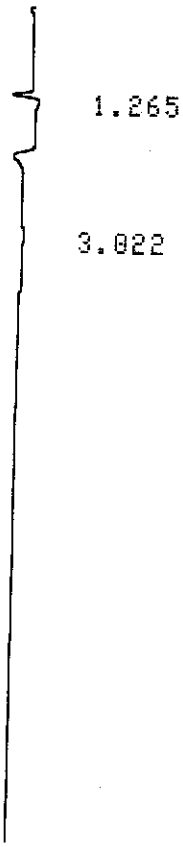
CHROMATOGRAM 1 MEMORIZED

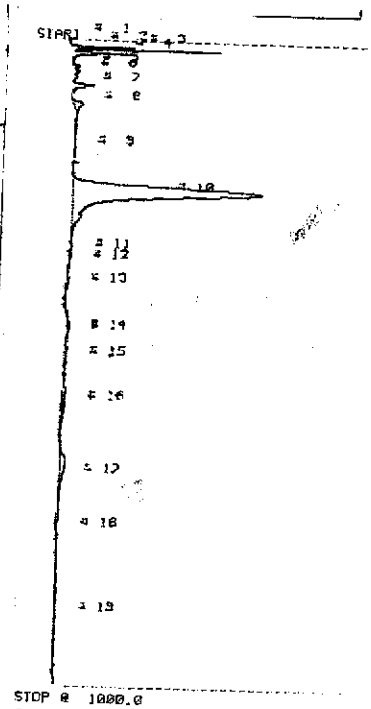
CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 21

FILE 0
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	3.02	198		3	0.0087	TCE
2	3.708	266		4	0.0191	PCE
	TOTAL	464			0.0277	

JR





STOP @ 1000.0
SAMPLE RUN JUL 9 1330 11:36
ANALYSIS # 10
TEMPERATURE 25
GAIN 20

COMPOUND NAME	PEAK	R.T.	AREA/HT	
UNKNOWN	2	13.1	130.9	mVS
UNKNOWN	3	15.9	640.5	mVS
UNKNOWN	4	23.8	112.9	mVS
UNKNOWN	7	74.8	127.9	mVS
UNKNOWN	8	107.8	189.4	mVS
UNKNOWN	14	459.2	336.0	mVS
UNKNOWN	16	568.7	135.3	mVS
UNKNOWN	17	680.1	684.9	mVS
UNKNOWN	18	896.2	112.1	mVS

CHROMATOGRAM 1 MEMORIZED

CR501 CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 23

FILE 0
METHOD 44
SAMPLE WT 100

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	1.265	3227				
2	3.022	594		3	0.026	TCE
	TOTAL	3821			0.026	

ATTACHMENT B

SITE ACCESS PERMIT BETWEEN
SOUTHERN PACIFIC RAILROAD AND JAMES RIVER CORPORATION

ATTACHMENT 2

Southern Pacific
Transportation Company

Southern Pacific Building • One Market Plaza • San Francisco, California 94105

W. E. FOWLER
DIRECTOR-CONTRACTS AND JOINT FACILITIES
R. A. FUTRELL
MANAGER-CONTRACTS
J. E. GROTHER
MANAGER-JOINT FACILITIES

R. S. DICKINSON
JOINT FACILITY OFFICER
M. M. BROUSSARD
J. L. WAHLER
CONTRACT AGENTS

310-1
May 11, 1990

James River Corp.
c/o Brown and Caldwell
2101 William St.
San Leandro, CA 94511

Gentlemen:

Southern Pacific Transportation Company (Railroad), subject to the following terms and conditions hereby permits James River Corporation (JRC) to enter upon Railroad's property at or near Mulford, County of Alameda, State of California in the vicinity of M. P. 15.5 for the purpose of installing monitoring wells to take soil and water samples at the approximate locations shown on the attached Drawing No. L-15.5-L dated March 23, 1990.

JRC will pay Railroad partially to defray the cost of handling the sum of Five Hundred Dollars ($500.00).

In performing said work JRC and/or its contractor's forces shall use only public roadways to cross from one side of Railroad's tracks to the other.

All work shall be done in a good and workmanlike manner at the sole cost and expense of JRC and to the satisfaction of Railroad. JRC's installation plans shall be subject to approval of Railroad. The tracks, communication lines and other facilities of Railroad will not be interfered with and the work will be so prosecuted that there will be no interference with or delay to the operations of Railroad.

JRC shall obtain written consent of any lessee, licensee or grantee of Railroad at the time in possession of any of the land included hereunder.

In view of the possible existence of subsurface pipelines or other structures, JRC shall, for each test hole, explore for such structures with hand tools to a depth of at least eight (8) feet below the surface of the ground or at JRC's option utilize suitable metal detecting equipment prior to drilling or excavating with mechanized equipment. Railroad does not warrant there are no structures below said level and JRC's operations will be subject at all times to the liability provisions herein.

In addition to other provisions of this agreement requiring JRC to give notice prior to commencing work, JRC shall telephone Railroad at 1-800-283-4237 (a 24-hour number) to determine if a telecommunications system is buried anywhere on or about the premises defined or included herein. If it is, JRC will telephone the owner of the system designated by Railroad, arrange

for a cable locator and make arrangements for relocation or other protection for the system prior to beginning any work on the said premises.

JRC shall furnish Railroad with a copy of all soil and water data and analysis obtained from tests thereof. JRC shall submit to Railroad its plans for any remediation which may be necessary, direct to Railroad's Manager of Environmental Services at the above address.

Any contractors performing work on the premises of Railroad, and/or persons entering the premises to read gauges, etc. on behalf of JRC shall be deemed the agents of JRC.

Drilling operations in connection with test holes shall be no less than fifteen (15) feet from the center line of any track and at no times will cables or equipment of any nature be located less than fifteen (15) feet from the center line of any track.

All open holes will be satisfactorily covered and locked at all times when JRC's forces are not physically working in the actual vicinity thereof.

JRC agrees to reimburse Railroad for all cost and expense by Railroad in connection with said work, including but not limited to the furnishing of such inspector, watchman and flagman as Railroad deems necessary.

It is agreed and understood that upon completion of work covered hereunder, JRC will remove all equipment from Railroad's property and leave the property in a neat and safe condition satisfactory to Railroad. Without limiting the foregoing, JRC shall remove all well casings, shall fill the borings with grout, and shall take any additional action necessary to close the wells required by state or regulation or by any government agency having jurisdiction.

JRC shall, at its expense, comply with all laws, regulations rules, and orders which are applicable to work done hereunder or result from such work, regardless of when they become or became effective, including, without limitation, those relating to health, safety, noise, environmental protection, waste disposal, and water and air quality and furnish satisfactory evidence of such compliance upon request of Railroad.

JRC agrees to and shall indemnify and hold harmless Railroad, its officers, agents, and employees, from and against any and all fines, penalties, claims, demands, losses, damages, causes of action, suits, and liabilities of every kind (including reasonable attorneys' fees, court costs, and other expense related thereto) arising out of or in connection with any work done, action taken or permitted by JRC, its subcontractors, agents, or employees under this contract or arising out of JRC's failure to comply with the terms of this contract including, without limitation, the preceding paragraph. It is the express intention

of the parties hereto, both JRC and Railroad, that the indemnity provided for in this paragraph indemnifies Railroad for its own negligence, whether that negligence is active or passive, or is the sole or a concurring cause of the injury, death or damage; provided that said indemnity shall not protect Railroad from liability for death, injury or damage, arising solely out of the criminal actions of Railroad, its officers, agents, and employees. The term Railroad as used in this paragraph shall include the assigns and affiliated companies of Railroad and any other railroad company operating on Railroad's tracks.

Permission herein given shall be effective only if accepted within one month from the date hereof and, if so accepted, shall be effective for a period of one (1) year thereafter. JRC agrees to notify Railroad's Regional Offices by letter on facsimile No. (213) 780-6959 at least five days prior to commencing any work on the premises of Railroad pursuant to this permission.

If the above terms and conditions are agreeable, please sign the enclosed duplicate original of this letter and forward same to Regional Engineer, Attn: Mr. J. W. Ivanusich, Southern Pacific Transportation Company, 1200 Corporate Center Dr., Monterey Park, CA, 91754-7605. After the notice provided for above, you may exercise permission herein given.

Yours very truly,

R. A. Futrell

AGREED TO AND ACCEPTED THIS

12 DAY OF JUNE, 1990.

JAMES RIVER CORPORATION

By Robert Wenning
(Title) ENGINEERING MANAGER

Attachment

ATTACHMENT C

BCA ANALYTICAL REPORT
SAMPLE GS-9