

File  
AC Transit (AK22-)

JOB SITE 653-429  
Robbelen (916) 331-9130

To: Rafat  
From: Lowell Miller  
Subject: AC Transit Construction Project - Emeryville  
Incident Report.  
Date: 5/2/86

Irwin Kohler of DHS informed me on 4/30/86 that he had received some complaints regarding ill workers at the construction site. The workers were digging in an area where there had apparently been gasoline contamination of the soil. John Milhouse was the contractor making the complaint (Robbelen Engineers). The overall manager of the project is Kaiser Engineers, of which Dave Corn and Jack Straw are the project managers. The project consists of the installation of new underground tanks and the construction of bus terminals. Ted Gerow had been dealing with Kaiser and advising them of acceptable levels for the waste soil removal. Kaiser has been using Multitech Laboratories and Robbelen has engaged Kleinfelder to collect their own samples. Sample results were submitted to Ted regarding the waste soils.

Lowell Miller and Larry Seto went out to the site on 4/30/86 and noted a strong gasoline odor. A gasoline odor was observed from the trenches as well as from a constructed vault area. Robbelen was advised that the workers were in an unhealthy situation and was advised that an industrial hygienist should be present to monitor the situation. Four soil samples were collected from the trench area and one water sample from the vault area.

CAL/OSHA (Ken Smith) was advised of the situation and visited the site on 5/1/86.

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY  
DIVISION OF ENVIRONMENTAL HEALTH  
ENVIRONMENTAL HEALTH LABORATORY

ANALYTICAL REQUEST

Laboratory No. 86-043

Sample Identification Samples from A.C. Transit

Analyses Requested by: L. Seto

Date Collected: 4-30-86

Collected by: L. Miller

Date Received: 4-30-86

Received by: B. Chan

Analyses Requested Total Hydrocarbons

Background Information Workers had complained of organic odors.  
Three of the six total samples were analyzed.

ANALYTICAL RESULTS

Parameter	Observation or Result
Total Hydrocarbons- Gas Chromatography using C <sub>10</sub> , C <sub>12</sub> and C <sub>16</sub> as markers. 10 16 Method involves extracting the sample with petroleum ether and analyzing the extract. Quanti- fying is done using toluene as the standard hydrocarbon.	Sample 86-0001-Water- Less than 7ppm of pure compound  Sample 86-0003- Soil Hole B Less than 14ppm of pure compound  Sample 86-0005- Soil Bore 10' Less than 14ppm of pure compound

Conclusions: Note that since quantification was done using pure  
hydrocarbon standards mixtures containing multicomponents ie  
gasoline or other fuel material will have much higher detection limits.\*

Date Analyses Completed: 5-13-86

Chemist: B. Chan

Approved: B. Chan *BC*

Distribution: L. Miller, R. Shahid, T. Shirasawa, G. Winn

\* gasoline has a detection limit of approximately 500 ppm.

BC/cdb  
7/85

LABORATORY SAMPLE ANALYSIS REQUEST

1. CHECK ONE:  CSE  IH 2. Region  1 District  4 3. Date Submitted 5-30-86  
4. Submitter Name/Address: Kenneth Smith 5. Phone No. X 2673

6. Inspection Identification: IDENT. 53467 RPT. NO. 018 FY 86 TYPE 7

7. Date Laboratory Results Desired: Urgent

8. Sample Information: Name of Establishment Roebben Engineering, Inc  
Address 1177 47th St., Emeryville, CA 94618

11. SEALS (Lab use only)  
 Intact  
 Broken  
 Missing  
 Not Required

Lab. No. For Lab. Use Only	Field No.	Date Coll.	Type of Sample See Below*	Volume	Field Information	Analysis Requested
60789		5-30-86	M		Groundwater	Per Mike Volz x 2201 S+R Lab Water Analysis "Criteria Pollution"

\* Material = M; Bag = B; Absorbing Tube = AT; Grab Sample = G; Impinger = I; Bubbler = Bu; Filter Paper = F; Other = Write In.

9. Comments: 6 - 1/2 gallon glass jugs filled with ground water leaking into basement of building. Delivered to S+R Lab about 0900 hrs to Mike Volz for testing for organics of various types and H2S. The results will be returned thru AIHL.

10. CUSTODY RECORD  
Released By: Kenneth Smith Received By: [Signature] Time: 1:25 Date: 5/30/86



# Memorandum

To : Mr. Kenneth R. Smith, C.I.H.  
Cal OSHA  
ATSS 571-2673

Date : June 10, 1986

Subject: Analyses of water samples from Emeryville construction site

Mr. Robert Graul  
AIHL

Via: B.R. Tamplin, Ph.D., Chief *BR*  
Sanitation and Radiation Laboratory

From: M.G. Volz, Ph.D. *MGV*  
Environmental Biochemist  
Group Leader/Environmental Measurements  
Sanitation and Radiation Laboratory

On (5/30/86, 0940), and after previous consultation with AIHL (R. Graul) and Cal OSHA (K. Smith), SRL received (6) - 1/2 gal glass bottles filled (no head space) with groundwater taken from a construction site in Emeryville, CA. This site was characterized by many worker complaints of illness (headache, sore throat, nausea, diarrhea, etc.) allegedly attributable to inhalation of noxious volatile components of contaminated groundwater in a sump area. Characterization of odors ranged from "gas oil" and "diesel" to "bunker" suggesting C<sub>6</sub> - C<sub>18</sub> compounds and perhaps diesel, kerosene, and/or lubricating oil contamination (K. Smith).

Preliminary results of water analyses were transmitted by phone to R. Graul (AIHL) by M.G. Volz (SRL) on Saturday, May 31, 1986 and followed up with K. Smith, Cal OSHA at (0800) on Monday, June 2, 1986.

Special thanks are due to several members of my staff (J.B. Dornan, J. Dhaliwal, M. Gill, W. Ray) for their conscientious and timely approach to this problem. Ms. Nati Lapurga particularly is due recognition because she made the extra effort to pull manually the individual GC/MS spectral peaks from the computer files so as to generate compound identification with maximum certainty (purity >700). Quantitation was done on these compounds for which SRL has standards.

The results of SRL's analyses of this sample are as follows:

SRL No.	Sampling Site/Date	Analyte	Results
(5925;0725)	Emeryville/Cal OSHA 5/30/86, 0900	S <sup>2-</sup> ; H <sub>2</sub> S	None found; <0.1 ppm for both
" "	" "	Hydrocarbons; Gas Chromatography/ FID	None found; Diesel: <0.1 ppm Kerosene: <0.06 ppm Gasoline: <0.04 ppm

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Department of Industrial Relations  
CAL/OSHA  
BERKELEY

Mr. Kenneth R. Smith, C.I.H.

- 2 -

June 10, 1986

SRL No.	Sampling Site/Date	Analyte	Results
"	"	EPA Method 624 (Purgeables)	See Attached Sheet
"	"	EPA Method 625- (B/N/A Extractables)	None Found: See Attached Sheet

cc: G.W. Fuhs, Dr. sci. nat., DL  
J. Dhaliwal  
J.B. Dornan  
M. Gill  
N. Lapurga  
W. Ray  
J. Wesolowski, Ph.D., AIHL

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MANUAL GC/MS LIBRARY SEARCH  
EPA Method 624 - Purgeables

- Alkanes: Butane (includes alkyl and alkylnitro - substituted products)  
Pentane  
Hexane (includes cyclopropyl - substituted products)
- Alkenes: Pentene ) - (includes alkyl - substituted products)  
Butene )  
Hexane  
Heptene (includes alkyl - substituted products)
- Cycloalkanes: Cyclopropane )  
Cyclobutane ) - (includes alkyl - substituted products)  
Cyclopentane )  
Cyclohexane )
- Cycloalkenes: Cyclopentene )  
Cyclohexene ) - (includes methyl- and dimethyl- derivatives)  
Cyclobutene )  
Cycloheptene
- Alkadienes: Pentadiene ) - (includes methyl- and dimethyl- products)  
Hexadiene )  
Heptadiene )
- Aromatics: Benzene (11.3 ppb) - (also seen were alkyl- or alkenyl- products)  
Xylenes  
Ethylbenzene (1.45 ppb)
- Others: Nitroso - dimethylpropanamine  
Hexyn-3-ol  
Pentanol, Hexanol, Octanol  
Hexadiene-1-ol  
Cyclohexanemethanol  
Ethylhexanol

## EPA Method 625 (B/N/A Extractables)\*

<u>Base-Neutral Fraction:</u> **	Detection Limits (µg/L)
1. Acenaphthene	7.4
2. Fluorene	6.3
3. Diethylphthalate	6.2
4. Hexachlorobenzene	8.7
5. Anthracene	1.6
6. Pyrene	2.1
7. Chrysene	2.2
8. Benz(α) anthracene	2.0
9. Dibenz(α,h) anthracene	3.6
 <u>Acid Fraction:</u> **	
1. Phenol	5.7
2. 2-chlorophenol	6.4
3. 2-nitrophenol	14.
4. 2,4-dimethylphenol	6.5
5. 2,4-dichlorophenol	6.3
6. 4-chloro-3-methylphenol	7.9
7. 2,4,6-Trichlorophenol	8.3
8. 2,4-dinitrophenol	31.
9. 4-nitrophenol	16.
10. 2-methyl-4,6-dinitrophenol	18.
11. Pentachlorophenol	12.

\* None found in sample except a small amount of dioctylphthalate.

\*\* Spiked with 500 µl each of Phenol Mixture and Base Neutral Std.

Water may have displaced samples

LABORATORY SAMPLE ANALYSIS REQUEST

1. CHECK ONE:  CSE  IH 2. Region  1 District  4 3. Date Submitted 5-20-86  
4. Submitter Name/Address: Kenneth Smith 5. Phone No. X 2673

6. Inspection Identification: IDENT.  5  3  4  6  7 RPT. NO.  0  1  8 FY  8  6 TYPE  7

7. Date Laboratory Results Desired: Urgent (Job action in progress)

8. Sample Information: Name of Establishment Roebelen Engineering, Inc  
Address 1177 - 47th Street, Emeryville

11. SEALS (Lab use only)
- Intact
  - Broken
  - Missing
  - Not Required

Call office  
(Leave best  
IH second best  
as soon as info  
is available  
Thank

Priority

Lab. No. For Lab. Use Only	Field No.	Date Coll.	Type of Sample See Below*	Volume	Field Information	Analysis Requested
60748	1B	5-20	AT	22.2L	Basement Railing over sump	PPM
	2B			19.1L	On ladder in sump ~ 3' above floor	PPM
	3B			32.2L	On gallet in bottom of sump	ID
	4B			31.4L	(same as 1B)	ID
	5B			29.9L	(same as 2B)	ID
	6B			53.1L	(same as 3B)	ID
	7B			11.3L	(same as 3B)	PPM
	B-B1		Blank			
	B-B2		Blank			

\* Material = M; Bag = B; Absorbing Tube = AT; Grab Sample = G; Impinger = I; Bubbler = Bu; Filter Paper = F; Other = Write In.

9. Comments: Samples 3B, 4B, 5B, 6B are likely to be saturated. Use these for ID if necessary. This is an unknown hydrocarbon (most likely). It is not identified as to type such as chlorinated, sulfur containing although it is unlikely that it is sulfur containing. Apparently is in the groundwater. Tube 7B is the best tube for PPM. may be solvent residual

10. CUSTODY RECORD

Released By:	Received By:	Time:	Date:
_____	_____	_____	_____
_____	_____	_____	_____



LABORATORY REPORT

TO: OH   
DIS

Region 7  
District

Name KEN SMITH

1. DIS Inspection/I.H. Investigation Identification: I. D. No. 53467018867 Rpt. No. 018867 Yr. 7

2. Name of Establishment ROEBBELEN ENGINEERING INC. 3. Date This Report: Mo. 06 Day 04 Yr. 86  
Address 1177 - 49<sup>TH</sup> ST. EMERYVILLE

4. Laboratory Results

Lab. No. For Lab. Use Only	Field No.	Laboratory Results							
		BENZENE		TOLUENE		ETHYL BENZENE		P-XYLENE	
		mg/m <sup>3</sup>	PPM	mg/m	PPM	mg/m <sup>3</sup>	PPM	mg/m <sup>3</sup>	PPM
60748	1B	0.20	0.06	0.07	0.02	0.02	0.004	0.06	0.004
	2B	0.17	0.05	0.05	0.01	0.02	0.004	0.07	0.02
	3B	0.16	0.05	0.06	0.02	0.02	0.004	0.06	0.01
	4B	0.13	0.04	0.03	0.008	0.01	0.003	0.06	0.01
	5B	0.14	0.05	0.03	0.009	0.02	0.004	0.08	0.02
	6B	0.50	0.16	0.03	0.009	0.01	0.003	0.06	0.01
	7B	0.24	0.08	0.04	0.012	0.02	<0.005	0.08	0.02
	B-B1	BLANK							
	B-B2	BLANK							
60748	6B	The Carbon Disulfide extract of this sample was analyzed by a fused-silica capillary GC/MS/DS and had the same components as in a Carbon Disulfide blank.							

June 1986  
Department of Industrial Hygiene  
CALIFORNIA  
BERKELEY

5. Signatures of Chemists Involved

James Fracchi 5-27-86  
John W. Remay 5/27/86

6. Signature of Supervising Chemist 26

Rosario R. del Rosario

# LABORATORY REPORT

TO: OH  Region 7  
 DIS  District 4

Name KEN SMITH

1. DIS Inspection/I.H. Investigation Identification: I. D. No. Rpt. No. Yr.  
S3467018867

2. Name of Establishment ROEBBELEN ENGINEERING, INC.  
 Address 1177-47<sup>th</sup> ST. EMERYVILLE

Date This Report:  
 Mo.   Day   Yr.  

4. Laboratory Results

Lab. No. <small>For Lab. Use Only</small>	Field No.	Laboratory Results							
		m-XYLENE		CUMINE		o-XYLENE		MESITYLENE	
		mg/m <sup>3</sup>	PPM	mg/m <sup>3</sup>	PPM	mg/m <sup>3</sup>	PPM	mg/m <sup>3</sup>	PPM
60748	1B	0.04	0.01	0.02	0.004	0.02	0.006	0.02	0.004
	2B	0.04	0.004	0.02	0.004	0.02	0.006	0.02	0.004
	3B	0.04	0.01	0.02	0.004	0.03	0.006	0.02	0.004
	4B	0.03	0.007	0.02	0.004	0.02	0.005	0.02	0.004
	5B	0.03	0.008	0.02	0.005	0.02	0.005	0.02	0.005
	6B	0.03	0.007	0.02	0.004	0.02	0.005	0.02	0.004
	7B	0.03	0.008	0.02	0.004	0.02	0.005	<0.02	<0.005
	B-B1	BLANK							
	B-B2	BLANK							

5. Signatures of Chemists Involved  
 ▶ Mario Freccia 5-27-86  
 ▶ \_\_\_\_\_  
 ▶ \_\_\_\_\_

6. Signature of Supervising Chemist RC  
 ▶ Aurora R. del Rosario

LABORATORY SAMPLE ANALYSIS REQUEST

1. CHECK ONE:  CSE  IH 2. Region  1 District  4 3. Date Submitted 5-2-86

4. Submitter Name/Address: Kenneth Smith 6. Phone No. X 5673

IDENT. RPT. NO. FY TYPE  
6. Inspection Identification:

7. Date Laboratory Results Desired: Routine

8. Sample Information:  
Name of Establishment Raebben Engineering, Inc.  
Address 1177 - 47 street, Emeryville, CA 94619

11. SEALS (Lab use only)  
 Intact bc  
 Broken  
 Missing  
 Not Required

Lab. No. For Lab. Use Only	Field No.	Date Coll.	Type of Sample See Below*	Volume	Field Information	Analysis Requested
60646	1	5-1-86	M	—	Soil sample - contaminated with solvent/Gasoline/?	GC/MS Characterize major hydrocarbons
	2		M		Water from excavation - skimmed the surface for floating residue	GC/MS Characterize major hydrocarbons floating/absorbed
	3		M		White soil strata	% Asbestos

\* Material = M; Bag = B; Absorbing Tube = AT; Grab Sample = G; Impinger = I; Bubbler = Bu; Filter Paper = F; Other = Write in.

9. Comments:

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10. CUSTODY RECORD

Released By:	Received By:	Time:	Date:

LABORATORY REPORT

OH  DIS  Region  District  Name KEN SMITH

DIS Inspection/I.H. Investigation Identification: I. D. No. Rpt. No. Yr.  

S	3	4	6	7	0	1	8	8	6	7
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Name of Establishment ROEBBELEN ENGINEERING, INC. 3. Date This Report: Mo. Day Yr.  
1177-47 STREET, EMERYVILLE, CA. 94619

0	6	0	4	8	6
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Laboratory Results (Fused silica capillary GC/MS/DS analyses.)

Lab. No. For Lab. Use Only	Field No.	Laboratory Results
60646	1	The headspace of this heated sample contained: Ethyl Benzene; Xylene isomers; C <sub>3</sub> alkyl benzene compounds; and alkanes, cycloalkanes and/or alkenes in the boiling point range of C <sub>7</sub> to C <sub>10</sub> n-alkanes. Also a trace of Benzene.
	2	The headspace of this heated sample contained: Air and water
		Note: Sample #1 was heated at both 40°C and 90°C and analyzed for VOC in the headspace gas. The analytes were virtually identical at both temperatures and varied only in amounts, as would be expected for thermally desorbed materials. WWS

Signatures of Chemists Involved  
John W. Remoy 21 May '86

6. Signature of Supervising Chemist William A. Vance 5-22-86

# Addendum

TO: OH  DIS  Region  District   
 Name KEN SMITH

1. DIS Inspection/I.H. Investigation Identification: S3467018867

2. Name of Establishment ROEBELEN ENGINEERING, INC. 3. Date This Report:

Address 1177-47 STREET, EMERYVILLE, CA. 94619

4. Laboratory Results (Fused silica capillary GC/MS/DS analyses.)

Lab. No. For Lab. Use Only	Field No.	Laboratory Results
60646	2	<p>The filtered Hexane extract of this sample contained the same compounds as the filtered Hexane blank.</p>
		<p>The Dichloromethane extract of this sample contained the same compounds as in the filtered Hexane blank and the Dichloromethane blank except for a trace of 1,2-Dichloroethane and a cycloalkane compound.</p>

5. Signatures of Chemists Involved  
John W. Romay 30 May '86

Signature of Supervising Chemist  
William A. Vance 6-2-86

**LABORATORY REPORT**

TO: OH  DIS  Region  District

Name K. SMITH

1. DIS Inspection/I.H. Investigation Identification: I. D. No. Rpt. No. Yr.  

S	3	4	6	7	0	1	8	8	6	7
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2. Name of Establishment ROEBBELN ENGINEERING, INC.

3. Date This Report: Mo. Day Yr.  

0	5	2	2	8	6
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Address 1177 47TH STREET  
EMERYVILLE, CA. 94619

4. Laboratory Results

Lab. No. For Lab. Use Only	Field No.	Laboratory Results
60648 ↓	3	NO ASBESTOS DETECTED (LESS THAN 0.5 PERCENT BY POLARIZED LIGHT MICROSCOPY). NO FIBROUS MATERIAL DETECTED.

5. Signatures of Chemists Involved  
*Gester R. Thompson* 05/15/86

6. Signature of Supervising Chemist *RC*  
*Steven B Hayward*

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY  
 470-27th Street, Oakland, CA 94612  
 (415) 874-6434

OCCUPATIONAL HEALTH SERVICES  
 LABORATORY SERVICE REQUEST

Plant or Place A.C. Transit  
 Address 54th & Doyle, Emeryville  
 Sample Submitted to Env. Lab Date Submitted 4-30-86

Send Analytical Report to: Alameda County Health Care Services Agency/  
 Occupational Health  
 470-27th Street, Room 324, Oakland, CA 94612  
 Attn: \_\_\_\_\_

Send Invoice To: \_\_\_\_\_

Item No.	Date Coll.	Type of Sample (Air, Material)	Volume/Weight	Field Observation	Analysis Requested
L.S. 86-0001	4/30/86	Water	500ml		Total Hydrocarbon
L.S. 86-0002	4/30/86	Soil (Hole A)	8 oz		" "
L.S. 86-0003	4/30/86	Soil (Hole B)	8 oz		" "
L.S. 86-0004	4/30/86	Soil bore 5'	2"x6" core		" "
L.S. 86-0005	4/30/86	Soil bore 10'	2"x6" core		" "
L.S. 86-0006	4/30/86	Soil bore (S8A)	2"x6" core		" "

Chain of Custody:

1.	<u>[Signature]</u> Signature	<u>Asst. Mat. Spec.</u> Title	<u>4/30/86</u> Inclusive Dates	<u>4/30/86</u> Inclusive Dates
2.	<u>Barney Chan</u> Signature	<u>Chemist III</u> Title	<u>4/30/86</u> Inclusive Dates	
3.	_____ Signature	_____ Title	_____ Inclusive Dates	_____ Inclusive Dates