CHEMICAL RESULTS OF SOIL SAMPLES
TAKEN FROM 342 - 105TH AVENUE, OAKLAND, CALIFORNIA

On December 18, 1989, Mr. Verl Rothlisberger, of Verl's Construction requested CTTS, Inc. (Toxic Technology Services), to collect two soil samples the property located at 342 - 105th Avenue in Oakland, California.

This property is currently occupied by one house. Prior to 1970, the site was used not only as a residence, but also a nursery for the cultivation of cut flowers, including carnations, dahlias, snap dragons, gladiolus and asters.

On the northwest side of the property, approximately five feet from the sidewalk, is an underground storage tank. This tank was used to store heavy fuel oil for the boiler that generated steam to the on-site greenhouses.

On December 18, 1989, Lisa A. Polos of Toxic Technology Services collected two soil samples from the subject site with the assistance of one employee from Verl's Construction.

Using a backhoe, a trench was made on the west side of the underground tank, between the sidewalk and the tank (Plate 1). This trench was running parallel to the tank. At a depth of approximately 7 feet from the ground surface, a soil sample was collected and analyzed for the following:

Total Petroleum Hydrocarbons, gas and diesel
Petroleum Hydrocarbons as Oil and Grease
California Title 22 Total Metals
Semivolatile Organics by Method 8270
Halogenated Volatile Organics by Method 8010
Chlorinated Pesticides and PCB's by Method 8080

The soil in the trench and the backhoe bucket was stained and had a heavy hydrocarbon odor. There was distict color variation in the trench.

A second soil sample was taken in the area formerly occupied by the greenhouses. The backhoe operator was directed to dig a trench approximately 18" in depth in the center of a cleared, tilled area on the property where the greenhouses existed. The collected sample was analyzed for:

Chlorinated Pesticides and PCB's by Method 8080

All soil samples were collected in two brass tubes. The ends of the tubes were wrapped in aluminum foil and covered with plastic caps. The samples were placed on ice and delivered to a state of California certified hazardous waste laboratory under chain of

Custody proceedures. Samples were analyzed on a rush (<1 working week) as requested by Mr. Rothlisberger.

The chemical data from the soil near the underground tank, indicates that the sample is contaminated with a heavy petroleum hydrocarbon, such as a mix of diesel and heavier oil. Diesel hydrocarbons were found at 2560 parts per million (ppm), petroleum hydrocarbons heavier than diesel at 1100 and total petroleum hydrocarbons at 4370 ppm. Compounds typically associated with petroleum products, such as methylnaphthalene, naphthalene, pentadecane and cholestane were each found at 100 parts per million (ppm) or less. The halogenated volative hydrocarbons, such as the chlorinated solvents are non-detectable in this sample, however the detection limits are higher than normally found, due to interferences encountered. The sample is non-dectectable for chlorinated pesticides, PCB's, and petroleum hydrocarbons as gasoline. A number of unidentifiable hydrocarbon compounds were found, each at 10 ppm or less. Some heavy metals were found, but none are above the state limits for total metals or approaching ten times the state limits for soluble metals.

The soil sample taken from the former greenhouse area is non-detectable for chlorinated pesticides and PCB's.

A copy of the laboratory report and chain of custody sheet is attached.

From the data received, there is now evidence that the subject site is contaminated with heavy petroleum hydrocarbons. Be forewarned that one data point does not adequately characterize a site. Samples taken at the time of tank removal will supply further data as to the extent and level of contamination.

A copy of this report should be sent to:

Mr. Ariu Levi
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way
Oakland, California 94621

Received: 12/20/84 01/03/70 08:02:16

REPORT TO: TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804

ATTEN: Sample Control

CLIENT: TMA NORCAL SAMPLES: 1
COMPANY: TMA/NORCAL
FACILITY: Richmond, CA

WORK ID: 6721-7
TAKEN: By TMA Norcal Staff
TRANS: By Emery Express
TYPE: Soil
P.O. #: TMA 7664
INVOICE: under separate cover

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016

Robert Mazurek
CERTIFIED BY

ATTEN: Ms. Carole Harris
PHONE: 818-357-3247

CONTACT REM

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested

SAMPLE IDENTIFICATION

01 6721-7

TEST CODES and NAMES used on this report

418.1S	TPHC - Solid (IR)
8010	Halogenated Volatiles
8015MS	Fuels-Total Hydrocarbons
AS S	Arsenic - Solids
BNA S	Semivolatile Organics
FTIR	FTIR Instrumentation
HG S	Mercury - Solids
IC14TS	CA Title 22 Total Metals
SE S	Selenium - Solid

Received: 12/20/89

Results by Sample

SAMPLE ID 6721-7 SAMPLE # 01 FRACTIONS: A

Date & Time Collected 12/18/89 Category

418_IS 4370. mg/Kg AS_S 2.61 mg/Kg FTIR N/A HG_S 0.020 mg/Kg SE_S <0.20 mg/Kg

TMA/ARLI 160 Taylor Street / Monrovia, CA 91016 / (818) 357-3247 / FAX (818) 359-5036

EPA METHOD 8080
TARGET ANALYTE RESULTS

Client: TOXIC TECHNOLOGY SERVICES
Client Sample ID: GREENHOUSE
TMA/Norcal SAMPLE ID: 6721-7-2
Extract.Method: SONICATION

Date Received: 12/18/89
Date Extracted: 12/26/89
Date Analyzed: 12/27/89

CAS No	COMPOUND	SOIL RESULTS (ug/Kg)	SOIL DETECTION LIMITS (ug/Kg)
319-84-6	alpha-BHC	< 8.0	8.0
319-85-7	beta-BHC	< 8.0	8.0
319-86-8	delta-BHC	< 8.0	8.0
58-89-9	gamma-BHC(Lindane)	< 8.0	8.0
76-44-8	Heptachlor	< 8.0	8.0
309-00-2	Aldrin	< 8.0	8.0
1024-57-3	Heptachlor Epoxide	< 8.0	8.0
959-98-8	Endosulfan I	< 8.0	8.0
60-57-1	Dieldrin	< 16.0	16.0
72-55-9	4,4'-DDE	< 16.0	16.0
72-20-8	Endrin	< 16.0	16.0
33213-65-9	Endosulfan II	< 16.0	16.0
72-54-8	4,4'-DDD	< 16.0	16.0
1031-07-8	Endosulfan sulfate	< 16.0	16.0
50-29-3	4,4'-DDT	< 16.0	16.0
72-43-5	Methoxychlor	< 80.0	80.0
53494-70-5	Endrin ketone	< 16.0	16.0
5103-71-9	alpha-Chlordane	< 80.0	80.0
5103-74-2	gamma-Chlordane	< 80.0	80.0
57-74-9	Technical Chlordane	< 80.0	80.0
8001-35-2	Toxaphene	<160.0	160.0
12674-11-2	Aroclor-1016	< 80.0	80.0
11104-28-2	Aroclor-1221	< 80.0	80.0
11141-16-5	Aroclor-1232	< 80.0	80.0
53469-21-9	Aroclor-1242	< 80.0	80.0
12672-29-6	Aroclor-1248	< 80.0	80.0
11097-69-1	Aroclor-1254	<160.0	160.0
11096-82-5	Aroclor-1260	<160.0	160.0

Data Release Authorized By

Received: 12/20/89

Results by Sample

SAMPLE ID 6721-7

FRACTION 01A TEST CODE 8010 NAME Halogenated Volatiles

Date & Time Collected 12/18/89 Category

8010 HALOGENATED VOLATILE ORGANICS

COMPOUND	RESULT	DET LIMIT
Benzyl chloride	ND	830
Bis (2-chloroethoxy)methane	ND	830
Bis (2-chloroisopropyl)ether	ND	830
Bromobenzene	ND	830
Bromodichloromethane	ND	830
Bromoform	ND	830
Bromomethane	ND	830
Carbon tetrachloride	ND	830
Chloracetaldehyde	ND	830
Chloral	ND	830
Chlorobenzene	ND	830
Chloroethane	ND	830
Chloroform	ND	830
Chlorohexane	ND	830
2-Chlorethyl vinyl ether	ND	830
Chloromethane	ND	830
Chloromethyl methyl ether	ND	830
Chlorotoluene	ND	830
Dibromochloromethane	ND	830
Dibromomethane	ND	830

COMPOUND	RESULT	DET LIMIT
1,2-Dichlorobenzene	ND	830
1,3-Dichlorobenzene	ND	830
1,4-Dichlorobenzene	ND	830
Dichlorodifluoromethane	ND	830
1,1-Dichloroethane	ND	830
1,2-Dichloroethane	ND	830
1,1-Dichloroethylene	ND	830
trans-1,2-Dichloroethylene	ND	830
Dichloromethane	ND	830
1,2-Dichloropropane	ND	830
1,3-Dichloropropylene	ND	830
1,1,2,2-Tetrachloroethane	ND	830
Tetrachloroethylene	ND	830
1,1,1-Trichloroethane	ND	830
1,1,2-Trichloroethane	ND	830
Trichloroethylene	ND	830
Trichlorofluoromethane	ND	830
Trichloropropane	ND	830
Vinyl chloride	ND	830

NOTE: All results reported in ug/Kg unless otherwise specified
ND = Not detected at the specified limits

ANALYST WA DATE INJECTED 12/21/89 DILUTION FACTOR 83.00

Received: 12/20/89

SAMPLE ID 6721-7

FRACTION 01A TEST CODE BNA S NAME Semivolatile Organics

Date & Time Collected 12/18/89 Category

SEMI-VOLATILE ORGANIC RESULTS

COMPOUND	RESULT	DET LIMIT
n-nitrosodimethylamine	ND	0.3
phenol	ND	0.3
aniline	ND	0.3
bis(2-chloroethyl)ether	ND	0.3
2-chlorophenol	ND	0.3
1,3-dichlorobenzene	ND	0.3
1,4-dichlorobenzene	ND	0.3
benzyl alcohol	ND	0.3
1,2-dichlorobenzene	ND	0.3
2-methylphenol	ND	0.3
bis(2-chloroisopropyl)ether	ND	0.3
4-methylphenol	ND	0.3
n-nitroso-di-n-propylamine	ND	0.3
hexachloroethane	ND	0.3
nitrobenzene	ND	0.3
isophorone	ND	0.3
2-nitrophenol	ND	0.3
2,4-dimethylphenol	ND	0.3
benzoic acid	ND	2
bis(2-chloroethoxy)methane	ND	0.3
2,4-dichlorophenol	ND	0.3
1,2,4-trichlorobenzene	ND	0.3
naphthalene	0.67	0.3
4-chloroaniline	ND	0.3
hexachlorobutadiene	ND	0.3
4-chloro-3-methylphenol	ND	0.3
2-methylnaphthalene	2.9	0.3
hexachlorocyclopentadiene	ND	0.3
2,4,6-trichlorophenol	ND	0.3
2,4,5-trichlorophenol	ND	2
2-chloronaphthalene	ND	0.3
2-nitroaniline	ND	2
dimethyl phthalate	ND	0.3
acenaphthylene	ND	0.3

COMPOUND	RESULT	DET LIM
3-nitroaniline	ND	2
acenaphthene	ND	0 3
2,4-dinitrophenol	ND	2
4-nitrophenol	ND	0.3
dibenzofuran	ND	0.3
2,6-dinitrotoluene	ND	0.3
2,4-dinitrotoluene	ND	0.3
diethylphthalate	ND	0.3
4-chlorophenylphenyl ether	ND	0 3
fluorene	ND	0.3
4-nitroaniline	ND	2
4,6-dinitro-2-methylphenol	ND	0 3
n-nitrosodiphenylamine	ND	0.3
1,2-diphenylhydrazine	ND	0 3
4-bromophenylphenyl ether	ND	0.3
hexachlorobenzene	ND	0 3
pentachlorophenol	ND	2
phenanthrene	ND	0.3
anthracene	ND	0.3
di-n-butylphthalate	ND	0 3
fluoranthene	ND	0 3
benzidine	ND	2
pyrene	ND	0 3
butylbenzylphthalate	ND	0.3
3,3'-dichlorobenzidine	ND	0 6
benzo(a)anthracene	ND	0 3
bis(2-ethylhexyl)phthalate	ND	0 3
chrysene	ND	0.3
di-n-octyl phthalate	ND	0.3
benzo(b)fluoranthene	ND	0.3
benzo(k)fluoranthene	ND	0 3
benzo(a)pyrene	ND	0 3
indeno(1,2,3-cd)pyrene	ND	0.3
dibenzo(a,h)anthracene	ND	0 3
benzo(g,h,i)perylene	ND	0 3

ND = Not detected. All units are in mg/Kg.

TMA/ARLI 160 Taylor Street / Monrovia, CA 91016 / (818) 357-3247 / FAX (818) 359-5036

Received: 12/20/89

SAMPLE ID 6721-7

FRACTION 01A TEST CODE BNA S NAME Semivolatile Organics
Date & Time Collected 12/18/89 Category

SURROGATE COMPOUND	%RECOVERY
d5-nitrobenzene	NA
2-fluorobiphenyl	NA
d14-terphenyl	NA
2-fluorophenol	NA
d5-phenol	NA
2,4,6-tribromophenol	NA

ANALYST CRW
DATE EXTRCTED 12/21/89
DATE INJECTED 01/03/90
DILUTION FACTOR 10.00

TENTATIVELY IDENTIFIED SEMIVOLATILE COMPOUNDS

COMPOUND	APPR. CONC. mg/Kg
Unknown alkane	10
Pentadecane	10
Unknown hydrocarbon	10
Unknown hydrocarbon	9
Unknown hydrocarbon	8
Cholestane	10
Unknown hydrocarbon	8
Unknown hydrocarbon	9
Unknown hydrocarbon	9
Unknown hydrocarbon	9

Received: 12/20/89

SAMPLE ID 6721-7

FRACTION 01A TEST CODE 8015ME NAME Fuels-Total Hydrocarbons
Date & Time Collected 12/18/89 Category

MODIFIED 8015 - FUEL HYDROCARBONS

COMPOUND	RESULT	DET LIMIT
C5 - C12 Gasoline Range	ND	8
C10 - C16 Jet Fuel Range	ND	3
C9 - C22 Diesel Range	2560	5
Heavier than diesel (hydraulic)	1100	8

ANALYST JC
DATE INJECTED 12/21/89
DILUTION FACTOR 1.00

NOTE: All results reported in mg/Kg unless otherwise specified
ND = Not detected at the specified limits

RECEIVED: 12/20/89 Received by Sample

SAMPLE ID 6721-7

FRACTION 01A TEST CODE IC14S NAME CA Title 22 Total Metals
Date & Time Collected 12/18/89 Category

California - Title 22 Total Metals (Solid Matrix)

	mg/Kg	AAS	ICP	TTLC	STLC
Antimony	ND		33.	500.	15.
Barium	208.		12.	10,000	100.
Beryllium	1.3		0.1	75.	0.75
Cadmium	ND		0.5	100.	1.
Chromium	9.83		3.3	2,500.	560.
Cobalt	ND		9.5	8,000.	80.
Copper	23.5		1.0	2,500.	25.
Lead	12.2	0.10	1.	1,000.	5.
Molybdenum	18.1		11.	3,500.	350.
Nickel	35.1		7.4	2,000.	20.
Silver	ND		1.2	500.	5.
Thallium	ND		6.3	700.	7.
Vanadium	ND		6.9	2,400.	24.
Zinc	148.		4.8	5,000.	250.
Arsenic	2.61	0.20		500.	5.
Mercury	0.020	0.005		20.	0.2
Selenium	ND	0.20		100.	1.

Verified by Analyst RSF

1. TTLC = Total Threshold Limit Concentration, mg/Kg
2. STLC = STLC Limit Concentration, mg/L
3. ICP = ICP Detection Limit, mg/Kg
4. ND = not detected at detection limit
5. * = Exceeds TTLC concentration
6. ** = Exceeds 10 times STLC concentration
7. AAS = AA Detection Limit, mg/Kg

FRACTION AND TEST CODES FOR WORK NOT REPORTED ELSEWHERE

01A | 3050IC AS_SED HG_P OX416S OX8015 OXBNAS

(415) 235-2633
(TWX) 910-382-8132

Thermo Analytical Inc.
CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
89-14	105th Ave

SAMPLERS: (Signature) Lisa A. Polen

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	analyses 8080	8270	D&G	8010	TPH-G & BTEX	TPH-D	MCAL Metals	REMARKS
NW side TANK	12-18	13:45		X	NW side of TANK	3 brass core	X	X	X	X	X	X		Rush - verbals by 12/21/89 CAUTION suspect "heavy oil" contamination
	12-18	14:15		X	Greenhouse	1 brass core	X							← Do 8080 only

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Lisa A. Polen	12-18-89 15:30				
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) Victoria Lanlow	Date / Time 12-18-89 3:36	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files