



LETTER OF TRANSMITTAL

TO:

Mr. Roger Rapport
City of Oakland
Office of Housing & Neighbor Development
1333 Broadway, 9th Floor
Oakland, CA 94612

DATE: May 17, 1995
PROJECT: Center Street
SCI JOB NUMBER: 272.012

WE ARE SENDING YOU:

- 1 copies
- of our final report
- a draft of our report
- a Service Agreement
- a proposed scope of services
- specifications
- grading/foundation plans
- soil samples/groundwater samples
- an executed contract
- Copy of the 8/30/89 analytical report

- if you have any questions, please call
- for your review and comment
- please return an executed copy
- for geotechnical services
- with our comments
- with Chain of Custody documents
- for your use
- _____
- _____

REMARKS:

COPIES TO:

BY: Bill Rudolph
R. William Rudolph (WR)

Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 510-268-0461 • FAX 510-268-0137



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (415) 486-0900

DATE RECEIVED: 08/30/89
DATE REPORTED: 09/14/89
PAGE 1 OF 14

LAB NUMBER: 18154

CLIENT: SUBSURFACE CONSULTANTS

REPORT ON: 2 WATER SAMPLES
1 OIL SAMPLE
10 SOIL SAMPLES

JOB #: 272.012
LOCATION: CENTER STREET

RESULTS: SEE ATTACHED

QA/QC Officer

Laboratory Director



LABORATORY NUMBER: 18154
CLIENT: SUBSURFACE CONSULTANTS
JOB NUMBER: 272.012
JOB LOCATION: CENTER STREET

DATE RECEIVED: 08/30/89
DATE ANALYZED: 09/11/89
DATE REPORTED: 09/13/89
PAGE 2 OF 14

Total Volatile Hydrocarbons (TVH) by EPA 8015
Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 602/8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
18154-1	BORING #1	2,600	13	41	22	140

QA/QC SUMMARY

%RPD	3
%RECOVERY	89

LABORATORY NUMBER: 18154
 CLIENT: SUBSURFACE CONSULTANTS
 JOB NUMBER: 272.012
 JOB LOCATION: CENTER STREET

DATE RECEIVED: 08/30/89
 DATE ANALYZED: 09/11/89
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 PAGE 3 OF 14

Total Volatile Hydrocarbons (TVH) by EPA 8015
 Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 602/8020
 Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	TVH AS GASOLINE	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
		(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
18154-4	BORING 1 @ 10	2,100	50	220	46	240
18154-5	BORING 1 @ 15	2,400	32	200	60	290
18154-6	BORING 2 @ 7	4,100	50	450	130	540
18154-7	BORING 2 @ 11.5	31,000	500	2,800	760	3,700
18154-8	BORING 3 @ 10.5	100	ND(1)	2	2	7
18154-9	BORING 3 @ 12.5	950	ND(5)	44	32	130
18154-11	BORING 4 @ 7.5	5,400	57	250	140	610
18154-12	BORING 4 @ 10.5	5,800	92	360	1,100	670

ND = None Detected; Limit of detection is indicated in parentheses.

QA/QC SUMMARY

%RPD	<1
%RECOVERY	96



LABORATORY NUMBER: 18154
CLIENT: SUBSURFACE CONSULTANTS
PROJECT #: 272.012
LOCATION: CENTER STREET

DATE RECEIVED: 08/30/89
DATE ANALYZED: 09/06/89
DATE REPORTED: 09/13/89
PAGE 5 OF 14

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	KEROSENE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
18154-1	BORING #1	ND(10)	ND(10)	ND(10)
18154-2	BORING #3	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	8
Spike: % Recovery	100



LABORATORY NUMBER: 18154
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 272.012
LOCATION: CENTER STREET

DATE RECEIVED: 08/30/89
DATE ANALYZED: 09/07/89
DATE REPORTED: 09/13/89
PAGE 6 OF 14

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSENE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
18154-4	BORING 1 @ 10	6,800	ND(100)	ND(100)	ND(100)
18154-6	BORING 2 @ 7	14,000	ND(100)	ND(100)	ND(100)
18154-8	BORING 3 @ 10.5	ND(10)	ND(10)	ND(10)	ND(10)
18154-9	BORING 3 @ 12.5	220	ND(10)	ND(10)	ND(10)
18154-10	BORING 3 @ 3.5	ND(10)	ND(10)	ND(10)	ND(10)
18154-11	BORING 4 @ 7.5	5,100	ND(100)	ND(100)	ND(100)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	11
Spike: % Recovery	95

LAB NUMBER: 18154
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT # : 272.012
 LOCATION: CENTER STREET

DATE RECEIVED: 08/30/89
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 DATE REPORTED: 09/14/89
 PAGE 7 OF 14

ANALYSIS: OIL AND GREASE
 METHOD: SMWW 503E

LAB ID	SAMPLE ID	RESULT	UNITS	DETECTION LIMIT
18154-10	BORING 3 @ 3.5	ND	mg/Kg	50
18154-13	BORING HA @ 3.7	16,000	mg/Kg	50

ND = NONE DETECTED.

QA/QC SUMMARY

=====
 RPD, % 5
 RECOVERY, % 82
 =====

LABORATORY NUMBER: 18154-2
 CLIENT: SUBSURFACE CONSULTANTS
 JOB #: 272.012 - CENTER STREET
 SAMPLE ID: BORING #3

DATE RECEIVED: 08/30/89
 DATE ANALYZED: 09/12/89
 DATE REPORTED: 09/14/89
 PAGE 8 OF 14

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	20
bromomethane	ND	20
vinyl chloride	ND	20
chloroethane	ND	20
methylene chloride	ND	10
trichlorofluoromethane	ND	10
1,1-dichloroethene	ND	10
1,1-dichloroethane	ND	10
trans-1,2-dichloroethene	ND	10
chloroform	ND	10
1,2-dichloroethane	ND	10
1,1,1-trichloroethane	ND	10
carbon tetrachloride	ND	10
bromodichloromethane	ND	10
1,2-dichloropropane	ND	10
cis-1,3-dichloropropene	ND	10
trichloroethylene	ND	10
dibromochloromethane	ND	10
1,1,2-trichloroethane	ND	10
benzene	340	10
trans-1,3-dichloropropene	ND	10
2-chloroethylvinyl ether	ND	20
bromoform	ND	10
1,1,2,2-tetrachloroethane	ND	10
tetrachloroethylene	ND	10
toluene	4,200	10
chlorobenzene	ND	10
ethyl benzene	1,100	10

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	20
carbon disulfide	ND	10
2-butanone	ND	20
vinyl acetate	ND	20
2-hexanone	ND	20
4-methyl-2-pentanone	ND	20
styrene	ND	10
total xylenes	2,500	10

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	114 %
Toluene-d8	101 %
Bromofluorobenzene	106 %

LABORATORY NUMBER: 18154-14
 CLIENT: SUBSURFACE CONSULTANTS
 JOB #: 272.012 - CENTER STREET
 SAMPLE ID: SUMP PIT

DATE RECEIVED: 08/30/89
 DATE ANALYZED: 09/13/89
 DATE REPORTED: 09/14/89
 PAGE 9 OF 14

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	1000
bromomethane	ND	1000
vinyl chloride	ND	1000
chloroethane	ND	1000
methylene chloride	ND	500
trichlorofluoromethane	ND	500
1,1-dichloroethene	ND	500
1,1-dichloroethane	ND	500
trans-1,2-dichloroethene	ND	500
chloroform	ND	500
1,2-dichloroethane	ND	500
1,1,1-trichloroethane	ND	500
carbon tetrachloride	ND	500
bromodichloromethane	ND	500
1,2-dichloropropane	ND	500
cis-1,3-dichloropropene	ND	500
trichloroethylene	ND	500
dibromochloromethane	ND	500
1,1,2-trichloroethane	ND	500
benzene	ND	500
trans-1,3-dichloropropene	ND	500
2-chloroethylvinyl ether	ND	1000
bromoform	ND	500
1,1,2,2-tetrachloroethane	ND	500
tetrachloroethylene	ND	500
toluene	ND	500
chlorobenzene	ND	500
ethyl benzene	ND	500

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	1000
carbon disulfide	ND	500
2-butanone	ND	1000
vinyl acetate	ND	1000
2-hexanone	ND	1000
4-methyl-2-pentanone	ND	1000
styrene	ND	500
total xylenes	ND	500

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	99 %
Toluene-d8	99 %
Bromofluorobenzene	98 %



LABORATORY NUMBER: 18154-14
CLIENT: SUBSURFACE CONSULTANTS
JOB #: 272.012
SAMPLE ID: SUMP PIT

DATE RECEIVED: 08/30/89
DATE EXTRACTED: 09/05/89
DATE ANALYZED: 09/08/89
DATE REPORTED: 09/14/89
PAGE 10 OF 14

EPA METHOD 8270: BASE/NEUTRAL AND ACID EXTRACTABLES IN SOILS & WASTES
EXTRACTION METHOD: EPA 3580 - WASTE DILUTION

ACID COMPOUNDS	RESULT mg/kg	LOD mg/kg
Phenol	ND	10
2-Chlorophenol	ND	10
2-Nitrophenol	ND	50
2,4-Dimethylphenol	ND	10
2,4-Dichlorophenol	ND	10
4-Chloro-3-methylphenol	ND	20
2,4,6-Trichlorophenol	ND	10
2,4-Dinitrophenol	ND	50
4-Nitrophenol	ND	50
2-Methyl-4,6-dinitrophenol	ND	50
Pentachlorophenol	ND	50
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	10
Bis(2-chloroethyl)ether	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
1,2-Dichlorobenzene	ND	10
Bis(2-chloroisopropyl)ether	ND	10
N-nitrosodi-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
Bis(2-chloroethoxy)methane	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
Hexachlorobutadiene	ND	10
Hexachlorocyclopentadiene	ND	10
2-Chloronaphthalene	ND	10
Dimethyl phthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
Acenaphthene	ND	10
2,4-Dinitrotoluene	ND	10
Fluorene	ND	10
Diethyl phthalate	ND	10
4-Chlorophenylphenyl ether	ND	10
N-Nitrosodiphenylamine	ND	10
1,2-Diphenylhydrazine	ND	10
4-Bromophenylphenyl ether	ND	10

LABORATORY NUMBER: 18154-14
SAMPLE ID: SUMP PITEPA 8270
PAGE 11 OF 14

BASE/NEUTRAL COMPOUNDS

	RESULT mg/kg	LOD mg/kg
Azobenzene	ND	10
Hexachlorobenzene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Dibutylphthalate	ND	10
Fluoranthene	ND	10
Benzidine	ND	10
Pyrene	32	10
Butylbenzylphthalate	21	10
Benzo (a) anthracene	ND	10
3,3'-Dichlorobenzidine	ND	50
Chrysene	ND	10
Bis (2-ethylhexyl)phthalate	ND	10
Di-n-octyl phthalate	ND	10
Benzo (b) fluoranthene	ND	10
Benzo (k) fluoranthene	ND	10
Benzo (a) pyrene	ND	10
Indeno (1,2,3-cd) pyrene	ND	20
Dibenzo (a,h) anthracene	ND	20
Benzo (ghi) perylene	ND	20

HSL COMPOUNDS

Aniline	ND	10
Benzoic Acid	ND	50
2-Methylphenol	ND	10
4-Methylphenol	ND	10
2,4,5-Trichlorophenol	ND	50
Aniline	ND	10
Benzyl Alcohol	ND	10
4-Chloroaniline	ND	10
2-Methylnaphthalene	ND	10
2-Nitroaniline	ND	10
3-Nitroaniline	ND	10
Dibenzofuran	ND	10
4-Nitroaniline	ND	10

LABORATORY NUMBER: 18154-14
 SAMPLE ID: SUMP PIT

 EPA 8270
 PAGE 12 OF 14

COMPOUND	RESULT mg/kg	LOD mg/kg
CHLORINATED PESTICIDES		
alpha-BHC	ND	10
beta-BHC	ND	10
gamma-BHC	ND	10
delta-BHA	ND	10
Heptachlor	ND	10
Aldrin	ND	10
Heptachlor Epoxide	ND	10
Endosulfan I	ND	10
pp-DDE	ND	10
Dieldrin	ND	10
Endrin	ND	10
Endosulfan II	ND	10
pp-DDD	ND	10
Endrin Ketone	ND	10
Endosulfan Sulfate	ND	10
pp-DDT	ND	10
Chlordane	ND	50
Toxaphene	ND	50
Methoxychlor	ND	50
PCB 1016	ND	50
PCB 1221	ND	50
PCB 1232	ND	50
PCB 1242	ND	50
PCB 1248	ND	50
PCB 1254	ND	50
PCB 1260	ND	50

ND = None Detected, Limit of Detection (LOD) appears in far right column

LABORATORY NUMBER: 18154-10
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT #: 272.012
 LOCATION: CENTER STREET
 SAMPLE ID: BORING 3 @ 3.5

DATE RECEIVED: 08/30/89
 DATE ANALYZED: 09/05/89
 DATE REPORTED: 09/14/89
 PAGE 13 OF 14

Metals in Soils & Wastes
 Digestion Method: EPA 3050

ANALYSIS	RESULT	UNITS	DETECTION LIMIT	METHOD
Cadmium	0.7	mg/Kg	0.5	EPA 6010
Chromium	18	mg/Kg	0.5	EPA 6010
Lead	18	mg/Kg	2.5	EPA 7420
Zinc	19	mg/Kg	0.5	EPA 6010

QA/QC:

	RPD, %	RECOVERY, %
Cadmium	<1	92
Chromium	<1	94
Lead	3	100
Zinc	3	90

LABORATORY NUMBER: 18154-14
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT #: 272.012
 LOCATION: CENTER STREET
 SAMPLE ID: SUMP PIT

DATE RECEIVED: 08/30/89
 DATE ANALYZED: 09/05/89
 DATE REPORTED: 09/14/89
 PAGE 14 OF 14

Metals in Soils & Wastes
 Digestion Method: EPA 3050

ANALYSIS	RESULT	UNITS	DETECTION LIMIT	METHOD
Cadmium	2.2	mg/Kg	0.5	EPA 6010
Chromium	10	mg/Kg	0.5	EPA 6010
Lead	1,400	mg/Kg	2.5	EPA 7420
Zinc	180	mg/Kg	0.5	EPA 6010

QA/QC:

	RPD, %	RECOVERY, %
Cadmium	<1	92
Chromium	<1	94
Lead	3	100
Zinc	3	90

Consultants 18154

CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Address: Center Street
 Number: 272.012
 Project Contact at SCI: Bill Rudolph / Jeri Alexander
 Sampled By: John Wolfe
 Analytical Laboratory: Curtis + Tompkins
 Analytical Turnaround: 2 weeks

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
1 boring #1	W	2V, 2P, 4G	8/18/89		TVH TEH + BTX	
2 boring #2	W	2V, 2P, 3G	8/18/89		TVH TEH VOC ³	
3 boring #4	W	2V, 2P, 3G	8/18/89	X		
4 bor. #1 @ 10'	S	T	8/18/89		TVH TEH + BTX	
5 bor. #1 @ 15'	S	T	8/18/89		TVH TEH - BTX	
6 bor. #2 @ 7'	S	T	8/18/89		TVH TEH + BTX	
7 bor. #2 @ 11 1/2'	S	T	8/18/89		TVH TEH + BTX	
8 bor. #3 @ 10 1/2'	S	T	8/18/89		TVH TEH - BTX	
9 bor. #3 @ 12 1/2'	S	T	8/18/89		TVH TEH + BTX	
10 bor. #3 @ 3 1/2'	S	T	8/18/89		0.5G TEH	Pb, Cd, Cr, Zn

Released by: R. Walker Rudolph Date: 8/30/89
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 Relinquished by Laboratory: _____ Date: _____
 Received by: _____ Date: _____

¹ Sample Type: W = water, S = soil, O = other (specify)
² Container Type: V = VOA, P = plastic, G = glass, T = brass tube,
 O = other (specify)

Notes to Laboratory:
 -Notify SCI if there are any anomalous peaks on GC or other scans
 -Questions/clarifications...contact SCI at (415) 268-0461

Name: Center Street

Number: 272.012

Project Contact at SCI: Bill Rudolph

Sampled By: John Wolfe

Analytical Laboratory: Curtis + Tompkins

Analytical Turnaround: 2 weeks

Sample ID	Sample Type ¹	Container Type ²	Sampling Date	Hold	Analysis	Analytical Method
11 bor. #4 @ 7 1/2'	S	T	8/18/89		TVH TEH + BAXE	
12 bor. #4 @ 10 1/2'	S	T	8/18/89		TVH TEH + BAXE	
13 bor. HA @ 3' 8"	S	T	8/18/89		OIG ^s	
14 slump pit	TO ₁	ZG	8/18/89		VOC ^s	8240
	oil waste				Semi-volatiles	8270 + PCB
					with PCB	
					Pb, Cd, Cr, Zn	12-3

Released by: [Signature] Date: 8/30/89

Released by Courier: _____ Date: _____

Received by Laboratory: [Signature] Date: 8/30/89 16:05

Relinquished by Laboratory: _____ Date: _____

Received by: _____ Date: _____

¹ Sample Type: W = water, S = soil, O = other (specify)
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Notes to Laboratory:
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