25

December 28, 1988

Graham Printing and Lithograph
17475 Gale Avenue
Industry, California 91748

Attention: Mr. Chet Graham

Subject: Graham Printing and Lithograph
17475 Gale Avenue
Industry, California

Dear Mr. Graham:

As requested and authorized, a preliminary study has been performed for the subject site by TERRA TECH Mobile Laboratory Specialists, Inc. (TERRA TECH). The scope of this study included the drilling of five soil borings to a depth of ten feet below ground surface and an additional soil boring to fifteen feet below ground surface in the area surrounding the stained pavement in the storage yard , geo-environmental and analytical laboratory testing, and preparation of this report. Analytical laboratory testing consisted of Total Recoverable Petroleum Hydrocarbons testing in accordance with EPA Method 418.1 by infrared spectrophotometry. In addition, two Volatile Organics scans in accordance with EPA Method 8240 by gas chromatography/mass spectrophotometry were performed. This report presents the results of the field exploration and laboratory testing as well as a discussion on the remediation of the contaminated soil.

SITE HISTORY

The subject site is located at the northwest corner of the intersection of Gale and Hatcher Avenues in Industry, California. The site is currently occupied by Graham Printing and Lithograph Company at which they conduct production printing and business activities. At the back of this facility, in the storage yard, metal drums (for the storage of printing wastes) were stored as well as three compressors which were adjacent to the building. The storage yard is covered with asphalt. Visual inspection of the asphalt reveals evidence of some leakage and staining from both the drums and

the compressors.

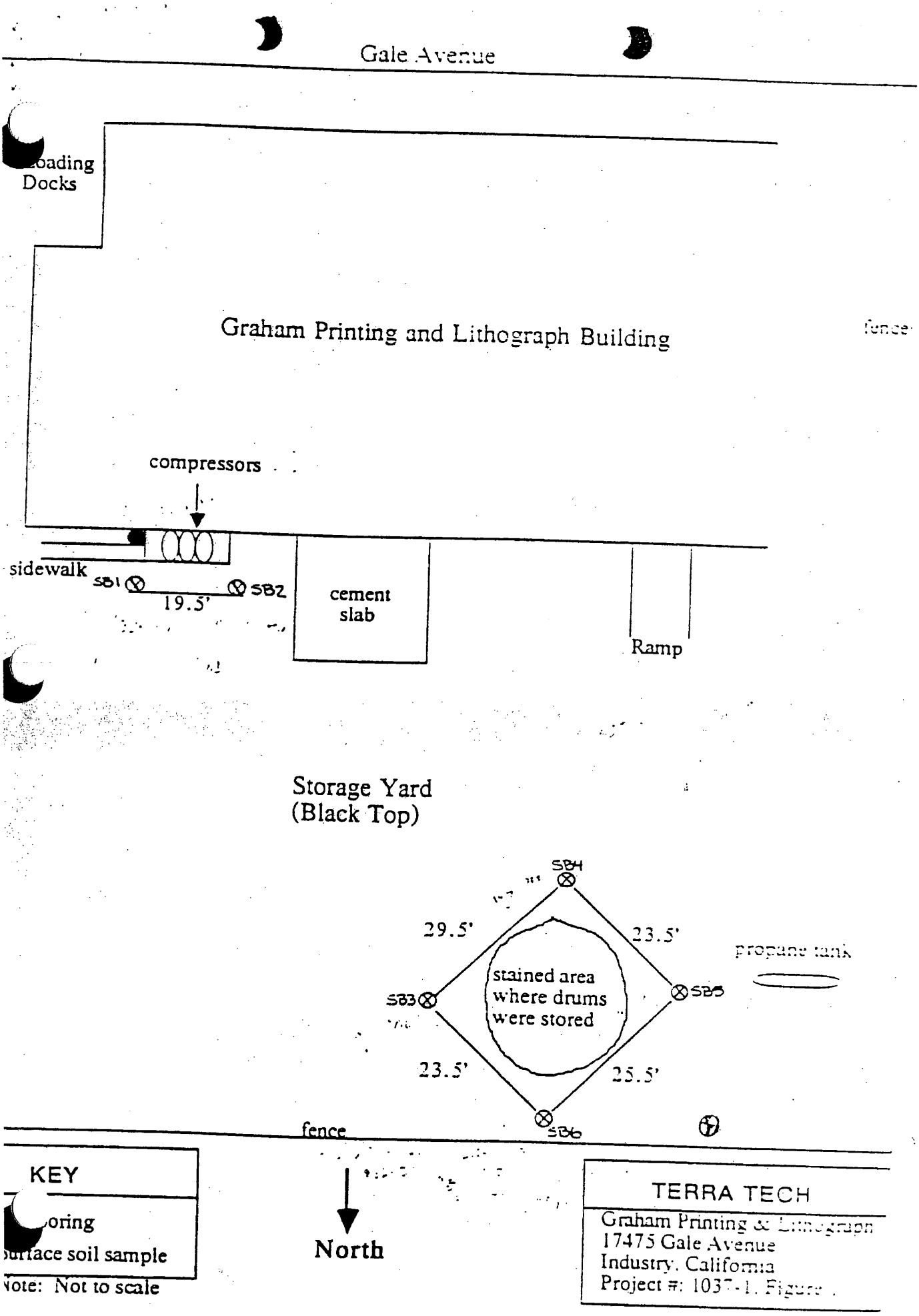
It is understood that the owner of this property along with the County of Los Angeles Health Services Department has required this study to evaluate the possible environmental impact, specifically in these stained areas and in the soil directly beneath these areas. Since it is most likely that the contamination would enter the soil through the asphalt or cracks in the asphalt, this study is performed in an effort to evaluate the extent and/or possible contamination of the soil directly beneath the asphalt.

FIELD PROCEDURES

In order to obtain the necessary data, six borings were drilled by a truck-mounted 8-inch outside-diameter hollow stem auger on December 7, 1988. Five of the soil borings (labeled SB1-SB5) were drilled to a depth of ten feet below ground surface and one soil boring (labeled SB6) was drilled to a depth of fifteen feet below ground surface (figure 1). Discrete undistrubed soil samples were obtained ahead of the drill bit by split spoon sampler (California Sampler) at 5 and 10 foot depths from borings SB1-SB5 and 5, 10 and 15 foot depths from boring SB6. Boring logs describing soil encountered at these depths during the drilling operations are enclosed in Appendix A. Upon completion of the drilling and sampling operations, the borings were backfilled with auger cuttings. The drilling was conducted by West Hazmat Drilling Corporation (previously Interstate Soils Sampling), California Water Well Driller Contractor License #501384.

When utilizing a California Sampler, undisturbed soil samples encased in brass rings are obtained. Each sample was immediately capped with aluminum foil and a plastic cap, sealed with tape, labelled and placed in a cooler with ice to maintain laboratory temperatures of approximately 4 degrees Centigrade until the on-site mobile laboratory was able to proceed with chemical analysis of the soil. The sampler was cleaned with trisodium phosphate (TSP) and rinsed with deionized water between sample collections. At each sample depth, the sampler was advanced one foot with blows-per-foot recorded for evaluating soil density and consistency.

One sample was also collected from the surface of the soil west of the compressors. This sample was collected with a clean trowel that had been washed in TSP, rinsed in distilled water and air dried before the sample was collected. The sample was packed in an 8 oz., open-mouth glass jar until full, thus allowing no headspace. The jar was then sealed with a screw-top cap, containing Teflon liners, labeled, and stored in a cooler with ice to maintain laboratory storage temperatures of approximately 4 degrees Centigrade. TERRA TECH's Chain-of-Custody procedures were followed to ensure the traceability of the samples submitted to the on-site mobile laboratory (Appendix B).


Gale Avenue
oading Docks
Graham Printing and Lithograph Building
fence
compressors
sidewalk
SB1
SB2
19.5'
cement slab
Ramp
Storage Yard (Black Top)
SB4
29.5'
23.5'
propane tank
stained area where drums were stored
SB3
SB5
23.5'
25.5'
SB6
fence
KEY
oring
urface soil sample
Note: Not to scale
North
TERRA TECH
Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1, Figure

LABORATORY TESTING AND RESULTS

The samples obtained on December 7, 1988 were submitted for on-site analysis to TERRA TECH (State of California Department of Health Services, Hazardous Waste Testing Laboratory Certification #258). The samples were analyzed for Total Recoverable Petroleum Hydrocarbons in accordance with EPA Method 418.1. This method utilizes a solvent extraction (Freon-113) followed by analysis by infrared spectrophotometry.

Chemical analysis of borings SB1 through SB5 reveals that contamination exists at the five foot level in borings SB1 and SB2 (323 and 1190 mg/kg, respectively). The remaining samples collected from borings SB1-SB5 revealed no significant levels of petroleum hydrocarbons in either the five or ten foot level (all below 35 mg/kg). Boring SB6 revealed petroleum hydrocarbon contamination at the five and ten foot level (417 and 626 mg/kg, respectively), but no detectable level of petroleum hydrocarbons at the fifteen foot level. The one sample (Comp-1) collected from the surface soil at the west end of the compressors revealed a total petroleum hydrocarbon concentration of 180,000 mg/kg. The soil from this area was visibly saturated with compressor oil. This sample (Comp-1) and the sample from boring SB6 (SB6-10) were also analyzed for Volatile Organics by EPA Method 8240. This analysis confirmed what the Material Safety Data Sheets for the material in the drums and the compressors revealed. Sample Comp-1 showed detectable levels of Acetone (370 µg/kg), 2-Butanone (170 µg/kg), 4-Methyl-2-Pentanone (240 µg/kg). Sample SB6-10 showed detectable levels of Acetone (40 µg/kg), 2-Butanone (19 µg/kg), 1,1,1-Trichloroethane (50 µg/kg) and 4-Methyl-2-Pentanone (22 µg/kg). Results of the analytical testing are in Appendix C

CONCLUSION

The results of this investigation indicates that some contamination exists immediately beneath the asphalt and down to the five foot level in two areas and down to the ten foot level in one area. The contamination does not appear to be extensive. It is proposed that the affected soil be removed down to the depths as revealed in the borings and verification sampling and laboratory analyses be performed to verify that all contaminated soil has been removed in these affected areas.

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances, by reputable geologists and chemists, practicing in this or similar localities. No other warranty, expressed or implied is made as to the professional advice included in this report. This report is "Proprietary and Confidential" to be delivered to, and intended for the exclusive use of Graham Printing and Lithograph. TERRA TECH assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above-named client.

Thank-you for the opportunity to be of service to you. If you should have any

questions or need any additional information, please do not hesitate to give me a call.

Sincerely,

Lisa Newcombe-Dierl
Environmental Specialist

Distribution: (2) Graham Printing and Lithograph
(1) Los Angeles County Department of Health

Enclosures: Site Map, Figure 1
Boring Logs
Chain-of-Custody Record
TERRA TECH Laboratory Results

APPENDIX A

BORING NO. SB1 Sheet 1 of 1

Field Engineer: Thomas P. Dierl
Edited By: Lisa Newcombe-Dierl
Ground Surface Elevation: N/A Date: 12-7-88

Penetration Resistance (Blows per Foot)	U.S.C.S.	Profile	DESCRIPTION
20	CL		Silty clay, dark brown and dark grey brown, some cobbles, damp. Slight odor. Sample depth 5'
22	CL		Silty clay, dark brown, slightly moist. No odor. Sample depth 10'

Total Depth = 10 feet

Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1

BORING NO. SB2 Sheet: 2

Field Engineer: Thomas P. Dierl
Edited By: Lisa Newcombe-Dierl
Ground Surface Elevation: N/A Date: 12-7-[illegible]

Penetration Resistance (Blows per Foot)	U.S.C.S.	Profile	DESCRIPTION
20	CL		Silty clay, dark brown, some cobbles, slightly moist. Strong odor Sample depth: [illegible]
15	CL		Silty clay, dark brown, slightly moist. No odor. Sample depth: [illegible]

Total Depth = 10 feet

Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1

BORING NO. SB3 Sheet [illegible]

Field Engineer: Thomas P. Dierl
Edited By: Lisa Newcombe-Dierl
Ground Surface Elevation: N/A Date: 12-7-88

Penetration Resistance (Blows per Foot)	U.S.C.S.	Profile	DESCRIPTION
17	CL		Silty clay, dark brown, slightly moist, very firm to hard. No odor Sample depth 5'
35	CL		Silty clay, dark brown, slightly moist. No odor. Sample depth 10'

Total Depth = 10 feet

Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1

BORING NO. SB4 Sheet: 4

Field Engineer: Thomas P. Dierl
Edited By: Lisa Newcombe-Dierl
Ground Surface Elevation: N/A Date: 12-7-88

Penetration Resistance (Blows per Foot)	U.S.C.S.	Profile	DESCRIPTION
17	CL		Silty clay, dark brown, slightly moist, very firm to very stiff and hard. No odor Sample depth: [illegible]
23	CL		Silty clay, dark brown, slightly moist, firm with hard nodules. No odor. Sample depth: [illegible]

Total Depth = 10 feet

Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1

BORING NO. SB5

Sheet 5 of 5

Field Engineer: Thomas P. Dierl
Edited By: Lisa Newcombe-Dierl
Ground Surface Elevation: N/A

Date: 12-7-88

Penetration Resistance (Blows per Foot)	U.S.C.S.	Profile	DESCRIPTION
16	CL		Silty clay, dark brown, slightly moist, very firm. No odor. Sample depth 5'
25	CL		Silty clay, dark brown, slightly moist. No odor. Sample depth 10'

Total Depth = 10 feet

Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1

BORING NO. SB6 Sheet

Field Engineer: Thomas P. Dierl
Edited By: Lisa Newcombe-Dierl
Ground Surface Elevation: N/A Date: 12-7-[illegible]

Penetration Resistance (Blows per Foot)	U.S.C.S.	Profile	DESCRIPTION
11	CL		Silty clay, dark brown, slightly moist. Strong odor. Sample depth [illegible]
19	CL		Silty clay, dark brown, slightly moist. Strong odor. Sample depth [illegible]
22	CL		Silty clay, dark brown, medium dense, damp. No hydrocarbon odor. Sample depth [illegible]

Total Depth = 15 feet

Graham Printing & Lithograph
17475 Gale Avenue
Industry, California
Project #: 1037-1

APPENDIX B

Project Name

Site Address
17975 Gale Avenue
Industry, CA

Sampler's Signature
[illegible]

Date [illegible]

Page [illegible] of [illegible]

Remarks

Sample Number	Sample Location	Date	Time	Modified EPA Method 8015 (TPH)	EPA Method 8020 (BTXE)	EPA Method 418.1 (TPH)					Number of Containers
SB1-5	Boring 1, five feet	12/7/88	355			✓					1
SB1-10	Boring 1, ten feet	12/7/88	400			✓					1
SB2-5	Boring 2, five feet	12/7/88	415			✓					1
SB2-10	Boring 2, ten feet	12/7/88	428			✓					1
SB3-5	Boring 3, five feet	12/7/88	450			✓					1
SB3-10	Boring 3, ten feet	12/7/88	458			✓					1
SB4-5	Boring 4, five feet	12/7/88	505			✓					1
SB4-10	Boring 4, ten feet	12/7/88	510			✓					1
SB5-5	Boring 5, five feet	12/7/88	525			✓					1

Total Number of Containers [illegible]

Relinquished by: (Signature)	Date	Received by: (Signature)	Date
[illegible]	12/7/88		
Company: [illegible]	Time: [illegible]	Company:	Time:
Relinquished by: (Signature)	Date	Received by Laboratory: (Signature)	Date
		[illegible]	[illegible]
Company	Time	Company: [illegible]	Time: [illegible]

TERRA TECH

[illegible] Nichols St Suite [illegible]
Huntington Beach [illegible]
Tel (714) [illegible]

Pr[illegible] Name

Site Address: 17475 Gale Avenue

Industry, CA

Sampler's Signature: [illegible]

Date: [illegible]

Page [illegible] of [illegible]

Remarks

Sample Number	Sample Location	Date	Time	Modified EPA Method 8015 (TPH)	EPA Method 8020 (BTXE)	EPA Method 418.1 (TPH)	8240 (GC/MS)				Number of Containers	
SB5-10	Boring 5, ten feet	12/7/88	540			✓					1	
SB6-5	Boring 6, five feet	12/7/88	550			✓	[illegible]				1	
SB6-10	Boring 6, ten feet	12/7/88	600			✓	✓				1	
SB6-15	Boring 6, fifteen feet	12/7/88	605			✓					1	
Comp 1	Surface soil just east of compressors	12/7/88	615			✓	✓				1	

Relinquished by: (Signature)	Date	Received by: (Signature)	Date
[illegible]	12/7/88		
Company: Terra Tech	Time: 1730	Company:	Time
Relinquished by: (Signature)	Date	Received by Laboratory: (Signature) [illegible]	Date: [illegible]
Company	Time	Company: Terra Tech	Time: [illegible]

Total Number of Containers: [illegible]

TERRA TECH

17121 Nichols St Suite E
Huntington Beach CA [illegible]
Tel (714) 812-0077

APPENDIX C

LABORATORY RESULTS

PREPARED FOR

GRAHAM PRINTING & LITHOGRAPH
17475 GALE AVENUE
INDUSTRY, CALIFORNIA

ANALYSIS OF TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
EPA METHOD 418.1

DATE RECEIVED : DECEMBER 7, 1988
DATE ANALYZED : DECEMBER 7, 1988
PROJECT NUMBER : 1037-1

SAMPLE ID#	CONCENTRATION (mg/kg)
SB1-5	323
SB1-10	ND,1.0
SB2-5	1190
SB2-10	ND,1.0
SB3-5	ND,1.0
SB3-10	13.5
SB4-5	33.2
SB4-10	15.7
SB5-5	ND,1.0
SB5-10	ND,1.0
SB6-5	417
SB6-10	626
SB6-15	ND,1.0
COMP 1	180,000

Reviewed & Approved: [illegible]
Date: 12/8/88

Note: Samples were received by the mobile laboratory intact and with Chain-of-Custody attached.

CRL Environmental - South Coast
[illegible] Lincoln Way • Garden Grove, CA 92641
[illegible]-1458 • (714) 898-6370 • (800) LAB-1-CRL
FAX: (714) 891-5917

cember 20, 1988

RRATECH
421 Nichols Street, Suite E
ntington Beach, CA 92647
TN: Ms. Lisa Newcombe-Dierl

ANALYSIS NO.: 834313-001/002
ANALYSES: EPA Method 8240
DATE SAMPLED: 12/07/88
DATE SAMPLE REC'D: 12/08/88
PROJECT: Graham Printing
& Lithograph
1037-1

losed with this letter is the report on the chemical and physical lyses on the samples from ANALYSIS NO: 834313-001/002 shown above.

samples were received by CRL in a chilled state, intact, and with the in-of-custody record attached.

id samples are reported on an "as received" basis.

bals were given December 15, 1988 at 4:05 P.M. to Ms. Lisa ne-Dierl.

ase note that ND( ) means not detected at the detection limit expressed nin the parentheses.

REVIEWED

APPROVED

The Report Cover Letter is an integral part of this report.
pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive ient to whom it is addressed. Any reproduction of this report or use of the Laboratory's name

RL Environmental - South Coast
oin Way • Garden Grove, CA 92641
5 • (714) 898-6370 • (800) LAB-1-CRL
FAX: (714) 891-5917

LABORATORY REPORT

ATECH
1 Nichols Street, Suite E
ington Beach, CA 92647
: Ms. Lisa Newcombe-Dierl

LE ID.: Comp. 1 Surface Sample
East of Compressors

ANALYSIS NO.: 834313-001
ANALYSES: EPA Method 8240
DATE SAMPLED: 12/07/88
DATE SAMPLE REC'D: 12/08/88
DATE ANALYZED: 12/12/88
SAMPLE TYPE: Solid
PROJECT: Graham Printing
& Lithograph
1037-1

EPA METHODS 624/8240 VOLATILE ORGANICS

	(ug/kg)		(ug/kg)
romethane	ND(10.)	1,2-Dichloropropane	ND(5.)
omethane	ND(10.)	Trans-1,3-Dichloropropene	ND(5.)
l Chloride	ND(10.)	Trichloroethene	ND(5.)
thane	ND(10.)	Dibromochloromethane	ND(5.)
ene Chloride	74.*	1,1,2-Trichloroethane	ND(5.)
one	370.	Benzene	ND(5.)
on Disulfide	ND(5.)	cis-1,3-Dichloropropene	ND(5.)
-Dichloroethene	ND(5.)	2-Chloroethylvinyl ether	ND(10.)
-Dichloroethane	ND(5.)	Bromoform	ND(5.)
is-1,2-Dichloroethene	ND(5.)	4-Methyl-2-Pentanone	240.
roform	ND(5.)	2-Hexanone	ND(10.)
-Dichloroethane	ND(5.)	Tetrachloroethene	ND(5.)
tanone	170.	1,1,2,2-Tetrachloroethane	ND(5.)
,1-Trichloroethane	ND(5.)	Toluene	ND(5.)
on Tetrachloride	ND(5.)	Chlorobenzene	ND(5.)
yl Acetate	ND(10.)	Ethylbenzene	ND(5.)
modichloromethane	ND(5.)	Styrene	ND(5.)
		Total Xylenes	ND(5.)

a level that attributable to laboratory or field contamination.

CRL Environmental - South Coast
440 Lincoln Way • Garden Grove, CA 92641
58 • (714) 898-6370 • (800) LAB-1-CRL
FAX: (714) 891-5917

LABORATORY REPORT

RATECH
11 Nichols Street, Suite E
ington Beach, CA 92647
: Ms. Lisa Newcombe-Dierl

LE ID.: SB6-10 Boring Six, Ten Feet

ANALYSIS NO.: 834313-002
ANALYSES: EPA Method 8240
DATE SAMPLED: 12/07/88
DATE SAMPLE REC'D: 12/08/88
DATE ANALYZED: 12/12/88
SAMPLE TYPE: Solid
PROJECT: Graham Printing & Lithograph 1037-1

EPA METHODS 624/8240 VOLATILE ORGANICS

	(ug/kg)		(ug/kg)
romethane	ND(10.)	1,2-Dichloropropane	ND(5.)
omethane	ND(10.)	Trans-1,3-Dichloropropene	ND(5.)
l Chloride	ND(10.)	Trichloroethene	ND(5.)
thane	ND(10.)	Dibromochloromethane	ND(5.)
e Chloride	16.*	1,1,2-Trichloroethane	ND(5.)
	40.	Benzene	ND(5.)
on Disulfide	ND(5.)	cis-1,3-Dichloropropene	ND(5.)
Dichloroethene	ND(5.)	2-Chloroethylvinyl ether	ND(10.)
Dichloroethane	ND(5.)	Bromoform	ND(5.)
s-1,2-Dichloroethene	ND(5.)	4-Methyl-2-Pentanone	22.
roform	ND(5.)	2-Hexanone	ND(10.)
Dichloroethane	ND(5.)	Tetrachloroethene	ND(5.)
tanone	19.	1,1,2,2-Tetrachloroethane	ND(5.)
l-Trichloroethane	50.	Toluene	ND(5.)
on Tetrachloride	ND(5.)	Chlorobenzene	ND(5.)
l Acetate	ND(10.)	Ethylbenzene	ND(5.)
odichloromethane	ND(5.)	Styrene	ND(5.)
		Total Xylenes	ND(5.)

a level that can be attributed to laboratory or field contamination.

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pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive

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Ensecco

LABORATORY REPORT

ATECH
1 Nichols Street, Suite E
ington Beach, CA 92647
: Ms. Lisa Newcombe-Dierl

ANALYSIS NO.: 834313-001/002
ANALYSES: EPA Method 8240
DATE SAMPLED: 12/07/88
DATE SAMPLE REC'D: 12/08/88
SAMPLE TYPE: Solid
PROJECT: Graham Printing & Lithograph 1037-1

QA/QC SUMMARY

ate	Parameter(method)	Average Spike Recovery%	Acceptable Range%	Relative Percent Difference	Acceptable Range%
2/88	1,1-Dichloroethene (EPA 8240)	108	59-172	19	22
2/88	Chlorobenzene (EPA 8240)	100	60-131	5	21

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