KLEINFELDER

August 2, 1993
File No. 10-2300-23/001

Mr. Ravi Arulanantham
Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

**SUBJECT: RECOMMENDED ACTION FOR HYDROCARBON IMPACTED SOILS SITE, FORMER CAL ROCK PLANT, PLEASANTON, CALIFORNIA**

Dear Mr. Arulanantham:

This correspondence is prepared on behalf of, and with the approval of CalMat, to: (1) summarize the findings of excavation activities at the above referenced site; (2) to review our understanding of your interests, with regard to further excavation and characterization activities at the site; and (3) to address alternative activities that would serve to satisfy both the needs of Alameda County and CalMat.

## SUMMARY OF EXCAVATION SAMPLING RESULTS

We have received the laboratory analytical results from samples taken from the site excavation during the week of July 1, 1993. Three samples were taken from the floor of the excavation and seven samples were taken from the side walls. A sketch of the excavation, and sample locations, is attached. All samples were analyzed in the laboratory for total petroleum hydrocarbons as diesel; benzene, toluene, ethylbenzene, and xylenes (BTEX); total oil and grease; and petroleum oil and grease. In addition, at your request, one sample was analyzed for semi-volatile organic compounds by EPA Method 8270.

These results of the above analyses indicate that:

- No benzene, toluene, ethylbenzene, or xylenes were detected in any of the samples.
- No hydrocarbons as diesel were reported above a concentration of 10 milligrams per kilogram (mg/Kg) in any of the samples.
- No EPA 8270 compounds were detected in the sample analyzed.
- No compounds analyzed for were detected in any of the three excavation floor samples, with the exception of 30 mg/Kg of petroleum oil and grease in one sample.
- The only analyte reported in any of the sidewall samples was oil and grease, ranging in concentration from below detection limits to a maximum of 1,200 mg/Kg.



 

KLEINFELDER 7133 Koll Center Parkway, Suite 100, Pleasanton, CA 94566 (510) 484-1700

## UNDERSTANDING OF ALAMEDA COUNTY INTERESTS

On July 20, 1993, Ms. Carolyn Boyles of Kleinfelder met with you to share the recent analytical results, and to assess County requirements for further work at the site. On the basis of a site diagram showing sample locations and analytical results discussed above, you provided the following verbal suggestions for further action concerning the subject project:

- Perform additional excavation of four "hot spot" areas with respect to oil and grease.
- Resample areas where re-excavation takes place.
- Analyze all samples for oil and grease and soluble oil and grease by TCLP or CAM WET methods.
- Analyze all samples for semi-volatile organic compounds by EPA Method 8270.
- Continue excavation of soils containing oil and grease in concentrations in excess of 500 mg/Kg or extractable concentrations (by TCLP or CAM WET) in excess of 200 milligrams per liter (mg/L).
- An appropriate level of ground water monitoring which will take into consideration potential seasonal changes in ground water flow direction.
- You also requested a copy of the existing laboratory analytical data and weekly updates regarding the progress of the work.

## REQUESTED ALTERNATIVE SITE ACTIVITIES

The following paragraphs provide a discussion of project goals and our recommendations, based on our review of data collected to date, and on our understanding of the concerns of Alameda County. These recommendations are prepared in order to minimize costs to CalMat while providing an appropriate level of effort to address environmental concerns associated with the site; as such these recommendations may serve as a formal proposal to the County on behalf of CalMat.

### TCLP Analysis

In our opinion, the detected concentrations of oil and grease in samples taken from the subject excavation represent little risk of degrading the quality of ground water at the site. We agree with the County that a TCLP test for oil and grease would provide an indication of the potential risk to ground water. We also agree with the County that the criteria of 200 mg/L of TCLP extractable oil and grease is an appropriate level for deciding whether additional excavation is necessary. We therefore recommend that existing Sample #64049, the sample taken from the southeastern end of the excavation, be run for TCLP extractable oil and grease (this analysis is in progress). This sample contained the greatest concentration of oil and grease and will allow for a "worst case" indication of potential risk to ground water, as well as an assessment regarding the amount of additional excavation that may be necessary.




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## EPA Method 8270 Analysis

One soil sample and one ground water sample were analyzed by EPA Method 8270 for semi-volatile organic compounds, as reported in the January 7, 1993 report, "Summary of Findings of Site Investigation Activities and Work Plan for Soil Remediation, Former Cal Rock Plant", (Kleinfelder). No EPA Method 8270 compounds were detected on either sample with the exception of **40 micrograms per liter of Bis-(2-ethylhexyl)-phthalate in the ground water** sample. This compound is a commonly known laboratory contaminant which is frequently reported above detection limits in water samples taken from numerous localities; therefore, the presence of this compound in ground water at the CalMat site is highly questionable. These data, combined with the EPA 8270 data collected during excavation activities (described previously) lead us to conclude that semi-volatile compounds analyzed for by EPA Method 8270 are not present in soil or ground water.

wastrip plant taken?

In our opinion, there is a lack of evidence or rationale for collecting additional samples and performing additional 8270 analyses. We therefore ask that you reconsider your request that we perform additional EPA 8270 analyses during future investigation activities.

## Well Installation

As discussed in our January 1993 report/work plan, two monitoring wells were drilled and sampled at the site in late 1992. Wells were located in the vicinity of known liquid waste disposal. Well MW-1 was completed in a perceived perched saturated zone above the water table. This well was completed as a dry well, and no water samples were obtained. Low concentrations of BTEX compounds were reported in soils from this boring. Well MW-2 was drilled to below the water table at a depth of 82 feet. A water sample collected from this well was analyzed and benzene, toluene, and total xylenes were reported at concentrations well below their respective Primary Maximum Contaminant Levels to Protect Human Health and Welfare (drinking water standards). Well **MW-1 was over-excavated during** operations in June 1993. Well **MW-2 was pressure grouted and destroyed during** excavation operations.

On the basis of existing soil and ground water data, it appears that minimal impacts have occurred with respect to ground water at the site. We propose to install one ground water monitoring well directly below the center of the existing excavation, to be sampled on a quarterly basis for a minimum period of one year. In our experience, maximum concentrations of chemicals in ground water usually occur and persist directly below the source of contamination. If significant concentrations of targeted analytes (oil and grease, BTEX, diesel) are detected in ground water at this location, then rationale would exist to evaluate the ground water flow direction and gradient as well as the extent of impacted ground water.

two wells

## Continued Excavation

Following TCLP analysis of Sample #64049 for oil and grease, we propose to obtain your concurrence that additional excavation is or is not necessary. If results are less than 200 mg/L, we will propose that excavation be continued only at those locations where oil and grease concentrations exceed 500 mg/Kg. After confirmation sampling, we propose that the excavation be backfilled, and that a relatively impermeable clay cap be placed and compacted at the ground surface, and sloped away from the center of the excavation to allow water to run off to the sides.




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## SUMMARY

We believe that the approach detailed above represents an appropriate course of action for the former Cal Rock site, which allows for reasonably controlling costs while providing adequate evaluation of environmental criteria which may result in further action, if necessary, or no further action beyond that recommended herein. In summary, we have proposed the following as alternatives to your recent requested activities:

- Perform a TCLP analysis for oil and grease on Sample #64049, which would represent a "worst case" assessment of the potential for ground water contamination.
- Based on the results of analyses for semi-volatile compounds conducted to date, we feel that additional EPA 8270 analyses are not necessary at this excavation.
- We propose to install one monitoring well through the backfilled excavation, to be monitored on a quarterly basis for one year. Additional wells would be installed only after ground water sampling suggests the need to do so.
- If TCLP analysis of Sample #64049 indicate oil and grease concentrations of less than 200 mg/Kg, we propose to excavate only those areas where oil and grease are present at concentrations greater than 500 mg/Kg. We will conduct confirmation sampling (and analysis for oil and grease) in these areas to document compliance with your requirements.
- We will update you weekly regarding work progress.

Attached are analytical results and a copy of a sample location sketch of the existing excavation. We would appreciate your comment and approval of the proposals described herein. If you have any questions please contact one of the undersigned at (510) 484-1700.

Sincerely,

**KLEINFLEDER, INC.**

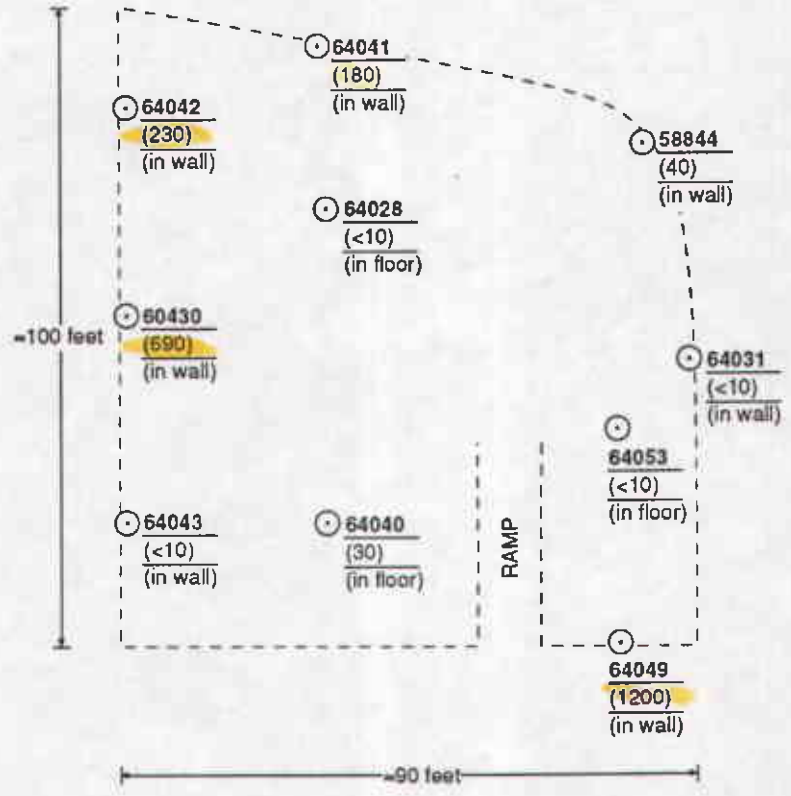
Matthew L. Bromley
Geologist/Project Manager

John E. Romie, R.G.
Senior Project Manager




KLEINFELDER 7133 Koll Center Parkway, Suite 100, Pleasanton, CA 94566 (510) 484-1700

# PLATES




## LEGEND

| | |
|---|---|
| 64049 | SAMPLE NUMBER |
| (1200) | OIL AND GREASE CONCENTRATION (ppm) |
| (in wall) | SAMPLE LOCATION |

## NOTES:

1. Concentrations area in mg/kg, parts per million (ppm).
2. All samples were collected July 1, 1993, except for sample 58844 which was collected on June 17, 1993.

N

NOT TO SCALE



KLEINFELDER

| | | | |
|---|---|---|---|
| DRAFTED BY: | L. Sue | DATE: 7-30-93 | |
| CHECKED BY: | J. Romie | DATE: 7-30-93 | |

**EXCAVATION SAMPLING RESULTS**

CAL MAT COMPANY
PLEASANTON, CALIFORNIA

PROJECT NUMBER 10-2300-23

PLATE 1

# APPENDIX

# American Environmental Network

## Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 94523-001



Working Copy

KLEINFELDER, INC.
7133 KOLL CENTER PARKWAY
SUITE 100
PLEASANTON, CA 94566
ATTN: MATT BROMLEY

REPORT DATE: 07/06/93

DATE SAMPLED: 06/17/93

DATE RECEIVED: 06/18/93

AEN JOB NO: 9306147

CLIENT PROJ. ID: 10-2300-23/001
C.O.C. NO: 0778
CLIENT P.O. NO: R1208

PROJECT SUMMARY:

On June 18, 1993, this laboratory received one (1) soil sample.

Client requested the sample be analyzed for Total Petroleum Hydrocarbons as Diesel by EPA Method 3550 GCFID, Oil & Grease by SM5520E, Hydrocarbons by SM5520F and Benzene, Toluene, Ethylbenzene and Total Xylenes by EPA Method 8020. Sample identification, results and dates analyzed are summarized on the following pages.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
General Manager

Results FAXed 06/29/93

KLEINFELDER, INC.

DATE SAMPLED: 06/17/93
DATE RECEIVED: 06/18/93
CLIENT PROJ. ID: 10-2300-23/001

REPORT DATE: 07/06/93
**AEN JOB NO: 9306147**

| Client Sample Id. | AEN Lab Id. | Extractable Hydrocarbons as Diesel (mg/kg) | Oil & Grease (mg/kg) | Hydrocarbons (mg/kg) |
|---|---|---|---|---|
| **58844 NE WALL** | 01C | ND* | 40 | 40 |
| Reporting Limit | | 1 | 10 | 10 |
| Method: | | EPA 3550 GCFID | SM5520E | SM5520F |
| Instrument: | | C | IR | IR |
| Date Extracted: | | 06/24/93 | 06/29/93 | 06/29/93 |
| Date Analyzed: | | 06/25/93 | 06/29/93 | 06/29/93 |

ND = Not Detected

* Oil detected

KLEINFELDER, INC.

SAMPLE ID: 58844 NE WALL
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 06/17/93
DATE RECEIVED: 06/18/93
REPORT DATE: 07/06/93

AEN LAB NO: 9306147-01A
AEN JOB NO: 9306147
DATE ANALYZED: 06/23/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

## QUALITY CONTROL DATA

DATE EXTRACTED: 06/21/93
DATE ANALYZED: 06/21/93
CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9306147
SAMPLE SPIKED: 9305145-02A
INSTRUMENT: IR

### IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS (5520)
### METHOD SPIKE RECOVERY SUMMARY
### (SOIL MATRIX)

| ANALYTE | MS Conc. (mg/kg) | Sample Result (mg/kg) | MS Result (mg/kg) | MSD Result (mg/kg) | Average Percent Recovery | RPD |
|---|---|---|---|---|---|---|
| Oil | 215 | 10 | 225 | 231 | 101.4 | 2.6 |

CURRENT QC LIMITS (Revised 06/22/92)

| Analyte | Percent Recovery | RPD |
|---|---|---|
| Oil | (84-113) | 8 |

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

## QUALITY CONTROL DATA

DATE EXTRACTED: 06/17/93
DATE ANALYZED: 06/18/93
CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9306147
SAMPLE SPIKED: 9306109-01A
INSTRUMENT: C

### METHOD SPIKE RECOVERY SUMMARY
### TPH EXTRACTABLE SOILS
### METHOD: EPA 3550 GCFID

| ANALYTE | Spike Conc. (mg/kg) | Sample Result (mg/kg) | MS Result (mg/kg) | MSD Result (mg/kg) | Average Percent Recovery | RPD |
|---|---|---|---|---|---|---|
| Diesel | 40.0 | ND | 26.9 | 30.9 | 72.3 | 13.8 |

CURRENT QC LIMITS (Revised 05/15/92)

| Analyte | Percent Recovery | RPD |
|---|---|---|
| Diesel | (44-105) | 24 |

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

## QUALITY CONTROL DATA

CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9306147

INSTRUMENT: H

### SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020
(SOIL MATRIX)

| Date Analyzed | SAMPLE IDENTIFICATION Client Id. | Lab Id. | SURROGATE RECOVERY (PERCENT) Fluorobenzene |
|---|---|---|---|
| 06/23/93 | 58844 NE WALL | 01A | 100.0 |

CURRENT QC LIMITS

| ANALYTE | PERCENT RECOVERY |
|---|---|
| Fluorobenzene | (70-115) |

KLEINFELDER

K-4, 5-H

| PROJ. NO. | PROJECT NAME |
|---|---|
| 10-2300-23/001 | CalMat |
| L.P. NO. (P.O. NO.) K1208 | SAMPLERS: (Signature/Number) 1857 |

| DATE MM/DD/YY | SAMPLE I.D. TIME HH:MM:SS | SAMPLE I.D. | NO. OF CONTAINERS | ANALYSIS: BTEX | TPH-diesel | oil + grease | REMARKS |
|---|---|---|---|---|---|---|---|
| 6-17-93 | 1225 | 58844 NE Wall | 1 Soil | X | X | X | |

| Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
|---|---|---|
| | 6-18-93 1140 | |
| Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
| | 6-19-93 1205 | |
| Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) |
| | | Ginia Gillespie 6-18-93 1205 |

Remarks
Normal turnaround
Results to Matt Bromley

Send Results To
KLEINFELDER
2121 N. CALIFORNIA BLVD.
SUITE 570
WALNUT CREEK, CA 94596
(415) 938-5610

M-60 White - Sampler Canary - Return Copy To Shipper Pink - Lab Copy

CHAIN OF CUSTODY

№ 0778

KLEINFELDER, INC.

SAMPLE ID: 64043
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-01A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64030
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-02A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64042
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-03A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64041
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-04A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64028
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-05A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64040
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-06A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64053
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-07A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64031
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-08A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64049
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-09A
AEN JOB NO: 9307028
DATE ANALYZED: 07/09/93
INSTRUMENT: H

BTEX (SOIL MATRIX)
METHOD: EPA 8020 (5030)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Benzene | 71-43-2 | ND | 5 |
| Toluene | 108-88-3 | ND | 5 |
| Ethylbenzene | 100-41-4 | ND | 5 |
| Xylenes, Total | 1330-20-7 | ND | 5 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64042
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-03A
AEN JOB NO: 9307028
DATE EXTRACTED: 07/08/93
DATE ANALYZED: 07/09-12/93
INSTRUMENT: 11

EPA METHOD 8270 (SOIL MATRIX)
GC/MS SEMI-VOLATILE ORGANIC COMPOUNDS
BASE/NEUTRAL EXTRACTABLES

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| Acenaphthene | 83-32-9 | ND | 330 |
| Acenaphthylene | 208-96-8 | ND | 330 |
| Anthracene | 120-12-7 | ND | 330 |
| Benzidine | 92-87-5 | ND | 1600 |
| Benzoic Acid | 65-85-0 | ND | 1600 |
| Benzo(a)anthracene | 56-55-3 | ND | 330 |
| Benzo(b)fluoranthene | 205-99-2 | ND | 330 |
| Benzo(k)fluoranthene | 207-08-9 | ND | 330 |
| Benzo(g,h,i)perylene | 191-24-2 | ND | 330 |
| Benzo(a)pyrene | 50-32-8 | ND | 330 |
| Benzyl Alcohol | 100-51-6 | ND | 660 |
| Bis(2-chloroethoxy) methane | 111-91-1 | ND | 330 |
| Bis(2-chloroethyl)ether | 111-44-4 | ND | 330 |
| Bis(2-chloroisopropyl) ether | 108-60-1 | ND | 330 |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | ND | 330 |
| 4-Bromophenyl phenyl ether | 101-55-3 | ND | 330 |
| Butylbenzyl phthalate | 85-68-7 | ND | 330 |
| 4-Chloroaniline | 106-47-8 | ND | 660 |
| 2-Chloronaphthalene | 91-58-7 | ND | 330 |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | ND | 330 |
| Chrysene | 218-01-9 | ND | 330 |
| Dibenzo(a,h)anthracene | 53-70-3 | ND | 330 |
| Dibenzofuran | 132-64-9 | ND | 330 |
| Di-n-butylphthalate | 84-74-2 | ND | 330 |
| 1,2-Dichlorobenzene | 95-50-1 | ND | 330 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64042
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-03A
AEN JOB NO: 9307028
DATE EXTRACTED: 07/08/93
DATE ANALYZED: 07/09-12/93
INSTRUMENT: 11

EPA METHOD 8270
BASE/NEUTRAL EXTRACTABLES (cont.)

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| 1,3-Dichlorobenzene | 541-73-1 | ND | 330 |
| 1,4-Dichlorobenzene | 106-46-7 | ND | 330 |
| 3,3'-Dichlorobenzidine | 91-94-1 | ND | 660 |
| Diethylphthalate | 84-66-2 | ND | 330 |
| Dimethylphthalate | 131-11-3 | ND | 330 |
| 2,4-Dinitrotoluene | 121-14-2 | ND | 330 |
| 2,6-Dinitrotoluene | 606-20-2 | ND | 330 |
| Di-n-octylphthalate | 117-84-0 | ND | 330 |
| 1,2-Diphenylhydrazine | 122-66-7 | ND | 330 |
| Fluoranthene | 206-44-0 | ND | 330 |
| Fluorene | 86-73-7 | ND | 330 |
| Hexachlorobenzene | 118-74-1 | ND | 330 |
| Hexachlorobutadiene | 87-68-3 | ND | 330 |
| Hexachlorocyclopentadiene | 77-47-4 | ND | 330 |
| Hexachloroethane | 67-72-1 | ND | 330 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | ND | 330 |
| Isophorone | 78-59-1 | ND | 330 |
| 2-Methylnaphthalene | 91-57-6 | ND | 330 |
| Naphthalene | 91-20-3 | ND | 330 |
| 2-Nitroaniline | 88-74-4 | ND | 1600 |
| 3-Nitroaniline | 99-09-2 | ND | 1600 |
| 4-Nitroaniline | 100-01-6 | ND | 1600 |
| Nitrobenzene | 98-95-3 | ND | 330 |
| N-Nitrosodimethylamine | 62-75-9 | ND | 330 |
| N-Nitrosodiphenylamine | 86-30-6 | ND | 330 |
| N-Nitroso-di-n-propylamine | 621-64-7 | ND | 330 |
| Phenanthrene | 85-01-8 | ND | 330 |
| Pyrene | 129-00-0 | ND | 330 |
| 1,2,4-Trichlorobenzene | 120-82-1 | ND | 330 |

ND = Not Detected

KLEINFELDER, INC.

SAMPLE ID: 64042
CLIENT PROJ. ID: 10-2300-23/001
DATE SAMPLED: 07/01/93
DATE RECEIVED: 07/02/93
REPORT DATE: 07/16/93

AEN LAB NO: 9307028-03A
AEN JOB NO: 9307028
DATE EXTRACTED: 07/08/93
DATE ANALYZED: 07/09-12/93
INSTRUMENT: 11

EPA METHOD 8270
ACID EXTRACTABLES

| COMPOUND | CAS # | CONCENTRATION (ug/kg) | REPORTING LIMIT (ug/kg) |
|---|---|---|---|
| 4-Chloro-3-methylphenol | 59-50-7 | ND | 330 |
| 2-Chlorophenol | 95-57-8 | ND | 330 |
| 2,4-Dichlorophenol | 120-83-2 | ND | 330 |
| 2,4-Dimethylphenol | 105-67-9 | ND | 330 |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | ND | 1600 |
| 2,4-Dinitrophenol | 51-28-5 | ND | 1600 |
| 2-Methylphenol | 95-48-7 | ND | 330 |
| 4-Methylphenol | 106-44-5 | ND | 330 |
| 2-Nitrophenol | 88-75-5 | ND | 330 |
| 4-Nitrophenol | 100-02-7 | ND | 1600 |
| Pentachlorophenol | 87-86-5 | ND | 1600 |
| Phenol | 108-95-2 | ND | 330 |
| 2,4,5-Trichlorophenol | 95-95-4 | ND | 330 |
| 2,4,6-Trichlorophenol | 88-06-2 | ND | 330 |

ND = Not Detected

## QUALITY CONTROL DATA

DATE EXTRACTED: 07/12/93
DATE ANALYZED: 07/13/93
CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9307028
SAMPLE SPIKED: 9307028-05A
INSTRUMENT: IR

### IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS (5520)
### METHOD SPIKE RECOVERY SUMMARY
### (SOIL MATRIX)

| ANALYTE | MS Conc. (mg/kg) | Sample Result (mg/kg) | MS Result (mg/kg) | MSD Result (mg/kg) | Average Percent Recovery | RPD |
|---|---|---|---|---|---|---|
| Oil | 225 | 31 | 261 | 261 | 102.2 | 0.0 |

CURRENT QC LIMITS (Revised 06/22/92)

| Analyte | Percent Recovery | RPD |
|---|---|---|
| Oil | (84-113) | 8 |

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

## QUALITY CONTROL DATA

DATE EXTRACTED: 07/08/93
DATE ANALYZED: 07/10/93
CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9307028
SAMPLE SPIKED: 9307028-07A
INSTRUMENT: C

### METHOD SPIKE RECOVERY SUMMARY
### TPH EXTRACTABLE SOILS
### METHOD: EPA 3550 GCFID

| ANALYTE | Spike Conc. (mg/kg) | Sample Result (mg/kg) | MS Result (mg/kg) | MSD Result (mg/kg) | Average Percent Recovery | RPD |
|---|---|---|---|---|---|---|
| Diesel | 40.0 | ND | 27.2 | 23.7 | 63.6 | 13.8 |

CURRENT QC LIMITS (Revised 05/15/92)

| Analyte | Percent Recovery | RPD |
|---|---|---|
| Diesel | (44-105) | 24 |

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

## QUALITY CONTROL DATA

CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9307028

INSTRUMENT: H

### SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020
(SOIL MATRIX)

| Date Analyzed | SAMPLE IDENTIFICATION Client Id. | Lab Id. | SURROGATE RECOVERY (PERCENT) Fluorobenzene |
|---|---|---|---|
| 07/09/93 | 64043 | 01A | 93.6 |
| 07/09/93 | 64030 | 02A | 96.1 |
| 07/09/93 | 64042 | 03A | 93.6 |
| 07/09/93 | 64041 | 04A | 92.7 |
| 07/09/93 | 64028 | 05A | 93.3 |
| 07/09/93 | 64040 | 06A | 93.3 |
| 07/09/93 | 64053 | 07A | 93.2 |
| 07/09/93 | 64031 | 08A | 93.2 |
| 07/09/93 | 64049 | 09A | 97.1 |

CURRENT QC LIMITS

| ANALYTE | PERCENT RECOVERY |
|---|---|
| Fluorobenzene | (70-115) |

## QUALITY CONTROL DATA

DATE ANALYZED: 07/09/93
SAMPLE SPIKED: 9307028-05A
CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9307028
INSTRUMENT: H

### MATRIX SPIKE RECOVERY SUMMARY
### METHOD: EPA 8020, 5030 GCFID
### (SOIL MATRIX)

| ANALYTE | Spike Conc. (ug/kg) | Sample Result (ug/kg) | MS Result (ug/kg) | MSD Result (ug/kg) | Average Percent Recovery | RPD |
|---|---|---|---|---|---|---|
| Benzene | 26.8 | ND | 27.6 | 26.9 | 101.7 | 2.6 |
| Toluene | 95.9 | ND | 96.0 | 95.4 | 99.8 | 0.6 |
| Hydrocarbons as Gasoline | 1000 | ND | 876 | 923 | 90.0 | 5.2 |

CURRENT QC LIMITS (Revised 05/14/92)

| Analyte | Percent Recovery | RPD |
|---|---|---|
| Benzene | (79.4-125.2) | 9.8 |
| Toluene | (84.4-116.8) | 10.0 |
| Gasoline | (53.7-124.2) | 15.1 |

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

## QUALITY CONTROL DATA

DATE ANALYZED: 07/12/93

AEN JOB NO: 9307028

CLIENT PROJ. ID: 10-2300-23/001

INSTRUMENT: 11

## SURROGATE STANDARD RECOVERY SUMMARY

METHOD: EPA 8270
(SOIL MATRIX)

| SAMPLE IDENTIFICATION | | | SURROGATE RECOVERY (PERCENT) | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Extracted | Sample Id. | Lab Id. | Nitro-benzene-$d_5$ | 2-Fluoro-biphenyl | Terphenyl-$d_{14}$ | Phenol-$d_5$ | 2-Fluoro-phenol | 2,4,6-Tribromo-phenol |
| 07/08/93 | 64042 | 03A | 64.7 | 90.7 | 121.8 | 81.1 | 76.1 | 91.1 |

CURRENT QC LIMITS (REVISED 01/08/92)

| ANALYTE | PERCENT RECOVERY |
|---|---|
| Nitrobenzene-$d_5$ | (23-120) |
| 2-Fluorobiphenyl | (30-115) |
| Terphenyl-$d_{14}$ | (18-137) |
| Phenol-$d_5$ | (24-113) |
| 2-Fluorophenol | (25-121) |
| 2,4,6-Tribromophenol | (19-122) |

## QUALITY CONTROL DATA

DATE EXTRACTED: 07/01/93
DATE ANALYZED: 07/06/93
CLIENT PROJ. ID: 10-2300-23/001

AEN JOB NO: 9307028
SAMPLE SPIKED: 9307002-01A
INSTRUMENT: 11

### MATRIX SPIKE RECOVERY SUMMARY
### METHOD: EPA 8270
### (SOIL MATRIX)

| ANALYTE | Spike Conc. (ug/kg) | Sample Result (ug/kg) | MS Result (ug/kg) | MSD Result (ug/kg) | Average Percent Recovery | RPD |
|---|---|---|---|---|---|---|
| Phenol | 3330 | ND | 2580 | 2400 | 74.8 | 7.2 |
| 2-Chlorophenol | 3330 | ND | 2270 | 2150 | 66.4 | 5.4 |
| 1,4-Dichlorobenzene | 3400 | ND | 2020 | 2020 | 59.4 | 0.0 |
| N-Nitroso-di-n-propylamine | 3320 | ND | 2440 | 2370 | 72.4 | 2.9 |
| 1,2,4-Trichlorobenzene | 3330 | ND | 2150 | 2080 | 63.5 | 3.3 |
| 4-Chloro-3-methylphenol | 3270 | ND | 2740 | 2620 | 82.0 | 4.5 |
| Acenaphthene | 3330 | ND | 2260 | 2270 | 68.0 | 0.4 |
| 4-Nitrophenol | 3300 | ND | 2850 | 2610 | 82.7 | 8.8 |
| 2,4-Dinitrotoluene | 3330 | ND | 2180 | 2260 | 66.7 | 3.6 |
| Pentachlorophenol | 3380 | ND | 3200 | 2980 | 91.4 | 7.1 |
| Pyrene | 3320 | ND | 3020 | 2580 | 84.3 | 15.7 |

### CURRENT QC LIMITS (Revised 01/08/92)

| Analyte | Percent Recovery | RPD |
|---|---|---|
| Phenol | (35- 81) | 33 |
| 2-Chlorophenol | (28- 88) | 26 |
| 1,4-Dichlorobenzene | (28- 81) | 9 |
| N-Nitroso-di-n-propylamine | (27- 83) | 20 |
| 1,2,4-Trichlorobenzene | (30- 82) | 22 |
| 4-Chloro-3-methylphenol | (31-104) | 28 |
| Acenaphthene | (30-101) | 17 |
| 4-Nitrophenol | ( 7-102) | 32 |
| 2,4-Dinitrotoluene | (26- 86) | 24 |
| Pentachlorophenol | (11- 94) | 41 |
| Pyrene | (23-128) | 23 |

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

KLEINFELDER

RUSH

9307028

| PROJ. NO. | PROJECT NAME |
|---|---|
| 10-2300-23/a1 | Cal Mat - Jamieson |
| L.P. NO. (P.O. NO.) R1208 | SAMPLERS: (Signature/Number) J. Russell |

| DATE MM/DD/YY | SAMPLE I.D. TIME HH:MM:SS | SAMPLE I.D. | NO. OF CONTAINERS | ANALYSIS: TPH d | BTEX | 5520 E+F | 8240 | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/1/93 | 2:00 | L 64043 01A | 1 | X | X | X | | | | | | | | | | |
| | 2:03 | L 64050 02A | 1 | X | X | X | | | | | | | | | | |
| | 2:09 | L 64042 03A | 1 | X | X | X | X | | | | | | | | | |
| | 2:10 | L 64041 04A | 1 | X | X | X | | | | | | | | | | |
| | 2:15 | L 64028 05A | 1 | X | X | X | | | | | | | | | | |
| | 2:17 | ~~L 64040~~ L 64040 06A | 1 | X | X | X | | | | | | | | | | |
| | 2:20 | L 64053 07A | 1 | X | X | X | | | | | | | | | | |
| | 2:25 | L 64031 08A | 1 | X | X | X | | | | | | | | | | |
| | 2:30 | L 64049 09A | 1 | X | X | X | | | | | | | | | | |

| Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
|---|---|---|
| Susan E. Russell | 7/2/93 10:10 | |
| Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
| | 7/2/93 11:15 | Daniele Vance |
| Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) |

Remarks: Standard turnaround

Send results to
Susan Russell
matt Bromley

Send Results To

KLEINFELDER
~~2121 N. CALIFORNIA BLVD.~~
~~SUITE 570~~
~~WALNUT CREEK, CA 94596~~
~~(415) 933-5610~~
7133 Koll Center Parkway
Suite 100
Pleasanton, CA 94566
(510) 484-1700

Attn: Susan Russell
matt Bromley

M-60 White - Sampler Canary - Return Copy To Shipper Pink - Lab Copy

CHAIN OF CUSTODY