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REPORT
OF REMEDIATION OF TPH-AFFECTED SOIL AND QUARTERLY GROUNDWATER MONITORING AT THE FORMER GRAHAM PRINTING & LITHOGRAPH FACILITY

17475 GALE AVENUE,
CITY OF INDUSTRY, CALIFORNIA

Submitted to:

Los Angeles County Fire Department
Hazardous Material Control Program
5825 Rickenbacker Road
Commerce, California 90040

Submitted by:

ICF Kaiser Engineers, Inc.
10 Universal City Plaza
Suite 2400
Universal City, California 91608

June 10, 1994

ICF KAISER

ICF KAISER
ENVIRONMENT & ENERGY GROUP

ICF Kaiser Engineers, Inc.
10 Universal City Plaza, Suite 2400
Universal City, CA 91608-1097
818/509-3100 Fax 818/509-3137

June 10, 1994

Ms. Shahin Nourishad
Los Angeles County Fire Department
Hazardous Material Control Program
5825 Rickenbacker Road
Commerce, CA 90040

SUBJECT: REPORT OF REMEDIATION OF TPH-AFFECTED SOIL AND QUARTERLY GROUNDWATER MONITORING AT THE FORMER GRAHAM PRINTING & LITHOGRAPH FACILITY, 17475 GALE AVENUE, CITY OF INDUSTRY, CALIFORNIA

Dear Ms. Nourishad:

ICF Kaiser Engineers, Inc. (ICF KE) has prepared this report on the remediation of soils affected with total petroleum hydrocarbons (TPH) and groundwater monitoring to be conducted at the former Graham Printing & Lithograph (Graham) facility located at 17475 Gale Avenue, City of Industry, California. This work was performed in response to the request of the Los Angeles County Fire Department (LACFD)-Health and Hazardous Materials Division and is based on our workplan to LACFD revised on April 14, 1994 and approved on April 20, 1994.

1.0 BACKGROUND

1.1 Property Description

The property is located at 17475 Gale Avenue in the City of Industry, California. The property comprises approximately 221,136 square feet of land located immediately northwest of the intersection of Hatcher and Gale Avenues. The property is currently owned by RREEF-West VI (RREEF).

The property is bordered on the north by the Union Pacific Railroad track, on the south by several commercial stores and the Pomona Freeway, on the east by a vacant lot and Hatcher Avenue and on the west by a light industrial business park. Previous reports indicate that the site was first developed in 1978, and was certified for occupancy on December 1, 1978. The building on site is of the concrete tilt-up variety and covers approximately 106,904 square feet.

1.2 Summary of Previous Investigations and Regulatory Actions

In the late 1980's RREEF the owner of the property, contacted the Regional Water Quality Control (RWQCB) with it's concerns that Graham, the property tenant, may have caused a release of chemicals at the site. Based on it's findings the RWQCB directed Graham to conduct a preliminary site investigation. In July 1992 Graham filed for bankruptcy. Since that time RREEF has co-operated fully with the agencies to characterize the nature and extent of potential contamination of the site. This included lawful disposition of over 100 drums of chemicals left behind by Graham and completing the agency directed site characterization.

In December 1988, Terra Tech Labs (TTL) performed a preliminary investigation in which a total of six soil borings were drilled, two near the former compressor area and four near the former drum storage area. The boring locations, boring numbers SB-1 through SB-6, are presented on Figure 1. The maximum TPH concentration detected by TTL in the soil samples collected from the borings in the former compressor area was 1,190 parts per million (ppm) at five feet below ground surface (bgs). TPH concentrations attenuated at depth with the exception of boring SB-3, which had concentrations of non-detect and 13.5 ppm at 5 and 10 feet bgs, respectively. A composite surface soil sample, sample number COMP1, collected in the same area contained 180,000 ppm of TPH (Figure 1). The maximum concentration of TPH detected by TTL near the former drum storage area was 626 ppm at 10 feet bgs. Table 1 presents the TPH analytical results for the samples collected for the TTL investigation. Volatile organic constituents (VOCs) were detected in the soil samples at concentrations ranging from not detected to 370 parts per billion (ppb).

Because VOCs were detected in site soil, the RWQCB required the installation of a groundwater quality monitoring well to assess the potential impact of the soil contamination on the groundwater. In September 1989, Geological Audit Services (GeoAudit) installed a groundwater quality monitoring well near the drum storage area at the site. Soil boring logs indicate a clay barrier layer extends from approximately 20 feet to 25 feet bgs. The monitoring well was first sampled by GeoAudit in October 1989, and neither total recoverable petroleum hydrocarbons (TRPH) nor VOCs were detected in the groundwater. Groundwater is located at approximately 35.5 feet bgs. GeoAudit performed additional sampling of the monitoring well in January and May 1991. The results from January 1991, indicated the presence of TRPH at 4 ppm, and low concentrations of three VOCs (maximum concentration of 7.5 micrograms per liter (µg/L). The results from May 1991, indicated the presence of TRPH at 0.7 ppm. Results for VOCs analysis from May 1991 were not reported in the documents that were provided for this investigation.

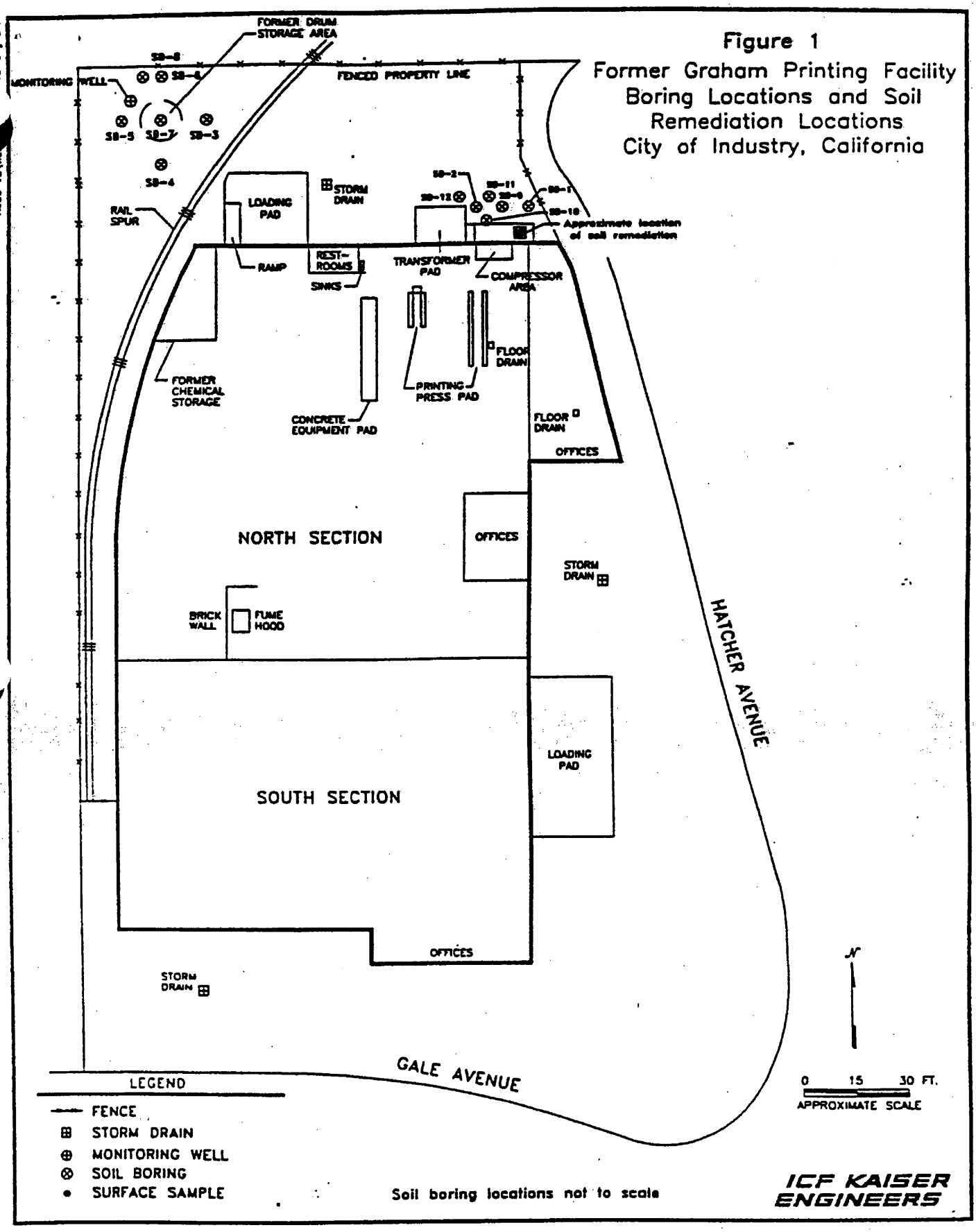

Figure 1
Former Graham Printing Facility
Boring Locations and Soil
Remediation Locations
City of Industry, California

TABLE 1

SUMMARY OF TPH/TRPH ANALYSIS IN SOIL

TERRA TECH LAB INVESTIGATION		
Boring Number	**Depth (feet)**	**TPH (ppm)**
SB1	5	323
	10	ND
SB2	5	1,190
	10	ND
SB3	5	ND
	10	13.5
SB4	5	33.2
	10	15.7
SB5	5	ND
	10	ND
SB6	5	417
	10	616
	15	ND
Comp1	Surface	180,000
ATEC ENVIRONMENTAL CONSULTING SERVICES		
Boring Number	**Depth (feet)**	**TRPH (ppm)**
SB7	1	9.3
SB8	1	ND
SB9	20	ND
SB10	1	19
	3O	ND

TPH - Total petroleum hydrocarbons
TRPH - Total recoverable petroleum hydrocarbons
ppm - parts per million

ATEC Environmental Consultants (ATEC) conducted a subsurface investigation, including groundwater quality monitoring, at the property in December 1992. ATEC drilled four borings, boring numbers SB-7 through SB-10, near the former drum storage area and former compressor area (Figure 1). ATEC reported that the soil samples from these borings contained a maximum TRPH concentration of 19 ppm. TRPH results of the samples from these borings are presented in Table 1. Laboratory results of the groundwater sample indicated the presence of two VOCs with a maximum concentration of 21 µg/L.

ICF KE conducted a soil gas investigation in September and November 1993 and performed one round of quarterly groundwater monitoring in November 1993 under the direction of the RWQCB. A dense fine grained (clay) zone was encountered and extended from approximately 20 - 25 feet bgs. During the soil gas investigation four VOCs were detected at very low concentrations (<200 µg/L). Results from the groundwater monitoring indicated that TRPH was not detected and two VOCs were detected with a maximum concentration of 120 µg/L for 1,1-DCE.

Previous Property Remediation

Due to the limited presence of VOCs in soil, the RWQCB determined in February 1994 that soil remediation for VOCs is not required at this time. The site was subsequently referred to the LACFD for oversight in remediation of TPH-affected soils. In conjunction with the LACFD's required remedial activities, the RWQCB is requiring quarterly groundwater monitoring during remediation and for at least two quarters following completion of remediation activities. In a meeting with LACFD on March 7, 1994, ICF KE recommended remediation of the soils at the location of the surface sample, sample number COMP1, where concentrations of TPH were detected. As an historical note, Geologic Audit was hired by Graham Printing to prepare a workplan for remediation of site soils affected by TPH. The workplan detailed field work and sampling methodologies and proposed soil clean-up levels based on the limited site data available at that time. The workplan was submitted to the lead agency on September 30, 1991, subsequently approved, but never implemented.

2.0 PURPOSE AND SCOPE

The purpose of this remedial action and groundwater monitoring was: (1) to remediate by removal the TPH-affected soils in the area around where previous soil sample COMP1 was collected and collect a confirmatory sample for analysis, and (2) to conduct the first of three rounds of quarterly groundwater monitoring.

Task 1 Revise Health and Safety Plan

The site-specific health and safety plan (dated September 1, 1993) initially prepared for ICF KE's soil gas investigation was revised by an ICF KE industrial hygienist to include the tasks presented in this workplan.

Task 2 Excavate and Containerize TPH-affected Soil and Collect Confirmation Sample

ICF KE manually excavated, under the direction of LACFD, the TPH-affected soils in the immediate area of surface soil sample COMP1 collected by TTL. Figure 1 presents the approximate location of the soil remediation. Approximately 0.75 cubic yards of soil were removed. The soil was placed in Department of Transportation (DOT)-approved containers pending disposal by RREEF. All soils visibly impacted with TPH were removed.

After the contaminated soils were excavated, a confirmation sample, CS-1, was collected from the base of the excavation. The sample was collected using an AMS sampler lined with a six-inch stainless steel sleeve. Upon retrieval, the exposed ends of the soil sample were covered with plastic caps over teflon seals. All soil samples were double bagged and placed in a thermally insulated cooler chilled with ice until transportation to the laboratory. Appropriate chain-of-custody documentation accompanied the samples.

The sample, CS-1, was analyzed for TRPH using EPA Method 418.1. Additionally, in order to comply with RWQCB requirements for VOC analysis as part of the confirmation sampling, the sample was analyzed for VOCs using EPA Method 8240. The excavation was backfilled with clean soil.

Task 3 Hand Auger Two Borings

Two borings, SB-11 and SB-12, were hand augered to a total depth of five feet bgs adjacent to boring SB-2 in order to further access the accuracy analytical results from previous investigations. One soil sample was collected from each boring at five feet bgs and analyzed for TPH using EPA Method 418.1 and VOCs using EPA Method 8240. Figure 1 presents the hand auger boring locations. The samples, numbered SB-11-5' and SB-12-5', were collected using the procedures outlined above for collection of the remediation confirmation sample.

Nondisposable equipment used during excavation and sampling was decontaminated using an Alconox/water wash, double rinse, and distilled water rinse prior to use.

Task 4 Purge and Sample Onsite Groundwater Monitoring Well

The first of three rounds of quarterly groundwater monitoring was conducted simultaneously with the soil remediation. The successive rounds will be conducted in the two consecutive quarters following remediation.

Prior to purging the groundwater monitoring well, the standing water level in the casing was measured using a Solinst electronic water meter. The depth to groundwater was measured from a reference point marked on top of the casing.

The groundwater monitoring well was purged using a development rig outfitted with a stainless steel bailer. Three well volumes were purged. During the purge cycle, field measurement of pH, conductivity, and temperature, and visual observations were recorded on sampling data sheets to verify well stabilization. To collect a representative water sample, stabilization was deemed complete when three successive measurements of field parameters were within 10 percent.

A sample was collected for TRPH and VOC analysis using EPA Methods 418.1 and 502.2, respectively. The sample bottles were laboratory cleaned and prepared with appropriate preservatives. The sample was collected using a disposable, teflon bailer and was decanted through the bottom of the bailer through a sample port designed to minimize volatilization. The sample containers were labeled, capped tightly, enclosed in plastic bags and placed in a thermally insulated cooler chilled with ice until transportation to the laboratory. Appropriate chain-of-custody documentation accompanied the sample.

Nondisposable equipment used during sampling was decontaminated using an Alconox/water wash, double rinse, and distilled water rinse prior to use. The downhole equipment was steam cleaned prior to use. Purge water and decontamination water were containerized and labelled pending analysis for proper disposal by RREEF.

3.0 RESULTS

Analytical results for the soil and groundwater samples are presented in Tables 2 and 3, respectively. Laboratory data sheets are included as Attachment 1.

3.1 Soil Investigation

The confirmation sample, CS-1, was collected at approximately 1.5 feet bgs in the area of sample COMP1 previously collected by TTL. Analytical results indicate that VOCs were not detected in the sample above the stated detection limits. TRPH was detected in the sample at 300 ppm. Soil sample COMP1 had previously found TRPH at the concentration of 1,190 ppm prior to remediation.

Sample SB-11-5' had acetone and 2-butanone concentrations of 56 and 14 ppb, respectively. Other VOC analytes were not detected above stated detection limits. Additionally, VOCs were not present above stated detection limits in sample SB-12-5'. TRPH concentrations in SB-11-5' and SB-12-5' were 20 and 21 ppm, respectively.

3.2 Groundwater Investigation

Depth to groundwater in groundwater monitoring well MW-1 was measured to be 33.58 feet below the reference point marked on the top of the casing.

Table 2

RREEF
Summary of Analytical Results
Soil Sampling
May 3, 1994

Sample Number	CS-1	SB-11-5'	SB-12-5'
Depth (feet below ground surface)	1.5	5	5
Total Recoverable Petroleum Hydrocarbons (ppm) EPA Method 418.1	300	20	21
Volatile Organic Compounds (ppb) EPA Method 8240			
Acetone	ND	56	ND
Benzene	ND	ND	ND
Bromodichloromethane	ND	ND	ND
Bromoform	ND	ND	ND
Bromomethane	ND	ND	ND
2-Butanone	ND	14	ND
Carbon disulfide	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chlorodibromomethane	ND	ND	ND
Chloroethane	ND	ND	ND
2-Chloroethyl vinyl ether	ND	ND	ND
Chloroform	ND	ND	ND
Chloromethane	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
1-2-Dichloropropane	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND
Ethylbenzene	ND	ND	ND
2-Hexanone	ND	ND	ND
Methylene chloride	ND	ND	ND
4-Methyl-2-pentanone	ND	ND	ND
Styrene	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Tetrachloroethene	ND	ND	ND
Toluene	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Trichloroethene	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND
Vinyl acetate	ND	ND	ND
Vinyl chloride	ND	ND	ND
Total Xylenes	ND	ND	ND

ND - Not Detected
ppm - parts per million
ppb - parts per billion

Table 3

RREEF
Summary of Analytical Results
Quarterly Groundwater Monitoring
May 25, 1994

Sample Number	MW-1-02	MW-1
Date Sampled	11-22-93	5-3-94
Total Recoverable Petroleum Hydrocarbons (ppm) EPA Method 418.1	ND	ND
Volatile Organic Compounds (ppb) EPA Method 502.2		
Benzene	ND	ND
Bromobenzene	ND	ND
Bromochloromethane	ND	ND
Bromodichloromethane	ND	ND
Bromoform	ND	ND
Bromomethane	ND	ND
n-Butylbenzene	ND	ND
sec-Butylbenzene	ND	ND
tart-Butylbenzene	ND	ND
Carbon tetrachloride	ND	ND
Chlorobenzene	ND	ND
Chloroethane	ND	ND
Chloroform	ND	ND
Chloromethane	ND	ND
2-Chlorotoluene	ND	ND
4-Chlorotoluene	ND	ND
Dibromochloromethane	ND	ND
1,2-Dibromo-3-chloropropane	ND	ND
1,2-Dibromoethane	ND	ND
Dibromomethane	ND	ND
1,2-Dichlorobenzene	ND	ND
1,3-Dichlorobenzene	ND	ND
1,4-Dichlorobenzene	ND	ND
Dichlorodifluoromethane	ND	ND
1,1-Dichloroethane	ND	ND
1-2-Dichloroethane	ND	ND
1,1-Dichloroethene	100	74
cis-1,2-Dichloroethene	ND	ND
trans-1,2-Dichloroethene	ND	ND
1,2-Dichloropropane	ND	ND
1,3-Dichloropropane	ND	ND
2,2-Dichloropropane	ND	ND
1,1-Dichloropropene	ND	ND
cis-1,3-Dichloropropene	ND	ND
trans-1,3-Dichloropropene	ND	ND
Ethylbenzene	ND	ND
Hexachlorobutadiene	ND	ND

ND - Not Detected
ppm - parts per million
ppb - parts per billion

Table 3

RREEF
Summary of Analytical Results
Quarterly Groundwater Monitoring (Continued)
May 25, 1994

Sample Number	MW-1-02	MW-1
Date Sampled	11-22-93	5-3-94
Volatile Organic Compounds (ppb)		
EPA Method 502.2 (Continued)		
Isopropylbenzene	ND	ND
p-Isopropyltoluene	ND	ND
Methylene chloride	ND	ND
Naphthalene	ND	ND
n-Propylbenzene	ND	ND
Styrene	ND	ND
1,1,1,2-Tetrachloroethane	ND	17
1,1,2,2-Tetrachloroethane	ND	ND
Tetrachloroethene	ND	ND
Toluene	ND	ND
1,2,3-Trichlorobenzene	ND	ND
1,2,4-Trichlorobenzene	ND	ND
1,1,1-Trichloroethane	21	ND
1,1,2-Trichloroethane	ND	ND
Trichloroethene	ND	ND
Trichlorofluoromethane	ND	ND
1,2,3-Trichloropropane	ND	ND
1,2,4-Trimethylbenzene	ND	ND
1,3,5-Trimethylbenzene	ND	ND
Vinyl chloride	ND	ND
o-Xylene	ND	ND
m,p-Xylenes	ND	ND

ND - Not Detected
ppm - parts per million
ppb - parts per billion

The groundwater sample from MW-1 had 1,1-dichloroethene (1,1,-DCE) and 1,1,1,2-tetrachloroethane concentrations of 74 and 17 ppb, respectively, for a total VOC concentration of 91 ppb. Similar concentrations of VOCs were detected in the groundwater sample collected from MW-1 during the last groundwater monitoring event in November 1993 (Table 3). During that event, 1,1-DCE was detected at 100 ppb. 1,1,1,2-tetrachloroethane was not detected above the stated detection limits, however, 1,1,1-trichloroethane was detected at 21 ppb. In a letter dated February 16, 1994, the RWQCB recognized that releases of these chemicals to groundwater have been documented at other offsite manufacturing facilities nearby. Other VOC analytes were not detected above stated detection limits. TRPH was not detected in the groundwater sample above the stated detection limit. TRPH was also not detected during the November 1993 groundwater monitoring event.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The remedial TPH objectives were achieved. After remediation, the TRPH concentration of 300 ppm in the confirmation sample was below the recommended clean-up level of 1,000 ppm established in the workplan for the property. Likewise, the samples collected from the hand-augered borings SB-11 and SB-12 were also well below this cleanup level indicating that the TPH detected in SB-2 is limited and does not extend laterally.

These analytical results, combined with other important facts about the contamination and the property, indicate that no further action is required. The other key facts are: 1) that only low concentrations of TRPH and VOCs were detected in soil and gas samples from elsewhere on the property and only at shallow depths (the RWQCB provided a No Further Action Letter concerning VOCs on this property); 2) that a five foot clayey layer extends across the property at 20 - 25 feet bgs, creating a barrier to vertical migration of chemical compounds or TPH from this property; and 3) the VOCs detected in the groundwater are likely from nearby off-site sources.

We therefore recommend that LACFD issue RREEF a No Further Action letter for this property.

If you have any questions concerning this report or require additional information, please contact me at (818) 509-3100.

Sincerely,
ICF Kaiser Engineers

Thomas L. Watson
Senior Project Manager

Attachment

cc: Angelo Bellomo - ICF KE
Greg Gilroy - RREEF

ATTACHMENT 1

LABORATORY DATA SHEETS
AND
CHAIN OF CUSTODY DOCUMENTATION

Del Mar Analytical

2852 Alton Ave., [illegible], CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, [illegible], CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

'CF Kaiser Engineers
10 Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Client Project ID: 41428-002-00
RREEF
Sample Descript: Soil, CS-1
Lab Number: DE00592

Sampled: May 3, 1994
Received: May 3, 1994
Analyzed: May 10, 1994
Reported: May 13, 1994

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acetone	10	N.D.
Benzene	2.0	N.D.
Bromodichloromethane	2.0	N.D.
Bromoform	2.0	N.D.
Bromomethane	5.0	N.D.
2-Butanone	10	N.D.
Carbon disulfide	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	2.0	N.D.
Chlorodibromomethane	2.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethyl vinyl ether	2.0	N.D.
Chloroform	2.0	N.D.
Chloromethane	5.0	N.D.
1,1-Dichloroethane	2.0	N.D.
1,2-Dichloroethane	2.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	2.0	N.D.
trans-1,2-Dichloroethene	2.0	N.D.
1,2-Dichloropropane	2.0	N.D.
cis-1,3-Dichloropropene	2.0	N.D.
trans-1,3-Dichloropropene	2.0	N.D.
Ethylbenzene	2.0	N.D.
2-Hexanone	10	N.D.
Methylene chloride	10	N.D.
4-Methyl-2-pentanone	5.0	N.D.
Styrene	2.0	N.D.
1,1,2,2-Tetrachloroethane	2.0	N.D.
Tetrachloroethene	2.0	N.D.
Toluene	2.0	N.D.
1,1,1-Trichloroethane	2.0	N.D.
1,1,2-Trichloroethane	2.0	N.D.
Trichloroethene	2.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl acetate	5.0	N.D.
Vinyl chloride	5.0	N.D.
Total Xylenes	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Surrogate Standard Recoveries:	
1,2-Dichloroethane-d4	106%
Toluene-d8	107%
4-Bromofluorobenzene	107%

Gary Steube
Laboratory Director

Del Mar Analytical

1014 E. Cooley Dr., Suite A, Co... CA 92324 (909) 370-4667 FAX (909) 370-1046
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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

ICF Kaiser Engineers	Client Project ID:	41428-002-00	Sampled:	May 3, 1994
0 Universal City Plaza, Ste. 2400		RREEF	Received:	May 3, 1994
niversal City, CA 91606	Sample Descript:	Soil, SB-11-5'	Analyzed:	May 9, 1994
ttention: Nanci Berge	Lab Number:	DE00593	Reported:	May 13, 1994

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acetone	10	56
Benzene	2.0	N.D.
Bromodichloromethane	2.0	N.D.
Bromoform	2.0	N.D.
Bromomethane	5.0	N.D.
2-Butanone	10	14
Carbon disulfide	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	2.0	N.D.
Chlorodibromomethane	2.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethyl vinyl ether	2.0	N.D.
Chloroform	2.0	N.D.
Chloromethane	5.0	N.D.
1,1-Dichloroethane	2.0	N.D.
1,2-Dichloroethane	2.0	N.D.
1-Dichloroethene	5.0	N.D.
s-1,2-Dichloroethene	2.0	N.D.
trans-1,2-Dichloroethene	2.0	N.D.
1,2-Dichloropropane	2.0	N.D.
cis-1,3-Dichloropropene	2.0	N.D.
trans-1,3-Dichloropropene	2.0	N.D.
Ethylbenzene	2.0	N.D.
2-Hexanone	10	N.D.
Methylene chloride	10	N.D.
4-Methyl-2-pentanone	5.0	N.D.
Styrene	2.0	N.D.
1,1,2,2-Tetrachloroethane	2.0	N.D.
Tetrachloroethene	2.0	N.D.
Toluene	2.0	N.D.
1,1,1-Trichloroethane	2.0	N.D.
1,1,2-Trichloroethane	2.0	N.D.
Trichloroethene	2.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl acetate	5.0	N.D.
Vinyl chloride	5.0	N.D.
Total Xylenes	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
aboratory Director

Surrogate Standard Recoveries:	
1,2-Dichloroethane-d4	116%
Toluene-d8	103%
4-Bromofluorobenzene	96%

Del Mar Analytical

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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

CF Kaiser Engineers	Client Project ID:	41428-002-00	Sampled:	May 3, 1994
Universal City Plaza, Ste. 2400		RREEF	Received:	May 3, 1994
Universal City, CA 91606	Sample Descript:	Soil, SB-12-5'	Analyzed:	May 9, 1994
Attention: Nanci Berge	Lab Number:	DE00594	Reported:	May 13, 1994

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acetone	10	N.D.
Benzene	2.0	N.D.
Bromodichloromethane	2.0	N.D.
Bromoform	2.0	N.D.
Bromomethane	5.0	N.D.
2-Butanone	10	N.D.
Carbon disulfide	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	2.0	N.D.
Chlorodibromomethane	2.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethyl vinyl ether	2.0	N.D.
Chloroform	2.0	N.D.
Chloromethane	5.0	N.D.
1,1-Dichloroethane	2.0	N.D.
1,2-Dichloroethane	2.0	N.D.
1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	2.0	N.D.
trans-1,2-Dichloroethene	2.0	N.D.
1,2-Dichloropropane	2.0	N.D.
cis-1,3-Dichloropropene	2.0	N.D.
trans-1,3-Dichloropropene	2.0	N.D.
Ethylbenzene	2.0	N.D.
2-Hexanone	10	N.D.
Methylene chloride	10	N.D.
4-Methyl-2-pentanone	5.0	N.D.
Styrene	2.0	N.D.
1,1,2,2-Tetrachloroethane	2.0	N.D.
Tetrachloroethene	2.0	N.D.
Toluene	2.0	N.D.
1,1,1-Trichloroethane	2.0	N.D.
1,1,2-Trichloroethane	2.0	N.D.
Trichloroethene	2.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl acetate	5.0	N.D.
Vinyl chloride	5.0	N.D.
Total Xylenes	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

Surrogate Standard Recoveries:	
1,2-Dichloroethane-d4	110%
Toluene-d8	100%
4-Bromofluorobenzene	107%

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ICF Kaiser Engineers
Universal City Plaza, Ste. 2400
niversal City, CA 91606
ttention: Nanci Berge

Client Project ID: 41428-002-00
RREEF
Sample Descript: Water, MW-1
Lab Number: DE00595

Sampled: May 3, 1994
Received: May 3, 1994
Analyzed: May 9, 1994
Reported: May 13, 1994

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Benzene	2.5	N.D.
Bromobenzene	2.5	N.D.
Bromochloromethane	2.5	N.D.
Bromodichloromethane	2.5	N.D.
Bromoform	2.5	N.D.
Bromomethane	2.5	N.D.
n-Butylbenzene	2.5	N.D.
sec-Butylbenzene	2.5	N.D.
tert-Butylbenzene	2.5	N.D.
Carbon tetrachloride	2.5	N.D.
Chlorobenzene	2.5	N.D.
Chloroethane	2.5	N.D.
Chloroform	2.5	N.D.
Chloromethane	2.5	N.D.
2-Chlorotoluene	2.5	N.D.
4-Chlorotoluene	2.5	N.D.
bromochloromethane	2.5	N.D.
2-Dibromo-3-chloropropane	2.5	N.D.
1,2-Dibromoethane	2.5	N.D.
Dibromomethane	2.5	N.D.
1,2-Dichlorobenzene	2.5	N.D.
1,3-Dichlorobenzene	2.5	N.D.
1,4-Dichlorobenzene	2.5	N.D.
Dichlorodifluoromethane	2.5	N.D.
1,1-Dichloroethane	2.5	N.D.
1,2-Dichloroethane	2.5	N.D.
1,1-Dichloroethene	2.5	74
cis-1,2-Dichloroethene	2.5	N.D.
trans-1,2-Dichloroethene	2.5	N.D.
1,2-Dichloropropane	2.5	N.D.
1,3-Dichloropropane	2.5	N.D.
2,2-Dichloropropane	2.5	N.D.
1,1-Dichloropropene	2.5	N.D.
cis-1,3-Dichloropropene	2.5	N.D.
trans-1,3-Dichloropropene	2.5	N.D.
Ethylbenzene	2.5	N.D.
Hexachlorobutadiene	2.5	N.D.

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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

ICF Kaiser Engineers
10 Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Client Project ID: 41428-002-00
RREEF
Sample Descript: Water, MW-1
Lab Number: DE00595

Sampled: May 3, 1994
Received: May 3, 1994
Analyzed: May 9, 1994
Reported: May 13, 1994

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Isopropylbenzene	2.5	N.D.
p-Isopropyltoluene	2.5	N.D.
Methylene chloride	5.0	N.D.
Naphthalene	2.5	N.D.
n-Propylbenzene	2.5	N.D.
Styrene	2.5	N.D.
1,1,1,2-Tetrachloroethane	2.5	17
1,1,2,2-Tetrachloroethane	2.5	N.D.
Tetrachloroethene	2.5	N.D.
Toluene	2.5	N.D.
1,2,3-Trichlorobenzene	2.5	N.D.
1,2,4-Trichlorobenzene	2.5	N.D.
1,1,1-Trichloroethane	2.5	N.D.
1,1,2-Trichloroethane	2.5	N.D.
Trichloroethene	2.5	N.D.
Trichlorofluoromethane	2.5	N.D.
1,2,3-Trichloropropane	2.5	N.D.
1,2,4-Trimethylbenzene	2.5	N.D.
1,3,5-Trimethylbenzene	2.5	N.D.
Vinyl chloride	2.5	N.D.
o-Xylene	2.5	N.D.
m,p-Xylenes	2.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Due to matrix effects and/or other factors, the sample required dilution. Detection limits for this sample have been raised by a factor of 5.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Surrogate Standard Recoveries:	
1-Chloro-2-bromopropane	78%
1-Chloro-2-fluorobenzene	95%

Gary Steube
Laboratory Director

Del Mar Analytical

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
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ICF Kaiser Engineers	Client Project ID:	41428-002-00	Sampled:	May 3, 1994
10 Universal City Plaza, Ste. 2400		RREEF	Received:	May 3, 1994
Universal City, CA 91608	Sample Descript:	Water, Trip Blank	Analyzed:	May 6, 1994
Attention: Nanci Berge	Lab Number:	DE00596	Reported:	May 13, 1994

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromochloromethane	0.50	N.D.
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dibromo-3-chloropropane	0.50	N.D.
1,2-Dibromoethane	0.50	N.D.
Dibromomethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
1,1-Dichloropropene	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Ethylbenzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.

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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
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ICF Kaiser Engineers	Client Project ID:	41428-002-00	Sampled:	May 3, 199
10 Universal City Plaza, Ste. 2400		RREEF	Received:	May 3, 199
Universal City, CA 91606	Sample Descript:	Water, Trip Blank	Analyzed:	May 6, 199
Attention: Nanci Berge	Lab Number:	DE00596	Reported:	May 13, 199

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	1.0	N.D.
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
Styrene	0.50	N.D.
1,1,1,2-Tetrachloroethane	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	0.50	N.D.
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,3-Trichloropropane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.50	N.D.
o-Xylene	0.50	N.D.
m,p-Xylenes	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Surrogate Standard Recoveries:	
1-Chloro-2-bromopropane	84%
1-Chloro-2-fluorobenzene	96%

Gary Steube
Laboratory Director

Del Mar Analytical

[illegible] CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Co[illegible] CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

ICF Kaiser Engineers	Client Project ID:	41428-002-00	Sampled:	May 3, 1994
0 Universal City Plaza, Ste. 2400		RREEF	Received:	May 3, 1994
Universal City, CA 91606	Analysis Method:	EPA 418.1 (I.R. with clean-up)	Analyzed:	May 12, 1994
Attention: Nanci Berge	First Sample #:	DE00592	Reported:	May 13, 1994

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Laboratory Number	Sample Description Soil	Petroleum Hydrocarbons mg/Kg (ppm)
DE00592	CS-1	300
DE00593	SB-11-5'	20
DE00594	SB-12-5'	21

Detection Limit:	5.0

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

Del Mar Analytical

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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
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[illegible]CF Kaiser Engineers	Client Project ID:	41428-002-00	Sampled:	May 3, 1994
[illegible]0 Universal City Plaza, Ste. 2400		RREEF	Received:	May 3, 1994
[illegible]niversal City, CA 91608	Analysis Method:	EPA 418.1 (I.R. with clean-up)	Analyzed:	May 12, 1994
[illegible]Attention: Nanci Berge	First Sample #:	DE00595	Reported:	May 13, 1994

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Laboratory Number	Sample Description Water	Petroleum Hydrocarbons mg/L (ppm)
DE00595	MW-1	N.D.

Detection Limit:	5.0

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

[illegible]

[illegible]ary Steube
[illegible]aboratory Director

Del Mar Analytical

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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

CF Kaiser Engineers
Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 9, 1994
Reported: May 13, 1994
Matrix: Soil

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acetone	10	N.D.
Benzene	2.0	N.D.
Bromodichloromethane	2.0	N.D.
Bromoform	2.0	N.D.
Bromomethane	5.0	N.D.
2-Butanone	10	N.D.
Carbon disulfide	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	2.0	N.D.
Chlorodibromomethane	2.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethyl vinyl ether	2.0	N.D.
Chloroform	2.0	N.D.
Chloromethane	5.0	N.D.
1,1-Dichloroethane	2.0	N.D.
1,2-Dichloroethane	2.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	2.0	N.D.
trans-1,2-Dichloroethene	2.0	N.D.
1,2-Dichloropropane	2.0	N.D.
cis-1,3-Dichloropropene	2.0	N.D.
trans-1,3-Dichloropropene	2.0	N.D.
Ethylbenzene	2.0	N.D.
2-Hexanone	10	N.D.
Methylene chloride	10	N.D.
4-Methyl-2-pentanone	5.0	N.D.
Styrene	2.0	N.D.
1,1,2,2-Tetrachloroethane	2.0	N.D.
Tetrachloroethene	2.0	N.D.
Toluene	2.0	N.D.
1,1,1-Trichloroethane	2.0	N.D.
1,1,2-Trichloroethane	2.0	N.D.
Trichloroethene	2.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl acetate	5.0	N.D.
Vinyl chloride	5.0	N.D.
Total Xylenes	2.0	N.D.

Analytes reported as N.D were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

Surrogate Standard Recoveries:	
1,2-Dichloroethane-d4	98%
Toluene-d8	94%
4-Bromofluorobenzene	101%

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CF Kaiser Engineers
Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 10, 1994
Reported: May 13, 1994
Matrix: Soil

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acetone	10	N.D.
Benzene	2.0	N.D.
Bromodichloromethane	2.0	N.D.
Bromoform	2.0	N.D.
Bromomethane	5.0	N.D.
2-Butanone	10	N.D.
Carbon disulfide	5.0	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	2.0	N.D.
Chlorodibromomethane	2.0	N.D.
Chloroethane	5.0	N.D.
2-Chloroethyl vinyl ether	2.0	N.D.
Chloroform	2.0	N.D.
Chloromethane	5.0	N.D.
1,1-Dichloroethane	2.0	N.D.
1,2-Dichloroethane	2.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	2.0	N.D.
trans-1,2-Dichloroethene	2.0	N.D.
1,2-Dichloropropane	2.0	N.D.
cis-1,3-Dichloropropene	2.0	N.D.
trans-1,3-Dichloropropene	2.0	N.D.
Ethylbenzene	2.0	N.D.
2-Hexanone	10	N.D.
Methylene chloride	10	N.D.
4-Methyl-2-pentanone	5.0	N.D.
Styrene	2.0	N.D.
1,1,2,2-Tetrachloroethane	2.0	N.D.
Tetrachloroethene	2.0	N.D.
Toluene	2.0	N.D.
1,1,1-Trichloroethane	2.0	N.D.
1,1,2-Trichloroethane	2.0	N.D.
Trichloroethene	2.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl acetate	5.0	N.D.
Vinyl chloride	5.0	N.D.
Total Xylenes	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

Surrogate Standard Recoveries:	
1,2-Dichloroethane-d4	98%
Toluene-d8	101%
4-Bromofluorobenzene	107%

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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

'CF Kaiser Engineers
J Universal City Plaza, Ste. 2400
niversal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 6, 1994
Reported: May 13, 1994
Matrix: Water

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromochloromethane	0.50	N.D.
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
bromochloromethane	0.50	N.D.
2-Dibromo-3-chloropropane	0.50	N.D.
1,2-Dibromoethane	0.50	N.D.
Dibromomethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
1,1-Dichloropropene	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Ethylbenzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.

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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

ICF Kaiser Engineers
10 Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 6, 1994
Reported: May 13, 1994
Matrix: Water

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	1.0	N.D.
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
Styrene	0.50	N.D.
1,1,1,2-Tetrachloroethane	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	0.50	N.D.
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,3-Trichloropropane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.50	N.D.
o-Xylene	0.50	N.D.
m,p-Xylenes	0.50	N.D.

Analytes reported as N.D were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Surrogate Standard Recoveries:	
1-Chloro-2-bromopropane	85%
1-Chloro-2-fluorobenzene	96%

Gary Steube
Laboratory Director

Del Mar Analytical

1014 E. Cooley Dr., Suite A, Co. CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

ICF Kaiser Engineers
0 Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 9, 1994
Reported: May 13, 1994
Matrix: Water

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Benzene	0.50	N.D.
Bromobenzene	0.50	N.D.
Bromochloromethane	0.50	N.D.
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	0.50	N.D.
n-Butylbenzene	0.50	N.D.
sec-Butylbenzene	0.50	N.D.
tert-Butylbenzene	0.50	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	0.50	N.D.
Chloroform	0.50	N.D.
Chloromethane	0.50	N.D.
2-Chlorotoluene	0.50	N.D.
4-Chlorotoluene	0.50	N.D.
ibromochloromethane	0.50	N.D.
.2-Dibromo-3-chloropropane	0.50	N.D.
1.2-Dibromoethane	0.50	N.D.
Dibromomethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
Dichlorodifluoromethane	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
1,3-Dichloropropane	0.50	N.D.
2,2-Dichloropropane	0.50	N.D.
1,1-Dichloropropene	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Ethylbenzene	0.50	N.D.
Hexachlorobutadiene	0.50	N.D.

Del Mar Analytical

2852 Alton Ave., Irvine CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Co. CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

CF Kaiser Engineers
0 Universal City Plaza, Ste. 2400
Universal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 9, 1994
Reported: May 13, 1994
Matrix: Water

VOLATILE ORGANIC COMPOUNDS (EPA 502.2)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Isopropylbenzene	0.50	N.D.
p-Isopropyltoluene	0.50	N.D.
Methylene chloride	1.0	N.D.
Naphthalene	0.50	N.D.
n-Propylbenzene	0.50	N.D.
Styrene	0.50	N.D.
1,1,1,2-Tetrachloroethane	0.50	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
Toluene	0.50	N.D.
1,2,3-Trichlorobenzene	0.50	N.D.
1,2,4-Trichlorobenzene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
1,2,3-Trichloropropane	0.50	N.D.
1,2,4-Trimethylbenzene	0.50	N.D.
1,3,5-Trimethylbenzene	0.50	N.D.
Vinyl chloride	0.50	N.D.
o-Xylene	0.50	N.D.
m,p-Xylenes	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Surrogate Standard Recoveries:	
1-Chloro-2-bromopropane	80%
1-Chloro-2-fluorobenzene	97%

Kim Martel for

Gary Steube
Laboratory Director

Del Mar Analytical

2852 Alton Ave., Irvine CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Co A 92324 (909) 370-4667 FAX (909) 370-1046
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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

F Kaiser Engineers
Universal City Plaza, Ste. 2400
iversal City, CA 91608
Attention: Nanci Berge

Method Blank

Analyzed: May 12, 1994
Reported: May 13, 1994
Matrix: Soil

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Laboratory Description	Petroleum Hydrocarbons mg/Kg (ppm)
Method Blank	N.D.

Detection Limit:	5.0

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

ary Steube
aboratory Director

Del Mar Analytical

[illegible] Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Col A 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

'CF Kaiser Engineers
) Universal City Plaza, Ste. 2400
niversal City, CA 91606
Attention: Nanci Berge

Method Blank

Analyzed: May 12, 1994
Reported: May 13, 1994
Matrix: Water

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Laboratory Description	Petroleum Hydrocarbons mg/L (ppm)
Method Blank	N.D.

Detection Limit:	1.0

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

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ary Steube
.boratory Director

Del Mar Analytical

1014 E. Cooley Dr., Suite A, Colo 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

QC DATA REPORT

EPA METHOD: 8240
Matrix Soil

DATE: 5/9/94

SAMPLE # DE00137

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	MEAN PR
	ppb	ppb	ppb	ppb	%	%	%	%
1,1-Dichloroethene	0	50	41	44	82%	88%	7.1%	85%
Trichloroethene	0	50	39	40	78%	80%	2.5%	79%
Chlorobenzene	0	50	43	44	86%	88%	2.3%	87%
Benzene	0	50	46	49	92%	98%	6.3%	95%
Toluene	0	50	44	44	88%	88%	0.0%	88%

Definition of Terms:

R1..... Result of Sample Analysis

Sp..... Spike Concentration Added to Sample

MS..... Matrix Spike Result

MSD..... Matrix Spike Duplicate Result

PR1..... Percent Recovery of MS; ((MS-R1) / SP) X 100

PR2..... Percent Recovery of MSD; ((MSD-R1) / SP) X 100

RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2)) X 100

Del Mar Analytical

Del Mar Analytical

1014 E. Cooley Dr., Suite A, Col A 92324 (909) 370-4667 FAX (909) 370-1046
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QC DATA REPORT

EPA METHOD: 502.2

DATE: 5/9/94

SAMPLE # DE00695

Analyte	R1	Sp	MS	PR
	ppb	ppb	ppb	%
Benzene	0	10	10	100%
Carbon Tetrachloride	0	10	10	100%
1-1 Dichloroethane	0	10	10	100%
Naphthalene	0	10	10	100%
Trichloroethene	0	10	9	90%

Definition of Terms:

R1..... Result of Sample Analysis

Sp..... Spike Concentration Added to Sample

MS..... Matrix Spike Result

MSD..... Matrix Spike Duplicate Result

PR..... Percent Recovery of MS; (MS-R1) / SP X 100

Del Mar Analytical

Del Mar Analytical

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
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QC DATA REPORT

EPA METHOD: 418.1
Matrix: Soil

DATE: 5/12/94

SAMPLE # DE00402

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	MEAN PR
	ppm	ppm	ppm	ppm	%	%	%	%
Hydrocarbons	0	60	57	62	95%	103%	8.4%	99%

Definition of Terms:

R1..... Result of Sample Analysis

Sp..... Spike Concentration Added to Sample

MS..... Matrix Spike Result

MSD..... Matrix Spike Duplicate Result

PR1..... Percent Recovery of MS; ((MS-R1) / SP) X 100

PR2..... Percent Recovery of MSD; ((MSD-R1) / SP) X 100

RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2)) X 100

Del Mar Analytical

ICF KAISER ENGINEERS

CHAIN OF CUSTODY RECORD

NO. 0746

T. DESERAN

FOR LABORATORY USE ONLY	
Laboratory Project No.:	Secured: Yes ___ No ___
Storage Refrigerator ID:	
Storage Freezer ID:	

Project Name: REEF Project #: 41428-002-CC Sampler: N. STEEKE (Printed Name) T. Deseran (Signature)

Relinquished by: TINA DESERAN T. Deseran	Received by: FEDEX		Date: 31 May 94	Time: 2:53 pm
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)		Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)		Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)		Date:	Time:

SHIP TO LAB:

Method of Shipment: Courier

Shipment ID:

Circle or Add Analysis(es) Requested

a=Identify specific metals requested under Special Instructions

	Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCBs-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC)	TPH/D (Diesel-GC)	418.1 (TPH-IR)	6015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Nitrate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	TOC 502.2			TAT	Container(s) #	Container(s) Type	FOR LAB USE ONLY: Lab ID
1	CS-1	5-31-94	0113	Soil 1½'						X			X												2	1	B	
2	SB-11		0940	↓ 5'						X			X												2	1	B	
3	SB-12		1000	↓ 5'						X			X												2	1	B	
4	MW-1		0530	Water									X												2	1	A	
5	MW-1		0530	↓																	X				2	2	V	
6																												
7																												
8																												
9																												
10																												

Special Instructions/Comments:

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1=24 hours 2=48 hours 3=1 week 4=2 weeks
Container Types: B=Brass Tube V=VOA Vial A=1-Liter Amber G=Glass Jar C=Cassette
O=Other

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO:
ATTENTION: NANCI BERG

ICF KAISER ENGINEERS
10 UNIVERSAL CITY PLAZA
SUITE 2400
UNIVERSAL CITY, CALIFORNIA 91608
(818) 509-3100 FAX (818) 509-3137