



**OHM Remediation Services Corp.**

3347 Michelson Drive, Suite 200

Irvine, CA 92612-1692

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A Member of The IT Group

M60050.002525

MCAS EL TORO

SSIC #5090.3

April 25, 2000

Ms. Bozier H. Demaree  
Contracting Officer  
Naval Facilities Engineering Command  
Southwest Division  
1220 Pacific Highway  
San Diego, California 92132-5190

Attn: Ms. Lynn Hornecker

**Subject: Results of Analysis from Storm Drain Following January 20, 2000 Release  
Contract N68711-93-D-1459, Delivery Order 70,  
Remediation of Various UST, AOC and RFA Sites, MCAS El Toro**

Dear Ms. Hornecker:

**INTRODUCTION**

The attached results document the analytical results for the samples collected following the release of hydrocarbon-contaminated water and fuel from the JP-5 pipeline at MAG 11. These samples were collected on Friday, January 21, 2000 and analyzed for petroleum hydrocarbons and pesticides. A second set of samples was collected on Monday, January 24, 2000 and analyzed for volatile organic compounds (VOCs), pesticides and PCBs, and semivolatiles compounds.

Samples were collected from five locations on January 21, 2000 and three locations on January 24, 2000:

- Point 1 = Bee Canyon outfall below dam at collection basin
- Point 2 = Bee Canyon outfall above dam at collection basin
- Point 3 = Bee Canyon outfall 100 ft above dam (at Culvert by Marine Way)
- Point 4 = MAG 11 pipeline at UST 902-1
- Point 5 = Catch Basin in Taxiway, (before Bee Canyon)

Point 4 was sampled to identify the approximate concentration and characteristics of the dissolved phase hydrocarbons in the pipeline that leaked. The sample that was collected from Point 4 is considered to be representative of the materials released. The Point 5 sample was collected from the water that collected while the flow was stopped by sandbags placed into the outflow channel prior to the pressure washing and vacuuming out of the catch basin. Sample Points 2 and 3 were collected from the two extremes of the collection pond at the Bee Canyon wash outfall. Point 1 was collected in cloudy water that was located immediately below the weir in the first ponding area.

**ANALYTICAL RESULTS**

The relative TPH concentrations, plotted on Figure 1 and shown in Table 1, show a pattern that is supportive of the release not reaching the outfall, as was originally suspected. Table 2 presents the complete results (TPH and pesticides) for the samples collected on January 21, 2000. No pesticides were found above the reporting limit, however, alpha-BHC was identified at estimated values (0.039 or 0.57 µg/L) in the samples immediately below and above the weir, respectively.

**Table 1 – Summary Analytical Sample Results**

Location/Sample No.	Description	Concentration (mg/L)
Point 4/ 18609-2720	Pipeline at 902	920,000
Point 5/18609-2721	Catch Basin Prior to Bee Cy	19 (unknown peak)
Point 3/18609-2719	Bee Cyn at Marine Way	2.7
Point 2/18609-2718	Bee Cyn at Weir/Dam	1.3
Point 1/18609-2717	Bee Cyn after Weir/Dam	4,900 (weathered JP-5)

The samples collected on Monday, January 24, 2000, were analyzed for volatile organic compounds (VOC), pesticides/PCBs, and semivolatile organic compounds (SVOC). No VOC or SVOC or PCBs were found. Pesticides were generally below the reporting limit with a few exceptions (aldrin at .061 µg/L below the weir and .029 µg/L above the weir). Additional pesticide components delta -BHC, DDT, and aldrin were present in the water sampled at Point 3, where the different culverts converge into the collection pond.

**EVALUATION OF RESULTS**

The concentration at the site of the release, (Point 4) was very high, at 920,000 mg/L. However, the samples between the release point and the Bee Canyon Outfall show very low concentrations that are consistent with the belief that a majority of the free hydrocarbon (JP-5) was absorbed in the asphalt at the point of release.

The concentration at the dam in the collection pond at Bee Canyon (Point 2) and at the inlet to the collection pond (Point 3) are not significantly elevated (2.7 and 1.3mg/L respectively). The sample collected in the last catch basin with the observed sheen (Point 5) was found to have 9.7 mg/L of hydrocarbon present.

The elevated concentration at Point 1 (4,900 mg/L) appears out of place with the low concentrations found in the water immediately above that point (behind the weir). A comparison of the chromatograms between the analysis for Point 4 and Point 1 was made to determine if the species of hydrocarbons present in the two samples were similar. Copies of the chromatograms, enlarged to show details, are included as Figure 2. Table 2 summarizes the analytical data and the analytical results and chromatograms are included as Attachment 1.

The review of these chromatograms clearly shows a shift in the species present between the two samples. The JP-5 pipeline sample (18609-2720) has a spectra that includes a large number of peaks (i.e. chemical components) that fall in the 6.592 to 8.142 minute range. These components are considered light-end hydrocarbons. The Bee Canyon Wash after the Weir sample (18609-2717) shows a noticeable reduction in the peaks from the 6.683 to 9.042 minute range. The reduction is typical of the natural degradation that happens due to volatilization and biodegradation processes. The sample collected in the catch basin

(18609-2721) still shows the presence of a large number of the light-end hydrocarbons that were present in the pipeline sample.

During the visit to the Bee Canyon Wash on Friday, January 21, 2000, biogrowth was observed in several areas in the collection basin as well as in the water downstream from the weir. This biogrowth has apparently been accumulated over a long period of time, due to the extent observed.

#### **SUMMARY OF RESPONSE ACTIONS**

Following the release a number of responses were identified. These actions have all been completed and include the following:

- Placement of sandbags, absorbent pads and booms,
- cleaning of the storm drains,
- activation and continuous operation of the skimmer system in the Bee Canyon collection pond,
- Removal of 1,300 gallons of water with sheen from Bee Canyon.
- Monitoring of the absorbent booms in Bee Canyon Wash and replacement when saturated (booms were changed once due to storm debris damage, but were not saturated with hydrocarbons.)
- No hydrocarbons were observed on the absorbent boom in the Agua Chinon Wash, and the boom was removed due to storm water discharges.
- The pipeline was drained, hydrotested and finally filled with slurry without any further incidents. Work was completed in February 2000.

#### **CONCLUSIONS**

Based on the analytical results and evaluation of the data, OHM believes that the fluids released on January 20, 2000 did not contribute significantly to the concentration of hydrocarbons in the Bee Canyon Wash. The dry weather preceding the release may have reduced the out flow at Bee Canyon sufficiently to allow the concentration of hydrocarbons to increase gradually as it accumulated in the pond. Several other streams with sheen were noticed during the investigation of the storm drains. It is possible that the residual hydrocarbons identified in the sample downstream of the weir were the residuals from other activities.

No long-term impacts from the release were noticed.

If you have any questions please call the undersigned at (949) 660-5446.

Sincerely,



William Sedlak  
Sr. Project Manager

#### **Attachments**

Figures 1 and 2 and Table 2  
Attachment 1 – Analytical Data

Cc: Lucretria Holloway, SWDIV, COTR (1C/1E)  
Dean Gould, BEC, MCAS El Toro (1C/1E)  
OHM PMO File (1C/1E)  
Project File, Correspondence B.01



**OHM Remediation Services Corp.**

A Subsidiary of OHM Corporation

**OHM TRANSMITTAL/DELIVERABLE RECEIPT**

**CONTRACT N68711-93-D-1459**

**DOCUMENT CONTROL NO: SW8027**

**TO:** Contracting Officer  
Naval Facilities Engineering Command  
Southwest Division  
Bozier H. Demaree, Code 02R1BD  
1220 Pacific Highway  
San Diego, California 92132-5190

**Date:** 03-May-00

**D.O.:** 70

**Location:** MCAS EL TORO

**FROM:** \_\_\_\_\_  
Stewart Bornhoft, Program Manager

*Edwin G. Bond*  
Edwin G. Bond, Contracts Manager

**DESCRIPTION OF ENCLOSURE:** *Results of Analysis from Storm Drain Following January 20, 2000 Release, Remediation of Various UST, AOC and RFA Sites, dated April 25, 2000*

**TYPE:** Contract Deliverable ( ) D. O. Deliverable (X) Request for Change ( ) Other ( )  
( \$ ) (Tech)

**VERSION:** FINAL

**REVISION:** 0

**ADMIN RECORD:** Yes ( ) No (X) Category ( ) Confidential ( )

**SCHEDULED DELIVERY DATE:** 03-May-00 **ACTUAL DELIVERY DATE:** 03-May-00

**NUMBER OF COPIES SUBMITTED TO THE NAVY:** 1/O, 4/C, 3/E

[AS REQUIRED/DIRECTED BY THE (SOW)]

**COPIES TO:**

SWDIV

OHM

OTHER

Name, Code

Name, Location

Name, Company, Location

L. Holloway, 03ENLH (1C/1E)

File (1C/1E)

L. Hornecker, 06CCLH (1C/1E)

Chron (1C)

D. Gould, 06CCGD (1C/1E)

W. Sedlak, Irv (1C/1E)

G. Tinker, 06CCGT (1C)

Date/Time Received: \_\_\_\_\_ / \_\_\_\_\_

**FIGURES**

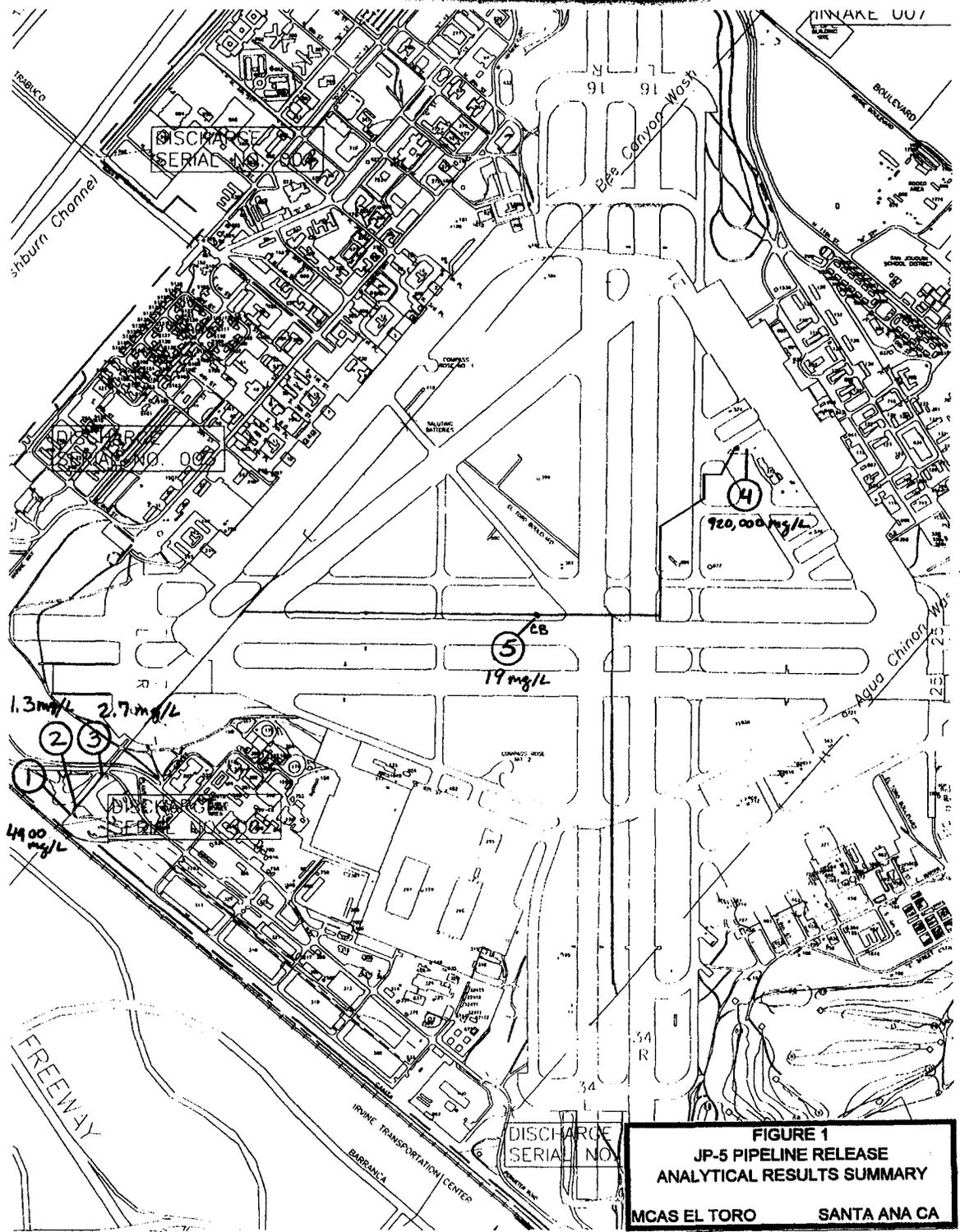
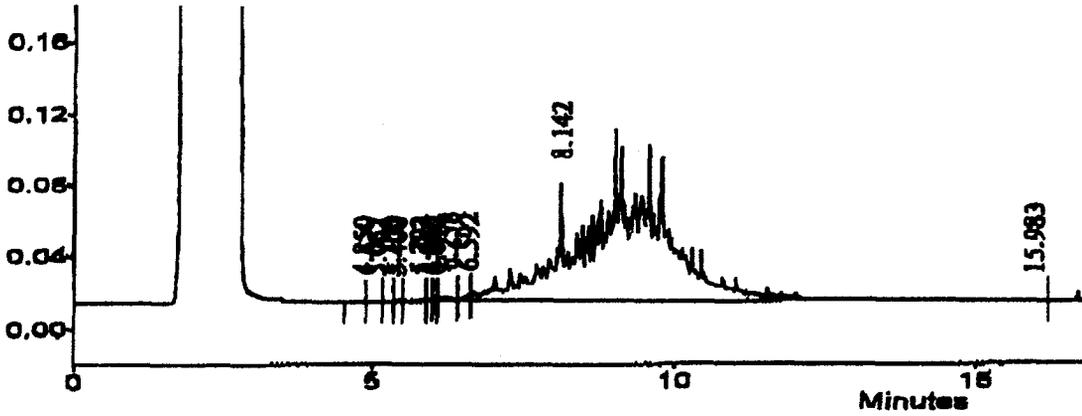
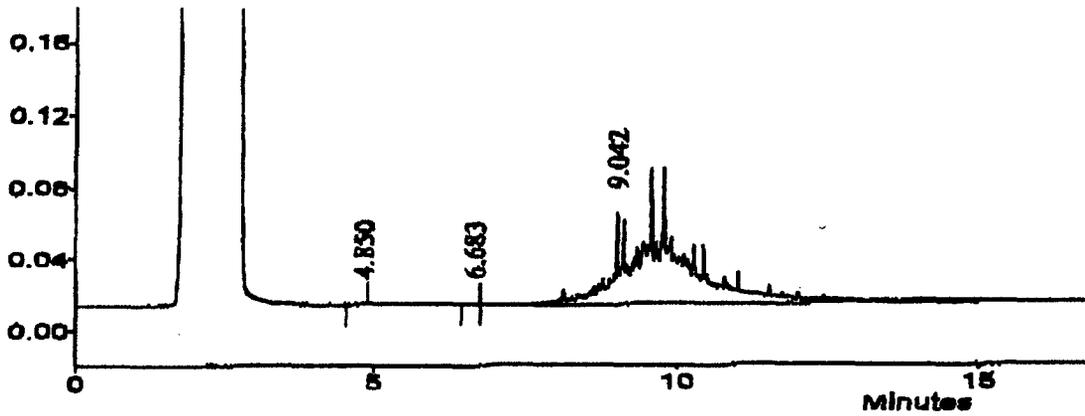


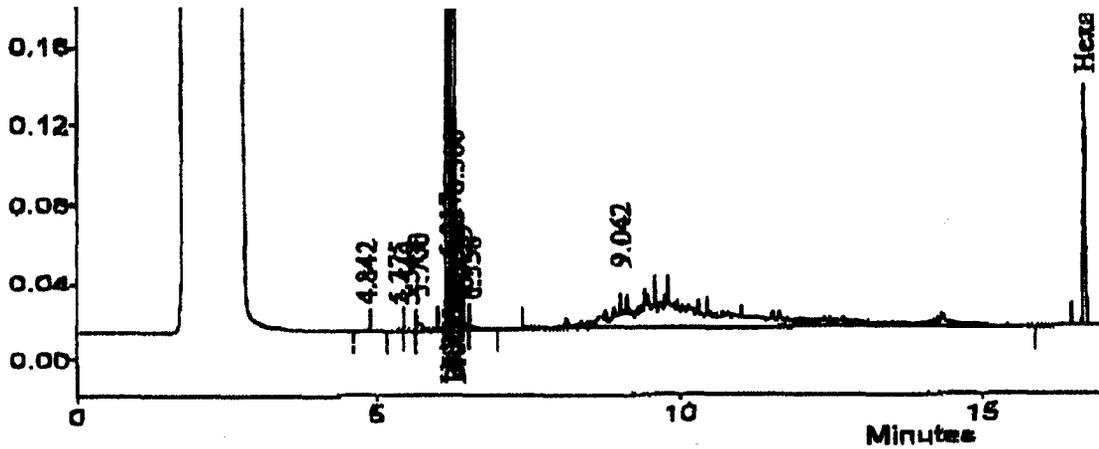
FIGURE 2: CHROMATOGRAMS OF SAMPLES



CHROMATOGRAM FOR 18609-2720 - JP-5 PIPELINE



CHROMATOGRAM FOR 18609-2717 - BEE CANYON WASH AFTER WEIR



CHROMATOGRAM FOR 18609-2721 - CATCH BASIN

**Table 2**  
**Summary of Analytical Results for Bee Canyon Outfall**

OHM Sample Number		18609-2717	18609-2718	18609-2719	18609-2720	18609-2721	18609-2721 DL
Sample Location		Bee Cyn Point 1	Bee Cyn Point 2	Bee Cyn Point 3	Bee Cyn Point 4	Bee Cyn Point 5	Bee Cyn Point 5
Date Collected		01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
<b>CA LUFT 8015M</b>	Unit						
TPH	mg/L						
TPH Extractable	mg/L	4900	1.3 **	2.7 **	920000	9.7 **	19 **
<b>EPA 8081</b>	Unit						
alpha-BHC	µg/L	0.11 J	0.095 J	0.015 U	NA	NA	NA
beta-BHC	µg/L	0.97	0.22	0.071 J	NA	NA	NA
delta-BHC	µg/L	0.11 J	0.012 U	0.013 U	NA	NA	NA
gamma-BHC (Lindane)	µg/L	0.18 J	0.012 U	0.013 U	NA	NA	NA
alpha-Chlordane	µg/L	0.029 U	0.024 U	0.024 U	NA	NA	NA
gamma-Chlordane	µg/L	0.021 U	0.021 U	0.021 U	NA	NA	NA
4,4'-DDD	µg/L	0.031 U	0.032 U	0.032 U	NA	NA	NA
4,4'-DDE	µg/L	0.039 J	0.021 U	0.021 U	NA	NA	NA
4,4'-DDT	µg/L	0.017 U	0.017 U	0.017 U	NA	NA	NA
Aldrin	µg/L	0.084	0.012 U	0.012 U	NA	NA	NA
Dieldrin	µg/L	0.01 U	0.011 U	0.011 U	NA	NA	NA
Endosulfan I	µg/L	0.029 U	0.03 U	0.03 U	NA	NA	NA
Endosulfan II	µg/L	0.02 U	0.02 U	0.02 U	NA	NA	NA
Endosulfan Sulfate	µg/L	0.018 U	0.018 U	0.018 U	NA	NA	NA
Endrin	µg/L	0.015 U	0.015 U	0.016 U	NA	NA	NA
Endrin Aldehyde	µg/L	0.023 U	0.023 U	0.023 U	NA	NA	NA
Heptachlor	µg/L	0.014 U	0.052 J	0.047 J	NA	NA	NA
Heptachlor Epoxide	µg/L	0.019 U	0.019 U	0.019 U	NA	NA	NA
Methoxychlor	µg/L	0.011 U	0.012 U	0.012 U	NA	NA	NA
PCB-1016	µg/L	0.55 U	0.56 U	0.57 U	NA	NA	NA
PCB-1221	µg/L	0.78 U	0.8 U	0.81 U	NA	NA	NA
PCB-1232	µg/L	1.1 U	1.1 U	1.1 U	NA	NA	NA
PCB-1242	µg/L	0.36 U	0.37 U	0.38 U	NA	NA	NA
PCB-1248	µg/L	0.44 U	0.45 U	0.45 U	NA	NA	NA
PCB-1254	µg/L	0.41 U	0.41 U	0.42 U	NA	NA	NA
PCB-1260	µg/L	0.28 U	0.29 U	0.29 U	NA	NA	NA
Toxaphene	µg/L	0.11 U	0.12 U	0.12 U	NA	NA	NA

NOTES:

- \*\* calculated as diesel, and unknown peak was included
- Chromatogram shows a mixture of JP-5 and diesel. All results quantitated from diesel calibration factor.
- Point 1 = Bee Canyon outfall below dam
- Point 2 = Bee Canyon outfall above dam
- Point 3 = Bee Canyon outfall 100 ft above dam (at Culvert)
- Point 4 = MAG 11 pipeline at UST 902-1
- Point 5 = Catch Basin in Taxiway, (before Bee Canyon)

**ATTACHMENT 1**



TPHE



IT Corporation  
2790 Mosside Blvd.  
Monroeville, PA 15146-2792  
(412)372-7701

CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY  
A 10656

FORM 0019 REV. 9-99

LAB COORDINATOR M. Williams	LAB COORDINATOR'S PHONE 412-600-7550	LAB COORDINATOR'S FAX 412-475-5433	LABORATORY SERVICE ID A088	LABORATORY CONTACT EMHX	MAIL REPORT (COMPANY NAME) IT Group
PROJECT NAME 100-1072	PROJECT LOCATION MCHS ELToro	PROJECT NUMBER 18609	LABORATORY PHONE 310-618-8889	LABORATORY FAX	RECIPIENT NAME Dwayne Shiden
PROJECT CONTACT M. Williams	PROJECT PHONE NUMBER 412-451-11667	PROJECT FAX 412-475-5433	LABORATORY ADDRESS 630 Maple Ave.		ADDRESS 3347 Michelson #200
PROJECT ADDRESS	CITY, STATE AND ZIP CODE	CLIENT SWDIV	CITY, STATE AND ZIP CODE ORANGE, CA		CITY, STATE AND ZIP CODE Irvine, CA 92612

PROJECT MANAGER B. Sejuk	PROJECT MANAGER'S PHONE 412-600-5446	PROJECT MANAGER'S FAX	Analyzes TH DECEL TH 2PSS EPA 8081 GADP		
-----------------------------	---	-----------------------	---	--	--

Sample Identifier	Matrix	Date	Time	Temp	Preserved	# of Cont.	QC Level	T.A.T.	Analyzes					Comments	
									TH DECEL	TH 2PSS	EPA 8081	GADP			
18609 - 277	W	1/21/00	820	4°C	2	3	48hr	X	X	X					
18609 - 278	W	1/21/00	0845	4°C	2	3	48hr	X	X	X					
18609 - 279	W	1/21/00	0850	4°C	2	3	48hr	X	X	X					
18609 - 2720	W	1/21/00	0920	4°C	2	3	48hr	X	X						Mostly Product, expect high concentrations
18609 - 2721	W	1/21/00	1100	4°C	2	5	48hr	X	X						

SAMPLES COLLECTED BY M. Williams	COURIER AND AIR BILL NUMBER CORTEX	COOLER TEMPERATURE UPON RECEIPT
RELINQUISHED BY B. Sejuk	RECEIVED BY R. Williams	SAMPLE'S CONDITION UPON RECEIPT
DATE 1/21/00	TIME 1230	

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Manilla - Project Data Manager

Project Information Section  
For Project Personnel Only  
Do Not Submit to Laboratory

Sample Point Location	Sample Type			
	G	C	F	QC
1- BEE CANYON	X			
OUT Fall-BEOW DM				
2- Bee Canyon	X			
out Fall- Above Dam				
3- Bee Canyon	X			
out Fall- 100ft above Dam				
@ 902-1 Pipe line #1	X			
@ Downstream Catch Basin	X			

Comments

Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample

# EMAX

LABORATORIES, INC.

630 Maple Ave.

Torrance, CA 90503

Telephone: (310) 618-8889

Fax: (310) 618-0818

Date: 02-06-2000

EMAX Batch No.: 00A088

Attn: Dwayne Ishida

IT Corporation

3347 Michelson Dr. # 200

Irvine CA 92612

Subject: Laboratory Report

Project: MCAS El Toro/18609/D.O. 70

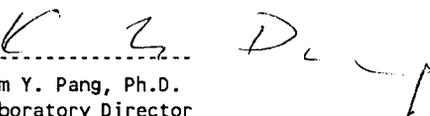
-----  
Enclosed is the Laboratory report for samples received on  
01/21/00. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
18609-2717	A088-01	01/21/00	Water	Modified 8015 by Extraction
18609-2718	A088-02	01/21/00	Water	Modified 8015 by Extraction
18609-2719	A088-03	01/21/00	Water	Modified 8015 by Extraction
18609-2720	A088-04	01/21/00	Water	Modified 8015 by Extraction
18609-2721	A088-05	01/21/00	Water	Modified 8015 by Extraction

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

  
-----  
Kam Y. Pang, Ph.D.  
Laboratory Director

METHOD M8015  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : IT CORPORATION  
Project : MCAS EL TORO/18609/D.O. 70  
Batch No. : 00A088

Matrix : WATER  
Instrument ID : GCT019

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	SUR1 (%)	SUR2 (%)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	DSA036WB	ND	69	79	1	NA	.1	.038	01/26/0004:26	01/22/0015:00	TA11029A	TA11025A	DSA036W	NA	01/22/00
LCS1W	DSA036WL	5.05	72	76	1	NA	.1	.038	01/26/0005:03	01/22/0015:00	TA11030A	TA11025A	DSA036W	NA	01/22/00
LCD1W	DSA036WC	4.87	67	75	1	NA	.1	.038	01/26/0005:40	01/22/0015:00	TA11031A	TA11025A	DSA036W	NA	01/22/00
18609-2717	A088-01	4900	DO	DO	1900	NA	190	72.2	01/26/0013:07	01/22/0015:00	TA11043A	TA11038A	DSA036W	01/21/00	01/21/00
18609-2718	A088-02	1.3**	67	74	.97	NA	.097	.0369	01/26/0011:52	01/22/0015:00	TA11041A	TA11038A	DSA036W	01/21/00	01/21/00
18609-2719	A088-03	2.7**	69	74	.99	NA	.099	.0376	01/26/0007:31	01/22/0015:00	TA11034A	TA11025A	DSA036W	01/21/00	01/21/00
18609-2720	A088-04	920000	DO	DO	200000	NA	20000	7600	01/26/0008:09	01/22/0015:00	TA11035A	TA11025A	DSA036W	01/21/00	01/21/00
18609-2721	A088-05	9.7**	274***	66	4.8	NA	.48	.182	01/26/0013:44	01/22/0015:00	TA11044A	TA11038A	DSA036W	01/21/00	01/21/00
18609-2721DL	A088-05T	19**	DO	DO	190	NA	19	7.22	01/26/0008:46	01/22/0015:00	TA11036A	TA11025A	DSA036W	01/21/00	01/21/00

QC LIMIT : (SOIL) 60-140 55-150  
QC LIMIT : (WATER) 65-135 60-145

SURR1 : Bromobenzene  
SURR2 : Hexacosane

RL : Reporting Limit

DO : Diluted Out

\*\* : Results were calculated as diesel and unknown peak was included

\*\*\* : Matrix interference

NOTE : Chromatogram shows a mixture of JP5 and diesel. All results were quantitated from diesel calibration factor.

Unknown discrete peak in A088-05 is saturated. Dilution run of A088-05T was not represented result for TPH analysis due to high dilution required for the unknown peak. Results of TPH in A088-05 calculated only from fuel pattern range is detected at 6.9mg/L.

5004

EMAX QUALITY CONTROL DATA  
LCS/LCD ANALYSIS

CLIENT: IT CORPORATION  
PROJECT: MCAS EL TORO/18609/D.O. 70  
CH NO.: 00A088  
METHOD: METHOD M8015

MATRIX: WATER % MOISTURE: NA  
DILUTION FACTOR: 1 1 1  
SAMPLE ID: MBLK1W  
LAB SAMP ID: DSA036WB DSA036WL DSA036WC  
LAB FILE ID: TA11029A TA11030A TA11031A  
DATE EXTRACTED: 01/22/0015:00 01/22/0015:00 01/22/0015:00 DATE COLLECTED: NA  
DATE ANALYZED: 01/26/0004:26 01/26/0005:03 01/26/0005:40 DATE RECEIVED: 01/22/00  
PREP. BATCH: DSA036W DSA036W DSA036W  
CALIB. REF: TA11025A TA11025A TA11025A

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD ( % )	QC LIMIT ( % )	MAX RPD ( % )
Diesel	ND	5	5.05	101	5	4.87	97	4	61-143	30

SURROGATE PARAMETER	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	QC LIMIT ( % )
Bromobenzene	1	.721	72	1	.667	67	65-135
Hexacosane	1	.764	76	1	.749	75	60-145

# EMAX

LABORATORIES, INC.

630 Maple Ave.  
Torrance, CA 90503

Telephone: (310) 618-8889  
Fax: (310) 618-0818

Date: 02-14-2000  
EMAX Batch No.: 00A088A

Attn: Dwayne Ishida

IT Corporation  
3347 Michelson Dr. # 200  
Irvine CA 92612

Subject: Laboratory Report  
Project: MCAS El Toro/18609/D.O. 70

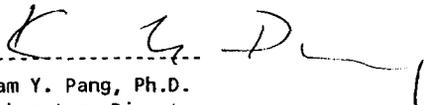
-----  
Enclosed is the Laboratory report for samples received on  
01/21/00 and requested on 01/24/2000. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
18609-2717	A088-01	01/21/00	Water	Pesticides and PCBs by GC
18609-2718	A088-02	01/21/00	Water	Pesticides and PCBs by GC
18609-2719	A088-03	01/21/00	Water	Pesticides and PCBs by GC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

  
-----  
Kam Y. Pang, Ph.D.  
Laboratory Director

SW3520B/8081  
PESTICIDES/PCBS

```

=====
Client      : IT CORPORATION           Date Collected: 01/21/00
Project     : MCAS EL TORO/18609/D.O. 70 Date Received: 01/21/00
Batch No.   : 00A088A                 Date Extracted: 01/25/00 16:30
Sample ID   : 18609-2717              Date Analyzed: 01/27/00 09:28
Lab Samp ID : A088-01                 Dilution Factor: .94
Lab File ID : WA26030A                Matrix          : WATER
Ext Btch ID : CPA022W                 % Moisture      : NA
Calib. Ref.: WA26023A                Instrument ID   : GCT016
=====

```

PARAMETERS	RESULTS	PQL	MDL
	(ug/L)	(ug/L)	(ug/L)
ALPHA-BHC	.11J .039J)	.33	.014 .019
GAMMA-BHC (LINDANE)	(ND) .18J	.24	.012 .02
BETA-BHC	.97 (ND)	.22	.017 .024
HEPTACHLOR	(ND) ND	.38	.014 .03
DELTA-BHC	(ND) .11J	.23	.012 .011
ALDRIN	(ND) .084	.028	.011 .01
HEPTACHLOR EPOXIDE	(ND) ND	.3	.019 .044
GAMMA-CHLORDANE	(ND) ND	.35	.021 .019
ALPHA-CHLORDANE	(ND) ND	.75	.024 .025
ENDOSULFAN I	(ND) ND	.28	.029 .017
4,4'-DDE	(ND) .039J	.47	.021 .02
DIELDRIN	(ND) ND	.41	.01 .011
ENDRIN	(ND) ND	.37	.015 .11
4,4'-DDD	(ND) ND	.47	.031 .019
ENDOSULFAN II	(ND) ND	.38	.02 .024
4,4'-DDT	(ND) ND	.094	.017 .022
ENDRIN ALDEHYDE	(ND) ND	.47	.023 .023
ENDOSULFAN SULFATE	(ND) ND	.33	.018 .019
HEPTACHLOR	(ND) ND	.81	.011 .012
TOXAPHENE	(ND) ND	1.9	.11 .11
PCB-1016	(ND) ND	1.9	.55 .54
PCB-1221	(ND) ND	1.9	.78 .57
PCB-1232	(ND) ND	.94	1.1 .78
PCB-1242	(ND) ND	.94	.36 .54
PCB-1248	(ND) ND	.94	.44 .23
PCB-1254	(ND) ND	.94	.41 .33
PCB-1260	(ND) ND	.94	.28 .47
SURROGATE PARAMETERS			
	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(108) 85	45-125	
DECACHLOROBIPHENYL	72 (85)	34-133	

PQL: Practical Quantitation Limit

Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520B/8081  
PESTICIDES/PCBS

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=====
nt       : IT CORPORATION           Date Collected: 01/21/00
ject     : MCAS EL TORO/18609/D.O. 70 Date Received: 01/21/00
Batch No. : 00A088A                 Date Extracted: 01/25/00 16:30
Sample ID : 18609-2718              Date Analyzed: 01/27/00 09:54
Lab Samp ID: A088-02                Dilution Factor: .96
Lab File ID: WA26031A              Matrix       : WATER
Ext Btch ID: CPA022W               % Moisture   : NA
Calib. Ref.: WA26023A              Instrument ID : GCT016
=====

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PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
ALPHA-BHC	(.057J) .095J	.34	.014 .019
GAMMA-BHC (LINDANE)	(ND) ND	.24	.012 .02
BETA-BHC	.22 (ND)	.22	.017 .024
HEPTACHLOR	(ND) .052J	.38	.014 .031
DELTA-BHC	(ND) ND	.23	.012 .012
ALDRIN	(ND) ND	.029	.012 .011
HEPTACHLOR EPOXIDE	(ND) ND	.31	.019 .045
GAMMA-CHLORDANE	(ND) ND	.36	.021 .019
ALPHA-CHLORDANE	(ND) ND	.77	.024 .026
ENDOSULFAN I	(ND) ND	.29	.03 .017
4,4'-DDE	(ND) ND	.48	.021 .02
DIELDRIN	(ND) ND	.42	.011 .012
ENDRIN	(ND) ND	.37	.015 .11
4,4'-DDD	(ND) ND	.48	.032 .019
ENDOSULFAN II	(ND) ND	.38	.02 .024
4,4'-DDT	(ND) ND	.096	.017 .022
IN ALDEHYDE	(ND) ND	.48	.023 .023
SULFAN SULFATE	(ND) ND	.34	.018 .019
METHOXYCHLOR	(ND) ND	.83	.012 .012
TOXAPHENE	(ND) ND	1.9	.12 .11
PCB-1016	(ND) ND	1.9	.56 .55
PCB-1221	(ND) ND	1.9	.8 .58
PCB-1232	(ND) ND	.96	1.1 .8
PCB-1242	(ND) ND	.96	.37 .55
PCB-1248	(ND) ND	.96	.45 .24
PCB-1254	(ND) ND	.96	.41 .34
PCB-1260	(ND) ND	.96	.29 .48

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	73 (73)	45-125
DECACHLOROBIPHENYL	81 (101)	34-133

PQL: Practical Quantitation Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520B/8081  
PESTICIDES/PCBS

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nt       : IT CORPORATION           Date Collected: 01/21/00
ject     : MCAS EL TORO/18609/D.O. 70 Date Received: 01/21/00
Batch No. : 00A088A                Date Extracted: 01/25/00 16:30
Sample ID: 18609-2719              Date Analyzed: 01/27/00 10:19
Lab Samp ID: A088-03               Dilution Factor: .97
Lab File ID: WA26032A              Matrix       : WATER
Ext Btch ID: CPA022W                % Moisture   : NA
Calib. Ref.: WA26023A              Instrument ID : GCT016
=====

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PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   .024J	.34	.015   .019
GAMMA-BHC (LINDANE)	(ND)   ND	.24	.013   .02
BETA-BHC	.071J   (ND)	.22	.017   .024
HEPTACHLOR	.047J   (ND)	.39	.015   .031
DELTA-BHC	(ND)   ND	.23	.013   .012
ALDRIN	(ND)   .023J	.029	.012   .011
HEPTACHLOR EPOXIDE	(ND)   ND	.31	.019   .046
GAMMA-CHLORDANE	(ND)   ND	.36	.021   .019
ALPHA-CHLORDANE	(ND)   ND	.78	.024   .026
ENDOSULFAN I	(ND)   ND	.29	.03   .017
4,4'-DDE	(ND)   ND	.49	.021   .02
DIELDRIN	(ND)   ND	.43	.011   .012
ENDRIN	(ND)   ND	.38	.016   .11
4,4'-DDD	(ND)   ND	.49	.032   .019
ENDOSULFAN II	(ND)   ND	.39	.02   .024
4,4'-DDT	(ND)   ND	.097	.017   .022
CHLOROBIPHENYL ALDEHYDE	(ND)   ND	.49	.023   .023
ENDOSULFAN SULFATE	(ND)   ND	.34	.018   .019
METHOXYCHLOR	(ND)   ND	.83	.012   .013
TOXAPHENE	(ND)   ND	1.9	.12   .11
PCB-1016	(ND)   ND	1.9	.57   .55
PCB-1221	(ND)   ND	1.9	.81   .58
PCB-1232	(ND)   ND	.97	1.1   .81
PCB-1242	(ND)   ND	.97	.38   .56
PCB-1248	(ND)   ND	.97	.45   .24
PCB-1254	(ND)   ND	.97	.42   .34
PCB-1260	(ND)   ND	.97	.29   .48

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	74   (84)	45-125
DECACHLOROBIPHENYL	81   (86)	34-133

PQL: Practical Quantitation Limit

Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520B/8081  
PESTICIDES/PCBS

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=====
Client      : IT CORPORATION           Date Collected: NA
Project     : MCAS EL TORO/18609/D.O. 70 Date Received: 01/25/00
Batch No.   : 00A088A                 Date Extracted: 01/25/00 16:30
Sample ID   : MBLK1W                   Date Analyzed: 01/27/00 08:12
Lab Samp ID : CPA022WB                 Dilution Factor: 1
Lab File ID : WA26027A                 Matrix          : WATER
Ext Btch ID : CPA022W                  % Moisture     : NA
Calib. Ref.: WA26023A                 Instrument ID   : GCT016
=====

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PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.35	.015 .02
GAMMA-BHC (LINDANE)	(ND) ND	.25	.013 .021
BETA-BHC	(ND) ND	.23	.018 .025
HEPTACHLOR	(ND) ND	.4	.015 .032
DELTA-BHC	(ND) ND	.24	.013 .012
ALDRIN	(ND) ND	.03	.012 .011
HEPTACHLOR EPOXIDE	(ND) ND	.32	.02 .047
GAMMA-CHLORDANE	(ND) ND	.37	.022 .02
ALPHA-CHLORDANE	(ND) ND	.8	.025 .027
ENDOSULFAN I	(ND) ND	.3	.031 .018
4,4'-DDE	(ND) ND	.5	.022 .021
DIELDRIN	(ND) ND	.44	.011 .012
ENDRIN	(ND) ND	.39	.016 .12
4,4'-DDD	(ND) ND	.5	.033 .02
ENDOSULFAN II	(ND) ND	.4	.021 .025
4,4'-DDT	(ND) ND	.1	.018 .023
DIN ALDEHYDE	(ND) ND	.5	.024 .024
SULFAN SULFATE	(ND) ND	.35	.019 .02
METHOXYCHLOR	(ND) ND	.86	.012 .013
TOXAPHENE	(ND) ND	2	.12 .12
PCB-1016	(ND) ND	2	.59 .57
PCB-1221	(ND) ND	2	.83 .6
PCB-1232	(ND) ND	1	1.1 .83
PCB-1242	(ND) ND	1	.39 .57
PCB-1248	(ND) ND	1	.47 .25
PCB-1254	(ND) ND	1	.43 .35
PCB-1260	(ND) ND	1	.3 .5
SURROGATE PARAMETERS			
TETRACHLORO-M-XYLENE	63 (65)	45-125	
DECACHLOROBIPHENYL	90 (90)	34-133	

PQL: Practical Quantitation Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

EMAX QUALITY CONTROL DATA  
LCS/LCD ANALYSIS

CLIENT: IT CORPORATION  
PROJECT: MCAS EL TORO/18609/D.O. 70  
BATCH NO.: 00A088A  
METHOD: SW3520B/8081

MATRIX: WATER % MOISTURE: NA  
DILUTION FACTOR: 1 1 1  
SAMPLE ID: MBLK1W  
LAB SAMP ID: CPA022WB CPA022WL CPA022WC  
LAB FILE ID: WA26027A WA26028A WA26029A  
DATE EXTRACTED: 01/25/0016:30 01/25/0016:30 01/25/0016:30 DATE COLLECTED: NA  
DATE ANALYZED: 01/27/0008:12 01/27/0008:38 01/27/0009:03 DATE RECEIVED: 01/25/00  
PREP. BATCH: CPA022W CPA022W CPA022W  
CALIB. REF: WA26023A WA26023A WA26023A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
gamma-BHC (Lindane)	(ND) ND	.2	.17J .174J	85 (87)	.2	.188J .192J	94 (96)	10 (10)	43-125	30
Heptachlor	(ND) ND	.2	.219J .186J	(110) 93	.2	.227J .196J	(114) 98	(4) 5	45-128	30
Aldrin	(ND) ND	.2	.18 .188	90 (94)	.2	.188 .186	(94) 93	(4) 1	47-125	30
Dieldrin	(ND) ND	.4	.399J .407J	100 (102)	.4	.4J .405J	100 (101)	0 (0)	42-132	30
Endrin	(ND) ND	.4	.423 .438	106 (110)	.4	.405 .415	101 (104)	4 (5)	43-134	30
4,4'-DDT	(ND) ND	.4	.501 .514	125 (128)	.4	.478 .49	119 (122)	5 (5)	34-143	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	.2	.15 .153	75 (76)	.2	.166 .17	83 (85)	45-125
Decachlorobiphenyl	.2	.181 .181	(91) 90	.2	.176 .176	88 (88)	34-133

EPA METHOD 8015 by GC/FID  
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tall\tall.043  
 Method : c:\ezchrom\methods\t8015002.met  
 Sample ID : 00A088-01T .005710X  
 Acquired : Jan 26, 2000 13:07:31  
 Printed : Jan 26, 2000 13:47:44  
 User : DIEM

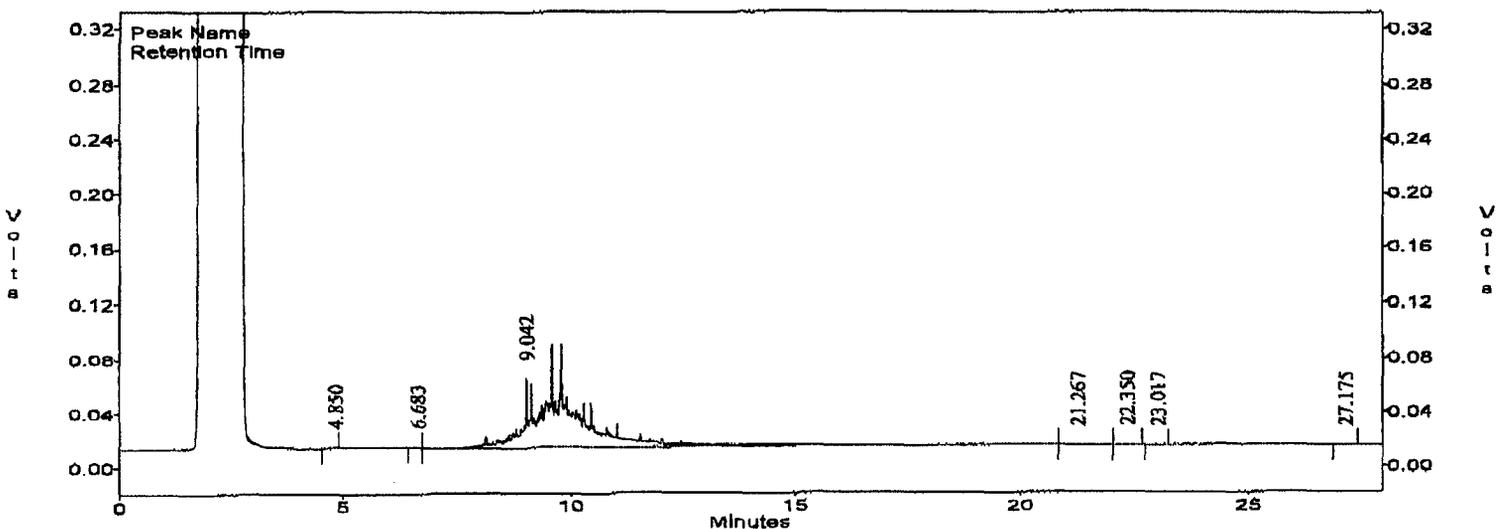
18609-2717  
 BEE CANYON AFTER WEIR

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
--	Bromobenzene	6.350	0	0.0	0.0
--	Hexacosane	16.730	0	0.0	0.0
G1	Diesel		3799981	14775.3	257.2

$$257.2 \times \frac{10}{1050} \times 2000 = 4900$$

c:\ezchrom\chrom\tall\tall.043 -- Channel A



EPA METHOD 8015 by GC/FID  
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta11\ta11.041  
 Method : c:\ezchrom\methods>manual.met  
 Sample ID : 00A088-02R W  
 Acquired : Jan 26, 2000 11:52:58  
 Printed : Jan 26, 2000 18:11:12  
 User : DIEM

18609-2718  
 BEE CANYON WASH  
 AT WEIR

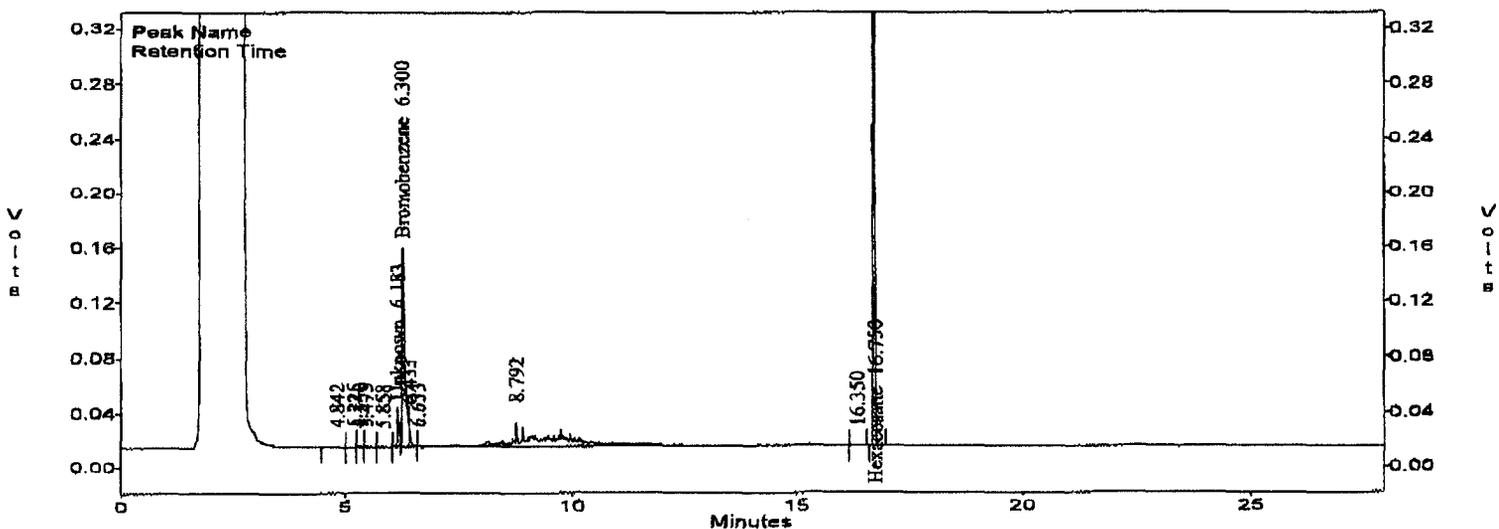
Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
6	Unknown	6.183	81141	14785.3	5.49
7	Bromobenzene	6.300	664018	9930.4	66.9
12	Hexacosane	16.750	1600540	21754.8	73.6
G1	Diesel		1890402	14775.3	127.9

$Diesel + unknown \times DF = 1.29$

$127.9 + 5.49 \times \frac{10}{1030} =$

c:\ezchrom\chrom\ta11\ta11.041 - Channel A



EPA METHOD 8015 by GC/FID  
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\tall\tall.034  
Method : c:\ezchrom\methods\manual.met  
Sample ID : 00A088-03 W  
Acquired : Jan 26, 2000 07:31:54  
Printed : Jan 26, 2000 18:17:13  
User : DIEM

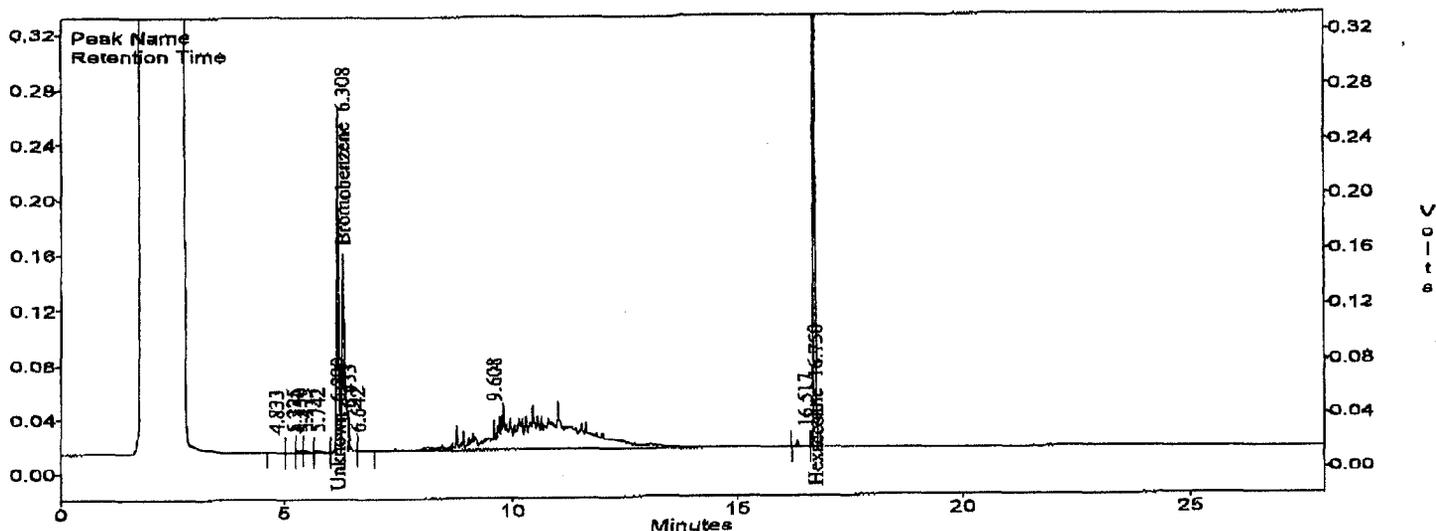
BEE CANYON WASH  
AT MARINE WAY  
18609-2719

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
6	Unknown	6.200	703893	14775.3	47.6 ppm
7	Bromobenzene	6.308	687693	9930.4	69.3
12	Hexacosane	16.750	1610194	21754.8	74.0
G1	Diesel		3274824	14775.3	221.6

$$47.6 + 221.6 \times \frac{10}{1010} = 2.7$$

c:\ezchrom\chrom\tall\tall.034 - Channel A



EPA METHOD 8015 by GC/FID  
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta11\ta11.035  
 Method : c:\ezchrom\methods\t8015002.met  
 Sample ID : 00A088-04 W .005/1  
 Acquired : Jan 26, 2000 08:09:07  
 Printed : Jan 26, 2000 10:57:30  
 User : DIEM

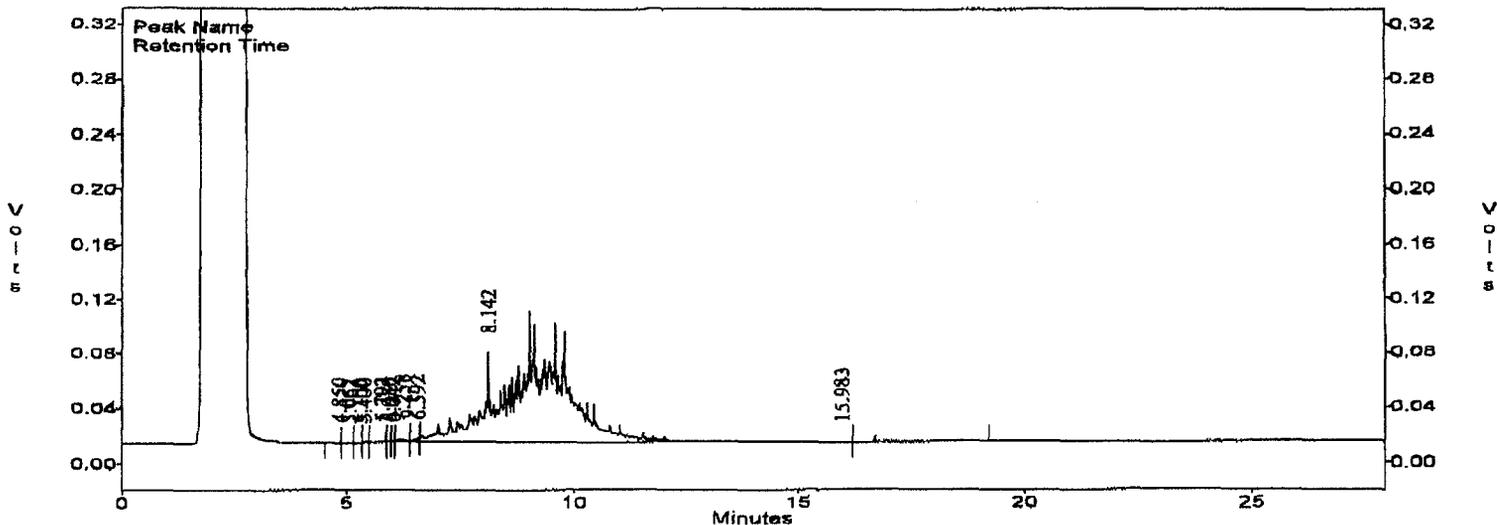
18609-2720  
 JP-5 Pipeline

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
--	Bromobenzene	6.350	0	0.0	0.0
--	Hexacosane	16.750	0	0.0	0.0
G1	Diesel		6822108	14775.3	461.7

$$\text{Result} = \frac{6822108}{14775.3} \times \frac{10}{1} \times 100 = 923400 \text{ ppm}$$

c:\ezchrom\chrom\ta11\ta11.035 -- Channel A



EPA METHOD 8015 by GC/FID  
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta11\TA11.044  
 Method : c:\ezchrom\methods\manual.met  
 Sample ID : 00A088-05 0.2/1 ML  
 Acquired : Jan 26, 2000 13:44:49  
 Printed : Jan 26, 2000 18:31:33  
 User : DIEM

CATCH BASIN  
18609-2721

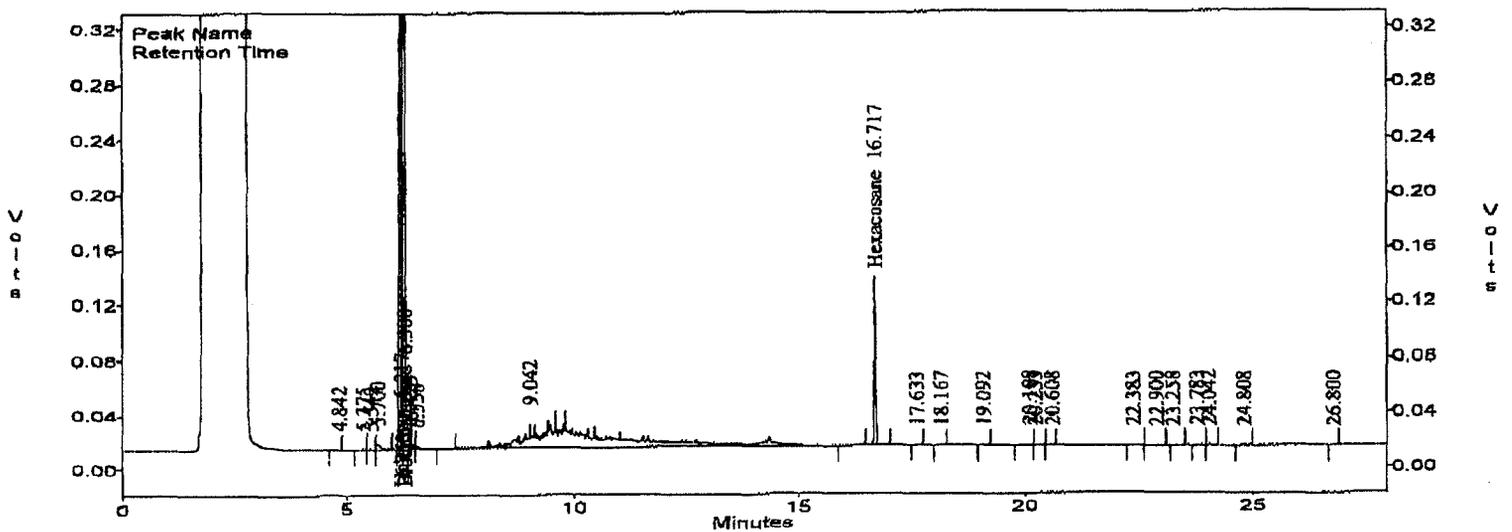
Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
5	Unknown (Saturated peak)	6.217	843610	14775.3	57.1
7	Bromobenzene	6.300	2720757	9930.4	274.0
11	Hexacosane	16.717	300008	21754.8	13.8
G1	Diesel		2127056	14775.3	144.0

$$57.1 + 144 \times \frac{10}{1040} \times 5 = 9.7 \text{ total}$$

$$\text{only TPH pattern} = \frac{144 \times 10 \times 5}{1040} = 6.9$$

c:\ezchrom\chrom\ta11\TA11.044 - Channel A



EPA METHOD 8015 by GC/FID  
EMAX Analytical Laboratories, Inc.

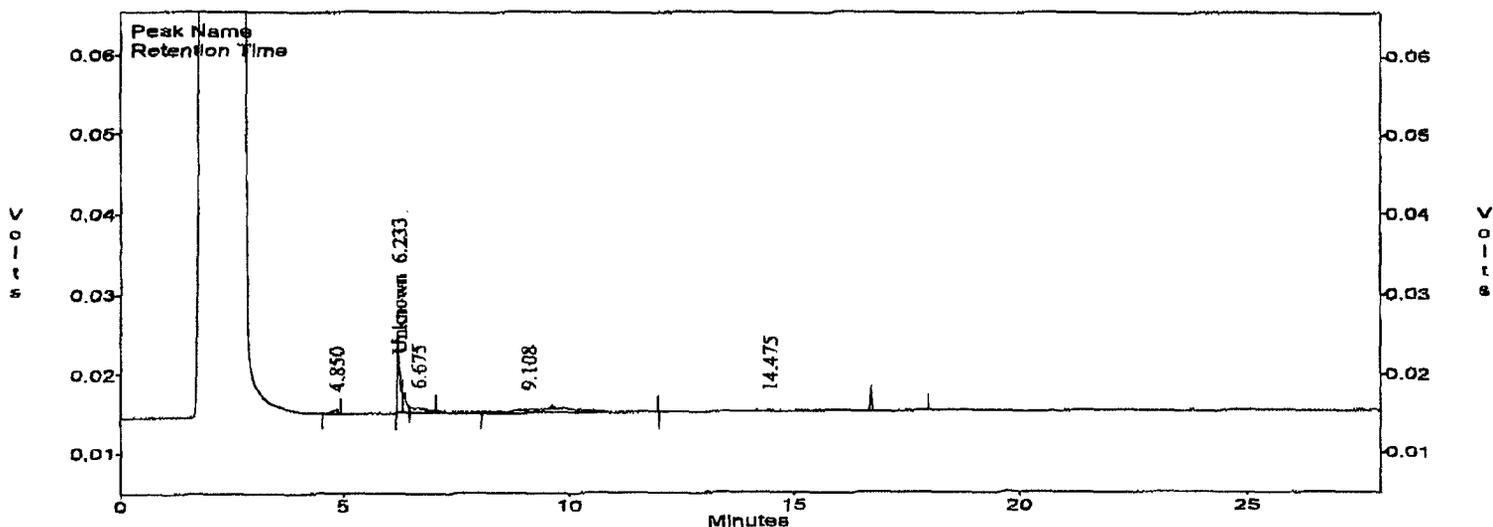
le : c:\ezchrom\chrom\tall\tall.036  
Method : c:\ezchrom\methods\manual.met  
Sample ID : 00A088-05 W .005/1  
Acquired : Jan 26, 2000 08:46:21  
Printed : Jan 27, 2000 11:02:05  
User : DIEM

## Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Unknown	6.233	40256	0.0	0.0
--	Bromobenzene	6.350	0	0.0	0.0
--	Hexacosane	16.780	0	0.0	0.0
G1	Diesel		107319	14775.3	7.3

$$\left( \frac{107319 + 40256}{14775.3} \right) \times \frac{10}{1000} \times 200 = 19.2$$

c:\ezchrom\chrom\tall\tall.036 -- Channel A



5010