LAW OFFICES OF

KEILEY, ENEA, PIUNTI & HAMILTON

A PROFESSIONAL CORPORATION

60 SOUTH MARKET STREET, SUITE 730 SAN JOSE, CALIFORNIA 95113-2359 TELEPHONE (408) 271-4800 FACSIMILE (408) 271-4808

BETH L. HAMILTON

DIRECT TELEPHONE (408) 271-4814

July 31, 1995

DIRECT FACSIMILE (408) 292-3376

Mr. Barney Chan Alameda County Health Care Services Agency Department of Environmental Health 1131 Harbor Bay Parkway, #260 Alameda, California 94502-6577

Re:

Status of Subsurface Investigation at Pacific Dry Dock Yard II, 321

Embarcadero, Oakland, California 94606

Dear Mr. Chan:

The purpose of this letter is to follow up on the conference call we had last week with Stephen Wilson of Crowley Marine Services regarding the above referenced site. As we described during that telephone conversation, we believe that Crowley has already accomplished a significant portion of the site investigation to be conducted at Yard II. In response to the questions in your letter of June 29, 1995 we have prepared a brief chronology of the work we have done, and a description of the work remaining. That summary is enclosed.

In addition, we have the following responses to your comments, which are presented here and designated consistent with the numbered paragraphs in your letter:

1. With respect to your question regarding ownership of the underground storage tanks located at Yard II, unfortunately we are unable to prove a negative. Crowley does not own and has not operated any of the underground storage tanks located at Yard II, other than the one Crowley has already removed. Crowley has an agreement with the Port of Oakland which specifies, as to certain of the improvements and underground and above ground tanks, which party has assumed responsibility for which item. This agreement does not, however, cover all of the underground tanks, because Crowley is not willing to take responsibility for tanks it has neither owned nor operated, and the Port has also been unwilling to acknowledge legal responsibility for those tanks. Please note that Crowley is not the only tenant at the Yard, having been preceded, for example, by the United States Navy.

2. See enclosed Status Report.

Shouldn't there he re-freating any after tanks? for billing purposes too.

Mr. Barney Chan July 31, 1995 Page Two

3. As I believe you are aware, the Regional Water Quality Control Board directed Crowley to conduct a sampling program of the sediments in the estuarine portions of Yards I and II. The results of that sampling program were submitted to the Regional Board last year, and Crowley has not yet been informed whether any remediation will be required by the Board. At the present time Crowley is working with Steven Moore and Peter Otis regarding Crowley's NPDES permits and the impact of stormwater discharges and whether any remedial activities should be conducted above the high tide line to mitigate the impact of such discharges on the estuary.

We hope that these comments address your concerns. Please feel free to contact either Stephen Wilson or me if you have any further questions. We look forward to meeting with you at your offices on August 24th at 10:00 a.m.

Very truly yours,

But Hamilton

Beth L. Hamilton

c: R. Stephen Wilson, Crowley
Michael Holley, Versar
Michael Sellens, Versar
Dan Schoenholz, Port of Oakland
Steven Moore, RWQCB

STATUS REPORT

SITE INVESTIGATION AT PACIFIC DRY DOCK YARD II

July 31, 1995

The June 1991 Workplan for the site investigation at the Crowley Marine Services Pacific Dry Dock Yard II located at 321 Embarcadero in Oakland, California (the "Site") proposed the following scope of work:

- (1) performance of a magnetometer and magnetic locator geophysical survey of the site to identify unrecorded underground storage tanks;
- (2) drilling of bore holes for soil investigation;
- (3) drilling and installation of groundwater monitoring wells;
- (4) collection of soil and groundwater samples for laboratory analysis;
- (5) analysis of soil and groundwater samples to determine accurate constituent concentrations; and
- (6) reporting the results and conclusions of the site investigation.

The workplan was approved in August 1992 by the Alameda County Health Care Services Agency (ACHCSA).¹

For ease of investigation, the site was divided into six areas of concern where distinct land use activities had occurred. These areas are shown on Figure 1 attached.

The status of the work outlined in the workplan is as follows:

During 1992 and 1993, Crowley and its consultant Versar focused their efforts on producing workplans and sampling plans and conducting a sampling investigation related to the sediments in the estuarine portion of Crowley's leaseholds at Pacific Dry Dock Yards I and II. After the Workplan for Yard II was approved by the ACHSCA County Health Services Agency Crowley met with the Port of Oakland to negotiate an agreement respecting the responsibilities of the respective parties for investigation and remediation of the Site, since there have been tenants other than Crowley which have engaged in industrial activities at the Site.

1. Site UST Survey

As a result of a magnetic locator survey and visual observations by Crowley and Versar personnel, Crowley has acquired the following information regarding above ground and underground storage tanks at the Site:

• Area 2

In September 1994 Crowley removed an inactive underground storage tank from Area No. 2 in the central portion of the site, between the materials warehouse and the pipe shop. See Figure 1 for location of former UST. Laboratory analysis of soil samples collected from the excavated soil and the excavation walls following removal did not report any concentration of total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene and xylenes. The ACHCSA notified Crowley on March 2, 1995 that the site of the former UST could be closed without any further investigation.

Based on field observations during the removal of the UST described above, one other steel UST may be located directly north-west of the former location of the removed UST.

A concrete tank appears to be located near the north corner of the Power Pack Shop. This tank appears to be a case-in-place concrete unit.

• Area 3

There is one AST located in Area 3.

Area 6

Two ASTs are located within a concrete containment structure at this portion of the Site.

There may be a UST located beneath a concrete slab between the two ASTs and the Power House, based on field observations made during a soil sampling event.

2. Borehole Installation

In May 1994 Versar installed 21 bore holes and submitted 93 soil samples and 1 grab groundwater sample for laboratory analysis. See Figure 2 attached for locations of the 1994 bore holes and the 1989 bore holes. The laboratory analytical results from the May 1994 investigation are summarized in Table 1 and also included in Figure 2. A copy of the laboratory analytical results is included as Appendix A.

Six borings were installed in Area 1 to define the lateral and vertical extent of potential impacts associated with the former location of a materials storage area.

Five borings were located in Area No. 2 to define the lateral and vertical extent of lead and halogenated VOC impacts identified during the 1989 investigation.

Three borings were located in Area No. 3 to determine if subsurface impacts were present as a result of operation of a 500 gallon above-ground diesel tank.

Two borings were located in Area No. 4 to determine whether there was any indication of petroleum hydrocarbon impacts where a workman had reported detecting an odor while installing a trench.

Three borings were located in Area No. 5 to investigate a location that had appeared discolored in an aerial photograph.

Three borings were located in Area No. 6 to determine the extent of potential impact resulting from operation of three above-ground storage tanks.

define the lateral extent of impacted vadose soils at the site. The laboratory analy results from the April 1995 investigation are summarized in Tables 2 and 3. A co the laboratory analytical results is included as Appendix A. Preliminary to this investigation, Versar reviewed historic aerial photographs to identify areas where industrial activities may have occurred. Based on the results of that review, five plocations at the Site were identified for further investigation. Figure 3 depicts the locations.

In addition, four other locations where potentially impacted soils had been previously identified were recommended for further investigation. The sampling conducted in those additional four locations is briefly summarized as follows: In April 1995 Crowley performed an additional subsurface soils investigation to define the lateral extent of impacted vadose soils at the site. The laboratory analytical results from the April 1995 investigation are summarized in Tables 2 and 3. A copy of industrial activities may have occurred. Based on the results of that review, five potential locations at the Site were identified for further investigation. Figure 3 depicts those five

- Soil samples were collected from two locations in Area No. 1 because earlier investigations had identified petroleum hydrocarbons, mercury, copper and lead.
- Six soil samples were collected from three locations in Area No. 2 to determine the extent of previously identified lead impacts.
- Twenty-one soil samples were collected from eighteen locations in Area No. 5 to define potential source areas of petroleum hydrocarbons and halogenated VOCs.
- Soil samples were collected from five locations in Area No. 6 in an attempt to identify a source area for petroleum hydrocarbons detected in monitoring well MW1.

3. <u>Drilling and Installation of Six Groundwater Monitoring Wells</u>

After the workplan was submitted, Crowley determined to conduct the groundwater monitoring well installation into two phases, so that selection of the locations of the wells could be based on the results of the site soil investigations and the survey for unregistered USTs.

In the first phase of the groundwater investigation, in July 1994 Crowley installed three 4" groundwater monitoring wells at the site. The wells were surveyed on February 7, 1995, developed on March 7, 1995 and purged and sampled on March 13, 1995 as part of the first round of a quarterly groundwater monitoring program. Details regarding the well installation and laboratory analytical results were submitted in the groundwater monitoring well installation and monitoring report transmitted to the ACHSCA by Stephen Wilson on June 22, 1995.

4. Collection of Soil and Groundwater Samples for Laboratory Analysis

Soil and groundwater samples were collected and submitted for laboratory analysis in connection with the installation of soil borings and monitoring wells described above.

5. Analyzing Soil and Groundwater Samples to Determine Accurate Constituent Concentrations

The results of laboratory analyses of soil and groundwater samples are attached hereto in Appendix A and Appendix B.

6. Preparation of Comprehensive Report

Crowley anticipates submitting a Preliminary Investigation and Evaluation Report (PIER) including details of the work described in this letter and related analytical results after the Phase 2 groundwater investigation is initiated. Crowley intends the Phase 2 groundwater investigation to consist of the following activities:

• To define the limits of impacted groundwater in Area No. 5, Crowley has installed nine temporary monitoring wells and collected grab groundwater samples for laboratory analysis. The results of laboratory analysis of these samples will be reported to the ACHSCA as soon as they are available. The wells were installed using a soil coring rig and were removed immediately following sample collection.

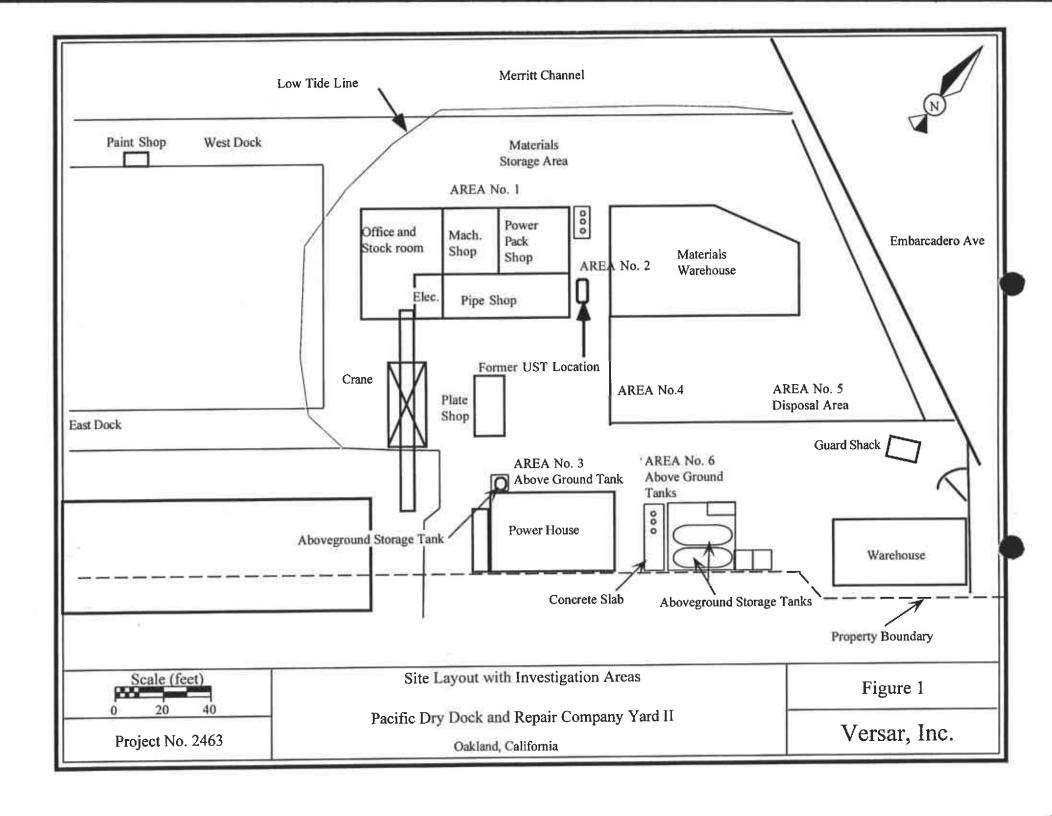
Based on the results of the initial groundwater characterization, and after the ACHSCA has reviewed the proposed locations, Crowley will install three additional groundwater monitoring wells to define the extent of impact and to monitor the groundwater beneath the site.

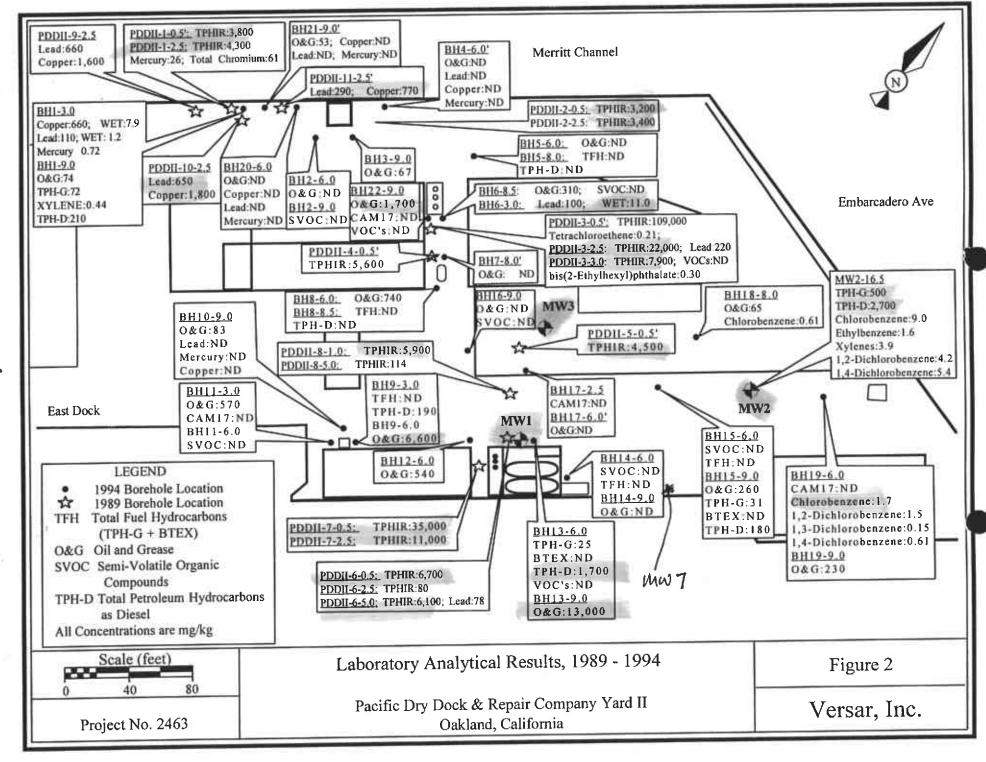
 Groundwater samples will be collected from all six monitoring wells on a quarterly basis.

The results of the entire site investigation will be presented in a PIER and submitted to the regulatory agencies. All data collected during the site investigation will be summarized in figures and tables according to the Tri-Regional Board Staff Guidance for Preliminary Investigation and Evaluation Reports of Underground Tank Sites.

The following schedule is proposed:

8/24/95	Presentation of interim findings of initial groundwater grab samples to ACHCSA
• 9/19/95	Install additional groundwater monitoring wells
11/15/95	Versar to submit Draft PIER to Crowley for review
12/12/95	Crowley to submit PIER to ACHCSA for review





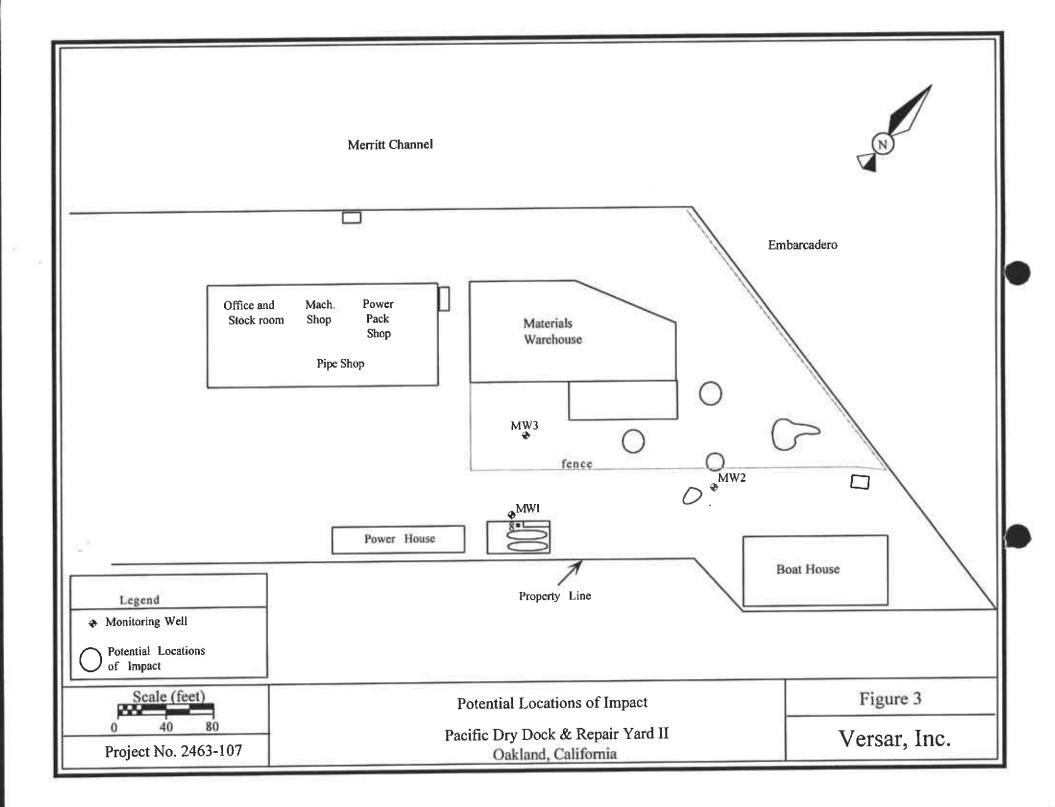


Table 1 May 1994 Laboratory Analytical Results¹

Pacific Dry Dock and Repair Company Yard II Oakland, California

Boring No.	Depth (feet)	1,1,1-TCA ² (μg/kg)	1,1,2-TCA ³ (μg/kg)	TCE ⁴ (µg/kg)	1,1-DCE ⁵ (μg/kg)	1,1-DCA ⁶ (μg/kg)
BHI	5.5	15	ND ⁷	ND	ND	ND
BH1	10.5	250	ND	ND	ND	ND
BHI	15.5	90	3.9	ND	ND	ND
BH1	20.5	360	ND	ND	ND	ND
BHI	25.5	ND	ND	ND	ND	ND
BH2	5.5	5,940	. ND	8.3	ND	ND
BH2	10.5	540	ND	ND	ND	ND
BH2	15.5	40	ND	ND	ND	ND
BH2	20.5	3,700	ND	ND	ND	ND
BH2	25.5	330 ⁸	ND	ND	ND	ND
BH3	6.5	32	ND	ND	ND	ND
BH3	10.5	58	ND	ND	ND	ND
BH3	15.5	35	ND	ND	ND	ND
BH3	20.5	930	ND	ND	ND	ND
внз	25.5	ND	ND	ND	ND	ND
BH4	6.5	7.2	ND	ND	ND	ND
BH4	10.5	8	ND	ND	ND	ND
BH4	15.5	ND	ND	ND	ND	ND
BH4	20.5	1,940	ND	ND	ND	ND
BH4	25.5	190	ND	ND	24	43
BH5	5.5	ND	ND	ND	ND	ND
BH5	10.5	ND	ND	ND	ND	ND
BH5	16.5	6.7	ND	ND	ND	ND
BH5	20.5	ND	ND	ND	ND	ND
BH5	25.5	8.5	ND	ND	ND	ND

 $^{^1\}text{All}$ results are expressed in micrograms per kilogram (µg/kg) equivalent to parts per billion. $^2l,l,l\text{-trichloroethane}.$

³1,1,2-trichloroethane.

⁴Trichloroethene.

⁵1,1-dichloroethene.

⁶1, 1-dichloroethane.

⁷ND=Not detected at or above the practical quantitation limit.

⁸Analyte detected below the practical quantitation limit at the concentration reported.

April 1995 Laboratory Analytical Results¹
Petroleum Hydrocarbons
Pacific Dry Dock and Repair Company Yard II
Oakland, California

Boring No.	Depth (feet)	TPH-D (μg/kg)	TPH-G (μg/kg)	BENZENE (µg/kg)	TOLUENE (µg/kg)	ETHYLBENZENE (µg/kg)	XYLENES (µg/kg)
CHI	4.0	1,300,000	73,000	580	88	ND²	1,500
CH1A	2.0	240,000	5,400	48	6.9	ND	140
CH1B	3.0	1,400	ND	ND	ND	ND	ND
CHIC	2.0	ND	ND	ND	ND	6.8	18
CHIC	4.5	910,000	23,000	100	ND	ND	300
CH2	1.0	18,000	4,500	ND	ND	ND	19
CH2A	2.5	8,700	16,000	2,100	ND	ND	660
CH2B	1.5	55,000	ND	ND	ND	5.3	ND
CH2C	2.5	44,000	ND	11	ND	ND	ND
CH2C	4.5	8,300	ND	ND	ND	ND	ND
CH3	4.0	ND	ND	ND	ND	9.2	22
CH3A	1.5	26,000	ND	ND	ND	ND	ND
СНЗВ	2.5	240,000	1,800	150	17	12	96
CH3C	2.0	ND	880	5.4	ND	ND	70
CH3D	2.0	940,000	9,600	810	ND	ND	3,600
CHBE	1.5	ND	ND	ND	ND	ND	ND
CH3E	4.0	ND	ND	ND	ND	ND	ND
CH3F	1.5	ND.	ND	ND	ND	ND	ND
CH3F	4.0	ND	800	ND	ND	ND	ND
CH4	3.0	1,600	ND	ND	ND	ND	ND
CH4A	2.5	26,000	ND	ND	ND	ND	ND
CH4A	4.5	NA^3	ND	ND	ND	ND	ND
CH5	1.5	ND	ND	ND	ND	ND	ND
CH6	2.5	5,300	ND	ND	ND	5.2	43
CH7	2.5	ND	ND	ND	ND	ND	ND
CH8	3.5	ND	ND	ND	ND	ND	ND
CH9	2.0	7,000	ND	ND	ND	ND	38
CH10	2.5	NA	NA	NA	NA	NA	NA
CH10	5.0	NA	NA	NA	NA	NA	NA
CH11	2.5	NA	NA	NA	NA	NA	NA
CHII	5.5	NA	NA	NA	NA	NA	NA
CH12	2.5	NA	NA	NA	NA	NA	NA
CH13	2.5	59,000	ND	ND	ND	ND	ND
CH14	2.5	ND	ND	ND	ND	ND	ND

¹All results are expressed in micrograms per kilogram (µg/kg) equivalent to parts per billion.

²ND=Not detected at or above the practical quantitation limit.

³NA=Not analyzed for this constituent.

April 1995 Laboratory Analytical Results¹
Halogenated Volatile Organic Compounds and Metals
Pacific Dry Dock and Repair Company Yard II
Oakland, California

Boring No.	Depth (feet)	Chlorobenzene (µg/kg)	1,4-Dichlorobenzene (μg/kg)	Trichloroethene (μg/kg)	Organic Lead (μg/kg)	Total Lead (µg/kg)	Copper (µg/kg)
CHI	4,0	540	190	ND^2	NA ³	NA	NA
CH1A	2.0	220	ND	ND	NA	NA	NA
CH1B	3.0	34	ND	ND	NA	NA	NA
CHIC	2.0	ND	ND	ND	NA	NA	NA
CHIC -	4,5	480	410	ND	NA	NA	NA
CH2	1.0	ND	ND	23	NA	NA	NA
CH2A	2.5	63	ND	ND	NA	NA	NA
CH2B	1.5	ND	ND	ND	NA	NA	NA
CH2C	2.5	ND	ND	ND	NA	NA	NA
CH2C	4.5	ND	ND	ND	NA	NA	NA
CH3	4.0	ND	ND	ND	NA	NA	NA
СНЗА	1.5	ND	ND	ND	NA	NA	NA
СНЗВ	2.5	890	ND	ND	NA	NA	NA
CH3C	2.0	79	ND	ND	NA	NA	NA
_CH3D	2.0	2,300	1,200	ND	NA	NA	NA
СНЗЕ	1.5	ND	ND	ND	NA	NA	NA
CH3E	4.0	ND	ND	ND	NA	NA	NA
CH3F	1.5	ND	ND	ND	NA	NA	NA
CH3F	4.0	27	ND	ND	NA	NA	NA
CH4	3.0	ND^2	ND	ND	NA ³	NA	NA
CH4A	2.5	ND	ND	ND	NA	NA	NA
CH4A	4.5	ND	ND	ND	· NA	NA	NA
CH10	2.5	NA	NA	NA	ND	5,400	NA
CH10	5.0	NA	NA	NA	ND	7,200	NA
CH11	2.5	NA	NA	NA	ND	1 7,000	NA.
CH11	5.5	NA	NA	NA	ND	7,400	NA
CH12	2.5	NA	NA	NA	ND	38,000	NA
CH12	5.5	NA	NA	NA	ND	4,500	NA
CH13	2.5	NA	NA	NA	NA	92,000	98,000
CH14	2.5	NA	NA	NA	NA	13,000	22,000

¹All results are expressed in micrograms per kilogram (µg/kg) equivalent to parts per billion.

ND=Not detected at or above the practical quantitation limit.

³NA Not analyzed for this constituent.

APPENDIX A

Laboratory Analytical Results from May 1994 Investigation

COPY

JUN 1 6 1994

June 8, 1994

Mr. Lawrence Kleinecke Versar, Inc. 5330 Primrose Drive, Suite 228 Fair Oaks, California 95628

Dear Mr. Kleinecke:

Trace Analysis Laboratory received thirty-two soil samples on May 17, 1994 for your Project No. 2463-001, Crowley Yard II (our custody log number 4419).

These samples were analyzed according to your chain of custody. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Scott T. Ferriman

Project Specialist

Scott T, Lemm

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 . Hayward, California 94545

Telephone (510) 783-6960 Facsimile (510) 783-1512

LOG NUMBER:

4419

DATE SAMPLED: DATE RECEIVED: 05/17/94 05/17/94

DATE EXTRACTED: DATE ANALYZED:

05/26/94

DATE REPORTED:

05/30/94 06/08/94

CUSTOMER:

Versar, Inc.

REQUESTER:

Lawrence Kleineke

PROJECT:

No. 2463-001, Crowley Yard II

Sample Type: Soil

Method and Constituent:

BH1-9.0 BH5-8.0 BH8-8.5 Concen-Reporting Concen-Reporting Reporting Concen-Units tration Limit <u>tration</u> Limit tration

DHS Method:

Total Petroleum Hydrocarbons as Diesel

ug/kg 210,000

1,000

ND 1,000

ND

1,000

Method and <u>Constituent:</u>

<u>Method Blank</u> Concen-Concen-Reporting Reporting <u>Limit</u> Units tration <u>tration</u> Limit

DHS Method:

Total Petroleum Hydro-

carbons as Diesel

uq/kq 190,000

1,000

ND

1,000

QC Summary:

% Recovery: 119

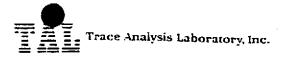
% RPD:

1.9

Concentrations reported as ND were not detected at or above the reporting limit.

Sample BHI-9.0 contains compounds eluting earlier than the diesel standard.

Sample BH9-3.0 contains compounds eluting later than the diesel standard.



4419

DATE SAMPLED: DATE RECEIVED: 05/17/94 05/17/94

DATE EXTRACTED:

05/25/94

DATE ANALYZED:

05/26/94 and 05/27/94

DATE REPORTED:

06/08/94

PAGE:

Two

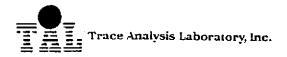
		_	Sample	Type:	Soil		
		ВН	1-9.0	Вн	5-8.0	BH8-8.5	
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting Limit
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	72,000	6,300	ND -	500	ND	500
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Xylenes	ug/kg	440	15	ND	15	ND	15
		BH9-3.		Method Blank			
Method and Constituent:	<u>Units</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>		
DHS Method:							•
Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	ND	500		
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0		
Toluene	ug/kg	ND	5.0	ND	5.0		
Ethylbenzene	ug/kg	ND	5.0	ND	5.0		
Xylenes	ug/kg	ND	15	ND	15		

OC Summary:

% Recovery: 86

% RPD:

6.6



4419

DATE SAMPLED: DATE RECEIVED: 05/17/94 05/17/94

DATE EXTRACTED: DATE ANALYZED: DATE REPORTED:

06/07/94 06/08/94 06/08/94

PAGE:

Three

			Sample	Type:	So i 1		
		8H	1-9.0	B	BH2-6.0		3-9
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>
Standard Method 5520CF: Hydrocarbon							
Oil and Grease	ug/kg	74,000	50,000	ND	50,000	67,000	50,000
			4-6	<u>8H5-6.0</u>		8H6B-8.5	
Method and Constituent:	<u>Units</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	ReportingLimit
Standard Method 5520CF: Hydrocarbon							
Oil and Grease	ug/kg	ND	50,000	ND	50,000	310,000	50,000
		BH	17-8		3H8-6	<u>8H9-6.0</u>	
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
Standard Method 5520CF:							
Hydrocarbon							
Oil and Grease	ug/kg	ND	50,000	740,000	50,000	6,600,000	50,000
			1108-9.0		3H11-3.0		od Blank
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	•	Concen- tration	Reporting <u>Limit</u>
Standard Method 5520CF:							
Hydrocarbon				•			
Oil and Grease	ug/kg	83,000	50,000	570,000	50,000	ND	50,000

OC Summary:

% Recovery: 120

% RPD: 15



4419

DATE SAMPLED: DATE RECEIVED: 05/17/94 05/17/94

DATE EXTRACTED: DATE ANALYZED:

05/26/94 06/04/94

DATE REPORTED:

06/08/94

PAGE:

Four

Sample Type:

Soil

		BH2-9.0		BI	16B-8.5	BH11-6.0	
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit
EPA Method 8270:							
Pyridine	ug/kg	ND	3,600	ND	3,600	ND	3,600
N-Nitrosodimethylamine	ug/kg	ND	660	ND	660	. ND	660
Phenol	ug/kg	П	660	ND	660	ПN	660
Bis (2-Chloroethyl) Ether	ug/kg	ND	660	ND	660	ND	660
2-Chlorophenol	ug/kg	ND	660	ND	660	ND	660
1,3-Dichlorobenzene	ug/kg	ND	660	ND	660	ND	660
1,4-Dichlorobenzene	ug/kg	ND	660	ND	660	ND	660
1,2-Dichlorobenzene	ug/kg	ПD	660	ND	660	ND	660
Bis (2-Chloroisopropyl) Ether	ug/kg	ND	660	DN	660	ND	660
N-Nitroso-Di-N- Propylamine	ug/kg	ND	660	ND	660	ND	660
Acetophenone	ug/kg	ND	660	ND	660	ND	660
2-Methylphenol (0-Cresol)	ug/kg	ND	660	ND	660	ND	660
Hexachloroethane	ug/kg	ND	660	ND	660	ND	660
Nitrobenzene	ug/kg	סא	660	ND	660	ND	660
Isophorone	ug/kg	ND	660	ND	660	ND	660
2-Nitrophenol	ug/kg	МD	660	ND	660	ND	660
2,4-Dimethylphenol	ug/kg	ND	660	ND	660	ND	660
Bis(2-Chloroethoxy) Methane	ug/kg	ND	660	DN	660	DN	660
2,4-Dichlorophenol	ug/kg	ND	660	ND	660	ND	660
1,2,4-Trichlorobenzène	ug/kg	ND	660	ND	660	ND	660
Naphthalene	ug/kg	l ND	660	ИD	660	ND	660

4419

DATE SAMPLED: DATE RECEIVED: 05/17/94 05/17/94 05/26/94

DATE ANALYZED: DATE REPORTED:

DATE EXTRACTED:

06/04/94 06/08/94

PAGE:

Five

			Samol	le T	voe:	Soil		
	BH2-9.0 BH6B-8.							
Method and <u>Constituent</u>		Concen- tration	•	_	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting Limit
EPA Method 8270 (Continue	ed):							
Hexachlorobutadiene	ug/kg	ND	660		ND	660	ND	660
3-Methylphenol and 4- Methylphenol (m-Cresol and p-Cresol)	ug/kg	ND	1,300		ND	1,300	ND	1,300
4-Chloro-3-Methyl-phenol	ug/kg	ND	1,300		ND	1,300	ND	1,300
Hexachlorocyclo- pentadiene	ug/kg	В	660		ND	660	ND	660
2,4,6-Trichlorophenol	ug/kg	ND	660		ND	660	ND	660
2,4,5-Trichlorophenol	ug/kg	ND	660		ND	660	ND	660
2-Chloronaphthalene	ug/kg	ND	660		ND	660	ND	660
Benzoic Acid	ug/kg	ND	3,600		ND	3,600	ND	3,600
Dimethylphthalate	ug/kg	ND	660		ND	660	ND	660
Acenaphthylene	ug/kg	ND	660		ND	660	ND	660
Acenaphthene	ug/kg	ND	660		ND	660	ND	660
2,4-Dinitrophenol	ug/kg	ND	3,600		ND	3,600	ND	3,600
4-Nitrophenol	ug/kg	ND	3,600		ND	3,600	ND	3,600
2,4-Dinitrotoluene	ug/kg	ND	660		ND	660	ND	660
2,6-Dinitrotoluene	ug/kg	ND	660		ND	660	ND	660
Diethylphthalate	ug/kg	ND	660		ПO	660	ND	660
4-Chlorophenyl-phenyl- ether	ug/kg	ND	660		ND	660	ND	660
Fluorene	ug/kg	ND	660		ND	660	ND	660
N-Nitrosodiphenylamine	ug/kg	ND	660		ND	660	ND	660
4-Bromophenyl-phenyl- ether	ug/kg	ND	660		ND	660	ND	660
Hexachlorobenzene	ug/kg	ND	660		ND	660	ND	660
Pentachlorophenol	ug/kg	ND	3,600		ND	3,600	ND	3,600
Phenanthrene	ug/kg	ND	660		СИ	660	ND	660
Anthracene	ug/kg	DN	660		ND	660	ND	660
Concentrations reported	as ND we	re not	detected	at o	r above	the report	ing limit	-



4419 05/17/94

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Six

Sample Type: Soil

BH2-9.0 BH6B-8.5 BH11-6.0 Method and Concen-Concen-Concen-Reporting Reporting Reporting Constituent: <u>Units</u> tration <u>Limit</u> <u>tration</u> Limit <u>tration</u> Limit EPA Method 8270 (Continued): Di-N-Butylphthalate ug/kg ND 660 ND 660 ND 660 1,2,4,5-Tetrachlorobenzene ug/kg ND 660 ND 660 ND 660 4.6-Dinitro-2-Methylphenol ug/kg ND 660 ND 660 ND 660 Pentachloronitrobenzene 660 660 uq/kq ND ND 660 ND Fluoranthene 660 ug/kg ND 660 ND 660 ND Benzidine ug/kg ND 660 ND 660 ND 660 Pyrene ug/kg ND 660 ND 660 ND 660 Butylbenzylphthalate uq/kq ND 660 ND 660 ND 660 3,3'-Dichlorobenzidine ug/kg ND 1,300 ND 1,300 ND 1,300 Benzo(a)Anthracene ND ND 660 ug/kg ND 660 660 Bis(2-Ethylhexyl) ND 660 ND 660 ND 660 ug/kg Phthalate Chrysene ug/kg ND 660 ND 660 ND 660 Di-N-Octylphthalate ug/kg ND 660 ND 660 ND 660 Benzo(b)Fluoranthene 660 660 ug/kg 660 ND ND ND Benzo(k)Fluoranthene ug/kg ND 660 ND 660 ND 660 Benzo(a)Pyrene ND 660 ND 660 ND 660 ug/kg 3-Methylcholanthrene ND 660 ND 660 ug/kg ND 660 Indeno(1,2,3-cd)Pyrene ug/kg ND 660 ND 660 ИD 660 Dibenzo(a,h)Anthracene ND ND 660 uq/kg ND 660 660 660 Benzo(g,h,i)Perylene ND 660 ND 660 ND ug/kg Surrogate % Recovery: 2-Fluorophenol 119 111 110 Phenol d6 86 82 86 Nitrobenzene d5 51 57 60 2-Fluorobiphenyl 122 126 136 2,4,6-Tribromophenol 41 45 67 127 141 138

Concentrations reported as ND were not detected at or above the reporting limit.

p-Terphenyl d14

LOG NUMBER: DATE SAMPLED: 4419 05/17/94

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Seven

Sample Type:

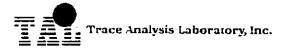
Soil

	<u>Method Blank</u>				
Method and	U 2 x	Concen-	Reporting		
<u>Constituent</u> :	<u>Units</u>	<u>tration</u>	<u>Limit</u>		
EPA Method 8270:					
Pyridine	ug/kg	ND	3,600		
N-Nitrosodimethylamine	ug/kg	ND	660		
Phenol	ug/kg	ND	660		
Bis (2-Chloroethyl) Ether	ug/kg	ND	660		
2-Chlorophenol	ug/kg	ND	660		
1,3-Dichlorobenzene	ug/kg	ND	660		
1,4-Dichlorobenzene	ug/kg	ND	660		
1,2-Dichlorobenzene	ug/kg	ND	660		
Bis (2-Chloroisopropyl) Ether	ug/kg	ND	660		
N-Nitroso-Đi-N- Propylamine	ug/kg	ND	660		
Acetophenone	ug/kg	ND	660		
2-Methylphenol (O-Cresol)	ug/kg	DN	660		
Hexachloroethane	ug/kg	ND	660		
Nitrobenzene	ug/kg	ND	660		
Isophorone	ug/kg	ND	660		
2-Nitrophenol	ug/kg	ND	660		
2,4-Dimethylphenol	ug/kg	DN	660		
Bis(2-Chloroethoxy) Methane	ug/kg	ND	660		
2,4-Dichlorophenol	ug/kg	ND	660		
1,2,4-Trichlorobenzene	ug/kg	ПN	660		
Naphthalene	ug/kg	ND	660		

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Sample Type: Soil

			<u>Sample</u>	<u>lybe:</u>	<u> 20 H</u>		
Mothad and			od Blank				
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>				
EPA Method 8270 (Continue	ed):						
Hexachlorobutadiene	ug/kg	ND	660				
<pre>3-Methylphenol and 4- Methylphenol (m-Cresol and p-Cresol)</pre>	ug/kg	ND	1,300	•			
4-Chloro-3-Methyl-phenol	ug/kg	ПD	1,300				
Hexachlorocyclo- pentadiene	ug/kg	ND	660				
2,4,6-Trichlorophenol	ug/kg	ПN	660				
2,4,5-Trichlorophenol	ug/kg	ND	660				
2-Chloronaphthalene	ug/kg	ND	660				
Benzoic Acid	ug/kg	ND	3,600				
Dimethylphthalate	ug/kg	ND	660		-		
Acenaphthylene	ug/kg	ND	660				
Acenaphthene	ug/kg	ОИ	660				
2,4-Dinitrophenol	ug/kg	ND	3,600				
4-Nitrophenol	ug/kg	ND	3,600				
2,4-Dinitrotoluene	ug/kg	ND	660				
2,6-Dinitrotoluene	ug/kg	GN	660				
Diethylphthalate	ug/kg	ND	660				
4-Chlorophenyl-phenyl- ether	ug/kg	ОИ	660				
Fluorene	ug/kg	ND	660				
N-Nitrosodiphenylamine	ug/kg	ND	660				
4-Bromophenyl-phenyl- ether	ug/kg	ND	660				
Hexachlorobenzene	ug/kg	ND	660				
Pentachlorophenol	ug/kg	, ND	3,600				
Phenanthrene	ug/kg	, ND	660				
Anthracene	ug/kg	, ND	660			•	
					± 4.		



LOG NUMBER: 4419
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Sample Type: Soil

Method and Constituent:	<u>Units</u>	Metho Concen- tration	d Blank Reporting Limit						
EPA Method 8270 (Continued):									
Di-N-Butylphthalate	ug/kg	ND	560						
1,2,4,5-Tetrachlorobenzene	ug/kg	ND	660						
4,6-Dinitro-2-Methylphenol	ug/kg	ND	660						
Pentachloronitrobenzene	ug/kg	ND	660						
Fluoranthene	ug/kg	ND	660						
Benzidine	ug/kg	ND	660						
Pyrene	ug/kg	ND	660						
Butylbenzylphthalate	ug/kg	ND	660						
3,3'-Dichlorobenzidine	ug/kg	ND	1,300						
Benzo(a)Anthracene	ug/kg	ND	660						
Bis(2-Ethylhexyl) Phthalate	ug/kg	ND	660						
Chrysene	ug/kg	ND	660						
Di-N-Octylphthalate	ug/kg	ND	660						
Benzo(b)Fluoranthene	ug/kg	ND	660						
Benzo(k)Fluoranthene	ug/kg	ND ND	660						
Benzo(a)Pyrene	ug/kg	ND	660						
3-Methylcholanthrene	ug/kg	l ND	660						
<pre>Indeno(1,2,3-cd)Pyrene</pre>	ug/kg	ND	660						
Dibenzo(a,h)Anthracene	ug/kg	ם א	660						
Benzo(g,h,i)Perylene	ug/kg	GN g	660						
Surrogate % Recovery:									
2-Fluorophenol Phenol d6 Nitrobenzene d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl d14			100 84 48 114 41 129						



4419

DATE SAMPLED:

05/17/94

DATE RECEIVED:

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DATE EXTRACTED: DATE ANALYZED: 05/18/94 and 05/20/94 05/20/94 and 05/25/94

DATE REPORTED:

06/08/94

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Ten

			Sample	Type:	Soil		
		ВН	BH4-6BH		6A-3.0	BHI	.0A-3.0
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit
EPA Method 7210:							
Copper	ug/kg	7,500	500	58,000	500	28,000	500
EPA Method 7420:							
Lead	ug/kg	3,900	3,600	100,000	3,600	8,100	3,600
EPA Method 7471:							
Mercury	ug/kg	200	120	ND	120	560	120

4419

DATE SAMPLED:

05/17/94

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05/17/94

DATE EXTRACTED:

05/18/94 and 05/20/94

DATE ANALYZED:

05/20/94 and 05/25/94

DATE REPORTED:

Sample Type:

06/08/94

1.7

PAGE:

Eleven

Soil

		Metho	d Blank	OC Sum	marv
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	% Recovery	% RPO
EPA Method 7210: Copper	ug/kg	ND	500	107	6.3
EPA Method 7420: Lead	ug/kg	ND	3,600	102*	2.1

ug/kg

EPA Method 7471:

Mercury

Concentrations reported as ND were not detected at or above the reporting limit.

ND

120

94

^{*} The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.



4419

DATE SAMPLED: DATE RECEIVED:

05/17/94 05/17/94 05/18/94

DATE EXTRACTED: DATE ANALYZED:

DATE REPORTED:

05/20/94 and/05/25/94 06/08/94

PAGE:

Twelve

Sample Type: Soil

		88	1-3.0	BH	11-3.0	Metho	d Blank
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 7040: Antimony	ug/kg	ND	79,000	ND	79,000	ND	79,000
EPA Method 7060: Arsenic	ug/kg	14,000	350	11,000	350	ОМ	350
EPA Method 7080: Barium	ug/kg	ИО	50,000	ND	50,000	ND	50,000
EPA Method 7090: Beryllium	ug/kg	ND	120	ND	120	ND	120
EPA Method 7130: Cadmium	ug/kg	ND	250	ND	250	ND	250
EPA Method 7190: Chromium	ug/kg	12,000	1,200	1,200	1,200	ND	1,200
EPA Method 7200: Cobalt	ug/kg	ND	12,000	ND	12,000	ND	12,000
EPA Method 7210: Copper	ug/kg	660,000	500	56,000	500	ND	500
EPA Method 7420: Lead	ug/kg	110,000	3,600	7,900	3,600	ND	3,600

4419

DATE SAMPLED:

05/17/94

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05/17/94

DATE EXTRACTED:

05/18/94 and 05/20/94 05/20/94, 05/24/94, 05/25/94,

DATE ANALYZED:

and 05/26/94

DATE REPORTED:

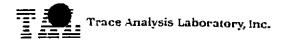
06/08/94

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Thirteen

Sample Type: Soil

Method and Constituent:	<u>Units</u>	BH Concen- tration	1-3.0 Reporting Limit		H11-3.0 Reporting Limit	<u>Metho</u> Concen- tration	d Blank Reporting Limit
EPA Method 7471: Mercury	ug/kg	720	120	160	120	ND .	120
EPA Method 7480: Molybdenum	ug/kg	ND	25,000	ND	25,000	ND	25,000
EPA Method 7520: Nickel	ug/kg	ND	7,500	ND	7,500	ND	7,500
EPA Method 7740: Selenium	ug/kg	300	250	ND	250	ND	250
EPA Method 7760: Silver	ug/kg	ND	280	ND	280	МD	280
EPA Method 7840: Thallium	ug/kg	ND	2,500	ND	2,500	ND	2,500
EPA Method 7910: Vanadium	ug/kg	24,000	5,000	44,000	5,000	ND	5,000
EPA Method 7950: Zinc	ug/kg	510,000	1,200	80,000	1,200	ND	1,200



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DATE SAMPLED:

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05/20/94 and 05/25/94

DATE REPORTED:

06/08/94

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Fourteen

Sample Type: Soil

	·	
	OC Su	mmary
Method and <pre>Constituent:</pre>	% Recovery	% RPD
EPA Method 7040:	<u>iteauver ;</u>	
Antimony	100*	3.8
	100	
EPA Method 7060: Arsenic	110	13
	112	13
EPA Method 7080:	a .	
Barium	61	12
EPA Method 7090:		
Beryllium	76	5.8
EPA Method 7130:		
Cadmium	94	2.6
EPA Method 7190:		
Chromium	87	3.4
EPA Method 7200:		
Cobalt	99	2.7
EPA Method 7210:		
Copper	107	6.3
EPA Method 7420:		
Lead	102*	2.1

^{*} The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.



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DATE SAMPLED: DATE RECEIVED: 05/17/94 05/17/94

DATE EXTRACTED:

05/18/94 and 05/20/94

DATE ANALYZED:

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and 05/26/94

DATE REPORTED:

06/08/94

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Fifteen

Sample Type: Soil

Method and Constituent:	QC Sum % Recovery	mary % RPD
EPA Method 7471:	94	1.7
EPA Method 7480: Molybdenum	94	2.6
EPA Method 7520: Nickel	93	4.7
EPA Method 7740: Selenium	67	3.2
EPA Method 7760: Silver	90*	33
EPA Method 7840: Thallium	92	2.2
EPA Method 7910: Vanadium	97	2.9
EPA Method 7950: Zinc	114	3.2

^{*} The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.

Louis W. DuPuis

Quality Assurance/Quality Control Manager



PROJECT NO.	1	ECT NA					14 A			7		Wy.		PARA	MET	ERS			INDUSTRIAL HYGIENE SAMPLE	Y
2463-001	<u></u>	rowl	ey	<u>Ya</u>	rd 1	<u>I</u> 44	19			12		20	, 	7.0,	, 	,	//	,}		
SAMPLERS: ISignatur Mil	ra)			_	(Print	ilip M. Cox				S. S	\$ 5 9 <					x/ ,			REMARKS	
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB		STATION LOCATION		/ {	5/4		X	5) 	/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		7	\angle	\angle			
BH1-3.0	5/11/99	0855		X	ļ	Barehale 1								X						······································
BH1-6.0		1910						1			\-,	ļ				ļ		•		
BH1-9.0		0902	<u> </u>		ļ	7			X	X	X									•
BH2-3.0	1	0925	<u> </u>			Borehole 2					-	ļ					ļ			
BH2-6.0		0933	· i					L	X			ļ					ļ			
1312-9.0		0937				7		1	M			X		ļ			ИO	5520		
B43-3		1000				Borehole 3									•			.		
BHA,-6		100						1	<u> </u>										·	·
BH3-9		1015			,	4		_(_	X		,					<u> </u>			-, <u>-</u>	
BH4-3	_	1020				Birabole 4		_(_	V .				• (ļ				
BH1 - 6		1025						1	X				X							
BH4-8.5	4	1030		V	<u></u>	4		1									<u> </u>		· · · · · · · · · · · · · · · · · · ·	0
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Philip M.	(ox															· - · -		· -		
Relinquished by: (Sign			Date	/ Tin	```] <i>'</i>	Received for Laboratory by: (Signature), Scott, Lecum		s/i		/ Tim 1635		lemar	ks	4 a	7	TAT			· · · · · · · · · · · · · · · · · · ·	
(Printed)						(Printed) Scott T. Ferrin						R	استع	ts	h (arr)	Hoin	el(e		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Phoenical Interests 117 111 n.

PROJECT NO.	_	CŢ NA				4410	1		7	7	Ky I		ARA					INDUSTRIAL HYGIENE SAMPLE	Y
2463-001		rowl	<u>-1</u>	Yar	d II		1			1 3 A			n2/		7	7			
SAMPLERS: (Signatu	re)		U		<u>(Pri</u>	inted)			,	8/2	: /,	$\frac{1}{2}\sqrt{x}$	$\frac{6}{6}$	*X					
The M	·lox				<u>[+</u>	hilip M. Cox		/ું જે	/\;\		1/E	7 B	10 V	(D	/ /		,	REMARKS	
FIELD Sample Number	DATE	TIME	COMP.	GRAB		STATION LOCATION	\\ \ \{	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		<u> </u>	y c	7 8 7 8 7 8 8 9 8 8 8 8 8 8 8 8 8 8 8 8		\[\frac{1}{2}\]	_	_			
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B45-6.0		1058					1	X											, .
BH5-B.0		1104			<u> </u>	4	1		X	X						· <u>·</u>			O -
BH6A-3.0		1116	_		<u> </u>	Barahole 6A					_	X							
BH6B-3.0		1130	_		<u> </u>	Borehole 6B				·	_								·- <u>-</u>
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BH LB-85		1137			<u> </u>	7	1	X_{-}			X					· 			
BH7-6		1255			<u> </u>	Borehole 7													
B47 - 8		1300			<u> </u>	4		X										···	
BH8 - 4		1320			<u> </u>	Barehala 8		ļ			ļ		_						
вня - 6		1330			ļ. <u></u>	·		X			ļ 								
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(Printed)				_ 		Scott T. Ferr. may	_					R.	الء	V	·le	~ \	(lein	.cke	,

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CHAIN OF CUSTODY RECORD

PROJECT NO.				CT NAM		•			uul	a		7)	P	ARA	METE	RS			INDUSTRIAL HYGIENE SAMPLE	Y
2463-001			Cr	owley	Y	qra	111		7 11		<u> </u>	2		0	, 	- 0/	\\\\\\\		, – ,	}-		_ N
SAMPLERS: (SI	gnatu	re)					(Pri	inted)			\mathbb{Z}	**/	<i>X/</i> 9		/ /	ď.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\					
Fly Mil	<u> </u>						11	rilip M. Cox			/ર્જુ	[<i>X</i>]	/ 9	/£	7 3			Y /	/ /		REMARKS	
FIELD SAMPLE NUMBER		DA	ATE	TIME	COMP.	GRAB		STATION L	OCATION	/ \{	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		3 / ₄		3/1			_	\angle			
BH9- 3.0		5/1	7/94	1355		X		Borehole	e 9		<u> </u>	X	X					<u> </u>				
BH9 - 6.0				1400							X											
BH9-7.5	-			1405		- -	<u> </u>	<u> </u>	,	1					•				·	**************************************		-
BH10A - 3.	0			1415			<u> </u>	Borehole	LOA	Ц_					X			·			. 11. 22. 24	_
BH10B-9.	o		\	1445				Boishola	<u> १०८</u>		X				—-i				<u> </u>			
BH11-3	<u>.o</u>			1500				Borehola	2	1	X					X						
BH 11-6.	0			1502						_ _ _	·			X_{\parallel}						· ····	.	
BH 11 8	.5	_		1507		∇	ļ	4								,				·		
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Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

LOG NUMBER: DATE SAMPLED: 4419A 05/17/94

DATE RECEIVED:

05/17/94

DATE INITIATED:

06/09/94

DATE EXTRACTED:

06/10/94 and 06/12/94

DATE ANALYZED:

06/13/94

DATE REPORTED:

06/16/94

CUSTOMER:

Versar, Inc.

REQUESTER:

Lawrence Kleinecke

PROJECT:

No. 2463-001, Crowley Yard II

Waste Extraction Test

Sample Type: Extract of Soil

		ВН	1-3.0	ВН	6A-3.0	Method Blank			
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>		
EPA Method 7210: Copper	ug/l	7,900	20	2,400	20	ND	20		
EPA Method 7420: Lead	ug/l	1,200	200	11,000	200	ND	200		



4419A

DATE SAMPLED:

05/17/94

DATE RECEIVED:

05/17/94

DATE INITIATED: DATE EXTRACTED: 06/09/94

DATE ANALYZED:

06/10/94 and 06/12/94 06/13/94

DATE REPORTED:

06/16/94

PAGE:

Two

Waste Wxtraction Test

Sample Type:

Extract of Soil

	QC_Sum	mary
Method and <u>Constituent</u> :	% Recovery	% RPD
EPA Method 7210: Copper	110	2.3
EPA Method 7420:		
Lead	108	6.3

E00 🛭

Louis W. DuPuis

Quality Assurance/Quality Control Manager

b6/91/90

35:45

PROJECT NO.	1	ECT NAM				. 4440	. 1	\	7	1	y y	F	ARA	мете	RS		,	INDUSTRIAL HYGIENE SAMPL	£ 14
2463-001	<u> </u>	rowle	4	<u>Ya</u>	rd IL	4419	7	F	/ 3/	44	}}	, 	<u>,0/</u>		7		}		
SAMPLERS: 1Signary With Mil	re)				(Printed) Philip M. Co	×				(8 %) Y S					₩	مون مر		REMARKS	
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION I	LOCATION	/			<u> </u>	2 2 2	% %				_	<u></u>		
BH1-3.0	5/A/91	0855		X	Boreho	le I	1			,			X	X					·
BH1-6.0		0980					1			\								·	
BH1-9.0		0902			1			X	X	Х		-					· · · · ·		
BH2-3.0		095			Borehole	2		ļ,											
B42.6.0		0933					1	X								-			
1342-9.0	ļ	0937			7	<u> </u>	1	X	ļ		X					<u>2 (14)</u>	<u>ες χο</u>		
B43-3	-	1000			Borehole	3	1						 						
BHA-6		1010					(_											
BH3-9 -		1015					1	X	 								· - -		
BH4-3	- 	1020		-	Birebole	= 4	1	1			<u></u>	\/						· · · · · · · · · · · · · · · · · · ·	
B14 - 6		1025					1	Å	,			X.							
BH4-8.5	4	1030	Ĺ <u></u> .	V				L								·			
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Philip M.	(ox																· · · · · ·	-	<u>; </u>
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(Printed)				_	Scott 7.	Kinna							اسزيا	to —	h (c	W)	Kiorne.	<i>(</i> e	

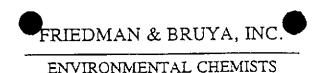
Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

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PROJECT NO.			NAM			441	9	K	7	7	K)	f	ARA	METI	ERS		INDUSTRIAL HYGIENE SAMPLE	Y		
2463-001		ر د ره	wla	<u> </u>	lare	(II—	1/	7	12	/ 	N .	,	7,07	,		, 				
				0-		(Printed)		7	**/			4 /,	$\frac{1}{6}$	Ş						
The M	1. lox					Philip M. Cox		/ટુ ^{કે}	/Ϋ	[]	1/6	14 (E)	$\langle \rangle \cup \langle \rangle$	1	/\&/\		REMARKS			
FIELD SAMPLE NUMBER	DAT	E T	IME	COMP.	GRAB	STATION LOCATION	\$ \ \sqrt{\sq}\}}\sqrt{\sq}}}}\sqrt{\sq}}}}}}\sqrt{\sq}}}}}}}\sqrt{\sqrt{\sqrt{\sq}}}}}}}\sqrt{\sqrt{\sq}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2									/		
BH5-3.0	Slah	4 10	155		X	Buch. les	1											··· <u></u> ·		
B45-6.0		- 1	128				1	X										<u> </u>		
BH5-8.0			04			7			X	X										
BH6A-3.0		(1	16			Barehole 6A						X		Χ						
BH63.3.0		-11-	<u>3</u> 0		\perp	Borehole 6B												_		
B465-60		10	34								ļ									
BH68-8.5		10	37					X			X							•		
BH7-6		2	55			Borehole 7	1	<u> </u>			ļ									
B47-8 -		1-3	60-		_			X												
BH8 - 4		13	20			Barehola 8											, 			
BH8 - 6		13	30					X								,		_		
BH8-85	V	13	35		4	₩	1		X	X								9		
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PROJECT NO.	1	CT NAM			uul	9	Å	$ \top $	\sqrt{s}	XV.	P	ARA	MET	ERS		INDUSTRIAL HYGIENE SAMPLE	Y
2463-001	Cr	مساس	Y	ird			1	12		0		.0/	20/	5 /	/ /		
SAMPLERS: (Signatu	ice)				(Printed)				<i>\$9</i> 9			ď.	ነረን ሳ Ke				
Thin Mily			, ———		Philip M. Gx		/8	[B]	// ?/	/(\$)	7 Q	40)	(F)	7		REMARKS	
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	/{	30,00		3 / ₍		<i>9</i> / <i>N</i>		Y	_	_		
BH9-3.0	5/17/94	1355		X	Borchole 9	1		X	X								
BH9-6.0		1400					X			 							
BH9-7.5		1405															-
BH10A - 3.0		1415			Borehole 10A			-			X						
BH10B -9.0		1445			Borebole 10B		X	ļ 				<u>.</u>					
BH11-3.0		1500			Borehole 11	1	X					X		·			
BH 11-6.0		1502		_		- -	ļ			X_					ļ <u>.</u>		•
BH 11 8.5	4	1507		$ \Phi $	4				·		·						
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Philip M.	(°×																
Relinquished by: 1Sig			Date	/ Tim	Received for Laboratory by:	~/		1630		Remar	ks /	4 de	7/	Γ4-	T		•
					Lott France	1	14	1000			Ø	المرو	()	66	01/4	Klainecke	
(Printed)	·	-			Scatt T. Ferroman	h							_		1	. ,	



JUN 1 6 1994

3012 16th Avenue West Seattle, WA 98119-2029 FAX: (206) 283-5044



Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282

June 9, 1994

Lawrence Kleinecke, Senior Geohydrologist Versar Inc. 5330 Primrose Drive, Suite 228 Fair Oaks, CA 95628

Dear Mr. Kleinecke:

Enclosed are the results from the testing of material submitted on May 27, 1994 from Project 2463-001.

The lack of *n*-alkanes for this product indicates this material is rather weathered by biodegradation. With a thin product layer (1/8"-1/4") undergoing constant water level changes in a biologically active soil, this activity is expected to go on rather rapidly. At the time this sample was taken, most of the *n*-alkanes had been degraded but the isoprenoid compounds are still abundant. This combination suggests the product has been there probably more than a year but less than a decade. If the groundwater is subject to daily rising and falling due to tidal action, the process would be accelerated even more so that a matter of a few years is probably closer.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

Kelley Wilt
Chemist

KW/dp

Enclosures

Date of Report: June 9, 1994 Date Received: May 27, 1994

Project: 2463-001

RESULTS FROM THE ANALYSIS OF THE PRODUCT AND WATER SAMPLE
FOR FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY
USING A FLAME IONIZATION DETECTOR (FID)
AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID

GC Characterization

BH₁₈

The GC trace using the flame ionization detector (FID) showed the presence of medium and high boiling compounds. The patterns displayed by these peaks are indicative of diesel fuel or heating oil and motor oil or lubricating oil.

The medium boiling compounds appeared as a ragged pattern of peaks eluting from n-C₆ to n-C₂₅ showing a maximum near n-C₁₇. An absence of n-alkanes was seen for this material. The medium boiling material appears to have undergone chemical/biological degradation.

The high boiling compounds appeared as a broad hump eluting from $n\text{-}C_{26}$ to $n\text{-}C_{30}$ showing a maximum near $n\text{-}C_{28}$. The nature of the compounds present in the high boiling product makes it difficult to determine if any degradation has occurred using a GC analysis.

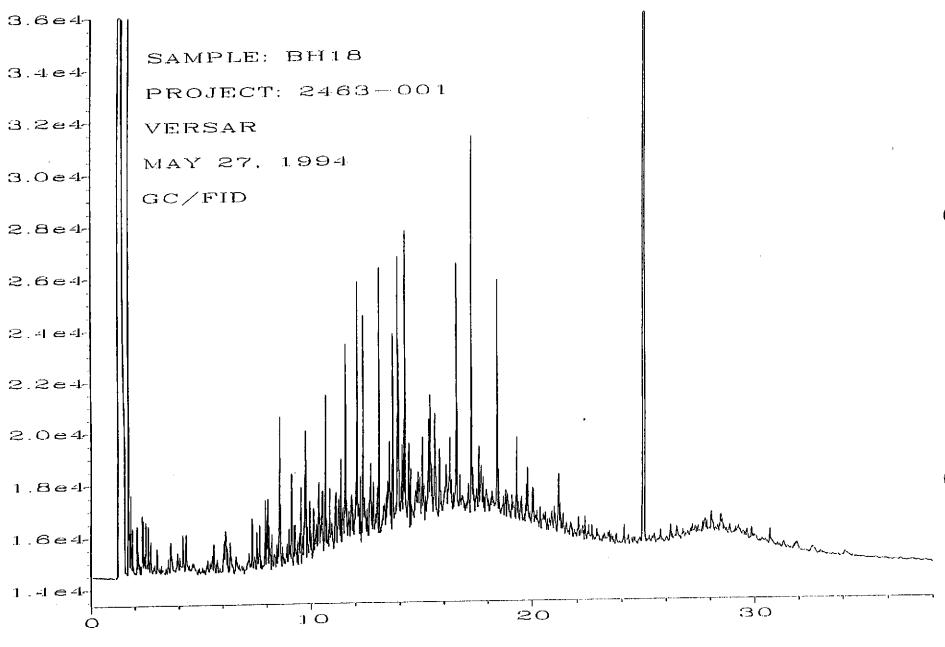
The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

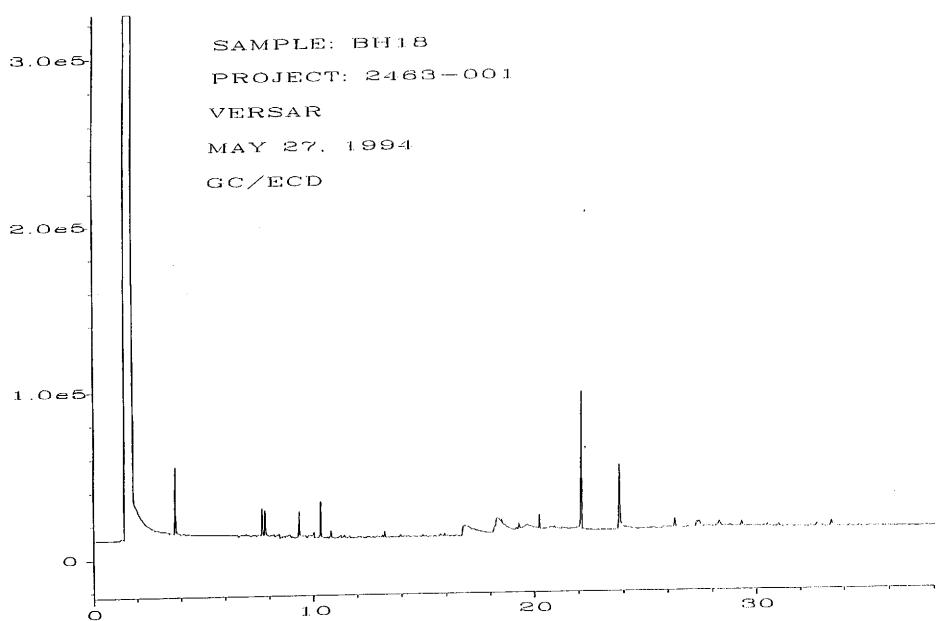
Versar

CHAIN OF CUSTODY RECORD

05-5010-17 05/27/94 9:35

Versii	•				CHAIN OF CUSTODY RECORD										UDUSTRIAL Y		
		CT NAM	<i>E</i>			 -	PARAMETERS							INDUSTRIAL Y			
PROJECT NO. 2463-001				24	(03-00)									77			
SAMPLERS: (Signatu					Lawrence Kleinecke	So S					//	//	//		REMARKS		
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	\\ \sigma_{\sigma}^{\sigma}	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	ss)/		<u>_</u> ,	_	<u>/</u> ,	_	_			- 4
BH18	5/18/94	1620		×	49951-52-	ス	Х								Usevo	A Labelled "Hoi iroid sample	
3418	5/18/94 5/18/44	1640		٨	49951-52- 49953	_l_				<u></u> -					Less To	irbid sample	-(
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(Printed)			(Printed)					Look at Petroleum only, Not Water Normal Turnaround									

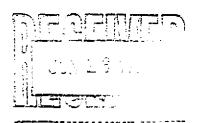








June 9, 1994



Mr. Lawrence Kleinecke Versar, Inc. 5330 Primrose Drive, Suite 228 Fair Oaks, California 95628

Dear Mr. Kleinecke:

Trace Analysis Laboratory received thirty soil samples and one water sample on May 19, 1994 for your Project No. 2463-001, Crowley Yard II, PDD II (our custody log number 4424 and 4424A).

These samples were analyzed according to your chain of custody. Our analytical report and the completed chain of custody form are enclosed for your review.

Soil samples BH14-6.0 and BH15-6.0 were inadvertently prepared and analyzed for Total Petroleum Hydrocarbons as Gasoline, Benzene, Toluene, Ethylbenzene, and Xylenes. This delayed the analysis of samples BH13-6.0 and BH15-9.0 for the same analysis until 8 days beyond the holding time. Results for all four samples are presented.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

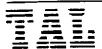
If you should have any questions or require additional information, please call me.

Sincerely yours,

Scott T. Ferriman Project Specialist

Scott J. Fernin

Enclosures



LOG NUMBER: DATE SAMPLED: 4424A 05/18/94

DATE RECEIVED: DATE ANALYZED:

Sample Type:

05/19/94 05/28/94

DATE REPORTED:

06/09/94

Water

CUSTOMER:

Versar, Inc.

REQUESTER:

Lawrence Kleinecke

PROJECT:

No. 2463-001, Crowley Yard II, PDD II

			2 a li in i e	rype.	וופ נבו	
		8H1	8-HOT	Method Blank		
Method and Constituent:	<u>Units</u>	Concentration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	
DHS Method:						
Total Petroleum Hydro- carbons as Gasoline	ug/1	2,600	480	ND	50	
Modified EPA Method 8020	for:					
Benzene	ug/l	ND	9.0	ND	0.50	
Toluene	ug/l	ND	11	ND	0.50	
Ethylbenzene	ug/l	ND	12	ПN	0.50	
Xylenes	ug/1	ND	30	ND	1.5	

QC Summary:

% Recovery:

108

% RPD:

3.0

LOG NUMBER: 4424
DATE SAMPLED: 05/18/94
DATE RECEIVED: 05/19/94
DATE ANALYZED: 05/25/94

DATE REPORTED:

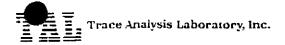
Sample Type:

06/09/94 Two

Water

PAGE:

		BH1	<u>8-HOT</u>	Metho	d Blank			
Method and		Concen-	Reporting	Concen-	Reporting			
Constituent	<u>Units</u>	<u>tration</u>	<u>Limit</u>	<u>tration</u>	<u>Limit</u>			
EPA Method 8010:								
Benzyl Chloride	ug/l	ND	3,000	ND	120			
Bromobenzene	ug/l	ND	3,000	ПU	120			
Bromodichloromethane	ug/l	ND	12	ND	0.50			
Bromoform	ug/l	ND	12	ND	0.50			
Bromomethane	ug/l	ND	150	ND	6.0			
Carbon Tetrachloride	ug/l	ND	150	ND	6.0			
Chlorobenzene	ug/l	2,200	12	ND	0.50			
Chloroethane	ug/l	МD	150	DN	6.0			
2-Chloroethyl Vinyl Ether	ug/l	ND	150	ND	6.0			
Chloroform	ug/l	ND	12	ND	0.50			
Chloromethane	ug/1	МD	150	ND	6.0			
Dibromochloromethane	ug/l	ND	12	ND	0.50			
Dibromomethane	ug/l	ND	3,000	ИD	120			
1,2-Dichlorobenzene	ug/l	ND	150	ИD	6.0			
1,3-Dichlorobenzene	ug/l	ПN	150	П	6.0			
1,4-Dichlorobenzene	ug/l	ND	150	ND	6.0			
Dichlorodifluoromethane	ug/l	ND	150	ND	6.0			
1,1-Dichloroethane	ug/l	ND	12	ND	0.50			
1,2-Dichloroethane	ug/l	ND	12	ND	0.50			
1,1-Dichloroethene	ug/1	ND	12	CIN	0.50			



DATE SAMPLED: 05/18/94 DATE RECEIVED: 05/19/94 DATE ANALYZED: 05/25/94

DATE REPORTED:

06/09/94

PAGE:

Three

			ype:	Water	
		BH	118-HOT	Metho	d Blank
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>
EPA Method 8010 (Continued):				
cis and trans-1,2- Dichloroethene	ug/l	ОИ	12	ND	0.50
Dichloromethane	ug/l	ND	3,000	ND ~	120
1,2-Dichloropropane	ug/l	ND	12	ND	0.50
cis-1,3-Dichloropropene	ug/l	מא	12	ND	0.50
trans-1,3-Dichloropropene	ug/l	ND	12	П	0.50
1,1,2,2-Tetrachloro- ethane	ug/l	ND	12	ND	0.50
1,1,1,2-Tetrachloro- ethaπe	ug/l	ND	3,000	ND	120
Tetrachloroethene	ug/l	ND	12	ND	0.50
1,1,1-Trichloroethane	ug/l	ND	12	ND	0.50
1,1,2-Trichloroethane	ug/l	ПU	12	ND	0.50
Trichloroethene	ug/T	ND	12	ND	0.50
Trichlorofluoro- methane	ug/l	ND	12	ND	0.50
1,2,3-Trichloropropane	ug/l	. ND	3,000	ND	120
Vinyl Chloride	ug/1	ND	150	ND	6.0

QC Summary:

% Recovery: 98

% RPD:

7.0



4424

DATE SAMPLED:

05/18/94

DATE RECEIVED:

05/19/94 05/27/94

DATE EXTRACTED: DATE ANALYZED:

06/01/94

DATE REPORTED:

06/09/94

PAGE:

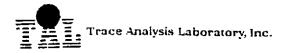
Four

			Samole	Type:	Soil		
		BH1:	3-6.0	BH1	5-9.0	Metho	d Blank
Method and Constituent:	<u>Units</u>		Reporting Limit		Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	1,700,000	1,000	180,000	1,000	ND	1,000

QC Summary:

% Recovery: 130

% RPD: 1.6



LOG NUMBER: 4424
DATE SAMPLED: 05/18/94
DATE RECEIVED: 05/19/94
DATE EXTRACTED: 06/08/94
DATE ANALYZED: 06/09/94
DATE REPORTED: 06/09/94
PAGE: Five

Sample Type: Soil

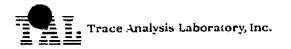
		BHI	13-6.0	BH1	4-6.0	<u>8H1</u>	<u>5-6.0</u>
Method and	Unita	Concen- tration	Reporting Limit	Concen- tration		Concen- <u>tration</u>	ReportingLimit
<u>Constituent</u> :	<u>Units</u>	tration	LJIIII L	CI ac ion	<u> </u>	<u>cracion</u>	<u> </u>
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	25,000.	500	ND	500	ND	500
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Xylenes	ug/kg	ND	15	ND	15	СИ	15
		88	115-9.0	Metho	d Blank		
Method and		Concen-	Reporting	Concen-	• •		
<u>Constituent</u> :	<u>Units</u>	<u>tration</u>	<u>Limit</u>	<u>tration</u>	<u>Limit</u>		
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	31,000	500	ND	500		
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0		
Toluene	ug/kg	ND	5.0	ОИ	5.0		
Ethylbenzene	ug/kg	ND	5.0	ND	5.0		
Xylenes	ug/kg	CIN	15	ND	15		

OC Summary:

% Recovery: 96 % RPD: 15

Concentrations reported as ND were not detected at or above the reporting limit.

Samples BH13-6.0 and BH15-9.0 were analyzed 8 days beyond the I4-day holding time for this analysis.



4424

DATE SAMPLED: DATE RECEIVED:

05/18/94 05/19/94

DATE EXTRACTED:

06/07/94

DATE ANALYZED:

06/08/94

DATE REPORTED:

06/09/94

PAGE:

Six

			Sample	Type:	Soil		
Method and Constituent:	Units	BHI Concen- tration	2-6.0 Reporting Limit	Concen-	H13-9.0 Reporting Limit	BH Concen- tration	14-9.0 Reportin <u>Limit</u>
Standard Method 5520CF: Hydrocarbon							
Oil and Grease	ug/kg	540,000	50,000	13,000,000	50,000	ND	50,000
Method and <u>Constituent</u> :	<u>Units</u>	BH Concen- tration	15-9.0 Reporting Limit	Concen-	H16-9.0 Reporting Limit	BH Concen- tration	17-6.0 Reporting <u>Limit</u>
Standard Method 5520CF:							
Oil and Grease	ug/kg	260,000	50,000	ND	50,000	ND	50,000
		вн	118-8.0	8	BH19-9.0	B1	120-6.0
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	Concen- tration	
Standard Method 5520CF: Hydrocarbon							
Oil and Grease	ug/kg	65,000	50,000	230,000	50,000	ND	50,000
Method and Constituent:	<u>Units</u>	BI Concen- tration		g Concen-			
Standard Method 5520CF: Hydrocarbon Oil and Grease	ug/kg	53,000	50,000	1,700,000	50,000	ND	50,000

OC Summary:

% Recovery: 120

% RPD:

15

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			Samole T	yoe:	Soil		
		88	13-6.0	ВН	18-8.0	Вн	19-6.0
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>
EPA Method 8010:							
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromobenzene	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromodichloromethane	ug/kg	ND	20	ND	20	ND	20
Bromoform	ug/kg	ND	20	ND	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60	ИD	60
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60
Chlorobenzene	ug/kg	ND	20	610	20	1,700	20
Chloroethane	ug/kg	DN	60	МD	60	ND	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	DN	60	ND	60°
Chloroform	ug/kg	ND	20	ND	20	ПD	20
Chloromethane	ug/kg	ND	60	ND	60	ПD	60
Dibromochloromethane	ug/kg	ND	20	DИ	20	ND	20
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichlorobenzene	ug/kg	ND	60	ND	60	1,500	60
1,3-Dichlorobenzene	ug/kg	GN	60	ND	60	150	60
1,4-Dichlorobenzene	ug/kg	ND	60	ND	60	610	60
Dichlorodifluoromethane	ug/kg	ND	60	ND	60	DND	60
1,1-Dichloroethane	ug/kg	ND	20	МĎ	20	П	20
1,2-Dichloroethane	ug/kg	ND	20	ПN	20	ПN	20
1,1-Dichloroethene	ug/kg	ND	20	ND	20	ND	20



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_

			<u>Sample T</u>	voe:	Soil		<u> </u>
		ВН	13-6.0	BH	118-8.0		19-6.0_
Method and Constituent	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporti <u>Limit</u>
EPA Method 8010 (Continued	.):						
cis and trans-1,2 Dichloroethene	ùg/kg	ND	20	ND	20	ND	20
Dichloromethane	ug/kg	ИD	1,200	ПN	1,200	ПN	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	2C
cis-1,3-Dichloropropene	ug/kg	ND	20	П	20	ND	2C
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
1,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20	ND	2C
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	МD	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	2 C
1,1,1-Trichloroethane	ug/kg	ПИ	20	ND	20	DN	2C
1,1,2-Trichloroethane	ug/kg		20	ND	20	ND	20
Trichloroethene	ug/kg	ND	20	ND	20	ND	2 C
Trichlorofluoro- methane	ug/kg	, ND	20	ND	20	ND	2 C
1,2,3-Trichloropropane	ug/kg	, ND	1,200	ПD	1,200	ND	1,200
Vinyl Chloride	ug/kg		60	ND	60	ND	6 0

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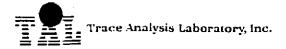
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			Sample T	ype:	Soil
		RH	22-9.0	Metho	d Blank
Method and Constituent	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 8010:					
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200
Bromobenzene	ug/kg	ND	1,200	ND	1,200
Bromodichloromethane	ug/kg	ND	20	ND	20
Bromoform	ug/kg	П	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60
Carbon Tetrachloride	ug/kg	ND	60	ND	60
Chlorobenzene	ug/kg	ND	20	ND	20
Chloroethane	ug/kg	ND	60	ND	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	ON	60
Chloroform	ug/kg	ND	20	ND	20
Chloromethane	ug/kg	ПN	60	ND	60
Dibromochloromethane	ug/kg	ND	20	ND	20
Dibromomethane	ug/kg	ПD	1,200	ПN	1,200
1,2-Dichlorobenzene	ug/kg	ND	60	ND	60
1,3-Dichlorobenzene	ug/kg	ND	60	DN	60
1,4-Dichlorobenzene	ug/kg	ND	60	ND	60
Dichlorodifluoromethane	ug/kg	ND	60	ND .	60
1,1-Dichloroethane	ug/kg	GN	20	DN	20
1,2-Dichloroethane	ug/kg	СИ	20	ND	20
1,1-Dichloroethene	ug/kg	, ND	20	ПN	20



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			Sample T	vpe:	<u>Soil</u>
	•	ВН	22-9.0	Metho	d Blank
Method and		Concen-	Reporting	Concen-	Reporting
<u>Constituent</u>	<u>Units</u>	<u>tration</u>	<u>Limit</u>	<u>tration</u>	<u>Limit</u>
EPA Method 8010 (Continued):				
cis and trans-1,2					
Dichloroethene	ug/kg	ND	20	ND	20
Dichloromethane	ug/kg	ND	1,200	ND	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20
trans-1,3-Dichloropropene	ug/kg	ND	20	DN	20
l,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20	ПD	20
Trichloroethene	ug/kg	ND	20	ПN	20
Trichlorofluoro- methane	ug/kg	מא	20	ND	20
1,2,3-Trichloropropane	ug/kg	ND	1,200	ND	1,200
Vinyl Chloride	ug/kg	ND	60	СИ	60

OC Summary:

% Recovery: 81

% RPD:

0.80

Trace Analysis Laboratory, Inc.

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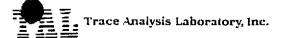
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Sample Type:

<u>Soil</u>

		Bt	114-6.0	BH	115-6.0	BH1	6-9.0
Method and Constituent:	U <u>nits</u>	Concen- tration	ReportingLimit	Concen- tration	ReportingLimit	Concen- tration	Reportin <u>Limit</u>
constituent.	011162	CT & C TOIL	Limit	<u> </u>		<u> </u>	
EPA Method 8270:							
Pyridine	ug/kg	ND	3,600	ND	3,600	ND	3,600
N-Nitrosodimethylamine	ug/kg	ND	660	ФИ	660	ND	660
Phenol	ug/kg	ND	660	ND	660	МD	660
Bis (2-Chloroethyl) Ether	ug/kg	ND	660	ND	660	ND	660
2-Chlorophenol	ug/kg	ND	660	ИD	660	DИ	660
1,3-Dichlorobenzene	ug/kg	DИ	660	ND	660	МD	660
1,4-Dichlorobenzene	ug/kg	ND	660	ДN	660	ND	660
1,2-Dichlorobenzene	ug/kg	ND	660	ND	660	ИĎ	660
Bis (2-Chloroisopropyl) Ether	ug/kg	ND	660	ND	660	ND	660
N-Nitroso-Di-N- Propylamine	ug/kg	ND	660	ND	660	ND	660
Acetophenone	ug/kg	ND	660	П	660	ND	660
2-Methylphenol (0-Cresol)	ug/kg	ND	660	ND	660	ND	660
Hexachloroethane	ug/kg	ND	660	ND	660	П	660
Nitrobenzene	ug/kg	DN	660	П	660	DИ	660
Isophorone	ug/kg	ND	660	ND	660	ND	660
2-Nitrophenol	ug/kg	ND	660	ND	660	ND	660
2,4-Dimethylphenol	ug/kg	ПЛ	660	ND	660	DИ	660
Bis(2-Chloroethoxy) Methane	ug/kg	. ND	660	ND	660	ND	660
2,4-Dichlorophenol	ug/kg	, ND	660	ND	660	ND	660
1,2,4-Trichlorobenzene	ug/kg	, ND	660	ND	660	ND	660
Naphthalene	ug/kg	g ND	660	DN	660	ND	660



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			Sampl	е Тур	e:	Sail		
	-		H14-6.0			15-6.0		116-9.0
Method and <u>Constituent</u>		loncen- tration	Reportin <u>Limit</u>	_	ncen- ation	Reporting <u>Limit</u>	Concen- tration	Reporti: <u>Limit</u>
EPA Method 8270 (Continue	:(b							
Hexachlorobutadiene	ug/kg	ND	660		ND	660	ПN	660
3-Methylphenol and 4- Methylphenol (m-Cresol and p-Cresol)	ug/kg	П	1,300		ND	1,300	ND	1,300
4-Chloro-3-Methyl-phenol	ug/kg	ND	1,300		ND	1,300	ND	1,300
Hexachlorocyclo- pentadiene	ug/kg	ND	660		ND	660	ND	660
2,4,6-Trichlorophenol	ug/kg	ND	660		ND	660	ND	660
2,4,5-Trichlorophenol	ug/kg	ND	660		ND	660	ND	660
2-Chloronaphthalene	ug/kg	ND	660		ND	660	ДИ	660
Benzoic Acid	ug/kg	ND	3,600		ND	3,600	Й	3,600
Dimethylphthalate	ug/kg	ND	660		ND	660	ND	660
Acenaphthylene	ug/kg	ND	660	٠	ND	660	ND	660
Acenaphthene	цg/kg	ND	660		ND	660	ND	660
2,4-Dinitrophenol	ug/kg	ND	3,600		СИ	3,600	ИD	3,600
4-Nitrophenol	ug/kg	ND	3,600		ND	3,600	ND	3,600
2,4-Dinitrotoluene	ug/kg	ND	660		NĐ	660	ND	660
2,6-Dinitrotoluene	ug/kg	ND	660		ND	660	ND	660
Diethylphthalate	ug/kg	ND	660		ND	660	ПN	660
4-Chlorophenyl-phenyl- ether	ug/kg	П	660		ND	660	ND	660
Fluorene	ug/kg	. ND	660		ND	660	ND	660
N-Nitrosodiphenylamine	ug/kg	ND	660		ND	660	ND	660
4-Bromophenyl-phenyl- ether	ug/kg	ND	660		ND	660	ND	660
Hexachlorobenzene	ug/kg	ND	660		ND	660	ND	660
Pentachlorophenol	ug/kg	ND	3,600		ПИ	3,600	ND	3,600
Phenanthrene	ug/kg	П	660		ND	660	ND	660
Anthracene	ug/kg	ND	660		ND	660	ND	660
Concentrations reported	as ND we	ere not	detected	at or	above	the report	ing limit	

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			Sample	Type:	Soil		
		ВН	14-6.0	ВН	15-6.0	ВН	16-9.0
Method and <pre>Constituent:</pre>	<u>Units</u>	Concentration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporti
EPA Method 8270 (Continued):						
Di-N-Butylphthalate	ug/kg	ОN	660	ND	660	ND	660
1,2,4,5-Tetrachlorobenzene	ug/kg	ND	660	ND	660	ND	660
4,6-Dinitro-2-Methylphenol	ug/kg	ND	660	ND	660	DN	660
Pentachloronitrobenzene	ug/kg	ND	660	ND	660	ND	660
Fluoranthene	ug/kg	ND	660	ND	660	ND	660
Benzidine	ug/kg	П	660	ND .	660	DИ	660
Ругепе	ug/kg	ND	660	DИ	660	ИD	660
Butylbenzylphthalate	ug/kg	ND	660	ND	660	DK	660
3,3'-Dichlorobenzidine	ug/kg	DN	1,300	DИ	1,300	DN	1,300
Benzo(a)Anthracene	ug/kg	ND	660	ND	660	ND	660
Bis(2-Ethylhexyl) Phthalate	ug/kg	ND	660	ND	660	DN	660
Chrysene	ug/kg	, ND	660	ND	660	ИD	660
Di-N-Octylphthalate	ug/kg	g ND	660	ND	660	ND	660
Benzo(b)Fluoranthene	ug/kg	g ND	660	ND	660	СИ	660
Benzo(k)Fluoranthene	ug/k	g ND	660	СИ	660	ND	660
Benzo(a)Pyrene	ug/k	g ND	660	ND	660	ПN	660
3-Methylcholanthrene	ug/k	g ND	660	ND	660	DИ	660
Indeno(1,2,3-cd)Pyrene	ug/k	g ND	660	ПИ	660	ND	660
Dibenzo(a,h)Anthracene	ug/k	g ND	660	ОИ	660	DN	660
Benzo(g,h,i)Perylene	ug/k	g ND	660	ND	660	ИD	660
Surrogate % Recovery:							
2-Fluorophenol Phenol d6 Nitrobenzene d5 2-Fluorobiphenyl 2,4,6-Tribromophenol			121 94 56 136 41		88 69 46 92 33		114 88 54 131 45 148

Concentrations reported as ND were not detected at or above the reporting limit.

p-Terphenyl d14

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Sample Type:

Soil

		Metho	od Blank
Method and <pre>Constituent:</pre>	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>
EPA Method 8270:			
Pyridine	ug/kg	ND	3,600
N-Nitrosodimethylamine	ug/kg	ND	660
Phenol	ug/kg	ND	660
Bis (2-Chloroethyl) Ether	ug/kg	ND	660
2-Chlorophenol	ug/kg	ND	660
1,3-Dichlorobenzene	ug/kg	ND	660
1,4-Dichlorobenzene	ug/kg	ND	660
1,2-Dichlorobenzene	ug/kg	ND	660
Bis (2-Chloroisopropyl) Ether	ug/kg	DN	660
N-Nitroso-Di-N- Propylamine	ug/kg	ND	660
Acetophenone	ug/kg	ND	660
2-Methylphenol (0-Cresol)	ug/kg	ND	660
Hexachloroethane	ug/kg	DИ	660
Nitrobenzene	ug/kg	ND	560
Isophorone	ug/kg	DN	660
2-Nitrophenol	ug/kg	ND	660
2,4-Dimethylphenol	ug/kg	ND	660
Bis(2-Chloroethoxy) Methane	ug/kg	ПN	660
2,4-Dichlorophenol	ug/kg	ND	660
1,2,4-Trichlorobenzene	ug/kg	ND	660
Naphthalene	ug/kg	ND	660



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Sample Type: Soil

				<u>e Tybe</u>	4	<u> 30 1 i</u>			
	-		<u>d Blank</u>	_					
Method and		oncen-	Reportin Limit_	g					
<u>Constituent</u>	<u>Units</u> t	<u>ration</u>							
EPA Method 8270 (Continued	1):								
Hexachlorobutadiene	ug/kg	ND	660						
<pre>3-Methylphenol and 4- Methylphenol (m-Cresol and p-Cresol)</pre>	ug/kg	ND	1,300					•	
4-Chloro-3-Methyl-phenol	ug/kg	ND	1,300						
Hexachlorocyclo- pentadiene	ug/kg	ND	660						
2,4,6-Trichlorophenol	ug/kg	ND	660						
2,4,5-Trichlorophenol	ug/kg	ND	660						
2-Chloronaphthalene	ug/kg	ND	660						
Benzoic Acid	ug/kg	ND	3,600						
Dimethylphthalate	ug/kg	DN	660						
Acenaphthylene	ug/kg	ND	660						
Acenaphthene	ug/kg	ND	660						
2,4-Dinitrophenol	ug/kg	ND	3,600						
4-Nitrophenol	ug/kg	ИĎ	3,600						
2,4-Dinitrotoluene	ug/kg	ND	660						
2,6-Dinitrotoluene	ug/kg	ND	660						
Diethylphthalate	ug/kg	П	660						
<pre>4-Chlorophenyl-phenyl- ether</pre>	ug/kg	ND	660						
Fluorene	ug/kg	ND	660						
N-Nitrosodiphenylamine	ug/kg	ND	660						
4-Bromophenyl-phenyl- ether	ug/kg	ND	660						
Hexachlorobenzene	ug/kg	ND	660		-				
Pentachlorophenol	ug/kg	ND	3,600						
Phenanthrene	ug/kg	ND	660						
Anthracene	ug/kg	ND	660						
Concentrations reported	as ND we	re not	detected	at or	above	the	reporting	g limit.	



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Sample Type: Soil

		Metho	d Blank
Method and		Concen-	Reporting
<u>Constituent</u> :	<u>Units</u>	<u>tration</u>	<u>Limit</u>
EPA Method 8270 (Continued	i):		
Di-N-Butylphthalate	ug/kg	ND	660
1,2,4,5-Tetrachlorobenzene	e ug/kg	ND	660
4,6-Dinitro-2-Methylpheno	l ug/kg	ND	660
Pentachloronitrobenzene	ug/kg	ND	660
Fluoranthene	ug/kg	ND	660
Benzidine	ug/kg	ND	660
Pyrene	ug/kg	ИD	660
Butylbenzylphthalate	ug/kg	ND	660
3,3'-Dichlorobenzidine	ug/kg	ND	1,300
Benzo(a)Anthracene	ug/kg	ND	660
Bis(2-Ethylhexyl) Phthalate	ug/kg	j ND	660
Chrysene	ug/kg	g ND	660
Di-N-Octylphthalate	ug/k	g ND	660
Benzo(b)Fluoranthene	ug/k	g ND	660
Benzo(k)Fluoranthene	ug/k	g ND	660
Benzo(a)Pyrene	ug/k	g ND	660
3-Methylcholanthrene	ug/k	g ND	660
Indeno(1,2,3-cd)Pyrene	ug/k	g ND	660
Dibenzo(a,h)Anthracene	ug/k	g ND	660
Benzo(g,h,i)Perylene	ug/k	g ND	660
Surrogate % Recovery:			
2-Fluorophenol Phenol d6 Nitrobenzene d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl d14			100 84 48 114 41 129



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DATE SAMPLED:

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and 06/02/94

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Seventeen

Sample Type: Soil

		RH	20-6.0	ВН	21-9.0	Metho	d Blank
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 7210: Copper	ug/kg	15,000	500	43,000	500	П	500
EPA Method 7420: Lead	ug/kg	8,400	3,600	22,000	3,600	ND	3,600
EPA Method 7471: Mercury	ug/kg	240	120	1,400	120	ND	120



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Sample Type: Soil

	QC_Sumn	
Method and <pre>Constituent:</pre>	% Recovery	% RPD
EPA Method 7210: Copper	101	10
EPA Method 7420: Lead	100*	4.8
EPA Method 7471: Mercury	94	1.7

^{*} The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample

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DATE SAMPLED:

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			Sample	Туше:	Soil		
		BH	117-2.5	ВН	19-6.0	ВН	22-9.0
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 7040: Antimony	ug/kg	ND	79,000	ND	79,000	ND	79,000
EPA Method 7060: Arsenic	ug/kg	15,000	180	9,500	180	11,000	180
EPA Method 7080: Barium	ug/kg	69,000	50,000	440,000	50,000	51,000	50,000
EPA Method 7090: Beryllium	ug/kg	120	120	480	120	150	120
EPA Method 7130: Cadmium	ug/kg	СИ	250	ND	250	ND	250
EPA Method 7190: Chromium	ug/kg	3,800	1,200	16,000	1,200	10,000	1,200
EPA Method 7200: Cobalt	ug/kg	ДN	12,000	14,000	12,000	ND	12,000
EPA Method 7210: Copper	ug/kg	26,000	500	26,000	500	20,000	500
EPA Method 7420: Lead	ug/kg	4,000	3,600) ND	3,600	8,200	3,600
Concentrations rep	orted as ND	were not	detected at	or above	the report	ing limit	•

4424

DATE SAMPLED:

05/18/94

DATE RECEIVED:

05/19/94

DATE EXTRACTED: DATE ANALYZED:

05/27/94 05/29/94, 05/31/94, 06/01/94

and 06/06/94

DATE REPORTED:

06/09/94

PAGE:

Twenty

Sample Type: Soil

Method and Constituent:	<u>Units</u>	Metho Concen- tration	d Blank Reporting Limit	QC Su % Recovery	ummary % RPD
EPA Method 7040: Antimony	ug/kg	ND	79,000	94*	25
EPA Method 7060: Arsenic	ug/kg	ND	180	79	2.0
EPA Method 7080: Barium	ug/kg	ND	50,000	98*	5.0
EPA Method 7090: Beryllium	ug/kg	DN	120	97	7.7
EPA Method 7130: Cadmium	ug/kg	ND	250	93	9.9
EPA Method 7190: Chromium	ug/kg	ND	1,200	95	12
EPA Method 7200: Cobalt	ug/kg	ND	12,000	92	11
EPA Method 7210: Copper	ug/kg	ND	500	101	10
EPA Method 7420: Lead	ug/kg	ND	3,600	100*	4.8

Concentrations reported as ND were not detected at or above the reporting limit.
*The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample



4424

DATE SAMPLED: DATE RECEIVED: 05/18/94 05/19/94

DATE EXTRACTED:

05/20/94 and 05/27/94

DATE ANALYZED:

05/29/94, 05/31/94, 06/01/94

and 06/06/94

DATE REPORTED:

06/09/94

PAGE:

Twenty-One

			Sample	Type:	Soil		
		BH	117-2.5	ВН	19-6.0	BH	22-9.0
Method and <u>Constituent</u> :	<u>Units</u>	Concentration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>
EPA Method 7471: Mercury	ug/kg	180	120	120	. 120	260	120
EPA Method 7480: Molybdenum	ug/kg	ND	25,000	ND	25,000	ND	25,000
EPA Method 7520: Nickel	ug/kg	ND	7,500	14,000	7,500	ND	7,500
EPA Method 7740: Selenium	ug/kg	440	250	ND	250	ND	250
EPA Method 7760: Silver	ug/kg	890	280	ND	280	ON	280
EPA Method 7840: Thallium	u g /kg	ND	2,600	ND	2,600	ND	2,600
EPA Method 7910: Vanadium	ug/kg	24,000	5,000	60,000	5,000	33,000	5,000
EPA Method 7950: Zinc	ug/kg	40,000	1,200	67,000	1,200	63,000	1,200
Concentrations rep	orted as ND	were not	detected at	or above	the report	ing limit	•

4424

DATE SAMPLED:

05/18/94

DATE RECEIVED:

05/19/94

DATE EXTRACTED: DATE ANALYZED:

05/20/94 and 05/27/94 05/29/94, 05/31/94, 06/01/94

.

and 06/06/94

DATE REPORTED:

PAGE:

06/09/94 Twenty-Two

Sample Type: Soil

		Metho	d Blank	QC Sum	mary
Method and Constituent:	<u>Units</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	% Recovery	% RPD
EPA Method 7471: Mercury	ug/kg	ND	120	94	1.7
EPA Method 7480: Molybdenum	ug/kg	ND	25,000	92	5.4
EPA Method 7520: Nickel	ug/kg	10,000	7,500	100	20
EPA Method 7740: Selenium	ug/kg	ND	250	85	23
EPA Method 7760: Silver	ug/kg	ND	280	98*	14
EPA Method 7840: Thallium	ug/kg	ND	2,600	102	11
EPA Method 7910: Vanadium	ug/kg	ND	5,000	106	9.4
EPA Method 7950: Zinc	ug/kg	ОИ	1,200	102*	8.8

Concentrations reported as ND were not detected at or above the reporting limit.
*The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample

ouis W. DuPuis

Quality Assurance/Quality Control Manager

4424

CHAIN OF CUSTODY RECORD

WCI SIII				_	CHAINGIGO						<u></u>				INDUSTRIAL	
PROJECT NO.	PROJE	CT NAM	IE								PAR	AMETE	RS		HYGIENE SAM	L
2463-001	Cro	ساعم	<u> </u>	are	III PODIL		/	3/		7	/	/ \\	/ /	7 /		,
SAMPLERS: (Signate		 /			(Printed)		/3	? /,	X_i	$\forall \circ$	/p/	CX/V	/\g/			
PL: M.	Cox				Philip M. Cox	/					() () () () () () () () () ()	\'\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	8		REMARKS	
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Single State of the state of th		5 ⁾			7/k				- '1
BH12-3,0	5/10/4	0830		X	Borehele 12	-\								, (et Carp	<u>Soj)</u> Soj
BH12-6.0		0835	L			_ __	X-					XX.	 -' '	<u> </u>	PA 8010	
BH12-7.5		0840			4	_ 1_										50() < \
BH13- 3.0		0845		-	Borehole 13	_ _1_	-	1	1/							<u>58,</u> 501
BH13-6.0		0850	ļ			_ 1	_/	X_{-}	X.			X				Soil
BH13 - 9.0		0855	<u> </u>		<u> </u>	_ _	X		 			_				
BH14 - 3.0		0926	<u> </u>	<u> </u>	Borehale 14	1-	<u> </u>	-	<u> </u>	V		-				5011 2011
BH14-60		0930	ļ	1		<u> </u>		ļ	 -			_				501
BH14-9.6	_ _ _	0735	· -	1-1	D	1.	A,	ļ	-	-				<u> </u>		50.
BH15 - 3.0		0945	<u> </u>	11	Bushole 15	<u> </u>	-	-	-	X		-		<u></u>		50.1
BH15- 6.0	_	0950	<u> </u>	1 1	7	- 1	 	1	1							5.,1
BH15-9.8	147	0955		te / Ti		Rel	 inqui	shed b		ignature	,	_]Da	te / Time	Rec	eived by: (Signature	
Relinquished by: (5		رس ا		y 12		_				 						<u>-</u>
try 19	CX	2/	17/9	۲۱۰۰	(Printed)	(Pri	inted)		· · · · ·					(Pric	red)	
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-					- Soft Herm	\rightarrow				9	(0010	osu le	7 1	Lany Klei	neck
(Printed)		-			Scott, Fernma	\prec					2	y/u r	.	•		
(Printed)					Scott T, temma	\rightarrow			ļ							

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4424

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJ	ECT N	AME	:					7	7		PAR	AMET	ERS		INDUSTRIA HYGIENE SAM	
2463-061	C:	on L	7	Yaro	11	POATL			12/	/	17		1	7	7 / /)	
SAMPLERS: (Signatur	rej					(Printed)		/,	* /\	¥/,	<u>,</u>	/p/	(79)	\ /.	.0/ /		,
PLY 19	μχ					Philip N. Cox		ڰؙۣ		44	[7]		8 6 (3)	% %		REMARKS	i
FIELD Sample Number	DATE	ТІМ	E	COMP.	GRAB	STATION LOCATION	\\ \ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	13. No. 15. No		67/X			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	*/*; ?/	_		
BH16-9,0	5/18/94	1 104	'5		X	Buzhola 16		X			X	1	_	ļ	<u> </u>		5011
BH17-2.5		(05	<u> </u>			Borehole 17						X	_				Soil
BH17-6.0		105	7					X					_		<u> </u>	···	50.
BH17-8.5		110:	3			4							_	-		· · · · · · · · · · · · · · · · · · ·	Soil
B1+18 - 2.5		114	2			Burchale 18	<u> </u>	 								<u> </u>	5.1
B418 - 6.0	<u> </u>	11415					<u> </u>						 	-			Soil
BH18 - 8.0	<u> </u>	115			_	<u> </u>	1	X					\times	_	ļ		Soil
BH19 - 3.0		132	٢		_	Barhele 19	1_	12.71					-	,			Soil
BH19 - 6.0		133	<u>ó</u>		_		1	X V				-X		-	Vo not	do 5520	So.)
BH19- 9.0		133				4		<u> X</u>					-	<u> </u>			Soil
	\Box		_ .										_	ļ			
	1				小		1	<u></u>						<u> </u>	<u> </u>		
Belinquished by: (Sig				Date			Rel	inquis	hed by	y: (Sig	nature)		Da 	ite / T 	ime Rec	eived by: (Signature	<i></i>
(Printed)	lox		5/1	9/44	12	(Printed)	(Pri	nied)							(Prin	ited)	<u></u>
Philip M.	(0×	,											·				
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(Printed)					1	Scott 7, Ferrime					<u> </u>	send	Keju l	D.	10 WALL	y Kiersecie	

UUZU CHAIN OF CUSTODY RECORD

	M. C. B. VAGER				٦	961				,						INDUSTRIA	1	V
1	PROJECT NO.	PROJE	CT NAM	IE					//	/	P	ARAM	ETERS	\$		HYGIENE SAM		N
	2463-001	نازل	wley	Ya	تلت	II PINIT		/	\$	74/		75	W	\overline{I}	7/			
<	SAMPLERS: (Signatu	re)			,	(Printed)		S. NO.	*/ \\	(¢)	/2	// 3	Z/ N/	/ /		001110110		
	Pin M.	CX		·	· · · · ·	Philip M. Cox		\\ \overline{\gamma} \		s) ()	$\binom{60}{100}$		S	/9	<u>\$</u> /	HEMARKS		
	FIELD Sample Number	DATE	TIME	COMP.	GRAB	STATION LOCATION	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<u> </u>	<i>YX</i> ?	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<i>_</i>	'\'\; 	* X /					
pc	Brickste 20	5/19/94	1425		X	Bonahuk 20		*			衮		-	_ _1	Do not un	ayre_	50	+
'	BH20-6.0		1438				1	X		_	X	-		_ -			5.	
	81120 -9.0		1435	ļ 		7	1						_ -				S	1
	BH21 - 3.0		1445			Borchile 21	1_										<u> </u>	$\overrightarrow{1}$
	B421-60		1450				1										<u>S</u> ,	
	BHZ1-9.0		1500		\prod	. 1	!_	X		_	X		_ <u>_</u>	_ ا			50	$\overline{1}$
	BH22-3.0		1535		<u> </u>	Borehole 22.		×X			-		_[2	K 1	brotan	nalyza		$\overline{}$
	BH22-9.0		1545	ļ	<u> </u>	V	1	<u>X</u>				X	_ `		1 .		50	
	BH18	1	1620		<u>b</u> _	Piezin B418	2/	1					$ \frac{2}{3}$	1 ,	Mayer	VOA morked A". Other 2	Vas	4
£	BHI8 HOT		1620			<u> </u>	1	ļ_ <u> </u>				-	2	• •	are bor			· tvdt
						-	_	<u> </u>			ļ		_	-		1 r,		\dashv
							<u> </u>	<u> </u>				<u> </u>						
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		M. C	C 51	19/9	y 12:	(0)	(Pri	nted)				-			(Printed	1)		
	Philip /	_				(Printed)		•										
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	(Printed)				1-,-	Scott Tifernmu		-				<u></u>	·		-7	· P·A·C(\C		
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4424 A CHAIN OF CUSTODY RECORD

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PROJECT NO.		ECT NAM						$\overline{}$			PARA	мете	RS		INDUSTRIAL HYGIENE SAMPLE	N
2463-001	Cro	ساعم	Y	are	JI PODIL		_ ,		_	7	7	1 24	\mathcal{T}	77		
SAMPLERS: (Signatu	re)	,			[Printed]			X /	$\frac{4}{2}$	$\forall \infty$	/p/	ᢗᡃᡣ	$\sqrt{\omega}$			
Plin M.	Cx				Philip M. Cox		/ <i>Š</i>	\ _\	Z&		\$\dol{d}	\times			REMARKS	,
FIELD Sample Number	DATE	TIME	COMP.	GRAB	STATION LOCATION	- (100 V		1 ⁵ / ₂ / ₂ /			\$\\K		/ 		
BH12-3,0	5/18/4	0830		X	Borehale 12				<u>.</u>		<u> </u>		<u> </u>			
BH12-6.0	1	0835					X	.		-	_	100	_/	Vo E	PA 8010	_(
BH12-7.5		0840			₩	1_	\			-		 	-			
BH13- 3.0		0845	<u> </u>		Bonehole 13				\						•	
BH13-6.0		0850	<u> </u>			1_	. 7	X	X			X		,		
BH13-9.0		0855	ļ		4		X	-				ļ				
BH14-3.0		0926			Borehale 14			<u> </u>				-				
BH14-60		0930						<u> </u>	-							
BH14-9.6		0935	ļ		4		X	-		-		 				
BH15 - 3.0	<u> </u>	0945	_		Buehale 15		-	 				 				
BH15- 6.0		0950		1 1						X		 				
BH15- 9.8	14	0955	1	4	1 1		ľΧ	X	X							
Relinquished by: (Si	gnature)		Dat	a / Ti		Re	linqui	shed t	ıy: <i>(Si</i>	gnature)		Dat	e / Time	Rece	ived by: (Signature)	
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Philip M.	. Gx							,		<u>.</u>						
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4424A CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJE	CT NA	ME									7	7		F	ARA	MET	ERS		}	INDUSTRIAL HYGIENE SAMPLE	Y
2463-061	Cro	سلب	Y4.	rd	I	P	DATE nied)				/	13	<i>[</i>	7,7		,	7/	7	7	-)-		
SAMPLERS: (Signacu	,					(Pric	nied)					**/		<u>v</u> /		ν./	37	\langle / \rangle	0/			
PLy M.	ωχ_					,,,,,,,	thilip	N. 6x			\g *	/ , ,	78 / 87 202	13/	$\langle q_0 \rangle$	200		%)	⁷ /	/	REMARKS	
FIELD Sample Number	DATE	TIME	COMP.		GRAB		v	ON LOCATION		/ §			0 / X		1/2	v) (Ži,	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\angle			
BH16-9,0	5/18/94	104	5		X		Buehola	lb			X		 	X								
BH17-2,5		(05\$				[Boreho	(c 17								X						
BH17-6,0		105	7		\perp]			1	X									<u> </u>		
BH17-8.5		1103			Ш		4	7		l												
BH18-2.5		11-12					Bumba	le 18		1									 			
BH18 - 6.0		1145								1	ļ							 -				
BH18 - 80		1155						7		1	×						X					
BH19 - 3.0		1325	, 				Boel	icle 19		1			ļ 									
BH19 - 6.0		1330								1	Wi	<u> </u>				X	X		Do n	not do	55Zo	
BH19-9.8		1735						7			X										····	
				-																		
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(Printed)							(Printed)			(Prii	nted)									(F11111EQ)		
Philip M.				_			Qaraiyad :	for Laboratory b			Date	/ Tin	ne (Remar	k.			-T A-				<u> </u>
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Versar					7	7_3	CHAIN OF CUS			7	7		PARAI	METE	RS		INDUSTRIAL
PROJECT NO.	PA	OJEC	MAN T	E	1 -		DNITT.			/ t	<u>/</u>	, -	AHAI	,	na ————————————————————————————————————		HYGIENE SAMPLE
2463-001	(انادر	<u> ۱۹۷۰</u>	Ya	. الدء	 	PJVIII		_/		(نگد/ر	/ /	_ /.	X4X		:/	
SAMPLERS: (Signal	ure)						Philip M. Cox		Z.mg		(b)			Χx	/ /	100	REMARKS
FIELD SAMPLE NUMBER	1	TE	TIME	COMP.	GRAB		STATION LOCATION	Š	♂ /	9%) }	$\langle \chi \rangle$				<u> </u>	20/	
Barkete 20	5/19	lev	1425		X		Bonehuk 20	1	×			孤		 		Pon	otanalyze
BH20-6.0	1:	1	1430					11	X			X	-				•
8420 -9.0			1435				7	1					ļ. <u>.</u>				
BH21 - 3.0			1415				Borchile 21	1			_	_		_			
B421- 6.0			1450	<u> </u>				1	\			-	ļ				
8421-9.0			1500		<u> </u> _	<u> </u>	<u> </u>	<u> </u>	X			- X	-	<u> </u>	XZ	0	otanalyza
BH22-3.0	_	_ _	1535	<u> </u>	<u> </u>	ļ	Borehale 22	- - -	Š		_		X		X	VOA	6) 47417EK
BH22-9.0	_ _	_ _	1545	<u> </u>	<u> </u>	 		1	^		,	_	-	 -	X	Ana	lyze VOA morhed
BH 18	_	7	1620	-	b_		Piezin BH18	1-3						 -			of UDA". Other 2 VOA
	_ _		- 	 - -	-	 		-		-			-				e back ups
	_			┤—	 - -	<u> </u>		-	-	-}	-			-		Bil	18 introde (or 78/3/Bro
Relinguished by:	Signati	ura)	<u> </u>	Dat	 a / T	ime	Received by: (Signature)	Re	inqui	thed by	: (Signi	nure)		Da	te / T		Received by: (Signature)
Hennguined by:	M.	6	5	/19/9	y 12	¦ගව		15					-	<u></u>			(Printed)
(Printed) Philip			.		•		(Printed)		nted)								
Relinquished by:				Da	te / T	ime	Received for Laboratory by: (Signatural)	5/1	1/94	a / Tim	Re	marks	(4)9 13	c-y-	taī 1	10.	ny Klaineche
(Printed)					<u>_</u> _		(Printed) + Tiferning	n					KRI	L (P	V VS	(<i>0</i> 0	y icipiacine
(tutorea)							Scott litering		-								، ويستعدمون

APPENDIX B

Laboratory Analytical Results from April 1995 Investigation

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960 Facsimile (510) 783-1512

LOG NUMBER:

5415

DATE SAMPLED:

04/10/95 and 04/11/95

DATE RECEIVED:

04/11/95

DATE EXTRACTED:

04/20/95

DATE ANALYZED:

04/28/95 and 05/03/95

DATE REPORTED: 05/09/95

CUSTOMER:

Versar, Inc.

REQUESTER:

Philip Walsack

PROJECT:

No. 2463-107, Crowley Yard 2

			Sample	Type:	Soil		
		CH1-4	1.0-4.5	CH1A-2.0-2.5 CH1			3.0-3.5
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit		Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	1,300,000	1,000	240,000	1,000	1,400	1,000
Method and Constituent:	<u>Units</u>	Concen-	2.0-2.5 Reporting <u>Limit</u>	Concen-	1.5-5.0 Reporting Limit		1.0-1.5 Reporting Limit
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	ND	1,000	910,000	1,000	18,000	1,000
		CH2A-	-2.5-3.0		1.5-2.0		-2.5-3.0
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	,
DHS Method:			,				
Total Petroleum Hydro- carbons as Diesel	ug/kg	8,700	1,000	55,000	1,000	44,000	1,000
Method and <pre>Constituent:</pre>	<u>Units</u>	Concen-		• ———		Concen-	
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	g 8.300	1,000	ИО	1,000	26,000	1,000
Concentrations reported	as ND v	were not	detected at	or above	the report	ing limit	•

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05/09/95 Two

			Sam <u>ple</u>	Type:	Soil		
Method and Constituent:	<u>Units</u>	CH3B- Concen- tration	2.5-3.0 Reporting <u>Limit</u>		2.0-2.5 Reporting Limit	CH3D-2 Concen- tration	2.0-2.5 Reporting <u>Limit</u>
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	240,000	1,000	ND	F1 1,000	940,000	1,000
Method and Constituent:	<u>Units</u>	CH4- Concen- tration	3.0-3.5 Reporting Limit	CH4A- Concen- tration	2.5-3.0 Reporting Limit		4.5-5.0 Reporting <u>Limit</u>
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	1,600	1,000	25,000	1,000	4,500	1,000
Method and Constituent:	<u>Units</u>	CH5 Concen- tration	-1.5-2.0 Reporting Limit	CH6- Concen- tration	2.5-3.0 Reporting Limit		Reporting
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	ND	1,000	5,300	1,000	ND	1,000
Method and Constituent:	<u>Units</u>	Concen-	, -				
DHS Method:							
Total Petroleum Hydro- carbons as Diesel	ug/kg	, ND	. 1,000	7,000	1,000	59,000	1,000



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Sample Type:

Soil

Method and Constituent:

CH14-2.5-3.0 Reporting Concen-Units tration Limit

Method Blank Concen-Reporting

<u>tration</u> __Limit

DHS Method:

Total Petroleum Hydrocarbons as Diesel

ug/kg

ND

1,000

ND

1,000

OC Summary:

% Recovery: 112 , 128 , 101 ,

% RPD: 8.1, 8.6, 7.9, 23

Concentrations reported as ND were not detected at or above the reporting limit.

Samples CH2B-1.5-2.0, CH2C-2.5-3.0, CH3B-2.5-3.0, CH6-2.5-3.0 contain compounds eluting later than the diesel standard.



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	Sample Type: Soil								
		CH1-4	1.0-4.5	_CH1A-2	.0-2.5	CH1B-3	3.0-3.5		
Method and <pre>Constituent:</pre>	<u>Units</u>	Concentration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>		
DHS Method:									
Total Petroleum Hydro- carbons as Gasoline	ug/kg	73,000	1,500	5,400	500	ND	500		
Modified EPA Method 8020	for:								
Benzene	ug/kg	580	30	48	5.0	ND	5.0		
Toluene	ug/kg	88	30	6.9	5.0	ND	5.0		
Ethylbenzene	ug/kg	ND	30	DM	5.0	ND	5.0		
Xylenes	ug/kg	1,500	90	140	15	ND	15		
		CH1C-	2.0-2.5	<u> </u>	4.5-5.0		-1.0-1.5		
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>		
DHS Method:									
Total Petroleum Hydro- carbons as Gasoline	ug/kg	DN	500	23,000	1,400	4,500	500		
Modified EPA Method 8020	o for:								
Benzene	ug/kg	ND	5.0	100	28	ND	5.0		
Toluene	ug/kg	ND	5.0	ND	28	OM	5.0		
Ethylbenzene	ug/kg	; 6.	.8 5.0	ND	28	ND	5.0		
Xylenes	ug/kg	18	15	300	82	19	15		



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	Sample Type: Soil							
		CH2 <u>A-2</u>	2.5-3.0	CH28-1	.5-2.0	_ CH2C-2	2.5-3.0	
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	
DHS Method:								
Total Petroleum Hydro- carbons as Gasoline	ug/kg	16,000	3,600	ND	500	ND	500	
Modified EPA Method 8020	for:							
Benzene	ug/kg	2,100	73	ND	5.0	11	5.0	
Toluene	ug/kg	ND	73	ИD	5.0	ND	5.0	
Ethylbenzene	ug/kg	ND	73	5.3	5.0	ND	5.0	
Xylenes	ug/kg	660	220	ND	15	ND	15	
		CH2C-	-4.5-5.0	<u> </u>	4.0-4.5		1.5-2.0	
Method and <u>Constituent</u> :	<u>Units</u>	Concentration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concentration	Reporting <u>Limit</u>	
DHS Method:								
Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	ИО	500	ОМ	500	
Modified EPA Method 8020) for:							
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0	
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0	
Ethylbenzene	ug/kg	. ND	5.0	9.2	5.0	ОИ	5.0	
Xylenes	ug/kg	ON	15	22	15	NO	15	

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			Sample ⁻	Type:	Sail		
Washad a d			2.5-3.0		2.0-2.5		2.0-2.5
Method and Constituent:	<u>Units</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	1,800	500	880	500	9,600	7,400
Modified EPA Method 8020	for:						
Benzene	ug/kg	150	5.0	5.4	5.0	810	150
Toluene	ug/kg	17	5.0	ND	5.0	ND	150
Ethylbenzene	ug/kg	12	5.0	ND	5.0	П	150
Xylenes	ug/kg	96	15	70	15	3,600	440
		CH4-	3.0-3.5		2.5-3.0		4.5-5.0
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	ND	500	ND	500
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ОИ	5.0
Ethylbenzene	ug/kg	DN	5.0	ND	5.0	ИD	5.0
Xylenes	ug/kg	ON I	15	ON	15	ND	15

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	<u> </u>		Sample	Гуое:	Soil		
Method and Constituent:	<u>Units</u>	CH5-1 Concen- tration	1.5-2.0 Reporting Limit	CH6-2 Concen- tration	.5-3.0 Reporting Limit	CH7-2 Concen- tration	2.5-3.0 Reporting Limit
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	ND	500	ND	500
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ПD	5.0	ИD	5.0	ПO	5.0
Ethylbenzene	ug/kg	ND	5.0	5.2	5.0	МD	5.0
Xylenes	ug/kg	ND	15	43	15	ND	15
Method and Constituent:	<u>Units</u>	<u>CH8-</u> Concen- tration	3.5-4.0 Reporting Limit	CH9- Concen- tration	2.0-2.5 Reporting Limit	CH13- Concen- tration	2.5-3.0 Reporting Limit
DHS Method: Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	סא	500	ND	500
Modified EPA Method 8020) for:						
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ON	5.0	ОN	5.0	ND	5.0
Xylenes	ug/kg	. ON	15	38	15 .	ND	15

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			Samole	Type:	Soil
Method and Constituent:	<u>Units</u>	CH14- Concen- tration	2.5-3.0 Reporting Limit		d Blank Reporting Limit
DHS Method:					
Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	ND	500
Modified EPA Method 8020	for:				
Benzene	ug/kg	ND	5.0	DN	5.0
Toluene	ug/kg	ND	5.0	DИ	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0
Xylenes	ug/kg	ND	15	ND	15

QC Summary:

% Recovery: 91 , 82 , 111 , 107 % RPD: 4.2, 2.2, 9.7, 0.6

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Sample Type: Soil

		CH1-	4.0-4.5	CH1A-2.0-2.5		CH18-3.0-3.5	
Method and <u>Constituent</u>	Un de a	Concen-	Reporting	Concen-	Reporting	Concen-	Reporting
conscituent	<u>Units</u>	<u>tration</u>	<u>Limit</u>	<u>tration</u>	<u>Limit</u>	<u>tration</u>	<u>Limit</u>
EPA Method 8010:							
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromobenzene	ug/kg	. ON	1,200	DM	1,200	ND	1,200
Bromodichloromethane	ug/kg	ND	20	ND	20	ND	20
Bromoform	ug/kg	ND	20	ND	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60	ND	60
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60
Chlorobenzene	ug/kg	540	20	220	20	34	20
Chloroethane	ug/kg	ND	60	ND	60	ND	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	ND	60	ND	60
Chloroform	ug/kg	ND	20	ND	20	ND	20
Chloromethane	ug/kg	ND	60	ND	60	ND	60
Dibromochloromethane	ug/kg	ND	20	ND	20	ND	. 20
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichlorobenzene	ug/kg	ON	60	ND	60	ND	60
1,3-Dichlorobenzene	ug/kg	П	60	ND	60	ND	60
1,4-Dichlorobenzene	ug/kg	190	60	ND	60	ND	60
Dichlorodifluoromethane	ug/kg	NO	60	ND	50	ND	60
1,1-Dichloroethane	ug/kg	ND ND	20	ND	20	ND	20
1,2-Dichloroethane	ug/kg	ם אינ	20	ND	20	ND	20
1,1-Dichloroethene	ug/kg	3 ND	20	ND	20	ND	20

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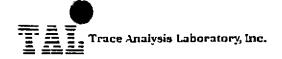
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	Sample Type: Soil								
		CH1-4	.0-4.5	CH1A-	CH1A-2.0-2.5		3.0-3.5		
Method and Constituent	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit		
EPA Method 8010 (Continued):								
cis and trans-1,2 Dichloroethene	ug/kg	ND	20	· ND	20	ND	20		
Dichloromethane	ug/kg	ND	1,200	ND	1,200	ND	1,200		
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20		
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20		
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20		
1,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	DM	20	ND	20		
l,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	ПD	1,200		
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	20		
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20		
1,1,2-Trichloroethane	ug/kg	ND	20	DN	20	DN	20		
Trichloroethene	ug/kg	ND	20	ND	20	ND	20		
Trichlorofluoro- methane	ug/kg	ND	20	ND	20	ND	20		
1,2,3-Trichloropropane	ug/kg	ND	1,200	ND	1,200	ND	1,200		
Vinyl Chloride	ug/kg	, ND	60	ND	60	ND	60		



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Sample Type: Soil

		CH1C-	2.0-2.5	CH1C-	<u>4.5</u> -5.0	CH2-1	.0-1.5
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting Limit	Concentration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 8010:							
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromobenzene	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromodichloromethane	ug/kg	ND	20	ND	20	ND	20
Bromoform	ug/kg	ND	20	ND	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60	ND	60
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60
Chlorobenzene	ug/kg	ND	20	480	20	ND	20
Chloroethane	ug/kg	ND	60	ND	60	ND	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	ND	60	ND	60
Chloroform	ug/kg	ND	20	ND	20	ND	20
Chloromethane	ug/kg	ND	60	ND	60	ND	60
Dibromochloromethane	ug/kg	ND	20	ND	20	ND	20
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichlorobenzene	ug/kg	ND	60	ND	60	ND	60
1,3-Dichlorobenzene	ug/kg	ND	60	ND	60	ND	60
1,4-Dichlorobenzene	ug/kg	, ND	60	410	50	ND	60
Dichlorodifluoromethane	ug/kg	3 ND	60	ND	60	ND	60
1,1-Dichloroethane	ug/ks	g ND	20	ND	20	MO	. 20
1,2-Dichloroethane	ug/kg	g ND	20	ND	20	ND	20
1,1-Dichloroethene	ug/k	g ND	20	ND	20	ND	20

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Sample Type: Soil

	94119 - 6 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -							
	CH1C-2.0-2.5			CH1C-	4.5-5.0	CH2-1.0-1.5		
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit	Conces- tration	Reporting <u>Limit</u>	
EPA Method 8010 (Continued):							
cis and trans-1,2 Dichloroethene	ug/kg	NĎ	20	ND	20	ND 3	20	
Dichloromethane	ug/kg	ND	1,200	ND	1,200	ПИ	1,200	
I,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20	
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20	
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20	
I,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20	ND	20	
l,l,l,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	ND	1,200	
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	20	
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20	
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20	ND	20	
Trichloroethene	ug/kg	ND	20	ND	20	23	20	
Trichlorofluoro- methane	ug/kg	ND	20	ND	20	ND	20	
1,2,3-Trichloropropane	ug/kg	, ND	1,200	ND	1,200	ND	1,200	
Vinyl Chloride	ug/kg	, ND	50	ОИ	60	ND	60	

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Sample Type: Soil

Method and Constituent	11-24-	Concen-	2.5-3.0 Reporting	CH2B- Concen- tration	1.5-2.0 Reporting	Concen-	2.5-3.0 Reporting
EPA Method 8010:	<u>Units</u>	<u>tration</u>	<u>L </u>	<u>Li al ilii</u>	<u>Limit</u>	<u>tration</u>	<u>Limit</u>
Benzyl Chloride		ND	3 200	ND	1 000		
Bromobenzene	ug/kg	ND	1,200	ND	1,200	ND	1,200
	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromodichloromethane	ug/kg	NO	20	ND	20	ПD	20
Bromoform	ug/kg	ND	20	ND	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60	ИD	60
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60
Chlorobenzene	ug/kg	63	20	ND	20	ND	20
Chloroethane	ug/kg	ND	60	ND	60	DM	60
2-Chloroethyl Vinyl Ether	ug/kg	ОИ	60	ND	60	ND	60
Chloroform	ug/kg	ND	20	ND	20	ND	20
Chloromethane	ug/kg	ND	60	ND	60	ND	60
Dibromochloromethane	ug/kg	ND	20	ND	20	ND	20
Dibromomethane	ug/kg	DИ	1,200	ND	1,200	ND	1,200
1,2-Dichlorobenzene	ug/kg	ND	60	ND	60	ND	60
1,3-Dichlorobenzene	ug/kg	ND	60	ND	60	ND	60
1,4-Dichlorobenzene	ug/kg	ND	60	ND	60	סא	60
Dichlorodifluoromethane	ug/kg	ND	60	ND	60	ND	60
1,1-Dichloroethane	ug/kg	ND	20	ND	20	ND	20
1,2-Dichloroethane	ug/kg	, ND	20	ND	20	ND	20
1,1-Dichloroethene	ug/kg		20	NO	20	ND	20



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Sample Type: Sc il

Method and Constituent	<u>Units</u>	CH2A- Concen- tration	2.5-3.0 Reporting Limit	CH28- Concen- tration	1.5-2.0 Reporting Limit	<u>CH2C-</u> Concen- tration	2.5-3.0 Reporting Limit
EPA Method 8010 (Continued):						
cis and trans-1,2 Dichloroethene	ug/kg	ND	20 ·	ND	20	ND .	20
Dichloromethane	ug/kg	ND -	1,200	NO	1,200	ND	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20
cis-1,3-Dichloropropene	ug/kg	DN	20	ИD	20	ND	20
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
1,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20	ND	20
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
Trichloroethene	ug/kg	ND	20	ND	20	ND	20
Trichlorofluoro- methane	ug/kg	ND ND	20	ND	20	ND	20
1,2,3-Trichloropropane	ug/kg	, ND	1,200	ND	1,200	NO	1,200
Vinyl Chloride	ug/kg		60	ND	60	ND	60

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	Sample Type: Soil							
		CH2C-	4.5-5.0	<u>CH3-4</u>	.0-4.5	СНЗА-	1.5-2.0	
Method and Constituent	<u>Units</u>	Concentration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	
EPA Method 8010:								
Benzyl Chloride	ug/kg	ND	1,200	ИD	1,200	ND	1,200	
Bromobenzene	ug/kg	ND	1,200	ND	1,200	ND	1,200	
Bromodichloromethane	ug/kg	ND	20	ND	20	П	20	
Bromoform	ug/kg	ND	20	ND	20	ND	20	
Bromomethane	ug/kg	ND	60	ND	60	ND	50	
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60	
Chlorobenzene	ug/kg	ND	20	ND	20	ND	20	
Chloroethane	ug/kg	ND	50	ND	60	ND	60	
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	ND	60	ND	60	
Chloroform	ug/kg	ND	20	ИD	20	NO	20	
Chloromethane	ug/kg	ND	60	ND	60	ND	50	
Dibromochloromethane	ug/kg	ND	20	ND	20	ND	20	
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200	
1,2-Dichlorobenzene	ug/kg	ND	. 60	ND	60	ND	60	
1,3-Dichlorobenzene	ug/kg	ND ND	60	ND	50	ND	60	
1,4-Dichlorobenzene	ug/kg	ND	60	ND	50	DN	60	
Dichlorodifluoromethane	ug/kg	, ND	50	ND	60	ND	60	
l,1-Dichloroethane	ug/kg	g ND	20	ОМ	20	ND	20	
1,2-Dichloroethane	ug/k	g ND	20	ND	20	NO	20	
1,1-Dichloroethene	ug/k	g ND	20	ND	20	ND	20	



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	Sample Type: Soil							
		CH2C-	4.5-5.0	CH3-4	CH3-4.0-4.5		CH3A-1.5-2.0	
Method and Constituent	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	
EPA Method 8010 (Continued	.):							
cis and trans-1,2 Dichloroethene	ug/kg·	- ND	20	ND	20	ND:	20-	
Dichloromethane	ug/kg	ND	1,200	ND	1,200	ND	1,200	
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20	
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20	
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20	
1,1,2,2-Tetrachloro- ethane	ug/kg	ON	20	ND	20	MD	20	
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	CM	1,200	ND	1,200	
Tetrachloroethene	ug/kg	ND	20	ND	20	NO	20	
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20	
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20	ND	20	
Trichloroethene	ug/kg	ND	20	ND	20	ND	20	
Trichlorofluoro- methane	ug/kg	NO	20	NO	20	ND	20	
1,2,3-Trichloropropane	ug/kg	ND	1,200	ND	1,200	ND	1,200	
Vinyl Chloride	ug/kg	, ND	60	ND	50	ND	60	

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DATE SAMPLED: DATE RECEIVED:

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05/09/95 Seventeen

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	Sample Type: Soil							
	CH31		2.5-3.0	<u> </u>	2.0-2.5	CH3D-	2.0-2.5	
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>	
EPA Method 8010:								
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200	ND	1,200	
Bromobenzene	ug/kg	ND	1,200	ND	1,200	ND	1,200	
Bromodichloromethane	ug/kg	GN	20	ND	20	ND	20	
Bromoform	ug/kg	DM	20	DM	20	ND	20	
Bromomethane	ug/kg	ND	60	ND	60	ND	60	
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60	
Chlorobenzene	ug/kg	890	20	79	20	2,300	20	
Chloroethane	ug/kg	ON	60	ND	60	ND	60	
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	ND	60	ND	60	
Chloroform	ug/kg	ND	20	ND	20	ND	20	
Chloromethane	ug/kg	ND	60	ND	60	ND	60	
Dibromochloromethane	ug/kg	ND	20	ND	20	ND	20	
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200	
1,2-Dichlorobenzene	ug/kg	ND	50	ND	60	ND	60	
1,3-Dichlorobenzeme	ug/kg	ND	50	ND	50	68	60	
1,4-Dichlorobenzene	ug/kg	ND	60	ND	60	1,200	60	
Dichlorodifluoromethane	ug/kg	, ND	60	ND	60	ND	60	
l,1-Dichloroethane	ug/kg	g ND	20	ND	20	ND	. 20	
1,2-Dichloroethane	ug/k	g ND	20	ND	20	ND	20	
l,I-Dichloroethene	ug/k	g MD	20	ND	20	ND	20	

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Eighteen

Sample Type: Soil

	CH38-2.5-3.0		CH3C-	CH3C-2.0-2.5		CH3D-2.0-2.5	
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting Limit	Concentration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 8010 (Continued):						
cis and trans-1,2 Dichloroethene	ug/kg	31	20	DM	20	ND	20
Dichloromethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
1,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20	OM	20
l,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
Trichloroethene	ug/kg	ND	20	ND	20	ND	20
Trichlorofluoro- methane	ug/kg	ND	20	ND	20	ND	20
1,2,3-Trichloropropane	ug/kg	ND ND	1,200	DM	1,200	ND	1,200
Vinyl Chloride	ug/kg	J ND	60	ND	60	ND	60

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Nineteen

Sample Type: Soil

		<u>CH4-3.0-3.5</u>			2.5-3.0	CH4A-	4.5-5.0
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting Limit	Concentration	Reporting <u>Limit</u>
EPA Method 8010:							
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200	ND	1,200
Bromobenzene	ug/kg	ND `	1,200	ND	1,200	NO	1,200
Bromodichloromethane	ug/kg	ND	20	ND	20	ND	20
Bromoform	ug/kg	ND	20	ND	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60	ND	60
Carbon Tetrachloride	ug/kg	GN	60	NO	50	ND	60
Chlorobenzene	ug/kg	ND	20	OM	20	ND	20
Chloroethane	ug/kg	ND	60	ND	60	ND	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	. GN	60	ND	60
Chloroform	ug/kg	ND	20	DM	20	ND	20
Chloromethane	ug/kg	ND	60	ND	60	ND	60
Dibromochloromethane	ug/kg	ND	20	ND	20	ND	20
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichlorobenzana	ug/kg	; ND	60	ND	60	ND	60
1,3-Dichlorobenzene	ug/kg	, ND	60	ND	60	ND	60
1,4-Dichlorobenzene	ug/kg	g ND	60	ND	60	ND	60
Dichlorodifluoromethane	ug/kg	g ND	60	ND	60	ND	60
l,1-Dichloroethane	ug/kg	g ND	- 20	ND	20	ND	20
1,2-Dichloroethane	ug/k	g ND	20	NО	20	ND	20
1,1-Dichloroethene	ug/k	g ND	20	ND	20	ND	20

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Twenty

Sample Type: Soil

			.0-3.5		2.5-3.0		4.5-5.0
Method and <u>Constituent</u>	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>
EPA Method 8010 (Continued):						
cis and trans-1,2 Dichloroethene	ug/kg	ND	20	NO	20	ND	. 20 .
Dichloromethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20	MD	20
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
l,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20	ND	20
l,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
Trichloroethene	ug/kg	ND	20	ND	20	DM	20
Trichlorofluoro- methane	ug/kg	ND	20	ND	20	ND	20
1,2,3-Trichloropropane	ug/kg	, ND	1,200	ND	1,200	ND	1,200
Vinyl Chloride	ug/kg	, ND	60	ND	60	ND	60

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05/09/95

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Twenty-one

Sample Type: Soil

Method and Constituent	<u>Units</u>	Metho: Concen- tration	d 81ank Reporting Limit
EPA Method 8010:			
Benzyl Chloride	ug/kg	МĎ	1,200
Bromobenzene	ug/kg	ND	1,200
Bromodichloromethane	ug/kg	ND	20
Bromoform	ug/kg	ND	20
Bromomethane	ug/kg	ПD	60
Carbon Tetrachloride	ug/kg	MD	60
Chlorobenzene	ug/kg	ND	20
Chloroethane	ug/kg	ND	50
2-Chloroethyl Vinyl Ether	ug/kg	ND	60
Chloroform	ug/kg	ND	20
Chloromethane	ug/kg	ОИ	50
Dibromochloromethane	ug/kg	ND	20
Dibromomethane	ug/kg	ND	1,200
1,2-Dichlorobenzene	ug/kg	ND	60
1,3-Dichlorobenzene	ug/kg	, ND	60
I,4-Dichlorobenzene	ug/kg	g ND	60
Dichlorodifluoromethane	ug/kg	g ND	60
1,1-Dichloroethane	ug/kg	g ND	20
1,2-Dichloroethane	ug/k	g ND	20
1,1-Dichloroethene	ug/k	g ND	20



5415

DATE SAMPLED:

04/10/95 and 04/11/95 04/11/95

DATE RECEIVED: DATE EXTRACTED: DATE ANALYZED:

04/21/95 04/24/95

DATE REPORTED:

05/09/95

Soil

PAGE:

Twenty-two

			<u>Sample Type</u>
		Meth <u>o</u>	d Blank
Method and		Concen-	Reporting
<u>Constituent</u>	<u>Units</u>	<u>tration</u>	<u>Limit</u>
EPA Method 8010 (Continued):		
cis and trans-1,2			
Dichloroethene	ug/kg·	ND	- 20
Dichloromethane	ug/kg	ND	1,200
1,2-Dichloropropane	ug/kg	ND	20
cis-1,3-Dichloropropene	ug/kg	ND	20
trans-1,3-Dichloropropene	ug/kg	ND	20
1,1,2,2-Tetrachlorg- ethane	ug/kg	ND	20
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200
Tetrachloroethene	ug/kg	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20
Trichloroethene	ug/kg	ND ND	20
Trichlorofluoro- methane	ug/kg	, ND	20
1,2,3-Trichloropropane	ug/kg	ON E	1,200
Vinyl Chloride	ug/kg	g ND	60

QC Summarv:

% Recovery: 92

% RPD:



5415

DATE SAMPLED:

04/10/95

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PAGE:

Twenty-three

			Sample	Type:	Soil		
		CH10-	2.5-3.0	CH10-5.0-5.5		CH11-	2.5-3.0
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
DHS Method:							
Organic Lead	ug/kg	ND	1,700	ND	1,700	МD	1,700
		CH11-5.5-6.0		CH12-2.5-3.0		CH12-5.5-6.0	
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting <u>Limit</u>	Concen- tration	Reporting <u>Limit</u>	Concen- <u>tration</u>	Reporting Limit
DHS Method:							
Organic Lead	ug/kg	ND	1,700	ND	1,700	ND	1,700
Method and		<u>Metho</u> Concen-	od Blank Reporting				
Constituent:	<u>Units</u>	<u>tration</u>	Limit				
DHS Method:							
Organic Lead	ug/kg	ND	1,700				

OC Summary:

% Recovery:

103

% RPD:

2.8

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DATE EXTRACTED:

04/11/95 05/01/95 05/02/95

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05/09/95

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Twenty-four

	Sample Type: Soil						
Method and Constituent:	<u>Units</u>	CH10-2 Concen- tration	2.5-3.0 Reporting Limit	<u>CHIO-5</u> Concen- tration	0.0-5.5 Reporting Limit	CHI1-2 Concen- tration	2.5-3.0 Reporting Limit
EPA Method 7420:							
Lead	ug/kg	5,400	3,600	7,200	3,600	17,000	3,500
Method and Constituent: EPA Method 7420:	<u>Units</u>	CHI1- Concen- tration	5.5-6.0 Reporting Limit		2.5-3.0 Reporting Limit	CH12- Concen- tration	S.5-6.0 Reporting Limit
Lead	ug/kg	7,400	3,600	38,000	3,600	4,500	3,600
Method and Constituent:	<u>Units</u>	CH13- Concen- tration	2.5-3.0 Reporting Limit		2.5-3.0 Reporting Limit		od Blank Reporting <u>Limit</u>
EPA Method 7420: Lead	ug/kg	92,000	3,600	13,000	3,600	ND	3,600

QC Summary:

% Recovery:

79

% RPD:

8.0



5415

DATE RECEIVED:

04/11/95 04/11/95

DATE RECEIVED: DATE EXTRACTED:

04/11/95 05/01/95

DATE ANALYZED:

05/03/95

DATE REPORTED:

05/03/95

Soil

PAGE:

Twenty-five

Sample Type:

		CH13-2.5-3.0		<u>CH14-2.5-3.0</u>		Method Blank		
Method and Constituent:	<u>Units</u>		Reporting <u>Limit</u>		Reporting <u>Limit</u>		Reporting Limit	
EPA Method 7210:			500	22 222	500	NO.	500	
Copper	ug/kg	98,000	200 -	22,000	500	ND	500	

QC Summary:

% Recovery:

87

% RPD:

4 4

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis

Quality Assurance/Quality Control Manager

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PHOJECT NO. PROJECT NAME											F	ARA	METE	:AS		INDUSTRIAL HYGIENE SAMPLE	-		
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Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

1-of 5

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Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

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5415

Wershi.

CHAIN OF CUSTODY RECORD

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(Printed)	-				Scott I, Ferriman												

5415

Wersh!

CHAIN OF CUSTODY RECORD

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PROJECT NO.	PROJE	CT NAM	ME ())).,	Ĺ	Ind The			/5	<u> </u>	,	, 		,	7 /	, , ,	HYGIENE SAMPLE	N
2163-107			J . u	-1	18ris	nted) / C			* J.	\$\$\ \$\		ø /						- 1
SAMPLERS: ISIGNATU	"Use	<u>Q</u>			17 110	land II Thil Walszeck				/ ,	/56 21/2		/ /	/ /	/ /	///	REMARKS	
FIELD SAMPLE MUMBER	DATE	TIME	COMP	GRAB	·	STATION LOCATION	/ §		(3) 2/2	2/3		<u> </u>	_	\angle			L Analyse AH 3 per 4h. Cox 4/	
CHIC-4.5.50	1/11/75	1520		X	1	lare-S		X	<u>-X</u>	X						Hela	- per ph. (ox 4)	
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Relinquished by: ISig	nature)	4,	Date] 	ne	Received by: (Signature)	Rel	nquis	had-b	γ : /3 ig	manure	, 1		-Ba	te / Ti	meRece	ived by:.(Signature)	
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May 9, 1995

Mr. Philip Walsack Versar, Inc. 7844 Madison Avenue, Suite 167 Fair Oaks, California 95628

Dear Mr. Walsack:

Trace Analysis Laboratory received four soil samples on April 13, 1995 for your Project No. 2463-107, Crowley Yard 2 (our custody log number 5424).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel, Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, and by EPA 8010. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Scott T. Ferriman Project Specialist

Scott To For

Enclosures

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (5:0) 783-6960 Facsimile (510) 783-1512

LOG NUMBER:

5424 04/11/95

DATE SAMPLED: DATE RECEIVED:

04/13/95

DATE EXTRACTED:

04/24/95

DATE ANALYZED:

05/06/95 and 05/09/95

DATE REPORTED:

05/09/95

CUSTOMER:

Versar, Inc.

REQUESTER:

Philip Walsack

PROJECT:

No. 2463-107, Crowley Yard 2

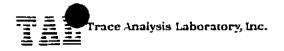
	Sample Type: Soil												
		CH3E-	1.5-2.0	CH3E-	4.0-4.5	CH3F-	1,5-2.0						
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit						
DHS Method:													
Total Petroleum Hydro- carbons as Diesel	ug/kg	NO	1,000	ND	1,000	ND	1,000						
		CH3F_	4.0-4.5	Metho	od Blank								
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>								
DHS Method:													
Total Petroleum Hydro- carbons as Diesel	ug/kg	9,200	1,000	ND	1,000								
OC Summanus													

<u>QC Summary:</u>

101 , 95 % Recovery:

% RPD:

7.9, 23



5424

DATE SAMPLED:

04/11/95

DATE RECEIVED: DATE EXTRACTED:

04/13/95 04/21/95 04/22/95 and 04/24/95

DATE ANALYZED:

DATE REPORTED:

05/09/95

PAGE:

Two

			Sample	Type:	Soil		
		CH3E-	1.5-2.0	CH3E-	4.0-4.5	CH3F-	1.5-2.0
Method and Constituent:	<u>Units</u>	Concen- tration	Reporting Limit	Concentration	Reporting Limit	Concen- tration	Reporting Limit
DHS Method: Total Petroleum Hydro- carbons as Gasoline	ug/kg	ND	500	ND	500	ND	500
Modified EPA Method 8020	for:						
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Xylenes	ug/kg	ND	15	ND	15	ND	15
		CH3F	-4.0-4.5	Meth	od Blank		
Method and <u>Constituent</u> :	<u>Units</u>	Concen- tration		Concen- tration			
DHS Method:							
Total Petroleum Hydro- carbons as Gasoline	ug/kg	800	500	ND	500		
Modified EPA Method 802	O for:						
Benzene	ug/kg	NO	5.0	ND	5.0		
Toluene	цg/kg	ND	5.0	ND	5.0		
Ethylbenzene	ug/kg	NO	5.0	ND	5.0		
Xylenes	ug/kg	, NO	15	MD	15		

QC Summary:

% Recovery: 111, 107 % RPD: 9.7, 0.5

LOG NUMBER:

5424

DATE SAMPLED: DATE RECEIVED: 04/11/95 04/13/95

DATE EXTRACTED: DATE ANALYZED: 04/21/95 04/24/95

DATE REPORTED:

05/09/95

PAGE:

Three

Sample Type: Soil

Method and Constituent	<u>Units</u>	CH3E- Concen- tration	1.5-2.0 Reporting Limit	<u>CH3E-</u> Concen- tration	4.0-4.5 Reporting Limit	CH3F- Concen- tration	1.5-2.0 Reporting <u>Limit</u>
EPA Method 8010:							
Benzyl Chloride	ug/kg	DN	1,200	ND	1,200	ND -	1,200
Bromobenzene	ug/kg	ND	1,200	, MD	1,200	ND	1,200
Bromodichloromethane	ug/kg	ND	20	ND	20	ND	20
Bromoform	ug/kg	ND	20	ND	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60	ND	60
Carbon Tetrachloride	ug/kg	ND	60	ND	60	ND	60
Chlorobenzene	ug/kg	ND	20	ND	20	ND	20
Chloroethane	ug/kg	ND	60	ND	60	ND	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	60	ND	60	ND	60
Chloroform	ug/kg	ND	20	ND	20	ND	20
Chloromethane	ug/kg	ND	60	ΩИ	60	ON	60
Dibromochloromethane	ug/kg	ND	20	ND	20	ОN	20
Dibromomethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
1,2-Dichlorobenzene	ug/kg	ND	60	ND	60	ND	60
1,3-Dichlorobenzene	ug/kg	ND	60	ND	60	DN	60
1,4-Dichlorobenzene	ug/kg	, ND	60	ND	60	ND	60
Dichlorodifluoromethane	ug/kg	g ND	60	ПD	60	ND	60
1,1-Dichloroethane	ug/kg	ON E	20	ND	20	ND	20
l,2-Dichloroethane	ug/kg	g NO	20	ND	20	ND	20
1,1-Dichloroethene	ug/k	סא פ	20	ND	20	ND	20



5424

DATE SAMPLED: DATE RECEIVED: 04/11/95 04/13/95

DATE EXTRACTED: DATE ANALYZED: 04/21/95 04/24/95

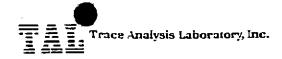
DATE REPORTED:

05/09/95

PAGE:

Four

			<u>Sample T</u>	yoe:	Soil		
		CH3E-	1.5-2.0	CH3E-	4.0-4.5	CH3F-	1.5-2.0
Method and Constituent	<u>Units</u>	Concen- tration	Reporting Limit	Concentration	Reporting Limit	Concen- tration	Reporting <u>Limit</u>
EPA Method 8010 (Continued):					-	
cis and trans-1,2 Dichloroethene	ug/kg	ND	20	ND	20	ND	20
Dichloromethane	ug/kg	ND	1,200	ND	1,200	DM	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20	ND	20
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20	ND	20
1,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	DN	20	ND	20
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200	ND	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20	П	20
Trichloroethene	ug/kg	ND	20	ND	20	ND	20
Trichlorofluoro- methane	ug/kg	NO	20	ND	20	П	20
1,2,3-Trichloropropane	ug/kg	, ND	1,200	ОИ	1,200	ND	1,200
Vinyl Chloride	ug/kg	, ND	50	ND	50	ND	60



LOG NUMBER: 5424
DATE SAMPLED: 04/11/95

DATE RECEIVED: 04/13/95 DATE EXTRACTED: 04/21/95 DATE ANALYZED: 04/24/95

DATE REPORTED: 05/09/95 PAGE: Five

Sample Type: Soil

Method and Constituent	<u>Units</u>	CH3F- Concen- tration	4.0-4.5 Reporting Limit	Metho Concen- tration	d Blank Reporting Limit
EPA Method 8010:					
Benzyl Chloride	ug/kg	ND	1,200	ND	1,200
Bromobenzene	ug/kg	ND	1,200	ND	1,200
Bromodichloromethane	ug/kg	ND	20	GИ	20
Bromoform	ug/kg	DM	20	ND	20
Bromomethane	ug/kg	ND	60	ND	60
Carbon Tetrachloride	ug/kg	ND	60	ОИ	60
Chlorobenzene	ug/kg	27	20	ND	20
Chloroethane	ug/kg	ND	60	ПN	60
2-Chloroethyl Vinyl Ether	ug/kg	ND	50	ОМ	50
Chloroform	ug/kg	ND	20	ND	20
Chloromethane	ug/kg	ND	60	ПИ	60
Dibromochloromethane	ug/kg	ПD	20	П	20
Dibromomethane	ug/kg	, ND	1,200	ND	1,200
1,2-Dichlorobenzene	ug/kg	GN E	60	ND	60
1,3-Dichlorobenzene	ug/kg	a ND	60	DN	60
1,4-Dichlorobenzene	ug/kg	GN E	60	ИD	60
Dichlorodifluoromethane	ug/k	g ND	60	סוא	60
1,1-Dichloroethane	ug/k	g ND	20	DИ	20
1,2-Dichloroethane	ug/k	g ND	20	ND	20
1,1-Dichloroethene	ug/k	g ND	20	DN	20

LOG NUMBER: 5424

DATE SAMPLED: 04/11/95

DATE RECEIVED: 04/13/95

DATE EXTRACTED: 04/21/95

DATE ANALYZED: 04/24/95

DATE REPORTED: 05/09/95

PAGE:

Six

			<u>Sample T</u>	<u>voe:</u>	Soil
		CH3F-	4.0-4.5	Metho	d Blank
Method and <u>Constituent</u>	<u>Units</u>	Concentration	Reporting Limit	Concen- tration	Reporting Limit
EPA Method 8010 (Continued):				
cis and trans-1,2 Dichloroethene	ug/kg	ND	20 ⁻	ND	20
Dichloromethane	ug/kg	ND	1,200	ND	1,200
1,2-Dichloropropane	ug/kg	ND	20	ND	20
cis-1,3-Dichloropropene	ug/kg	ND	20	ND	20
trans-1,3-Dichloropropene	ug/kg	ND	20	ND	20
1,1,2,2-Tetrachloro- ethane	ug/kg	ND	20	ND	20
1,1,1,2-Tetrachloro- ethane	ug/kg	ND	1,200	ND	1,200
Tetrachloroethene	ug/kg	ND	20	ND	20
1,1,1-Trichloroethane	ug/kg	ND	20	ND	20
1,1,2-Trichloroethane	ug/kg	ND	20	ND	20
Trichloroethene	ug/kg	ND	20	МD	20
Trichlorofluoro- methane	ug/kg	ND	20	ND	20
1,2,3-Trichloropropane	ug/kg	, ND	1,200	ND	1,200
Vinyl Chloride	ug/kg	j ND	60	ND	60

QC Summary:

% Recovery: 92

% RPD: 4.3

Concentrations reported as ND were not detected at or above the reporting limit.

lauis W. CuPuis

Quality Assurance Quality Control Manager

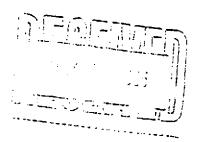
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FIELD SAMPLE MUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	/ {	9//	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2/3	8/ 	_	_	_	-			
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(Printed)					Scott T. Kerriman												!
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3423 Investment Boulevard, #8 . Hayward, California 94545



Telephone (510) 783-6960 Facsimile (510) 783-1512

May 22, 1995



Mr. Philip Walsack Versar, Inc. 7844 Madison Avenue, Suite 167 Fair Oaks, California 95628

Dear Mr. Walsack:

Trace Analysis Laboratory received forty-nine soil samples on April 11, 1995 for your Project No. 2463-107, Crowley Yard 2 (our custody log number 5415A).

One of these samples was subjected to a Waste Extraction Test and analyzed for Total Lead. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Scott T. Ferriman Project Specialist

But J. F.

Enclosures

3423 Investment Boulevard, #8 . Hayward, California 94545

Telephone (510) 783-6960 Facsimile (510) 783-1512

LOG NUMBER:

5415A

DATE SAMPLED: DATE RECEIVED: 04/11/95 04/11/95

DATE INITIATED:

DATE EXTRACTED:

05/15/95 05/15/95 and 05/17/95

DATE ANALYZED:

05/19/95

DATE REPORTED: 05/22/95

CUSTOMER:

Versar, Inc.

REQUESTER:

Philip Walsack

PROJECT:

No. 2463-107, Crowley Yard 2

Waste Extraction Test

Sample Type:

Extract of Soil

Method and Constituent:

<u>Units</u>

CH13-2.5-3.0 Concen-Reporting tration <u>Limit</u>

<u>Method Blank</u> Concen- Reporting <u>tration</u> <u>Limit</u>

EPA Method 7420:

Lead

ug/1

2,400

100

ND

100

OC Summary:

% Recovery:

% RPO:

7.6

96

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis

Quality Assurance/Quality Control Manager

Yersiling.	MYA:	100	l luc
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54154 CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJ	ECT N	AME		1				7	7		ρ	ARAME	TERS	S]	INDUSTRIAL HYGIENE SAMPLE	N
2463-157		owl		y	and	I			/ z	/-	/	$\overline{7}$		1/	77	/ 		
SAMPLERS: /signaru			}	₩-		inted) C (∛	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	9/	3/2/	/ /				
The Works					F	hilip Walsack	,	ૺૢૢૢ૽ૼૺ	S. MERS.	/م	/ B	(3)	/ کرد کر				REMARKS	
FIELD Sample Number	DATE	TIMI	E 03		GRAB	STATION LOCATION	\\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	8/	18 0 H	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	8/1/8	0	2 / S		<u> </u>	<u> </u>		
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CH7-4.0-4,		155	_ اه	_X		trea 6	-							-	_ <u>H</u>	OLD		
CH10-2,5-3.0	4/10	1644	5	<u>X</u>		Area #2					义	X			_	···		
C1110-5,0-55		165	_ ۵	<u> </u>	<u> </u>	<u> </u>					人	<u> </u>		- -				
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C1112-2.5-3.6	<u> </u>	1744	<u> </u>	_ —	۷ _	11					X	<u> </u>	-	- -	_		· · · · · · · · · · · · · · · · · · ·	
C1112-5.5-6C		1750		بلــــ		Received by: (Signature)	Reli	nguis	hed by	y: (5ig	nature		- I	 Date /	Time	Receive	ed by: (Signature)	
Relinguished by: 15's	nate(re)	ı	1/1/9		Time.	Treceived By 10-3-10-5-1												
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Phil Wals	ock				<u></u>	Received for Laboratory by:		Date	/ Tim	0 1	Remar	kı				l		
Relinquished by: (Sig	natura)		Da	te /	Time	(Signature)	4/11	95	15\$	5	•		Keg	; /	-A-T-			İ
(Prested)		- 		l ·		Scott T. Ferring				,								1
						Scott 1						 						

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

1-095

Wershine.

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PROJECT NO.	N PROJE	CT NAN	AE U	1-	TT	/.	1		·	,,		, , , , , , , , , , , , , , , , , , , 	HARIENE SYMPLE	1 N
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SAMPLERS: ISIGNALU	L.				Phil Walsack	~_/° <u>&</u> /G	$\nearrow \sim$	/ 4	/ /	/ /	//	/ /	REMARKS	
FIELD SAMPLE MUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION		<u> </u>	\8/ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	4	[-[/ · · · ·	I forly ce for All	· / 3 ,
CHI-4.0-4.5	4/10/14	0930		X	Area S	<u> </u>	17		- 			-	& per Phil Cox	7/141
CH2-1.0-1.5		1005		\times	4	<u> </u>	$\frac{1}{X}$				_	Hol		-
C112-2,5-3.0		1020		丛	10								<u>/d</u>	
0112-5.5-6.0	__	1035		X		-175	1/	-			- 	11011		
0113-4.0-4.5		1105	ļ	X.	11		1/	-	-		-			
C14-3.0-3.5		1145				<u> </u>	X	_				Hol	d	
C114-50-5.5		115D		X	<u>(I</u>		<u> </u>	_			_	HOL		
CHS-3.5-4.0		1440		Š	Area 6	- 7			-		_	1-11-5		
C115-1.5-2.0		1430		X	11	177		_	 -		<u> </u>			
C116-2.5-3.1	}_ _	15/0		Ä	10	7/2/		 	-			HOL	P	
C16-4,5-50		1520		X X	Area S	TXV	X	,						
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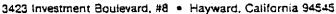
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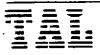
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Telephone (\$10) 783-6960 Facsimile (\$10) 783-1512



May 9, 1995

Mr. Philip Walsack Versar, Inc. 7844 Madison Avenue, Suite 167 Fair Oaks, California 95628

Dear Mr. Walsack:

Trace Analysis Laboratory received forty-nine soil samples on April 11, 1995 for your Project No. 2463-107, Crowley Yard 2 (our custody log number 5415).

Twenty-five of these samples were analyzed according to your chain of custody. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Scott T. Ferriman Project Specialist

Soft - James

Enclosures

Versar

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Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

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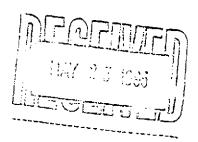
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3423 Investment Boulevard, #8 • Hayward, California 94545





May 22, 1995



Mr. Philip Walsack Versar, Inc. 7844 Madison Avenue, Suite 167 Fair Oaks, California 95628

Dear Mr. Walsack:

Trace Analysis Laboratory received forty-nine soil samples on April 11, 1995 for your Project No. 2463-107, Crowley Yard 2 (our custody log number 5415A).

One of these samples was subjected to a Waste Extraction Test and analyzed for Total Lead. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

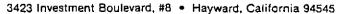
If you should have any questions or require additional information, please call me.

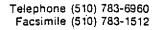
Sincerely yours,

Scott T. Ferriman

Project Specialist

Enclosures







•

LOG NUMBER: 5415A
DATE SAMPLED: 04/11/95
DATE RECEIVED: 04/11/95
DATE INITIATED: 05/15/95

DATE INITIATED: 05/15/95
DATE EXTRACTED: 05/15/95 and 05/17/95

DATE ANALYZED: 05/19/95 DATE REPORTED: 05/22/95

CUSTOMER:

Versar, Inc.

REQUESTER:

Philip Walsack

PROJECT:

No. 2463-107, Crowley Yard 2

Waste Extraction Test

Sample Type: Extract of Soil

CH13-2.5-3.0 <u>Method Blank</u> Concen- Reporting Method and Concen-Reporting <u>Constituent:</u> <u>Units</u> <u>tration</u> <u>Limit</u> <u>tration</u> EPA Method 7420: Lead ug/12,400 100 ND 100

OC Summary:

% Recovery: 96

% RPD: 7.6

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis

Quality Assurance/Quality Control Manager