**ENVIRONMENTAL CHEMISTS** 

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MAR O I ZOOZ

February 21, 2002

Bruce Page, Project Manager Bruce Page Consulting 439 Kearney Street El Cerrito, CA 94530

until removed for sample processing.

Dear Mr. Page:

Included are the results from the testing of material submitted on February 8, 2002 from your Clovatorium project. The product sample submitted for forensic evaluation arrived in good condition. Upon its arrival, the sample SOMA-4 was assigned our laboratory project number 202063 and was placed in a refrigerator maintained at 4°C

The sample SOMA-4 was diluted and analyzed using a gas chromatograph with a flame ionization detector (GC/FID) and an electron capture detector (ECD). The data generated yielded information on the boiling range and general chemical composition of the material present. The GC/FID and GC/ECD traces are enclosed. A GC/FID trace of a standard consisting of normal alkanes is also provided for reference purposes.

As requested, we have also reviewed the report issued by Friedman & Bruya, Inc. (F&B) on February 3, 2000 for your 6895.00 project. This report consisted of GC/FID/ECD results generated for the samples CT#143612-011 B-8 and CT#143612-012 B-3. The purpose of this review was to provide a comparison of chemical composition of the material found in the samples CT#143612-011 B-8, CT#143612-012 B-3, and SOMA-4.

Based on the data generated, the samples CT#143612-011 B-8, CT#143612-012 B-3, and SOMA-4 contain low boiling material such as Stoddard solvent. The GC/FID trace of the sample SOMA-4 shows a dominant pattern of peaks consistent with the normal alkanes. The samples CT#143612-011 B-8 and CT#143612-012 B-3 show an apparent low level or absence of normal alkanes. The presence of normal alkanes indicates that the fuel present has not undergone substantial degradation. This suggests that the fuel present in the sample SOMA-4 may be due to a newer release than that present in the samples CT#143612-011 B-8 and CT#143612-012 B-3.

## FRIEDMAN & BRUYA, INC.

### **ENVIRONMENTAL CHEMISTS**

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Please contact us if additional consultation is needed by our firm in the interpretation of the analytical results provided. We appreciate this opportunity to be of service to you and hope you will call if you should have any questions. We will hold your samples for 30 days before disposal unless directed otherwise.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson Chemist

Enclosures NAA0221R.DOC

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 02/21/02 Date Received: 02/08/02 Project: Clovatorium Date Extracted: 02/12/02 Date Analyzed: 02/12/02

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

Sample ID

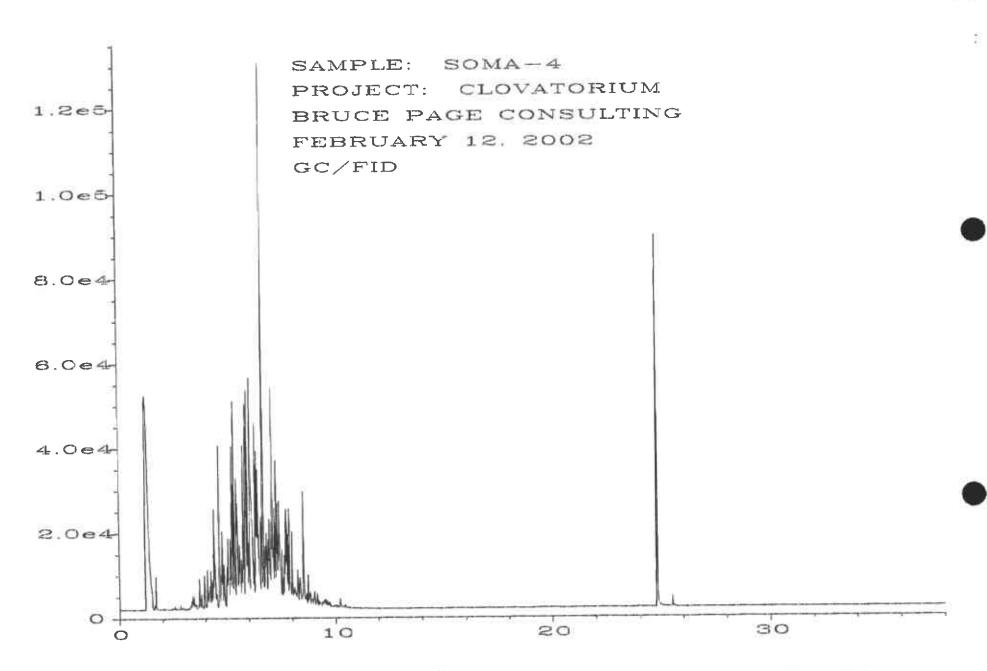
GC Characterization

SOMA-4

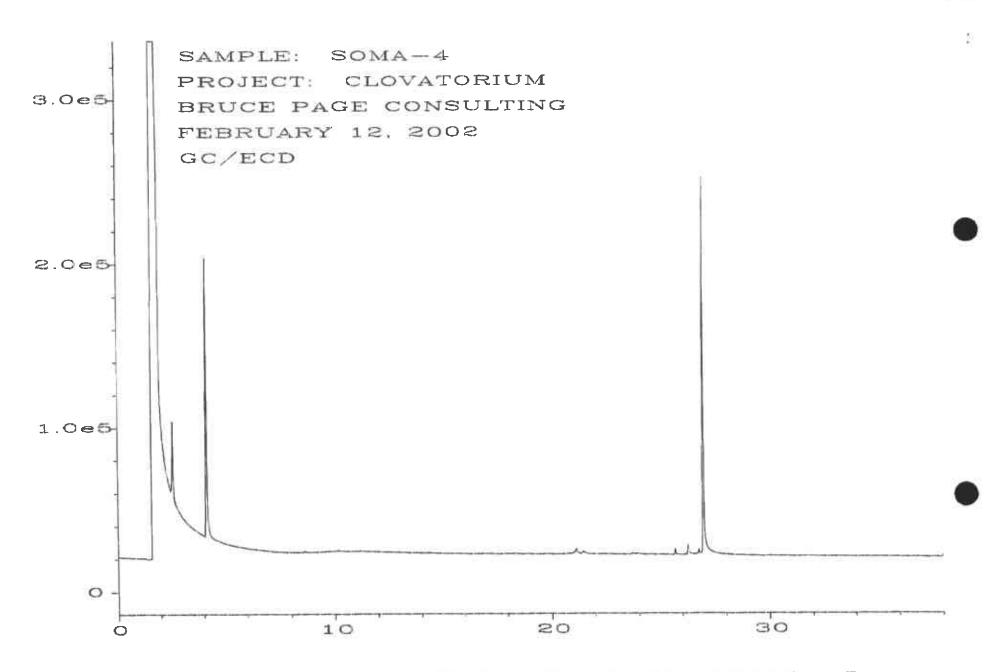
The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The pattern displayed by these peaks is indicative of Stoddard solvent.

The low boiling compounds appear as a ragged pattern of peaks on top of a hump or unresolved complex mixture (UCM). This material elutes from n-C<sub>8</sub> to n-C<sub>12</sub> showing a maximum near n-C<sub>10</sub>. This correlates with a temperature range of approximately 130°C to 220°C with a maximum near 170°C. Within this range, the GC/FID trace showed the presence of peaks which are indicative of the normal alkanes.

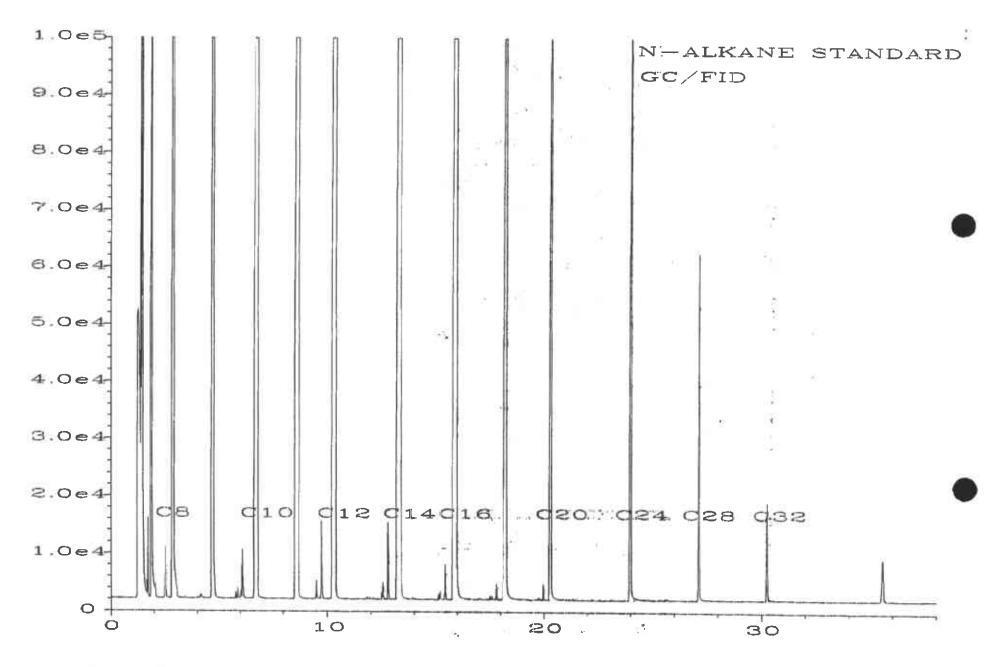
The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second surrogate present that is seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.



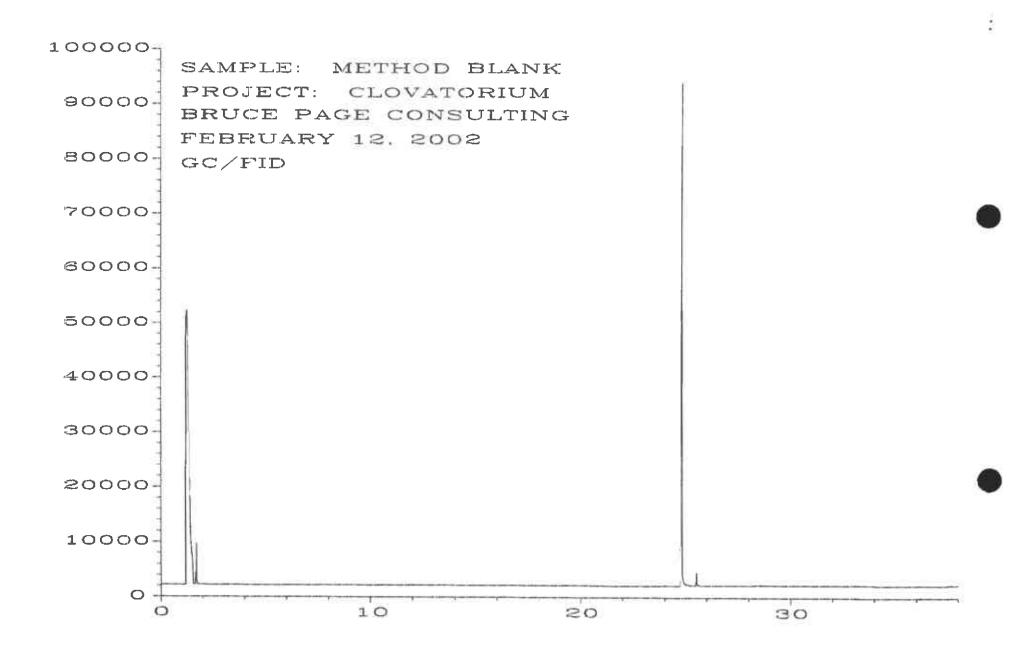
Sig. 1 in C:\HPCHEM\1\DATA\02-12-02\012F0501.D



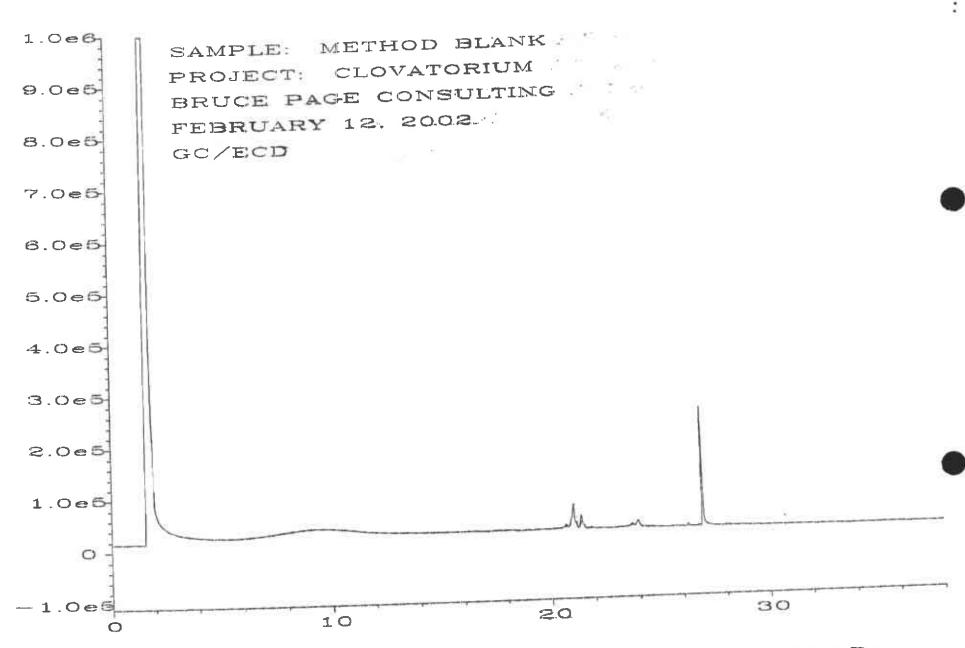
Sig. 2 in C:\HPCHEM\1\DATA\02-12-02\012R0501.D



Sig. 1 in C:\HPCHEM\1\DATA\02-12-02\100F1001.D



Sig. 1 in C:\HPCHEM\1\DATA\02-12-02\002F1201.D



Sig. 2 in C:\HPCHEM\1\DATA\02-12-02\002R1201.D

COCO10)	

H) 4/8/00 (60)

#### SAMPLE CHAIN OF CUSTODY

Send Report To Bruce Page	SAMPLERS (signature) Noser Pakito	IE	TURNAROUND TIME
	PROJECT NAME/NO.	PO#	Standard (2 Weeks)
Address 439 Kearley STREET	Claratorium		Rush charges authorized by:
City, State, ZIF El Corritto, CA 94530	REMARKS		SAMPLE DISPOSAL Dispose after 30 days
Phone # 510 -526 Fax + 510-526-4650	<u> </u>		Return samples     Will call with instructions

				ANALYSES REQUESTED													
Sample ID	Lab 11D	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Geenline	BTEX by 8021B	VOCs by 8260	SVOCe by 8270		finese ma	Stadland Solo	# Agins			Notes
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Friedman & Bruya, Inc. 3012 16th Avenue West Seattle, WA 98119-2029 Ph. (206) 285-8282 Fax (206) 283-5044

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SIGNATURE /	PRINT NAME	COMPANY	DATE TIM	4E
Relinquished by: Parklow ?!	Naser Parirov	30MA	2/6/013:	35
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