



Chevron

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facsimile transmittal

To: Larry Seto	Fax: 510 337-9335
From: Phil Briggs	Date: 10/29/98
Re: Bacteria Plate Counts	Pages: 5
CC:	
Urgent	For Review
Please Comment	Please Reply
Estimate Request	

Attached are the results for the bacteria plate counts that were taken at SS# S0800, 800 C [redacted] Oakland. This analysis used gasoline for the hydrocarbon degraders.

CytoCulture
ENVIRONMENTAL
BIOTECHNOLOGY
CytoCulture International, Inc. 1986

Client: Sequoia Analytical
Sequoia Workorder #: 9810F55
Contact: Mike Gregory

October 29, 1998
CytoCulture Code: 98-82
Project Description/Code: Blaine/ 9810F55
Tel: 650-364-9600 Fax: 650-364-9233

SAMPLES: Six water samples were received on 10/22/98. The samples were assayed that day and stored at 4°C for any follow up work.

Hydrocarbon-Degrading Bacteria Enumeration Assays

ANALYSIS REQUEST: Bacterial enumeration for total petroleum hydrocarbon-degraders (gasoline) in soil.

CARBON SOURCE: Petroleum hydrocarbons were added as the sole carbon and energy sources for the growth of hydrocarbon-degrading aerobic bacteria on agar plates. Gasoline was dissolved into the agar to provide aliphatic and aromatic hydrocarbons in the growth matrix.

PROTOCOLS:


Hydrocarbon Degraders: Sterile agar plates (100 x 151mm) were prepared with minimal salts medium at pH 6.8 with 1.5% noble agar, without any other carbon sources or nutrients added. Plates were inoculated with 1.0 ml of sample or a log dilution of each water sample. Triplicate plates were inoculated with sample log dilutions of 10^0 , 10^{-1} , and 10^{-2} . The hydrocarbon plates were poured on 10/22/98 and counted after 7 days on 10/29/98. The plate count data are reported as colony forming units (cfu) per milliliter (ml) of sample. Each bacteria population value represents a statistical average of the plate count data obtained with inoculations for two of the four log dilutions tested.

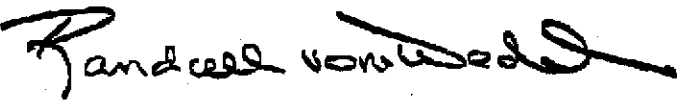
Hydrocarbon-Degrading Bacteria Enumeration Results

CLIENT SAMPLE NUMBER	SAMPLE DATE	HYDROCARBON DEGRADERS (cfu/gm)
MW-1	10/21/98	4.7×10^2
MW-2	10/21/98	8.8×10^2
MW-3	10/21/98	6.0×10^1
MW-4	10/21/98	8.6×10^4
MW-6	10/21/98	1.8×10^3
MW-7	10/21/98	4.8×10^3

1.0×10^1 cfu/m) is the lowest detection level for this assay.

Bacterial enumerations were performed by Dr. Sean P. Bushart. CytoCulture is available on a consulting basis to assist in the interpretation of these data and their application to field remediation protocols.


Sean P. Bushart, Ph.D.
Laboratory Services


Randall von Wedel, Ph.D.
Principal, Director of Research

10/29/98 14:09
 OVI - 25 30 (INU) 10-20
 CHEVRON U.S.A. 1001000 010 7111
 810 842 8370
 DURING LABOR HOURS, INV
 P.04
 0510 842 8370
 DURING LABOR HOURS, INV
 OCT-29-98 10:55A

Sequoia Analytical

Subcontracted Microbiology Assays
performed by
CytoCulture Environmental Biotechnology
CHAIN OF CUSTODY FORM

Project Name: <i>Blaine</i>	Project No. <i>9810F55</i>	Sequoia Purchase Order / LOG IN #: <i>9810F55</i>
Sequoia Client Organization:		Sequoia Project Manager: <i>MIKE GREGORY</i>
Address to Send Results:		
Client Fax for Sending Data:		Client Contact / Project Manager:
Client Tel for Follow-up:		Client Sampler / Recorder:

Sample ID. <small>Indicate target Hydrocarbon range</small>	Sampling		Matrix		Analyses Requested							Other Tests or Comments	
	Date	Time	Soil	Water	Hydrocarbon Degrading Bacteria Plate Count	Total Heterotrophic Bacteria Plate Count	pH	DO	NH ₄	PO ₄	NO ₃		SO ₄
<i>MW-1</i>	<i>10/21/98</i>	<i>NA</i>		<i>X</i>	<i>X</i>								
<i>MW-2</i>	↓	↓		↓	↓								
<i>MW-3</i>	↓	↓		↓	↓								
<i>MW-4</i>	↓	↓		↓	↓								
<i>MW-6</i>	↓	↓		↓	↓								
<i>MW-7</i>	↓	↓		↓	↓								

Chain of Custody Record	Signature of this form constitutes a firm Purchase Order for services.		Payment DUE on Reporting Date.
Relinquished by: 	Date/Hr: <i>10/22/98</i>	Received by: 	Date/Hr: <i>10/22/98 2:30</i>
Received for CytoCulture Lab by: 	Date/Hr:	CytoCulture Tel: 510-233-0102 Lab Services Fax: 510-233-3777	Please fax Chain of Custody form to CytoCulture prior to delivery.