



March 15, 1991

18891,003.06
1264MI

Hawaii Community Development Authority
677 Ala Moana Blvd., Suite 1001
Honolulu, Hawaii 96813

Attention: Mr. Steven Miyamoto

Gentlemen:

Subsurface Contaminants
Kakaako ID-3
Honolulu, Hawaii

RECEIVED
'91 MAR 19 AM 10 09
HAWAII COMMUNITY
DEVELOPMENT
AUTHORITY

This letter presents a summary of observations and chemistry data for samples of subsurface contaminants that we collected at three locations during the ongoing sewer construction in Kakaako. The sample bottles were placed in coolers with blue ice and taken to Brewer Analytical Laboratories (BAL) for analysis. The samples were tested for benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum hydrocarbons (TPH)-gasoline, and TPH-diesel. The laboratory was instructed to extend the retention time for the diesel chromatograms to also detect heavier hydrocarbons. The laboratory was also instructed to sample the floating product in the sample bottles from all three sites (if possible).

SITE 1 - KAWAIAHAO AND COOKE STREETS

One sample (9117W001) was collected by our geologist from an open sewer line excavation at the intersection of Kawaiahao and Cooke Streets on February 15, 1991. The geologist observed a thin, discontinuous layer of fuel product floating on the groundwater. An attempt was made to skim as much of this "product" as possible.

SITE 2 - COOKE STREET (STATION 24 + 45)

A second sample (9109W002) was collected by our geologist from an open excavation on Cooke Street on March 1, 1991. The geologist observed a thick, oily product floating on the groundwater. Again, an attempt was made to collect as much of the product as possible. The samples were sent to BAL to be analyzed for organic lead in addition to BTEX, TPH-gasoline, and TPH-diesel.

4248

March 15, 1991
18891,003.06
1264MI
Mr. Steven Miyamoto
Hawaii Community Development Authority
Page 2

SITE 3 - HALEKAUWILA STREET NEAR KEAWE STREET

A third sample (9109W003) was collected from an open excavation on Halekauwila Street near the intersection with Keawe Street on March 1, 1991. The geologist observed only a very slight and discontinuous sheen on the groundwater; therefore, only a small amount of "product" could be collected. The samples were sent to BAL to be analyzed for organic lead and polychlorinated biphenyls (PCBs), in addition to BTEX, TPH-gasoline, and TPH-diesel.

DISCUSSION

The laboratory reports of the analyses are enclosed. Petroleum hydrocarbons were not detected in the sample from Site 1. At our request, BAL analyzed Sample 9117W001 twice. The results were negative both times. Apparently, there was not enough actual "product" collected to detect hydrocarbon compounds. Small amounts of BTEX were detected in Sample 9109W002 from Site 2, as well as 455 milligrams/liter (mg/l) TPH-gasoline and 42,950 mg/l TPH-diesel. These relative concentrations are consistent with our observations of a thick, oily floating product at Site 2. Petroleum hydrocarbons were not detected in Sample 9109W003 from Site 3, except for a small amount of toluene (0.002 mg/l). Organic lead and PCBs were not detected.

CONCLUSIONS

There were not enough contaminants in the samples from Sites 1 and 3 for the analytical laboratory to detect and identify, even though the contaminants could be seen in the samples and in the excavations.

The contaminants in the sample from Site 2 were identified as predominantly hydrocarbon compounds in the range common to diesel fuel. Because of the nature of the samples, the concentrations measured in the samples are meaningless, except as identification of the probable source product -- diesel fuel in the case of Site 2.

PCBs were not found in the sample from Site 3. PCBs were analyzed at the request of Hawaii Community Development Authority because we understand Site 3 is adjacent to a construction site where subsurface contamination by PCBs was identified.

Organic lead was not detected in the samples from Sites 2 and 3.

March 15, 1991

18891,003.06

1264MI

Mr. Steven Miyamoto

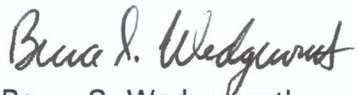
Hawaii Community Development Authority

Page 3

If you have any questions or comments, or require additional information regarding our conclusions, please do not hesitate to call.

Sincerely yours,

HARDING LAWSON ASSOCIATES



Bruce S. Wedgeworth
Project Geologist



Ronald L. Soroos
Engineering Geologist - 1056 (California)

RLS/rmc

Enclosures: Laboratory Reports (11 pages)

cc: E.E. Black, Ltd./Mr. Jack Lewis



BREWER
ENVIRONMENTAL
INDUSTRIES, INC.
a C BREWER company

RECEIVED

MAR 4 1991

HARDING LAWSON ASSOCIATES
HONOLULU, HAWAII

Environmental Services Division

ANALYSIS REPORT

Job Number 3349
Date MAR. 01, 1991
Page 1 of 1

To: **HARDING LAWSON & ASSOCIATES**
803 KAMEHAMEHA HIGHWAY, ROOM 404
PEARL CITY, HAWAII 96872

Attn: **R. SOROOS**
Phone: 455-6551

Samples of: Water
Client's Job Number: 91-556-06-KAKAAKO SEWER
Sampling Date/Time: 021591/0830 Sampled by: **BRUCE WEDGEWORTH**
Date/Time Received: 021691/0730 Received by: **JN**

Sample Description: 9117W001

Parameter	Units	Results	Date Analyzed	Limits of Quantitation	Method*	Analyst
Benzene	mg/L	ND	02/22/91	0.001	EPA 602	JMB
Toluene	mg/L	ND	02/22/91	0.001	EPA 602	JMB
Ethylbenzene	mg/L	ND	02/22/91	0.001	EPA 602	JMB
Xylenes	mg/L	ND	02/22/91	0.002	EPA 602	JMB
TPH as GASOLINE	mg/L	ND	02/22/91	0.5	EPA 8015	JMB
Extraction Date			02/21/91			
TPH as DIESEL **	mg/L	ND	02/27/91	0.5	EPA 8015	JMB

* These methods have been modified to allow the use of serially paired PID-FID detectors for volatile components [BTEX & TPH (G)]. A purge and trap device is used for extraction and sample introduction for volatile components (EPA 5030). Semi-volatile components [TPH (D)] are extracted with carbon disulfide.

Limits of Quantitation based on typical levels of interference.

ND = Not Detected

NA = Not Analyzed

**No "heavier components" observed.

BREWER ENVIRONMENTAL INDUSTRIES, INC.
PO. BOX 552
PAPAIKOU, HI 96781
PHONE (808) 964-5522
FAX (808) 964-5309

Sample Matrix* = soil, water, tissue, other
Container Desc.* = 40 ml VOA, 1 liter, Jar, tube, bag, other



Harding Lawson Associates
 Pearl City Business Plaza
 803 Kamehameha Highway, Room 404
 Pearl City, Hawaii 96782
 808/455-8551
 Telecopy: 808/455-1507

CHAIN OF CUSTODY FORM

Lab: Brewer

Job Number: 91-556-06

Name/Location: Kakaako Sewer

Project Manager: R. Sorros

Samplers: B. Wedgeworth

Recorder: Bruce L. Wedgeworth
 (Signature Required)

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.				SAMPLE NUMBER OR LAB NUMBER			DATE			
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Other	Yr	Wk	Seq	Yr	Mo	Dy	Time
10	X								91	17	W001	91	02	15	0830

STATION DESCRIPTION/NOTES
Corner of Kamehameha and Cooke
* Allow diesel chromatogram enough time to pick up heavier components (oil).

ANALYSIS REQUESTED											
EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Plant. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. C	BTX - Gasoline	TEL - Gasoline	TEL - Diesel *		

LAB NUMBER			DEPTH IN FEET	COL MTD	QA CODE	MISCELLANEOUS
Yr	Wk	Seq				

CHAIN OF CUSTODY RECORD		
RELINQUISHED BY: (Signature) <u>Bruce L. Wedgeworth</u>	RECEIVED BY: (Signature) <u>Armand D. Carver</u>	DATE/TIME <u>2/15/91 OPS</u>
RELINQUISHED BY: (Signature) <u>Armand D. Carver</u>	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature) <u>Mapolier</u>
METHOD OF SHIPMENT <u>Hand deliver to Brewer 9:00 am 2/15/91</u>		



BREWER
ENVIRONMENTAL
INDUSTRIES, INC.
A C BREWER company

Environmental Services Division

ANALYSIS REPORT

RECEIVED
MAR 8 1991

HARDING LAWSON ASSOCIATES
HONOLULU, HAWAII

Job Number: 3459
Date: MAR. 05, 1991
Page: 1 of 2

To: HARDING LAWSON & ASSOCIATES
803 KAMEHAMEHA HIGHWAY, ROOM 404
PEARL CITY, HAWAII 96782

Attn: R. SOROOS
Phone: 455-6551
Fax:

Samples of: WATER/TAR

Client's Job Number: 18891,003.06 - KAKAAKO ID-3

Sampling Date/Time: 030191/0930

Sampled by: BRUCE WEDGEWORTH

Date/Time Received: 030291/0730

Received by: JN

Sample Description: 9109W002

Parameter	Units	Results	Date Analyzed	Limits of Quantitation	Method*	Analyst
Benzene	mg/kg	0.30	03/04/91	0.005	EPA 8020	JMB
Toluene	mg/kg	0.80	03/04/91	0.005	EPA 8020	JMB
Ethylbenzene	mg/kg	1.9	03/04/91	0.005	EPA 8020	JMB
Xylenes	mg/kg	1.9	03/04/91	0.010	EPA 8020	JMB
TPH as GASOLINE	mg/kg	455	03/04/91	5.0	EPA 8015	JMB
Date Extracted			03/04/91			
TPH as DIESEL	mg/kg	42,950	03/04/91	10.0	EPA 8015	JMB

* These methods have been modified to allow the use of serially paired PID-FID detectors for volatile components [BTEX & TPH (G)]. A purge and trap device is used for extraction and sample introduction for volatile components (EPA 5030). Semi-volatile components [TPH (D)] are extracted with carbon disulfide.

Limits of Quantitation taken from the California LUFT field manual.

ND = Not Detected

NA = Not Analyzed

Douglas Root

a Department of Brewer Environmental Industries
P.O. BOX 552 · PAPAIKOU, HAWAII 96781 PHONE: 964-5522 FAX: 964-5309

JOB NO. 3459
DATE MAR. 05, 1991
PAGE 2 OF 2

TO: HARDING LAWSON & ASSOCIATES ATTN: R. SOROOS
ADDRESS: 803 KAMEHAMEHA HWY, ROOM 404 PHONE: _____
PEARL CITY, HAWAII 96782
SAMPLES OF: WATER/TAR (JOB #18891,003.06 - KAKAAKO ID-3)
SAMPLED BY: BRUCE WEDGEWORTH SAMPLING DATE: 03/01/91 TIME: 0930
RECEIPT DATE: 03/02/91 TIME: 0730

[illegible]

LABORATORY REMARKS: Samples analyzed according to "Methods for Chemical Analysis of Water and Wastes", U.S. Environmental Protection Agency, March, 1979 and/or "Microbiological Methods for Monitoring the Environment", U.S. Environmental Protection Agency, August, 1978.

Bungalow Roof

BREWER, CHEMICAL

311 Pacific St
Honolulu, Haw., 96810
Ph 808-533-4411, Fax 808-531-9078

Chain of Custody

Date 5-1-91 PAGE ① OF ②

Job No _____ Date 3-1-91

Job Location Kakaako 1D-3

Samplers Signature_____

Lab use Only: Chain of Custody X Yes No
BAL Job No R&D log in No 1-44-26
Date/Time Received By KDV

Name/Company Harding Lawson Associates Name/Company _____

Name/Company _____
Street/Box 803 Kamehameha Hwy, Room 404 Street/Box _____
Street/Box _____

Street/Box Pearl City Business Plaza
City/State/Zip Pearl City, HI 96782 City/State/Zip _____

Phone No 455-6551 Fax No 455-1507 Phone No _____ Fax No _____

CLIENT () Yes () No

Results () Yes () No

Invoice () Yes () No

CLIENT () Yes () No

Results () Yes () No

Invoice () Yes () No

REMARKS/INSTRUCTIONS:

see attached

Requests: 24 rush

[illegible]

Relinquished By:	Received by:	Date	Time

Relinquished By:	Received by:	Date	Time

Relinquished By:	Received by:	Date	Time

Relinquished By:	Received by:	6	Date	Time
------------------	--------------	---	------	------

Sample Matrix* = soil, water, tissue, other

Container Desc.* = 40 ml VOA, 1 liter, Jar, tube, bag, other



BREWER
ENVIRONMENTAL
INDUSTRIES, INC.
a C BREWER company

Environmental Services Division

ANALYSIS REPORT

Job Number 3460
Date MAR. 05, 1991
Page 1 of 2

To: HARDING LAWSON & ASSOCIATES
803 KAMEHAMEHA HIGHWAY, ROOM 404
PEARL CITY, HAWAII 96872

Attn: R. SOROOS
Phone: 455-6551

Samples of: Water
Client's Job Number: 18891,003.06 - KAKAOKO ID-3
Sampling Date/Time: 030191/1030 Sampled by: BRUCE WEDGEWORTH
Date/Time Received: 030291/0730 Received by: JN

Sample Description: 9109W003

Parameter	Units	Results	Date Analyzed	Limits of Quantitation	Method*	Analyst
Benzene	mg/L	ND	03/04/91	0.001	EPA 602	JMB
Toluene	mg/L	0.002	03/04/91	0.001	EPA 602	JMB
Ethylbenzene	mg/L	ND	03/04/91	0.001	EPA 602	JMB
Xylenes	mg/L	ND	03/04/91	0.002	EPA 602	JMB
TPH as GASOLINE	mg/L	ND	03/04/91	0.5	EPA 8015	JMB
Extraction Date			03/04/91			
TPH as DIESEL	mg/L	ND	03/05/91	0.5	EPA 8015	JMB

* These methods have been modified to allow the use of serially paired PID-FID detectors for volatile components [BTEX & TPH (G)]. A purge and trap device is used for extraction and sample introduction for volatile components (EPA 5030). Semi-volatile components [TPH (D)] are extracted with carbon disulfide.

Limits of Quantitation based on typical levels of interference.

ND = Not Detected

NA = Not Analyzed

Douglas Root

a Department of Brewer Environmental Industries
P.O. BOX 552 PAPAIIKOU, HAWAII 96781 PHONE: 964-5522 FAX: 964-5309

JOB NO. 3460
DATE MAR. 05, 1991
PAGE 2 OF 2

TO: HARDING LAWSON & ASSOCIATES ATTN: R. SOROOS
ADDRESS: 803 KAMEHAMEHA HWY, ROOM 404 PHONE: _____
PEARL CITY, HAWAII 96782
SAMPLES OF: WATER (JOB #18891,003.06 - KAKAAKO ID-3)
SAMPLED BY: BRUCE WEDGEWORTH SAMPLING DATE: 03/01/91 TIME: 1030
RECEIPT DATE: 03/02/91 TIME: 0730

[illegible]

LABORATORY REMARKS: Samples analyzed according to "Methods for Chemical Analysis of Water and Wastes", U.S. Environmental Protection Agency, March, 1979 and/or "Microbiological Methods for Monitoring the Environment", U.S. Environmental Protection Agency, August, 1978.

BREWER CHEMICAL

311 Pacific Street
Honolulu, Hawaii, 96810
Ph 808-533-4411, Fax 808-531-9078

Chain of Custody

Date 3-1-91 PAGE 1 OF 2

Job No 19891, 003, 06 Date 3-1-91

Job Location Kakaako ID-3

Sampler's Signature_____

Name/Company Harding Lawson Assoc.

Street/Box 803 Kam Hury, Rm 404

City/State/Zip Pearl City, HI 96782

Phone No 455-6551 Fax No 455-1507

CLIENT ☒ Yes ☐ No

Results () Yes () No

Invoice () Yes () No

Lab use Only: Chain of Custody Yes No
 BAL Job No R&D log in No 1-44-28
 Date/Time Received 3/1/91 1140 By

Name/Company _____

Street/Box _____

City/State/Zip _____

Phone No _____ Fax No _____

CLIENT () Yes () No

Results () Yes () No

Invoice () Yes () No

ANALYSIS

REMARKS/INSTRUCTIONS:

see attached

[illegible]

Relinquished By:	Received by:	Date	Time
------------------	--------------	------	------

Relinquished By:	Received by:	Date	Time
------------------	--------------	------	------

Relinquished By:	Received by:	Date	Time
------------------	--------------	------	------

Relinquished By: _____ Received by: _____ 10 _____ Date _____ Time _____

Sample Matrix* = soil, water, tissue, other
Container Desc.* = 40 ml VOA, 1 liter, Jar, tube, bag, other

CHAIN OF CUSTODY FORM

Lab: Brewer ~~Brewer-ATL-San Diego~~

Job Number: 18891, 003:06
Name/Location: Kakaako ID-3
Project Manager: R. SOROS

Samplers: B. Wedgeworth

Recorder: Bruce L. Wedgwood
(Signature Required)

[illegible]

STATION	DESCRIPTION/	DATE
1	Notes	8/1
2	Notes	8/1
3	Notes	8/1
4	Notes	8/1
5	Notes	8/1
6	Notes	8/1
7	Notes	8/1
8	Notes	8/1
9	Notes	8/1
10	Notes	8/1
11	Notes	8/1
12	Notes	8/1
13	Notes	8/1
14	Notes	8/1
15	Notes	8/1
16	Notes	8/1
17	Notes	8/1
18	Notes	8/1
19	Notes	8/1
20	Notes	8/1
21	Notes	8/1
22	Notes	8/1
23	Notes	8/1
24	Notes	8/1
25	Notes	8/1
26	Notes	8/1
27	Notes	8/1
28	Notes	8/1
29	Notes	8/1
30	Notes	8/1
31	Notes	8/1
32	Notes	8/1
33	Notes	8/1
34	Notes	8/1
35	Notes	8/1
36	Notes	8/1
37	Notes	8/1
38	Notes	8/1
39	Notes	8/1
40	Notes	8/1
41	Notes	8/1
42	Notes	8/1
43	Notes	8/1
44	Notes	8/1
45	Notes	8/1
46	Notes	8/1
47	Notes	8/1
48	Notes	8/1
49	Notes	8/1
50	Notes	8/1
51	Notes	8/1
52	Notes	8/1
53	Notes	8/1
54	Notes	8/1
55	Notes	8/1
56	Notes	8/1
57	Notes	8/1
58	Notes	8/1
59	Notes	8/1
60	Notes	8/1
61	Notes	8/1
62	Notes	8/1
63	Notes	8/1
64	Notes	8/1
65	Notes	8/1
66	Notes	8/1
67	Notes	8/1
68	Notes	8/1
69	Notes	8/1
70	Notes	8/1
71	Notes	8/1
72	Notes	8/1
73	Notes	8/1
74	Notes	8/1
75	Notes	8/1
76	Notes	8/1
77	Notes	8/1
78	Notes	8/1
79	Notes	8/1
80	Notes	8/1
81	Notes	8/1
82	Notes	8/1
83	Notes	8/1
84	Notes	8/1
85	Notes	8/1
86	Notes	8/1
87	Notes	8/1
88	Notes	8/1
89	Notes	8/1
90	Notes	8/1
91	Notes	8/1
92	Notes	8/1
93	Notes	8/1
94	Notes	8/1
95	Notes	8/1
96	Notes	8/1
97	Notes	8/1
98	Notes	8/1
99	Notes	8/1
100	Notes	8/1

ANALYSIS REQUESTED					
EPA-601/8010					
EPA-602/8020					
EPA-624/8240					
EPA-625/8270					
Priority Pollutants - Metals					
Benzene/Toluene/Xylene					
Total Petro. Hydrocarb.					
Organic Lead					
PCEs only					
BTEX					
TTH-Gasoline					
TTH-Diesel *					

[illegible]

Note: 24 hr. turnaround CHAIN OF CUSTODY RECORD	
RELINQUISHED BY: (Signature) <i>Blanca Rodriguez</i>	RECEIVED BY: (Signature) <i>Theresa R. Higgins</i>
RELINQUISHED BY: (Signature) <i>Armand G. Caber</i>	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)
DISPATCHED BY: (Signature)	RECEIVED FOR LAB BY: (Signature) <i>Napoleon</i>
METHOD OF SHIPMENT	DATE/TIME 3/1/91 1110 3/2/91 0730